



GAVeCeLT 2024
Bologna, 9-10-11 dicembre



ANALISI CRITICA DEGLI STANDARD INS 2024

MAURO PITTIRUTI - GIANCARLO SCOPPETTUOLO
FONDAZIONE POLICLINICO A.GEMELLI IRCCS, ROMA

STANDARDS INS DOCUMENTO IMPORTANTE

- Documento di risonanza internazionale, anche se frutto di una società nazionale
- Documento estremamente completo (300 pagine) che prende in considerazione più o meno tutti gli aspetti più importanti nella scelta, impianto e gestione dell'accesso venoso, in maniera assai analitica

Infusion Therapy Standards of Practice

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8TH EDITION
REVISED 2021

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2021



Infusion Therapy Standards of Practice

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PRIMA OSSERVAZIONE

- C'era bisogno veramente di una nuova edizione a distanza di tre anni, considerando che le novità inserite sono pochissime?

SECONDA OSSERVAZIONE

- Ci sono ottimi motivi per non prendere tale documento (e nessun documento in genere!) come 'oro colato'
- Occorre sempre essere '*critical thinkers*'
- Anche perché il documento ha numerosi 'bias'

PRIMO BIAS

- Non si tratta di una linea guida vera e propria, ma di 'standards' di cura (in italiano: 'buone pratiche'). Infatti mette insieme in modo ibrido raccomandazioni basate sulla evidenza e raccomandazioni basate su parere di esperti.
- Purtroppo, le raccomandazioni basate sulla evidenza non sono estratte dalla letteratura con criteri rigorosi e trasparenti (ad esempio, per molti argomenti vengono considerati soltanto lavori nord-americani)
- Purtroppo, le raccomandazioni basate su parere di 'esperti' si basano sul parere di un panel autoconvocato, di esperienza/competenza assai variabile

SECONDO BIAS

- Si tratta di una società infermieristica (nel senso USA del termine), che ha affidato il documento ad un panel infermieristico (nel senso USA del termine).
- Ciò spiega la focalizzazione del documento su determinati dispositivi (agocannule) piuttosto che altri (port) e su determinati argomenti (gestione ordinaria) piuttosto che altri (impianto dei CICC, trombosi, etc.)

TERZO BIAS

- Il documento si basa sulla cultura USA sugli accessi venosi, ovvero una cultura almeno 10 anni indietro rispetto a quella europea.
- Molte delle novità più importanti degli ultimi anni sono ancora ignorate/sottovalutate in USA:
 - La tunnellizzazione
 - L'ancoraggio sottocutaneo
 - La colla in cianoacrilato
 - Le nuove possibilità dell'accesso femorale
 - La tip navigation e la tip location mediante ecografia
 - Etc

QUARTO BIAS

- Persistenza di nomenclature/classificazioni antiquate e confuse.
- Ad esempio:
 - Vecchia nomenclatura sui CVC
 - Vecchia classificazione dei cateteri periferici, con continua confusione tra midline e mini-midline
 - Confusione tra sito di emergenza e sito di venipuntura
 - Vecchia/errata terminologia sulle complicanze non infettive:
 - L'occlusione da coaguli viene chiamata 'occlusione trombotica'
 - La guaina fibroblastica viene chiamata 'guaina di fibrina' e considerata un fenomeno trombotico
 - La trombosi catetere-correlata viene chiamata 'trombosi associata a catetere'
 - Etc.

QUINTO BIAS

- Persistenze di vecchie credenze, basate su lavori poi dimostratisi errati:
 - Credenza che i PICC siano associati a maggior trombosi dei CICC nei pazienti acuti gravi e nei pazienti oncologici
 - Credenza che i FICC siano inevitabilmente associati a maggior rischio infettivo
 - Credenza che la eparinizzazione sia necessaria per prevenire la occlusione di tutti i cateteri vascolari
 - Etc.

SESTO BIAS

- Per essere un documento di 300 pagine, che si dilunga in aspetti anche secondari, saltano all'occhio alcune grandi mancanze:
 - Mancanza di una classificazione dei farmaci per via endovenosa a seconda della loro lesività endoteliale
 - Mancanza di una classificazione ben strutturata dei dispositivi per accesso venoso
 - Mancanza di un algoritmo di scelta dell'accesso venoso
 - Mancanza di 'bundle' di inserzione di 'bundle' di gestione
 - Etc

SETTIMO BIAS

- Può essere sollevato un sospetto che alcune questioni siano più o meno affrontate per ragioni commerciali



ALCUNI ESEMPI DALLA SEZIONE QUARTA (INFUSION EQUIPMENT)

G. Use real-time ultrasound guidance and a systematic approach to insertion of CVADs in adults and children to improve insertion success rates, reduce number of needle punctures, and decrease insertion complication rates.^{9,22-25} (I)

1. Consider use of long axis in plane approach as an alternative to short axis out of plane approach to internal jugular vein to improve first-time insertion success, overall insertion success, and to reduce posterior wall puncture in neonate, pediatric, and adult patients.^{5-7,26,27} (II)

H. Use ultrasound guidance for arterial puncture and catheter insertion in adults and children.²⁸⁻³⁴ (I)

1. Ultrasound-guided insertion of the radial artery increases first-attempt success and lowers failure rate compared to palpation, reduces time to insertion, mean number of insertion attempts, and hematoma formation.²⁸⁻³³ (I)

B. Position the tip of a CVAD in the lower third of the superior vena cava (SVC) or upper third of the right atrium (RA) at or near the CAJ for adults and children.

1. For upper body insertion sites, respiratory variation, arm movement, and changes in body position will cause the CVAD tip to move in a caudal or cephaloid direction. Tip location deeper in the right atrium near the tricuspid valve or in the right ventricle is associated with cardiac arrhythmias (refer to Standard 51, *Central Vascular Access Device Malposition*). Tip location proximal to the SVC is associated with increased risk of thrombosis (refer to Standard 51, *Central Vascular Access Device Malposition*; Standard 50, *Catheter-Associated Thrombosis*).
2. For lower body insertion sites, position the CVAD tip in the inferior vena cava (IVC) above the level of the diaphragm.⁴⁻⁶ (IV)
3. For hemodialysis CVADs, position the CVAD tip at the mid-right atrium to avoid vessel and right atrial trauma or complications.⁷ (IV)

Consider the use of ultrasound for CVAD tip location. The clinical applicability of this is currently limited by the small sample sizes used to demonstrate its efficacy as a reliable and safe method to replace chest radiographs in all ages, and its usefulness is limited by the knowledge, skill, and experience of the operator.^{6,33-38} (III)

- a. The addition of agitated saline to enhance transthoracic echocardiography has been shown to be effective in detecting catheter tip position in the lower third of the SVC, as well as detecting catheter malposition through delayed opacification and reduced echogenicity.^{6,39} (IV)

Consider using ultrasound to confirm catheter tip position in neonates and in the emergency department or other critical care environments where immediate confirmation of tip location is time critical.^{6,33,40} (IV)

Use fluoroscopy when CVAD placement is difficult or has failed at the bedside.⁴¹ (II)

Postprocedure radiograph imaging is not necessary if alternative catheter tip location technology confirms appropriate tip placement.^{1,12-30,42,43} (I)

Do not use visible veins of the chest, breast, abdomen, or other locations on the trunk, as there is no evidence supporting their safe outcomes. These veins are visible due to pathological reasons that might prevent safe infusion. (Committee Consensus)

- . Do not use veins of the lower extremities (except for neonates and infants), unless needed for an emergent insertion.^{4,12} (V)
- . Avoid insertion of a PIVC or midline catheter as a central line-associated bloodstream infection (CLABSI) prevention strategy when central venous access is indicated. (Committee Consensus)

Access a patient's implanted vascular access port, unless contraindicated (eg, existing complication with the device), in preference to insertion of an additional VAD when intravenous access is required. (Committee Consensus)

Ensure the midline tip is appropriately positioned distal to the axillary fold to reduce the risk of complications associated with catheter tip crossing a joint.

1. Recent studies have demonstrated similar catheter-related outcomes when the midline catheter tip is positioned in a specific position in the intrathoracic cavity, although some conjecture exists whether this is at the axillary vein, proximal to the subclavian, or at the subclavian vein. Increased observation for signs and symptoms of catheter malfunction is recommended, as the safety and efficacy of midline catheter tip position outside this exact location in the intrathoracic cavity has not been assessed in clinical practice.²⁵⁻²⁸ (III)

Assess the clinical benefit of inserting a midline catheter that inhibits bacterial attachment and biofilm formation.^{29,30} (IV)

3. Consider use in context of history of failed or difficult peripheral IV access when use of ultrasound guidance has failed. Recognize risks associated with CVADs, including venous thrombosis and CLABSI.^{4,5,22,39,42} (I)
 - a. Consider thrombosis and infection risk vs benefit of PICC in patients who have cancer or are critically ill.^{5,22,39} (I)
 - b. Choose a catheter appropriate to the patient's vasculature and therapy requirements (refer to Standard 32, *Vascular Access Device Insertion*).
 - c. Consider antithrombogenic PICC to reduce thrombosis risk, particularly in pediatric patients.⁴² (III)
 - d. Use a CVAD with the least number of required lumens to reduce the risk of thrombosis, infection, and occlusion.^{4,5,42,43} (I)
4. Consider the need for a power-injectable CVAD and know the pressure limits and other limitations (eg, maximum number of power injections) of the device, including all attached or add-on devices (eg, implanted port access needle, extension set, needleless connector) to avoid catheter rupture (refer to Standard 12, *Product Management*).

Recommendation:

Use a risk/benefit approach to site selection based on patient physiology, vascular history, infusion needs, and emergent nature of insertion:

- a. **Jugular approach:** associated with greater first-time insertion success, fewer needle punctures, and lower mechanical complications on insertion.⁴⁹ (III)
- b. **Consider low internal jugular vein or brachiocephalic** to improve first-time insertion success, securement, and patient comfort, and reduce complications such as thrombosis and infection.^{18,50} (IV)
- c. **Femoral approach:** associated with higher risk of infection but easily accessed with use of ultrasound in emergent/short-term situations and when all other sites are exhausted.^{50,51} (V)
- d. **Axillo-subclavian approach:** associated with lower risks of infection and of symptomatic deep vein thrombosis (DVT) but may be associated with increased mechanical complications on insertion (eg, pneumothorax if inserted

Consider use of an implanted vascular access port in patients who require infrequent/intermittent vascular access.^{4,39,44} (III)

- a. Arm ports are an alternative site; however, compared to chest wall ports, they have an increased risk of post-insertion complication such as thrombosis (see Standard 50, *Catheter-Associated Thrombosis*).⁶¹⁻⁶³ (II)

Consider use of nonconventional intravenous access sites (eg, recanalization, intrahepatic, and trans-lumbar) by experienced interventional radiologists for patients in whom traditional venous access sites have been exhausted, such as those patients with end stage renal disease.⁶⁴ (IV)

Flush and lock the port to assess function and maintain patency.

1. Ensure presence of a blood return upon insertion of a noncoring needle and prior to each infusion to ensure patency (refer to Standard 38, *Flushing and Locking*).
2. There is insufficient evidence to recommend the optimal frequency, solution, or volume to maintain the patency of implanted vascular access ports not accessed for infusion (refer to Standard 38, *Flushing and Locking*).
 - a. Use at least 10 mL of 0.9% sodium chloride (adult).
 - b. Use of 0.9% sodium chloride alone may be as effective as heparin in maintaining patency.
 - c. Extending maintenance flushing to every 3 months with 10 mL of 0.9% sodium chloride and 3 or 5 mL of heparin (100 units/mL) was found to be safe and effective in maintaining patency.

ALCUNI ESEMPI DALLA SEZIONE
QUINTA
(VASCULAR ACCESS DEVICE
SELECTION/INSERTION)

2. In the absence of manufacturer directions, consider the reported reflux volume for each type as recorded in the published studies and use the following sequence⁸⁻¹²: (IV)

- a. Negative displacement – flush, clamp, disconnect;
- b. Positive displacement – flush, disconnect, clamp;
- c. Antireflux – no specific sequence recommended but clamping advised, as some displacement is unavoidable.
- d. The term neutral may be used to describe needleless connector function; no specific sequence recommended but clamping advised, as some displacement unavoidable.

Consider the use of an antimicrobial needleless connector when there is an increased risk of infection.

Use of needleless connectors with an antimicrobial coating (eg, silver, chlorhexidine/silver) does not negate decontamination, as technology alone does not replace disinfection practices. Silver-coated needleless connectors have been shown to decrease rates of CABSI, although significant amounts of biofilm and microorganisms were recovered from coated and noncoated connectors.^{52,53} (V)

or never use sterile water for flushing PIVCs. (V)

Assess VAD function using a 10-mL syringe or a syringe specifically designed to generate lower injection pressure (ie, 10-mL diameter syringe barrel), taking note of any resistance.^{13,15,16} (V)

1. Use a single-use prefilled 0.9% sodium chloride syringe to slowly aspirate the VAD for free-flowing blood return that is the color and consistency of whole blood, an important component of assessing catheter function during the initial flush and prior to administration of medications and solutions (see Standard 46, *Vascular Access Device Occlusion*;

Lock short and long PIVCs and midline catheters immediately following each use.

1. In adults, use preservative-free 0.9% sodium chloride for locking.^{28,29} (II)
2. In neonates and pediatric patients, use preservative-free 0.9% sodium chloride or heparin 0.5 to 10 units/mL. Outcome data in these patient populations are inconclusive.¹⁹ (II)
 - a. In one prospective trial, intermittent flushing with 0.9% sodium chloride was associated with a lower rate of complication and similar duration of patency when compared to continuous infusion in PIVCs placed in newborns.³⁰ (IV)

Use solution containing heparin (eg, 1 unit/mL of heparin) or preservative-free 0.9% sodium chloride as a continuous infusion to maintain patency of arterial catheters used for hemodynamic monitoring. The decision to use preservative-free 0.9% sodium chloride instead of heparin infusion should be based on the clinical risk of catheter occlusion, the anticipated length of time the arterial catheter will be required, and patient factors such as heparin sensitivities.⁴⁴ (III)

I. Apply the following recommendations for neonates and pediatric patients:

1. Use a continuous infusion of heparin 0.5 units/kg for all CVADs in neonates. There is insufficient evidence to support use of intermittent heparin vs 0.9% sodium chloride in long-term CVADs in infants and children.^{19,45} (II)
2. Maintain patency and reduce risk of thrombosis by continuous infusion of heparin 0.25 to 1 unit/mL (total dose of heparin: 25-200 units/kg/d) for umbilical arterial catheters in neonates (refer to Standard

Use antimicrobial locking solutions for therapeutic and prophylactic purposes in patients with long-term CVADs in the following circumstances: patients with a history of multiple CABSIs, high-risk patient populations, and in facilities with unacceptably high rates of CLABSI, despite implementation of other methods of infection prevention (see Standard 61, *Parenteral Nutrition*).^{15,39,46-53} (II)

1. There is insufficient evidence to indicate the optimal locking solution for long-term CVADs. Factors associated with increased risk of complication (eg, occlusion, infection, altered catheter integrity) in outpatients with CVADs include devices with more than 1 lumen, female gender, and administration of PN.^{15,51} (III)

6. Adding tissue adhesive to the insertion site at the time of insertion may be associated with decreased dressing changes and increased survivability for peripheral as well as central lines secondary to the hemostatic effect of the product (see Standard 36, *Vascular Access Device Securement*).²¹⁻²⁵ (II)
7. Consider the beneficial use of gum mastic liquid adhesive on adult patients when enhanced adhesive dressing adherence is needed (eg, diaphoresis); consider use of skin barrier film prior to application. Use correct technique in dressing removal to prevent catheter-associated skin injury due to increased bonding of adhesives to skin (see Standard 52, *Catheter-Associated Skin Injury*).^{24,26-28} (III)
8. Select the type of sterile dressing (TSM or gauze) considering factors such as the type of VAD, risk of bleeding or infection, skin condition, known allergies or sensitivities, patient size, patient preference, cost, sterility, wear time, and ease of use of dressing, with the goal of selecting and applying a dressing that will have minimal dressing disruptions, as multiple dressing changes increase the risk of infection.^{24,29-48} (I)

CTIONS. (IV)

Recognize that differential time to positivity (DTP) may be used to diagnose CR-BSI; however, continuous monitoring blood culture systems and shorter incubation times have reduced the use of DTP.⁶⁷ (IV)

Transport blood culture bottles to the laboratory within 2 hours; do not refrigerate, as this may kill some organisms.^{38,48,67,82} (IV)

Implement precautions to prevent air embolism during removal of CVADs, including, but not limited to, the following (see Standard 49, *Air Embolism*)^{6,32-35}: (IV)

1. Place the patient in a supine flat or Trendelenburg position (unless contraindicated; Trendelenburg position is contraindicated in premature infants) when removing the CVAD, so that the insertion site is below the level of the heart.
 - a. While there are no published cases of air embolism associated with PICC removal, there may be risk due to an intact skin-to-vein tract and fibrin sheath. Position patient so that the exit site is at or below the level of the heart during PICC removal and place an air-occlusive dressing (eg, petroleum gauze, covered with gauze and transparent semipermeable membrane) over the insertion site. (A/P; Committee Consensus)

Suspect thrombotic occlusions based on visible blood in catheter or add-on devices, inability to aspirate blood, or sluggish flow. A thrombotic occlusion may be intraluminal due to fibrin or clot formation or extraluminal, related to a fibrin tail, fibrin sheath or sleeve, or mural thrombus.¹⁻⁴ (V)

Suspect chemical occlusion based on the type(s) of medications or solutions administered, duration of contact of drugs, and observation of the catheter or administration set for any visible precipitate, history of infusion rate, dilution properties and sequences, light exposure, and flushing frequency.^{1-4,6} (IV)

- **Catheter-associated thrombosis (CAT):** initiated as an inflammatory response to vessel wall injury and appears as an anechoic or hypoechoic image on ultrasonic evaluation, partially or fully occluding the vessel lumen. It is generally subdivided into deep versus superficial vein thrombosis (DVT, SVT) and symptomatic versus the larger percentage that are asymptomatic. Rates of CAT are generally low (but vary widely), and CAT rarely results in more serious complications, but may impact the function of the vascular access device (VAD), delay required treatment, require anticoagulant therapy, cause VAD failure/premature removal, increase costs, and may result in postthrombotic syndrome.
- **Deep vein thrombosis (DVT):** thrombosis involving the deep veins of the arm (brachial, axillary), subclavian, or internal jugular veins, or the leg (iliac, femoral, popliteal) detected by compression and flow ultrasonography, venography, or computed tomography (CT) scan.
 - **Upper extremity DVT (UE-DVT):** often associated with VADs inserted in smaller upper arm veins with lower blood flow velocity.
- **Superficial vein thrombosis (SVT):** thrombosis involving the superficial veins of the upper extremity (eg, basilic, and cephalic) or lower extremity (eg, saphenous veins).
- **Venous thromboembolism (VTE):** a clinical episode of VTE includes deep vein thrombosis and pulmonary embolism (may include SVT in some studies).

Employ risk reduction interventions when selecting where to insert a PICC. PICCs have been associated with higher rates of DVT than other CVADs due to reduced blood velocity in upper extremity vessels. Increased thrombotic risk has been noted with PICC insertion in critically ill patients.^{3,16,22,23,35,41} (I)

- i. In a meta-analysis of PICC-related outcomes, optimal insertion techniques and use of single-lumen, smaller diameter PICCs reduced PICC-related DVT risk to a rate comparable to other CVADs.²³ (I)

and ports. (IV)

Consider the potential benefits of thromboresistant or antithrombotic CVAD and midline catheter use. Confirmatory clinical evaluation of various catheter surface and composition modifications are needed, including hydrogel, drug coating, and hydrophilic, hydrophobic, and biologic characteristics.⁵⁵⁻⁵⁷ (II)

- a. This is an evolving area of research with the potential for reduction in thrombotic risk. Further high-quality evidence with sufficient sample sizes is needed to optimize catheter characteristics to reduce thrombotic risk.^{20,56,58-62} (II)

Consider CAT risk reduction recommendations for pediatric patients.

- a. Use implanted ports as the preferred VAD (compared to tunneled and nontunneled CVADs) to reduce VTE risk in children with cancer diagnosis.⁵ (I)

Recommendations for prophylactic anticoagulation for CA-DVT prevention have not been established for all patient populations but should be guided by individual patient risk.^{23,72} (I)

- a. VTE prophylaxis is recommended during cancer treatment requiring CVAD insertion and has not been associated with a risk of major bleeding.^{10,72,73} (I)
- b. The role of pharmacologic VTE prophylaxis is unclear in pediatric patients but has been associated with decreased CAT risk without increased bleeding risk in specific pediatric populations.^{17,74-76} (II)

Recognize and control the risk of malposition during insertion, if possible.^{2,16-18} (IV)

1. Insertions on a patient's left side are more prone to malposition due to a longer left brachiocephalic (innominate) vein and a more diagonal pathway to the heart. Left-sided insertions are more prone to abut the contralateral side of the SVC, leading to vessel erosion.

E ALLORA: COME APPLICARE GLI
STANDARDS INS 2024 NELLA PRATICA
CLINICA?

E ALLORA: COME APPLICARE GLI STANDARDS INS 2024 NELLA PRATICA CLINICA?

- Con molta prudenza e circospezione
- Ricordare che su molti argomenti le raccomandazioni europee (linee guida, position paper, documenti di consenso) sono molte più aggiornate ed affidabili

**ALCUNI ESEMPI DI
DOCUMENTI EUROPEI
AGGIORNATI E AFFIDABILI**

A PROPOSITO DELLA NOMENCLATURA DEI DAV: CLASSIFICAZIONE GIOVANET/ WOCOVA

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

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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)

2024

A PROPOSITO DELLA DIAGNOSI E TRATTAMENTO DELLA INFEZIONE DA CATETERE

Med Intensiva. 2018;42(1):5–36



medicina *intensiva*

www.elsevier.es/medintensiva



CONSENSUS STATEMENT

Diagnosis and treatment of catheter-related bloodstream infection: Clinical guidelines of the Spanish Society of Infectious Diseases and Clinical Microbiology and (SEIMC) and the Spanish Society of Spanish Society of Intensive and Critical Care Medicine and Coronary Units (SEMICYUC)[☆]



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2018

A PROPOSITO DEGLI ACCESSI VENOSI CENTRALI IN ETÀ PEDIATRICA

Editorial

JVA | The Journal of
Vascular Access

**Guidelines of the Italian Association
of Pediatric Hematology and Oncology
for the management of the central venous
access devices in pediatric patients with
onco-hematological disease**

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1–15
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Simone Cesaro¹⁰ 

2020

A PROPOSITO DELLA TROMBOSI DA CATETERE

Editorial

JVA | The Journal of
Vascular Access

Reconsidering the GAVeCeLT Consensus on catheter-related thrombosis, 13 years later

**Fulvio Pinelli¹ , Paolo Balsorano¹ , Benedetta Mura²
and Mauro Pittiruti³ **

The Journal of Vascular Access
1–8

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2020

A PROPOSITO DEI FARMACI DA UTILIZZARE PER VIA PERIFERICA O PER VIA CENTRALE

Drugs in R&D
<https://doi.org/10.1007/s40268-020-00329-w>

ORIGINAL RESEARCH ARTICLE



Standardization and Chemical Characterization of Intravenous Therapy in Adult Patients: A Step Further in Medication Safety

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A PROPOSITO DELLE COMPLICANZE EMORRAGICHE ALLA INSERZIONE

Review

JVA | The Journal of
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Management of antithrombotic treatment and bleeding disorders in patients requiring venous access devices: A systematic review and a GAVeCeLT consensus statement

The Journal of Vascular Access

1–12

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2022

A PROPOSITO DEGLI ACCESSI VENOSI PERIFERICI

The Journal of Vascular Access
Volume 24, Issue 1, January 2023, Pages 165-182
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<https://doi.org/10.1177/11297298211023274>



Consensus paper

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

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2023

A PROPOSITO DELLA SCELTA DELL'ACCESSO VENOSO IN ETÀ NEONATALE

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

REVIEW



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

Giovanni Barone¹ · Vito D'Andrea² · Gina Ancora¹ · Francesco Cresi³ · Luca Maggio⁴ · Antonella Capasso⁵ ·
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2023

A PROPOSITO DELLA SCELTA DELL'ACCESSO VENOSO IN ETÀ PEDIATRICA

Review

JVA | The Journal of
Vascular Access

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

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2024

A PROPOSITO DELL'ACCESSO VENOSO CENTRALE IN TERAPIA INTENSIVA

Review

JVA | The Journal of
Vascular Access

A GAVeCeLT consensus on the indication, insertion, and management of central venous access devices in the critically ill

The Journal of Vascular Access
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2024

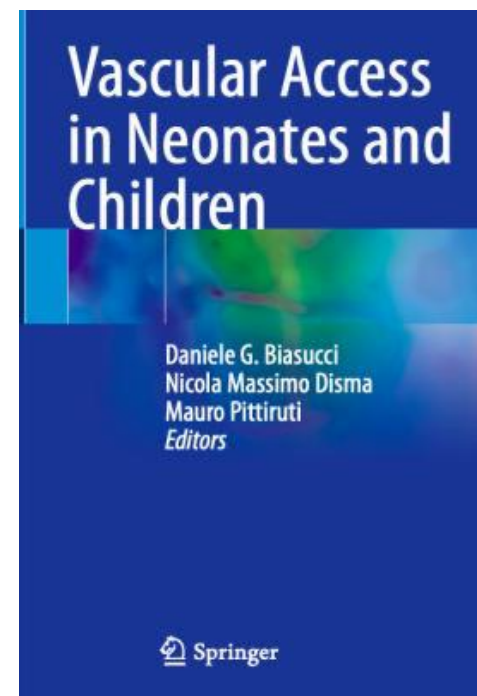
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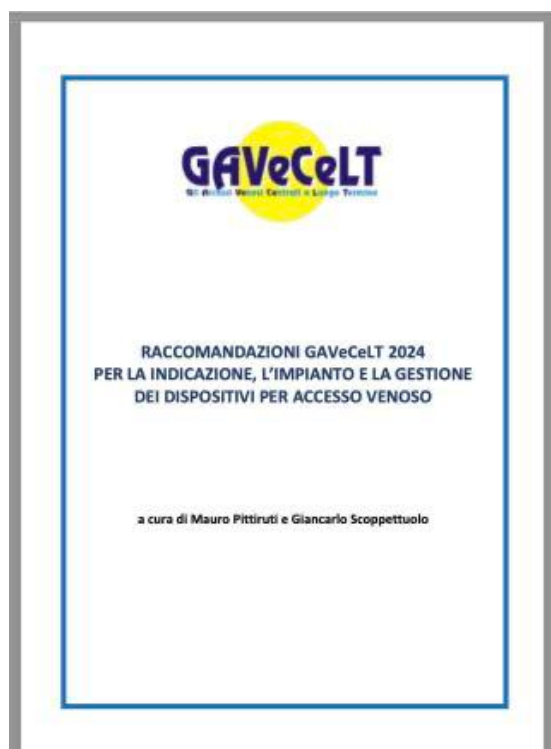


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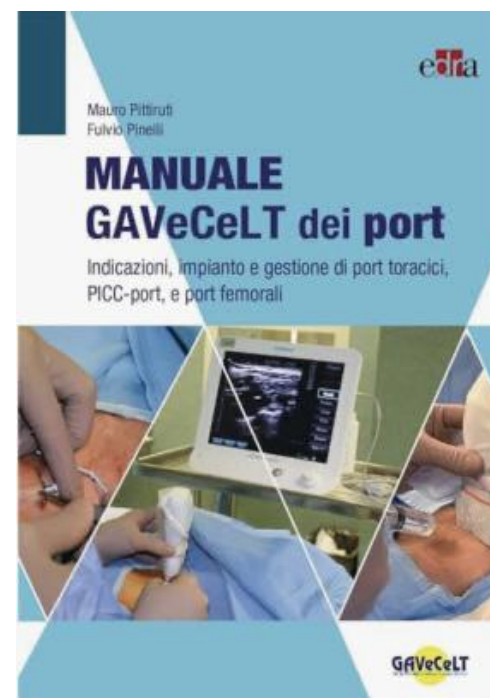


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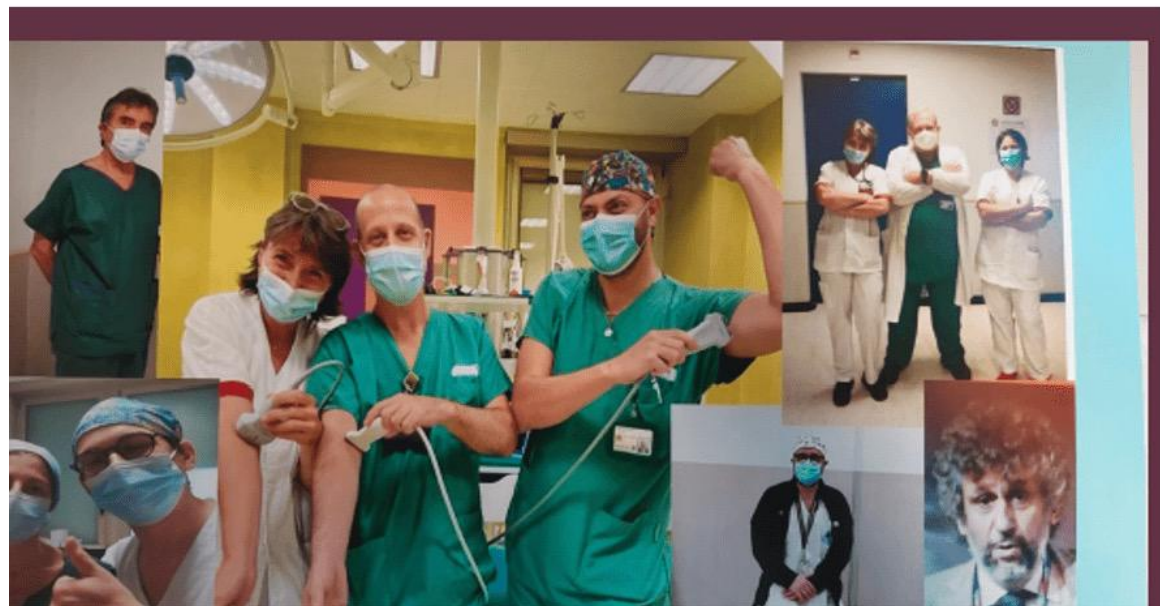
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2024

TAKE HOME MESSAGE

- Utilizzare gli Standards INS 2024 come un utile punto riferimento.
- Conoscere i 'biases' di tale documento.
- Non accettare acriticamente il documento, ma integrarlo con le raccomandazioni dei documenti europei comparsi negli ultimi anni (assai più aggiornati) e con i più recenti testi di riferimento.
- Essere sempre 'critical thinkers'....



Grazie per l'attenzione!

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