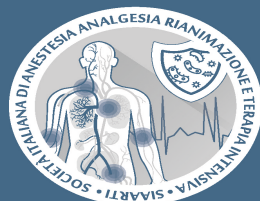


Sistema Socio Sanitario



Regione
Lombardia

ASST Melegnano e Martesana



SEZIONE
SIAARTI
ACCESSI VASCOLARI

Prevenzione delle infezioni al momento della scelta del dispositivo e durante l'impianto

Davide Vailati

UOS Gestione Blocco Operatorio-Dipartimento Anestesia e Rianimazione
Ospedale di Melegnano-ASST Melegnano e Martesana
Board Accessi Vascolari SIAARTI



**XVIII
PICC
DAY
2025
BOLOGNA**

2-3 dicembre / Palazzo dei Congressi



DEFINIAMO IL PROBLEMA

CLABSI -Central Line-Associated Bloodstream Infection-

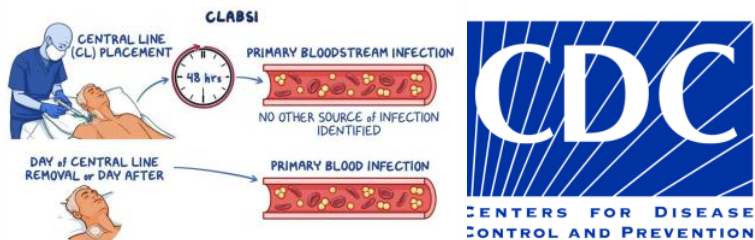
CRBSI -Catheter Related Bloodstream Infection-

CABSI -Catheter Associated Bloodstream Infection-



January 2025

Bloodstream Infection Event (Central Line-Associated Bloodstream Infection and Non-central Line Associated Bloodstream Infection)



THE NEW ENGLAND JOURNAL OF MEDICINE

REVIEW ARTICLE

Darren B. Taichman, M.D., Ph.D., Editor

Prevention of Central Line-Associated Bloodstream Infections

Naomi P. O'Grady, M.D.

DEFINITION OF CLABSI

The NHSN, the widely used health care-associated infection tracking system of the CDC, defines CLABSI as a laboratory-confirmed bloodstream infection in a patient who has had a central venous catheter in place for more than 48 hours before the date on which blood was drawn for culture, if no other source of bacteremia or fungemia is identified.¹³ This definition is based on surveillance rather than on a clinical presentation, with no requirement for signs or symptoms of infection. Since it is often difficult to determine whether a bloodstream infection is related to the central catheter itself or whether it has a secondary source (e.g., an abdominal abscess or pneumonia), the NHSN definition of CLABSI may overestimate the true incidence of central catheter-associated infection. This surveillance definition is used by the NHSN network because it is easy to apply to areas in the hospital where tracking the rates of CLABSI is deemed important. If this definition is applied consistently, it will provide useful information on institutional CLABSI trends.

Catheter-related bloodstream infection (CRBSI) is a clinical definition used for diagnosis and treatment. It requires specific laboratory testing

as the source of the bloodstream infection. In addition to meeting the criteria for the surveillance definition (i.e., CLABSI), the CRBSI definition includes signs and symptoms of infection (e.g., fever, elevated white-cell count, and erythema at the catheter exit site) when blood was drawn for culture, and it can be influenced by various other factors such as catheter removal, laboratory resources such as quantitative blood cultures or time to positivity, and submission of the catheter tip for culture.^{14,15} CRBSI rates are not used for surveillance because the complex process of establishing the catheter as the source of the bloodstream infection would make broad application for epidemiologic purposes challenging.

Although there are nuanced but distinct differences between CLABSI and CRBSI, the terms are often used interchangeably, which can complicate data interpretation. In this review, I discuss studies that used either CLABSI or CRBSI as an outcome measure, recognizing that the CLABSI definition is less accurate and may affect the validity of the evidence.

PATHOGENESIS

Understanding the pathogenesis of CRBSI is pivotal for developing preventive strategies that target the entry routes of pathogens. There are

Supplement to: January/February 2024
ISSN 1533-1458

Volume 47 • Number 51
www.journalofinfusionnursing.com

Journal of
Infusion Nursing
The Official Publication of the Infusion Nurses Society

**Infusion Therapy
Standards of Practice**
9th Edition



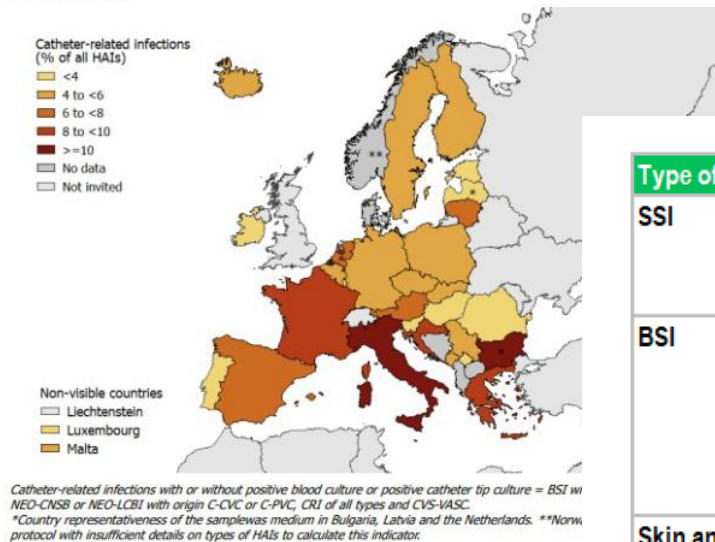
Lippincott*

Wolters Kluwer

Infezioni Correlate Assistenza → CLABSI

PPS of healthcare-associated infections and antimicrobial use in European acute care hospitals SURVEILLANCE REPORT

Figure 24. Relative frequency of catheter-related infections as a total of all HAIs, by country, ECDC PPS 2022–2023

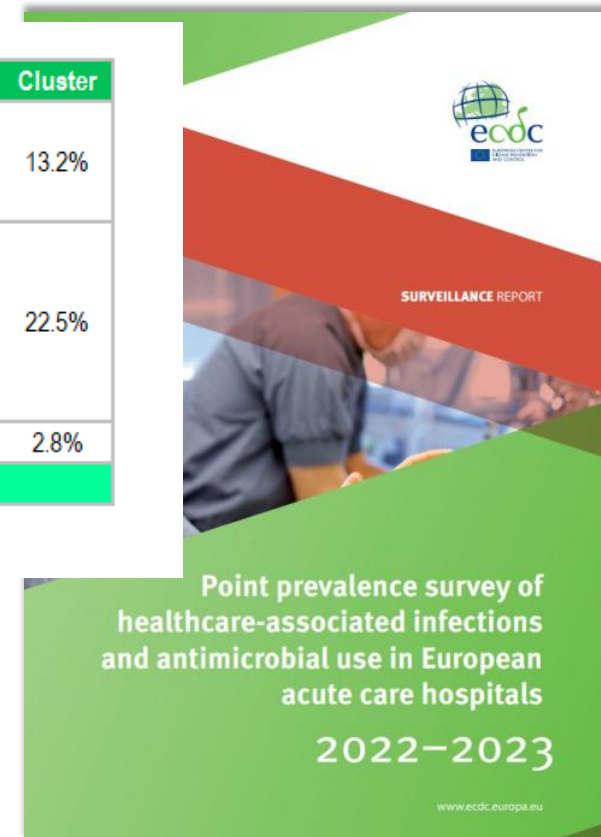


ECDC
 (European Center for Disease prevention and Control)

Type of HAI	Type of HAI	Distribution*	Cluster
SSI	Superficial incisional	1.5%	13.2%
	Deep incisional	6.6%	
	Organ/Space	5.1%	
BSI	CRI3-CVC	7.9%	22.5%
	CRI3-PVC	1.5%	
	BSI (Other than CRI3)	11.6%	
	CRI1-CVC	0.5%	
	CRI2-CVC	0.9%	
Skin and Soft Tissue		2.8%	2.8%
Sub-Total		38.5%	

*excluding Covid-19

- Italia e Bulgaria sono tra in Paesi EU con frequenze più alte di infezioni correlate al catetere vascolare (BSI)
- BSI=22,5% ICA



**Maggio
 2024**

VIE DI ACCESSO

The NEW ENGLAND JOURNAL of MEDICINE

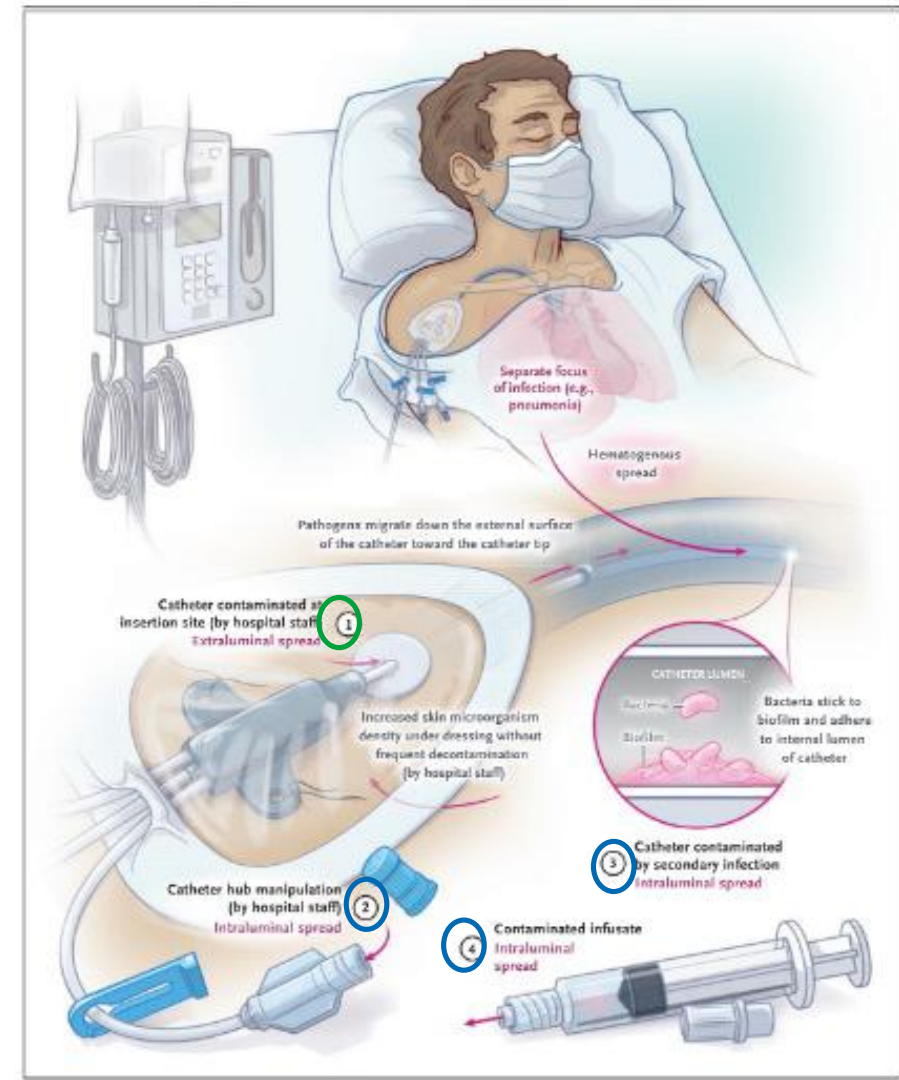
REVIEW ARTICLE

Darren B. Taichman, M.D., Ph.D., *Editor*

Prevention of Central Line–Associated Bloodstream Infections

Naomi P. O'Grady, M.D.

1. Catheter contaminated at insertion site (by hospital staff)
2. Catheter hub manipulation (by hospital staff)
3. Catheter contaminated (by secondary infection)
4. Contaminated infusate (by...?)



RACCOMANDAZIONI

Infection Control & Hospital Epidemiology (2022), 43, 553–569
doi:10.1017/jce.2022.87



SHEA/IDSA/APIC Practice Recommendation

Strategies to prevent central line-associated bloodstream infections in acute-care hospitals: 2022 Update

Niccolò Buetti MD, MSc, PhD^{1,2,a}, Jonas Marschall MD, MSc^{3,4,a}, Marci Drees MD, MS^{5,6}, Mohamad G. Fakih MD, MPH⁷, Lynn Hadaway MEd, RN, NPD-BC, CRNI⁸, Lisa L. Maragakis MD, MPH⁹, Elizabeth Monsees PhD, MBA, RN, CIC^{10,11}, Shannon Novosad MD MPH¹², Naomi P. O'Grady MD¹³, Mark E. Rupp MD¹⁴, Joshua Wolf MBBS, PhD, FRACP^{15,16}, Deborah Yokoe MD, MPH¹⁷ and Leonard A. Mermel DO, ScM^{18,19}

Table 1. Summary of Recommendations to Prevent CLABSI

Essential Practices
Before insertion 1. Provide easy access to an evidence-based list of indications for CVC use to minimize unnecessary CVC placement (Quality of Evidence: LOW) 2. Require education and competency assessment of HCP involved in insertion, care, and maintenance of CVCs about CLABSI prevention (Quality of Evidence: MODERATE)^{74–78} 3. Bathe ICU patients aged >2 months with a chlorhexidine preparation on a daily basis (Quality of Evidence: HIGH)^{86–90} At insertion 1. In ICU and non-ICU settings, a facility should have a process in place, such as a checklist, to ensure adherence to infection prevention practices at the time of CVC insertion (Quality of Evidence: MODERATE)¹⁰¹ 2. Perform hand hygiene prior to catheter insertion or manipulation (Quality of Evidence: MODERATE)^{102–107} 3. The subclavian site is preferred to reduce infectious complications when the catheter is placed in the ICU setting (Quality of Evidence: HIGH)^{33,37,108–110} 4. Use an all-inclusive catheter cart or kit (Quality of Evidence: MODERATE)¹¹⁸ 5. Use ultrasound guidance for catheter insertion (Quality of Evidence: HIGH)^{119,120} 6. Use maximum sterile barrier precautions during CVC insertion (Quality of Evidence: MODERATE)^{123–128} 7. Use an alcoholic chlorhexidine antiseptic for skin preparation (Quality of Evidence: HIGH)^{42,129–134} After insertion 1. Ensure appropriate nurse-to-patient ratio and limit use of float nurses in ICUs (Quality of Evidence: HIGH)^{34,35} 2. Use chlorhexidine-containing dressings for CVCs in patients over 2 months of age (Quality of Evidence: HIGH)^{45,135–142} 3. For non-tunneled CVCs in adults and children, change transparent dressings and perform site care with a chlorhexidine-based antiseptic at least every 7 days or immediately if the dressing is soiled, loose, or damp. Change gauze dressings every 2 days or earlier if the dressing is soiled, loose, or damp (Quality of Evidence: MODERATE)^{145–148} 4. Disinfect catheter hubs, needleless connectors, and injection ports before accessing the catheter (Quality of Evidence: MODERATE)^{150–154} 5. Remove nonessential catheters (Quality of Evidence: MODERATE) 6. Routine replacement of administration sets not used for blood, blood products, or lipid formulations can be performed at intervals up to 7 days (Quality of Evidence: HIGH)¹⁶⁴ 7. Perform surveillance for CLABSI in ICU and non-ICU settings (Quality of Evidence: HIGH)^{13,165,166}
Additional Approaches
1. Use antiseptic- or antimicrobial-impregnated CVCs (Quality of Evidence: HIGH in adult patients^{38,39,169–171} and Quality of Evidence: MODERATE in pediatric patients)^{172,173} 2. Use antimicrobial lock therapy for long-term CVCs (Quality of Evidence: HIGH)^{177–184} 3. Use recombinant tissue plasminogen activating factor (rt-PA) once weekly after hemodialysis in patients undergoing hemodialysis through a CVC (Quality of Evidence: HIGH)¹⁹² 4. Utilize infusion or vascular access teams for reducing CLABSI rates (Quality of Evidence: LOW)^{193,194} 5. Use antimicrobial ointments for hemodialysis catheter insertion sites (Quality of Evidence: HIGH)^{197–201} 6. Use an antiseptic-containing hub/connector cap/port protector to cover connectors (Quality of Evidence: MODERATE)^{202–208}



PRIMA



DURANTE



DOPO

PRIMA e DURANTE L'IMPIANTO

CHI IMPIANTA



DOVE IMPIANTO



COME IMPIANTO



COSA IMPIANTO



TEAM ACCESSI VASCOLARI

- Multidisciplinarietà
- Consulenza
- Impiantistica
- Gestione
- Formazione



1. Riduzione complicanze immediate e tardive catetere correlate (<CRBSI) → **conoscenza dei materiali**
2. Riduzione costi di degenza/materiale
3. Minor carico di lavoro per i reparti
4. Maggior soddisfazione per il paziente

Infusion Therapy Standards of Practice

Barbara Nickel, APRN-CNS, CCRN, CRNI®
Lisa Gorski, MS, RN, HHCNS-BC, CRNI®, FAAN
Tricia Kleidon, PhD(c), MNSc, RN
Amy Kyes, MSN, APRN, AG-CNS, CV-BC™, CRNI®
Michelle DeVries, MPH, CIC, VA-BC, CPHQ, FAPIC
Samantha Keogh, PhD, RN, FACH
Britt Meyer, PhD, RN, CRNI®, VA-BC, NE-BC
Mary Jo Sarver, MSN, ARNP, AOCN, CRNI®, LNC, VA-BC
Rachael Crickman, DNP, ARNP-CNS, AOCNS, OCN, RN
Jenny Ong, PharmD
Simon Clare, MRes, BA, RGN
Mary E. Hagie, PhD, RN-RB, FAAN
9TH EDITION
REVISED 2024



4. INFUSION AND VASCULAR ACCESS SERVICES

Standard

- 4.1 Infusion and vascular access services require **interprofessional collaboration** and clinical experts to advance patient and organizational outcomes of care.
- 4.2 The scope of services provided by infusion and vascular access specialist teams (VAST) is structured to meet patient and organizational needs for safe delivery/administration of quality infusion therapy.
- 4.3 Infusion and vascular access services follow regulations applicable to each jurisdiction.

Practice Recommendations

A. General

1. Identify opportunities, challenges, clinical outcomes, and costs associated with delivery of infusion and vascular access services within the organization.
 - a. While some health care organizations have eliminated infusion/VASTs to conserve resources, the use of VASTs is recognized for reduction in health care-acquired complications associated with central vascular access devices (CVADs), including pneumothorax and arterial puncture, and as essential to prevention of catheter-associated bloodstream infections (CABSI) in acute care hospitals.¹⁻¹⁸ (II)
 - b. Specialty teams reduce the need to escalate from use of peripheral VADs to more invasive CVADs through clinical consultation; reduce costs associated with device-related complications, labor resources, and vascular access supplies and equipment; and improve patient satisfaction with greater first-attempt insertion success and lower rates of complications.^{2,4,9,10,19-25} (II)

B. Team Leadership and Organization

CHI IMPIANTA

cians that reflects procedural services, QI, and education services provided to advance safe patient care. Contemporary team names are used synonymously, including, but not limited to, vascular access specialist team, vascular access team, vascular access resource team, and infusion team.^{2,4,10,15,24,35,36} (IV)

3. Plan the process required for financial management of the infusion/VAST within the health care system in each jurisdiction. Establish the budgetary process, including operational costs, and sources of operational revenue (eg, placement of outpatient peripherally inserted central catheters (PICCs), productivity capture as a variance to the budget).
 - a. Establish as a revenue and cost center in acute care hospitals, allowing the team to track and analyze services provided and document financial contributions to the organization, showing revenue to offset costs.³⁷ (V)
4. Promote participation in interprofessional safety programs to reduce the incidence, risk, and costs of adverse events related to infusion/vascular access, including³⁸⁻⁴⁸: (IV)
 - a. Antimicrobial stewardship programs
 - b. Infection prevention committees in analysis of CABSI
 - c. Analysis of IV-associated medication errors
 - d. Analysis of systemic adverse drug reactions (eg, vancomycin flushing syndrome) and VAD-associated complications
 - e. Collaboration with acute pain teams to reduce lapses in analgesia
 - f. Extravasation prevention
 - g. Collaboration with multiple disciplines and departments (eg, pharmacy infusion pump safety committee) to reduce errors related to dose error reduction systems (DERS) in electronic infusion pumps (refer to Standard 23, *Flow-Control Devices*)
 - h. Coordination of product evaluation, QI, staff development, and standardized evidence-based

TEAM ACCESSI VASCOLARI...ma non solo!

Review

JVA | The Journal of
Vascular Access

The Journal of Vascular Access
1-19
© The Author(s) 2024
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/11297298241262932
journals.sagepub.com/home/jva
Sage

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

Fulvio Pinelli¹, Mauro Pittiruti², Maria Giuseppina Annetta³, Francesco Barbani¹, Sergio Bertoglio⁴, Daniele G Biasucci⁵, Denise Bolis⁶, Fabrizio Brescia⁷, Giuseppe Capozzoli⁸, Sonia D'Arrigo³, Elisa Deganello⁹, Stefano Elli¹⁰, Adam Fabiani¹¹, Fabio Fabiani⁷, Antonio Gidaro¹², Davide Giustivi¹³, Emanuele Iacobone¹⁴, Antonio La Greca², Ferdinando Longo¹⁵, Alberto Lucchini¹⁶, Bruno Marche¹⁷, Stefano Romagnoli¹, Giancarlo Scoppettuolo¹⁸, Valentina Selmi¹⁹, Davide Vailati²⁰, Gianluca Villa¹ and Gilda Pepe²



Panel recommendation. The risk of catheter-related infections can be reduced by adopting basic post-procedural strategies such as: (a) staff education, (b) adequate nurse/patient ratio, (c) hand hygiene, (d) scheduled dressing change every 7 days, with skin antisepsis using 2% chlorhexidine in 70% isopropyl alcohol, weekly replacement of the sutureless device (unless the catheter is anchored subcutaneously), and weekly replacement of the semipermeable transparent dressing, (e) adoption of chlorhexidine releasing sponge dressing for non-tunneled central VADs; (f) disinfection of catheter hubs and of needle-free connectors (NFC) at each use, preferably using disinfecting caps (port-protectors), (g) scheduled replacement of infusion lines and NFC, at different intervals, depending on the type of infusion, and (h) early removal of central lines that are not strictly necessary or that have been placed in emergency. (Strong agreement: 26 agree, 0 uncertain, 0 disagree)

QUALE VENA

Sovraclaveare
Infraclaveare

CICC

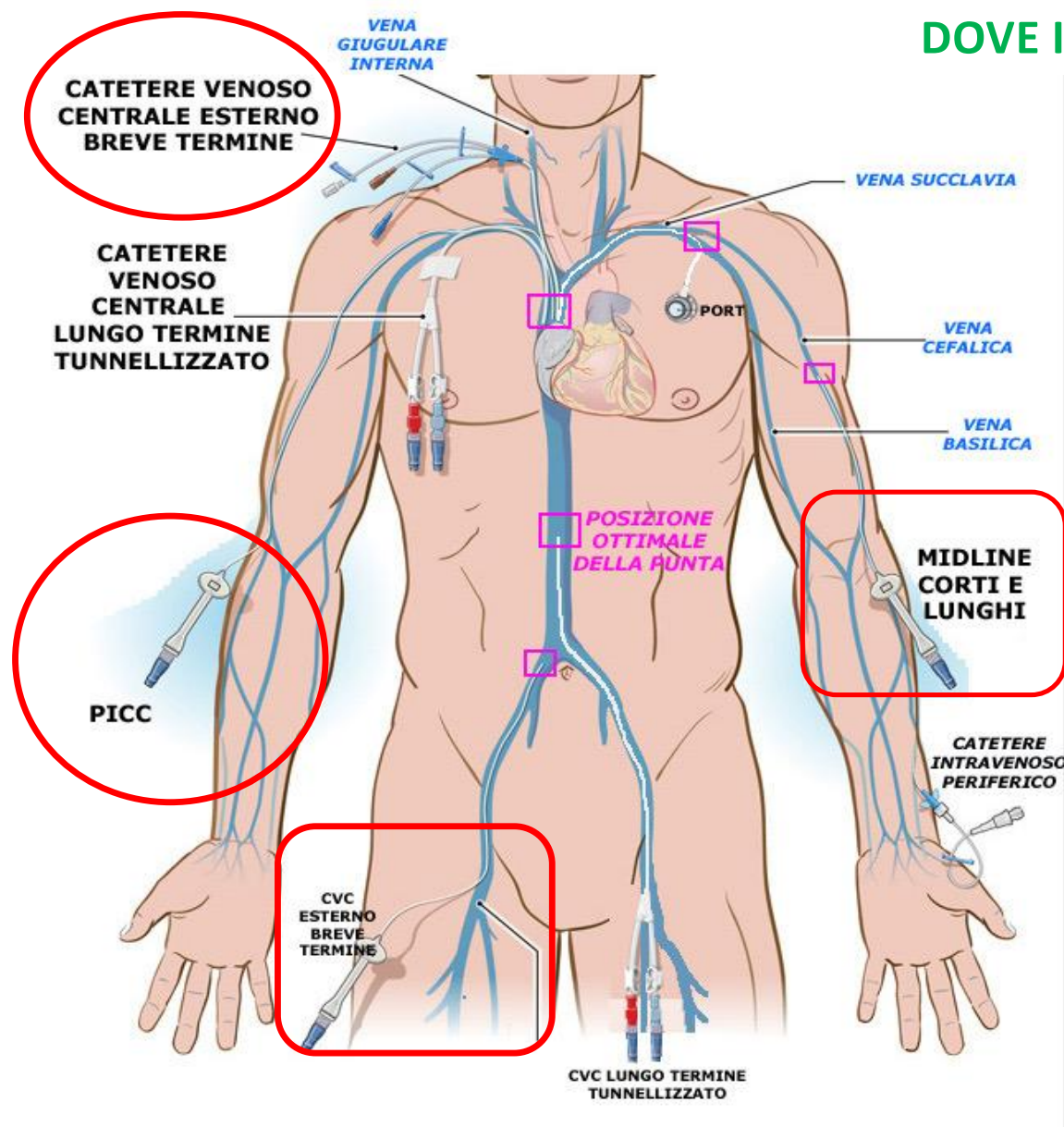
Basilica
Brachiale
Cefalica

PICC

Fem. Comune
Fem. Superficiale

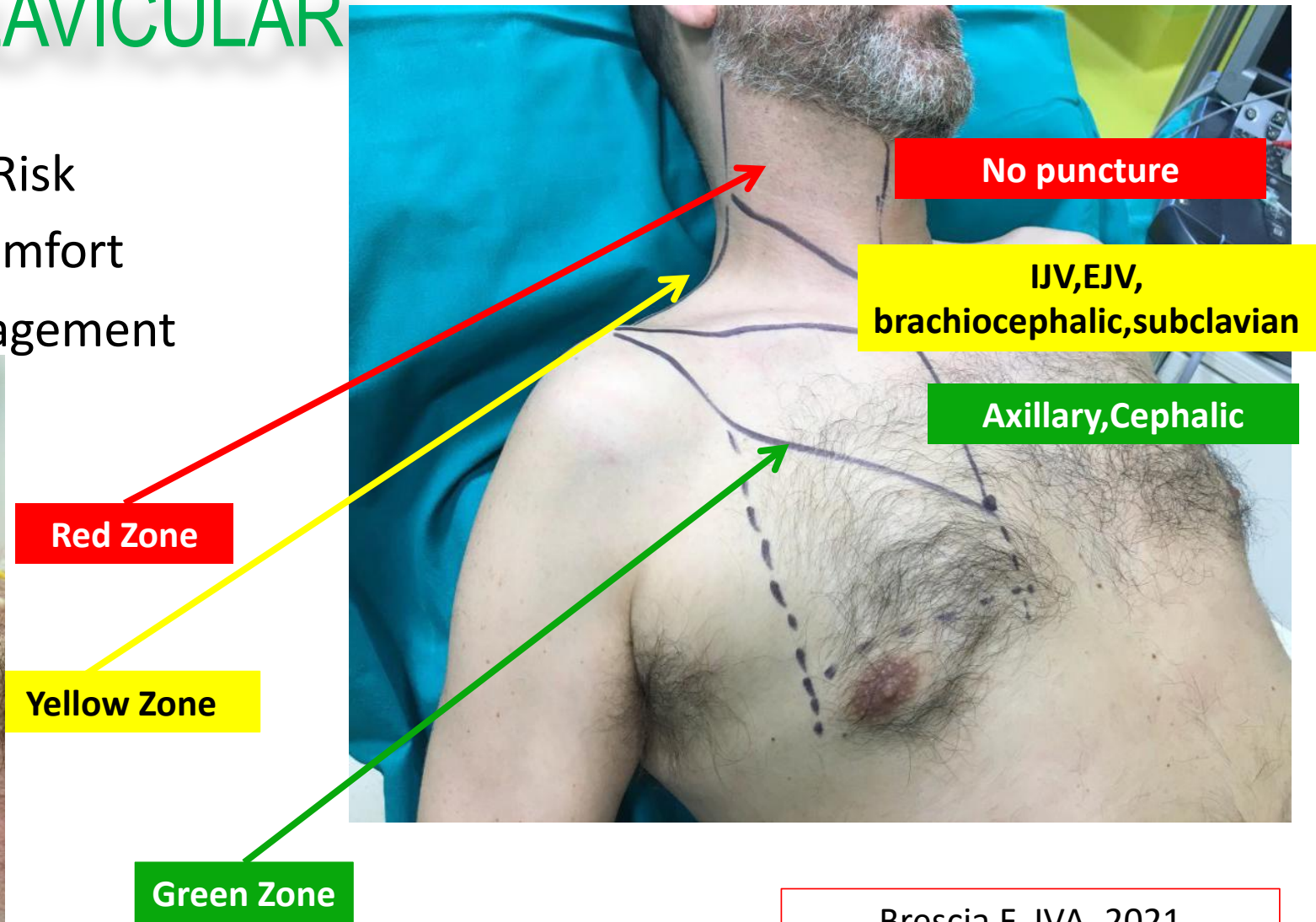
FICC

DOVE IMPIANTO



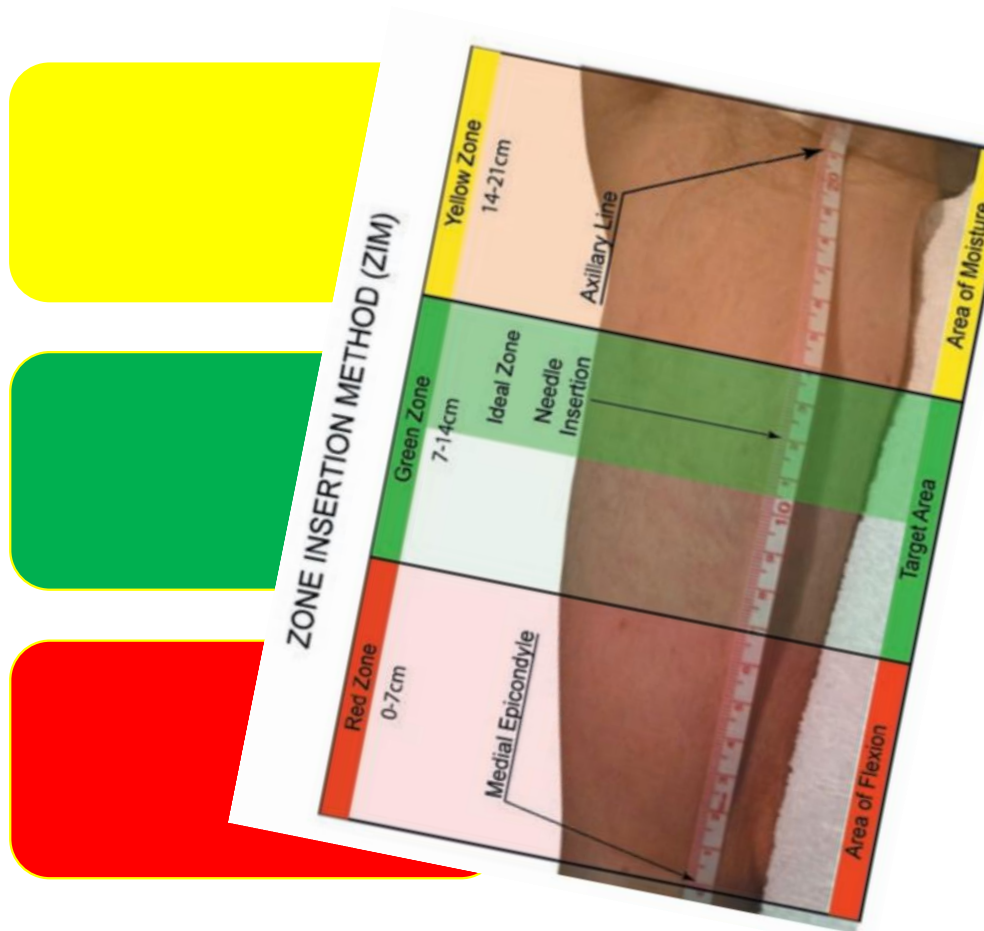
CICC INFRACLAVICULAR

- Reduce Infectious Risk
- Improve patient comfort
- Improve VAD management



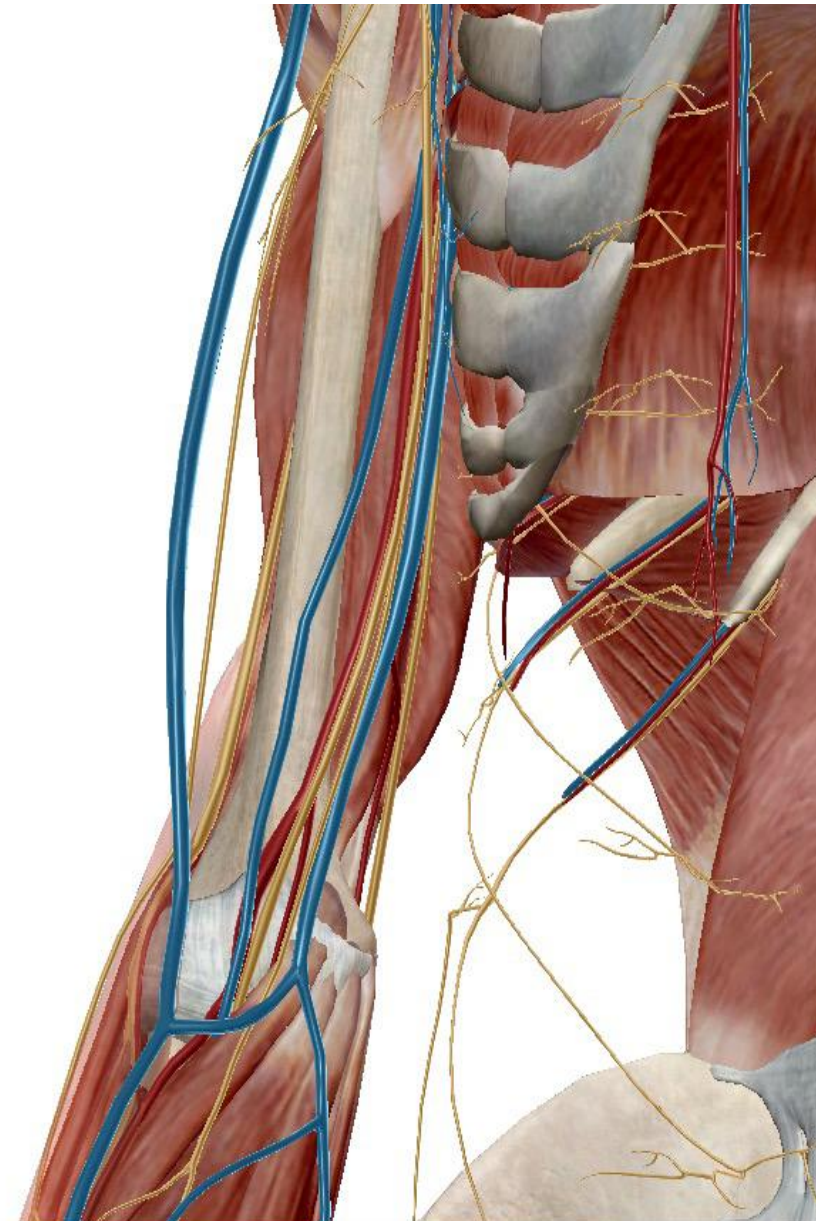
Brescia F. JVA, 2021

PICC



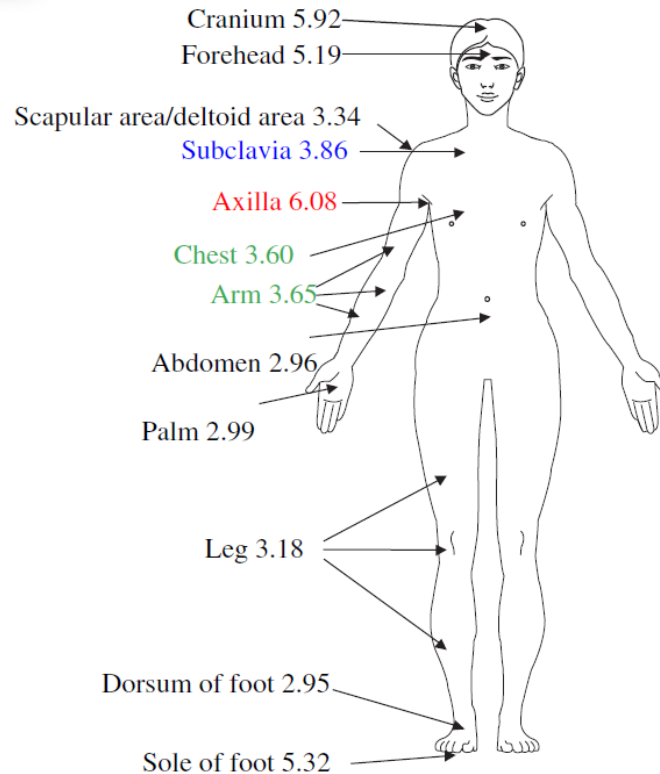
**PICC Zone Insertion Method™ (ZIM™):
A Systematic Approach to Determine the Ideal Insertion
Site for PICCs in the Upper Arm**

Dawson R. JAVA, 2011



EXIT-SITE

Quantification of aerobic skin flora (mean log₁₀ cfu/mL)

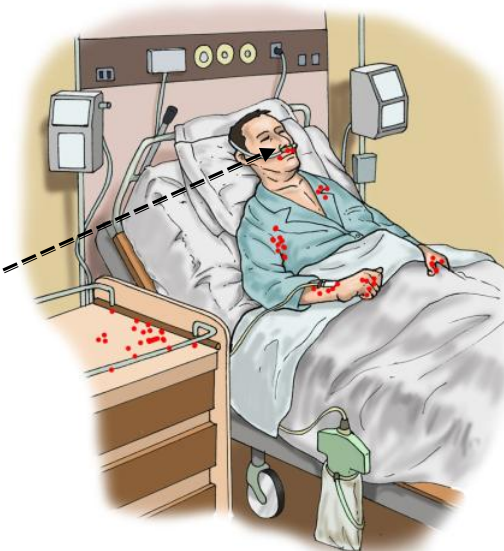


Residenti: Stafilococchi epidermidis, micrococchi, difteroidi, cocchi anaerobi, propionibatteri

Esfoliazione, scarsa umidità, pH 5,5, 33°C. sudore salino



S.Aureo



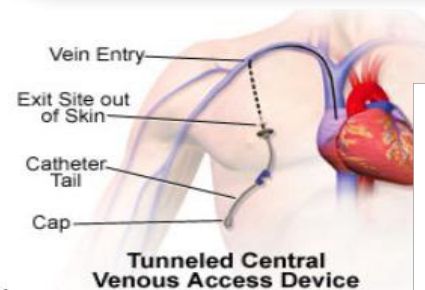
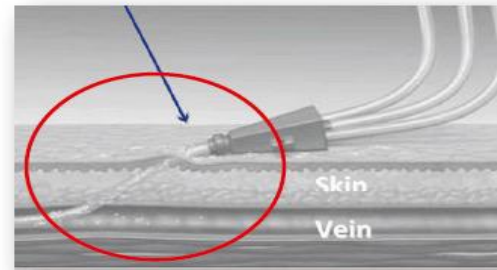
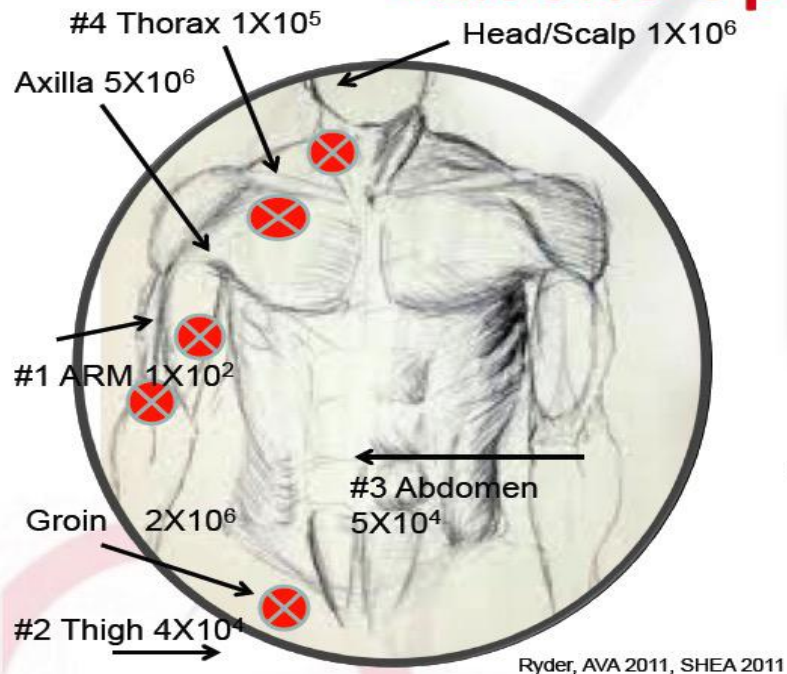
Occasionali: possono sopravvivere alcune ore, dal canale alimentare, scarsa igiene: Stafilococco Aureus, Streptococcus pyogenes, E.Coli, Klebsiella, enterobatteri

1. Reichel M. et al. Identification of variables for aerobic bacterial density at clinically relevant skin sites. Journal of Hospital Infection 78 (2011)
2. Romero E. Microbiologia Clinica. Esculapio editore 1991.

Thanks to G. Capozzoli

EXIT-SITE

Exit Site Options



AVA 2011

SHEA 2011

INS 2021

SHEA 2022

Original Article



Journal of Infection Prevention
2019, Vol. 20(1) 51–59
© The Author(s) 2018
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/1757177418805836
jip.sagepub.com
SAGE

Evaluation of Skin Colonisation And Placement of vascular access device Exit sites (ESCAPE Study)

Nancy L Moureau¹, Nicole Marsh², Li Zhang³, Michelle J Bauer³, Emily Larsen³, Gabor Mihala⁴, Amanda Corley^{3,5}, India Lye^{3,5}, Marie Cooke³ and Claire M Rickard^{3,6}

EXIT-SITE

Aree a rischio ELEVATO

INGUINE
ASCELLA
COLLO

Site O
/Scalp 1×10^6

#1 ARM 1×10^2

Groin 2×10^6

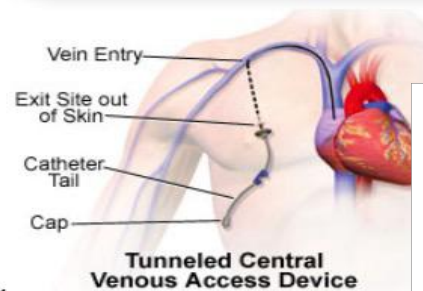
#2 Thigh 4×10^4

#3 Abdomen
 5×10^4

Ryder, AVA 2011, SHEA 2011

Aree a rischio MINORE

BRACCIO
REG.SOTTOCLAVEARE
COSCIA



AVA 2011

SHEA 2011

INS 2021

SHEA 2022

Original Article



Evaluation of Skin Colonisation And Placement of vascular access device Exit sites (ESCAPE Study)

Journal of Infection Prevention
2019, Vol. 20(1) 51–59
© The Author(s) 2018
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/1757177418805836
jip.sagepub.com
SAGE

Nancy L Moureau¹, Nicole Marsh², Li Zhang³, Michelle J Bauer³, Emily Larsen³, Gabor Mihala⁴, Amanda Corley^{3,5}, India Lye^{3,5}, Marie Cooke³ and Claire M Rickard^{3,6}

ULTRASUONI

PRACTICE PARAMETERS

Practice Guidelines for Central Venous Access 2020

*An Updated Report by the American Society of Anesthesiologists Task Force on Central Venous Access**

Survey Findings. The consultants strongly agree and ASA members agree with the recommendation to determine the use of sutures, staples, or tape for catheter fixation on a local or institutional basis. The consultants and ASA members both strongly agree with the recommendation to minimize the number of needle punctures of the skin.

Anesthesiology 2020; 132:8–43

EJA

COME IMPIANTO

GUIDELINES

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

Catheter-related infections

By reducing the number of puncture attempts and the subsequent risk of haematoma formation, which represents an ideal environment for bacterial replication, and decreasing the time to achieve a successful cannulation and the subsequent possible breakdown of the sterile technique, ultrasound indirectly reduces the incidence of catheter-related infections, in both adults and children, when compared with landmark guidance or surgical placement.^{12,81,83,84}



PERCHE'?

- **Visione del vaso** (calibro, posizione, pervietà, collassabilità...)
- **>% di successo**
- **< numero di punture**
- **>% risoluzione casi DIVA**
- **<% complicanze**
- **<% infezioni**
- **> soddisfazione del paziente**



BUNDLE

Review

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

Fulvio Pinelli¹ , Mauro Pittiruti² , Maria Giuseppina Annetta³ ,
Francesco Barbani¹, Sergio Bertoglio⁴ , Daniele G Biasucci⁵ , Denise Bolis⁶,
Fabrizio Brescia⁷ , Giuseppe Capozzoli⁸, Sonia D'Arrigo³ , Elisa Deganello⁹ ,
Stefano Elli¹⁰ , Adam Fabiani¹¹ , Fabio Fabiani⁷, Antonio Gidaro¹² ,
Davide Giustivi¹³ , Emanuele Iacobone¹⁴ , Antonio La Greca²,
Ferdinando Longo¹⁵ , Alberto Lucchini¹⁶, Bruno Marche¹⁷, Stefano Romagnoli¹,
Giancarlo Scoppettuolo¹⁸, Valentina Selmi¹⁹, Davide Vailati²⁰, Gianluca Villa¹
and Gilda Pepe²

JVA | The Journal of
Vascular Access

The Journal of Vascular Access
1–19
© The Author(s) 2024
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/11297298241262932
journals.sagepub.com/home/jva


Question 13: Which intra-procedural strategies may minimize the risk of catheter-related infection?

Panel recommendation. The risk of catheter-related infections may be reduced by adopting intra-procedural strategies such as: (a) proper hand hygiene, (b) adoption of pre-assembled insertion kits, (c) maximal barrier precautions, (d) skin antisepsis with 2% chlorhexidine in 70% isopropyl-alcohol (preferably using one-dose disposable dispenser), (e) proper choice of the location of the exit site (considering tunneling the catheter—if required—according to the RAVESTO protocol), (f) ultrasound guided venipuncture, (g) sutureless securement of the catheter, (h) protection of the exit site with cyanoacrylate glue and semipermeable transparent dressing. (*Strong agreement: 26 agree, 0 uncertain, 0 disagree*)

BUNDLE

Effect of Central Line Bundle Compliance on Central Line-Associated Bloodstream Infections

Kyoung Hwa Lee^{1,2}, Nan Hyoung Cho², Su Jin Jeong^{1,2}, Mi Na Kim², Sang Hoon Han^{1,2}, and Young Goo Song^{1,2}

¹Division of Infectious Diseases, Department of Internal Medicine, Gangnam Severance Hospital, Yonsei University College of Medicine, Seoul;

²Department of Infection Control, Gangnam Severance Hospital, Seoul, Korea.

Purpose: The present study aimed to evaluate the effect of central line (CL) bundle compliance on central line-associated bloodstream infections (CLABSIs) in different departments of the same hospital, including the intensive care unit (ICU) and other departments.

Materials and Methods: The four components of the CL bundle were hand hygiene, use of maximal sterile barrier precautions, chlorhexidine use, and selection of an appropriate site for venous access. Compliance of the CL bundle and CLABSIs were measured for every department [emergency room (ER), ICU, general ward (GW), and operating room (OR)]. A total of 1672 patients were included over 3 years (August 2013 through July 2016).

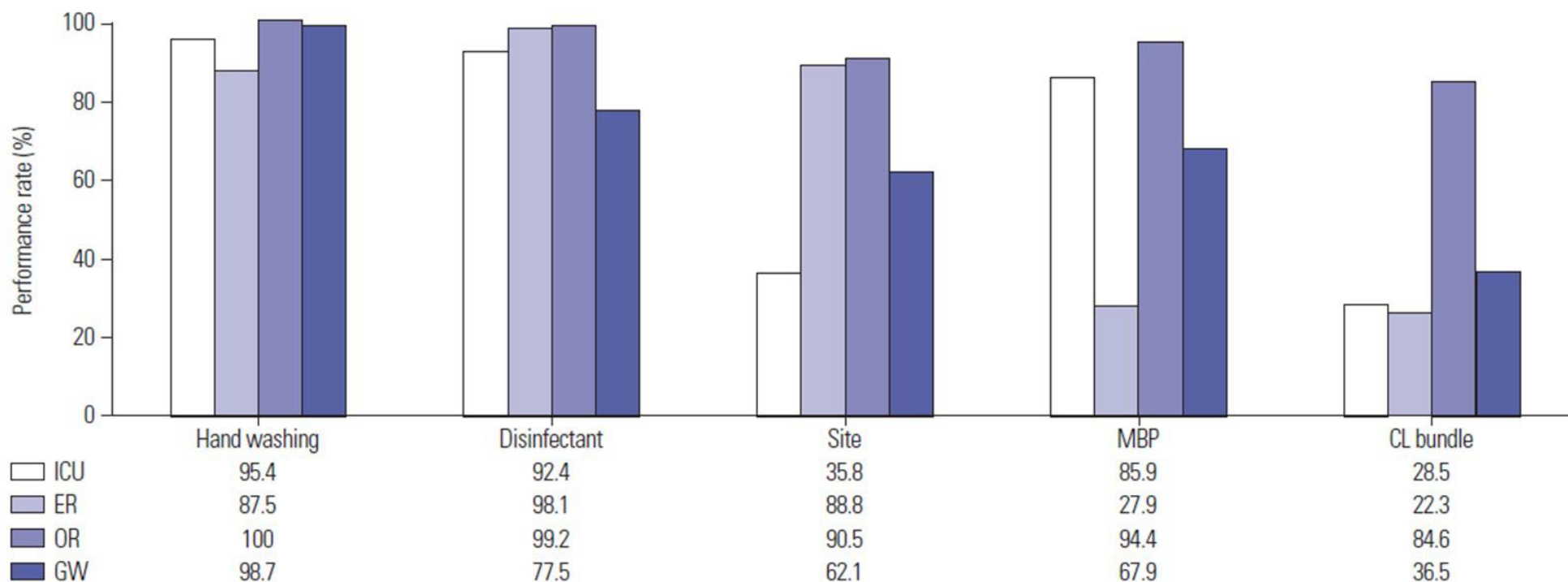


Fig. 1. Performance of each component of the CL bundle by individual department. Bars represent the rates for hand washing, use of chlorhexidine, selection of a non-femoral insertion site, performing all components of MBPs, and performing all components of the CL bundle. The CL bundle consists of four components: hand hygiene, use of MBPs, use of a chlorhexidine skin preparation, and selection of an appropriate site for central venous access. MBP, maximal sterile barrier precaution; CL, central line; ICU, intensive care unit; ER, emergency room; OR, operating room; GW, general ward.

BUNDLE

Review

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

Fulvio Pinelli¹ , Mauro Pittiruti² , Maria Giuseppina Annetta³ ,
Francesco Barbani¹, Sergio Bertoglio⁴ , Daniele G Biasucci⁵ , Denise Bolis⁶,
Fabrizio Brescia⁷ , Giuseppe Capozzoli⁸, Sonia D'Arrigo³ , Elisa Deganello⁹ ,
Stefano Elli¹⁰ , Adam Fabiani¹¹ , Fabio Fabiani⁷, Antonio Gidaro¹² ,
Davide Giustivi¹³ , Emanuele Iacobone¹⁴ , Antonio La Greca²,
Ferdinando Longo¹⁵ , Alberto Lucchini¹⁶, Bruno Marche¹⁷, Stefano Romagnoli¹,
Giancarlo Scoppettuolo¹⁸, Valentina Selmi¹⁹, Davide Vailati²⁰, Gianluca Villa¹
and Gilda Pepe²

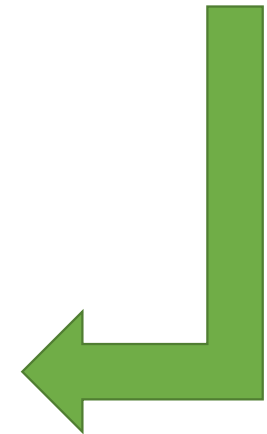
JVA | The Journal of
Vascular Access

The Journal of Vascular Access
1–19
© The Author(s) 2024
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/11297298241262932
journals.sagepub.com/home/jva


Question 8: Which is the role of insertion bundles and insertion checklists?

Panel recommendation. All placements of central VADs should be performed adopting a well-defined specific insertion bundle (such as the SIC, SIP, or SIF protocols) and according to an appropriate checklist. (Strong agreement: 26 agree, 0 uncertain, 0 disagree)

SIC protocol → Safe Insertion of CICC's
SIP protocol → Safe Insertion of PICC's
SIF protocol → Safe insertion of FICC's
SIC-P protocol → Safe Insertion of Chest-Port



CHECK-LIST

Anaesthesia 2025, 80, 1381-1396

Johnston et al. | Safe vascular access guidelines 2025

INVASIVE PROCEDURE SAFETY CHECKLIST: CVC Insertion



BEFORE THE PROCEDURE			TIME OUT			SIGN OUT		
Patient identity checked?	Yes ☐		Verbal confirmation between team members before start of procedure			Able to aspirate blood from all lumens and flush all lumens?	Yes ☐	
Appropriate consent completed?	Yes ☐		Team members identified and roles allocated?	Yes ☐		Correct injection site caps / connectors used?	Yes ☐	
All equipment available?	Yes ☐		Is patient position optimal?	Yes ☐		Correct dressing applied?	Yes ☐	
Correct type/size of line available?	Yes ☐		Operator to confirm, during procedure, that guidewire is removed	Yes ☐		Guidewire confirmed as removed?	Yes ☐	
Is there a coagulopathy (drugs and lab tests)?	Yes ☐	No ☐	Ultrasound available and set up	Yes ☐		Chest X-ray required?	Yes ☐	N/A ☐
Known drug allergies?	Yes ☐	No ☐				If Chest X-ray required, is line position satisfactory?	Yes ☐	
Are infection control precautions in place?	Yes ☐	No ☐				Pneumothorax excluded?	Yes ☐	
Is help required?	Yes ☐	No ☐				Placement confirmation – use two methods		
						CVP waveform present?		
						Venous pressure	Yes ☐	
						mmHg		
						Ultrasound confirms CVC placement?	Yes ☐	
						Paired venous and arterial blood gases?		
						Arterial pO2.....kPa	Yes ☐	
						CVC pO2.....kPa		

Procedure Date:		Patient Identity Sticker:		Signature of responsible clinician completing the form
Time:				
Operator:				
Assistant:				
Supervisor:				

Figure 2 An example of a Local Safety Standards for Invasive Procedures (LocSSIP) checklist for central venous catheter insertion.

Anaesthesia 2025, 80, 1381-1396

doi:10.1111/anae.16727

Guidelines

Association of Anaesthetists guidelines: safe vascular access 2025

Andrew J. Johnston, Matthew J. Simpson, Victoria McCormack, Andrew Barton, James Bennett, Anil Chalisey, Jeremy Crane, Stefanie Curry, Helen Laycock, Dhupal Patel, Teikchoon See, John Shubhaker, Kathryn Singh and Sarah Thornton

REGOLE BASE...

- Evitare l'accesso venoso se non necessario
- Definire indicazioni specifiche accesso centrale vs periferico
- Preferire accesso periferico al centrale – previa appropriatezza
- Valutare **lifestyle** del pz
- Minor numero **lumi possibile**
- Short term → Preferire PICC
- Long term → Scegliere VAD considerando la frequenza d'utilizzo

SIAARTI 2018

INS 2025

SHEA 2022

GAVeCeLT2021

Review

COSA IMPIANTO

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

The Journal of Vascular Access
1-19
© The Author(s) 2024
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/11297298241262932
journals.sagepub.com/home/jva
Sage

Fulvio Pinelli¹, Mauro Pittiruti², Maria Giuseppina Annetta³,
Francesco Barbani¹, Sergio Bertoglio⁴, Daniele G Biasucci⁵, Denise Bolis⁶,
Fabrizio Brescia⁷, Giuseppe Capozzoli⁸, Sonia D'Arrigo³, Elisa Deganello⁹,
Stefano Elli¹⁰, Adam Fabiani¹¹, Fabio Fabiani⁷, Antonio Gidaro¹²,
Davide Giustivi¹³, Emanuele Iacobone¹⁴, Antonio La Greca²,
Ferdinando Longo¹⁵, Alberto Lucchini¹⁶, Bruno Marche¹⁷, Stefano Romagnoli¹,
Giancarlo Scoppettuolo¹⁸, Valentina Selmi¹⁹, Davide Vailati²⁰, Gianluca Villa¹
and Gilda Pepe²

Guidelines

Association of Anaesthetists guidelines: safe vascular access 2025

Andrew J. Johnston, Matthew J. Simpson, Victoria McCormack, Andrew Barton, James Bennett, Anil Chalisey, Jeremy Crane, Stefanie Curry, Helen Laycock, Dhupal Patel, Teikchoon See, John Shubhaker, Kathryn Singh and Sarah Thornton

Anaesthesia 2025, 80, 1381–1396

Johnston et al. | Safe vascular access guidelines 2025

Table 3 Factors influencing choice of vascular access device.

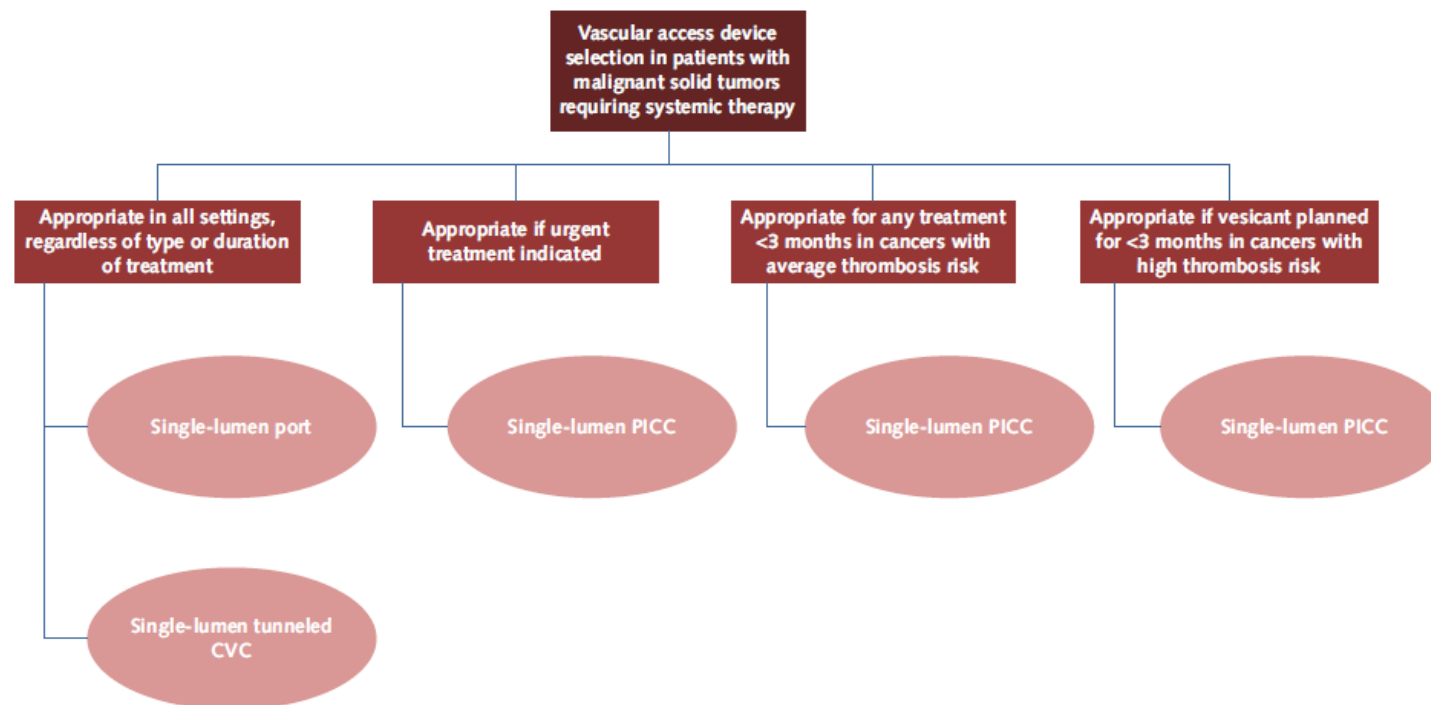
Consideration	Description
Vein anatomy and vessel blood flow	Tools such as the rapid central vein assessment offer a systematic approach to identifying vein-specific characteristics that influence site selection [18]
Number of lumens required and device material	Select a device with the fewest necessary lumens to reduce the risk of infection, catheter breakage and air embolism. A dedicated lumen is recommended for parenteral nutrition. Power devices are advantageous for patients who need repeated imaging with intravenous contrast
Infusate characteristics	Consider the pH, osmolality and whether the infusate is an irritant, vesicant or cytotoxic drug, as these factors will inform device choice
Urgency of vascular access	The urgency of insertion may inform the availability of device type because of the need for appropriate expertise, facilities etc. Central venous access should be obtained in a safe manner, using standard safety precautions, as soon as is practically possible
Duration of intended treatment	The duration of treatment may influence device selection as regulated by the Medicines and Healthcare products Regulatory Agency (MHRA), with only Class 2b devices used for treatments exceeding 30 days
Patient choice, demographics, lifestyle and previous vascular access history	Robust digital recording and auditing tools can quickly identify a patient's previous vascular access device history and past insertion complications For long-term CVADs, patient preference is crucial for a successful treatment journey. Quality of life measures, including the impact of the CVAD on hygiene routines; sleep; mobility; work; exercise; hobbies; body image; and socialising, should be assessed routinely

CVAD, central venous access device.

The Michigan Appropriateness Guide for Intravenous Catheters in Adult Patients With Cancer (MAGIC-ONC): Results From a Multispecialty Panel Using the RAND/UCLA Appropriateness Method

Ajay Major, MD, MBA*; David G. Paje, MD, MPH*; Knut Taxbro, MD, PhD; Zoe McQuilten, MBBS, PhD; Andrew D. Kin, MD; Evan Alexandrou, RN, MPH, PhD; Lama Hsaiky, BS, PharmD, BCPS; Jocelyn Hill, MN, RN; Jonathan G. Moss, MBCHB; Mini Kamboj, MD; Sarah B. White, MD, MS; Jennifer K. Horowitz, MA; Elizabeth McLaughlin, MS, RN; Scott A. Flanders, MD; Steven J. Bernstein, MD, MPH; and Vineet Chopra, MD, MSc

Figure 3. Vascular access device selection in patients with malignant solid tumors.



CVC = central venous catheter; PICC = peripherally inserted central catheter.

QUALE DISPOSITIVO

The incidence of catheter-related bloodstream infections in different central venous access devices: a network meta-analysis of randomized controlled trials

Jinjuan Li^{1,2}, Yunrui Jin³, Yinchun Liu^{4*}, Mei Ju^{1*}

Arch Med Sci 2025; 21 (4): 1405–1413 DOI: <https://doi.org/10.5114/aoms/191725>

The incidence of CRBSIs was significantly lower in the PICC group compared to the CVC group. No significant differences were observed in other comparisons

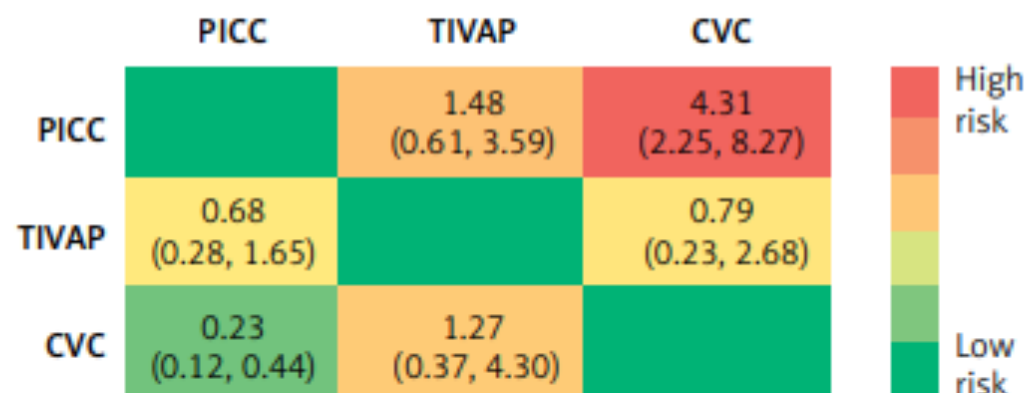


Figure 6. Network Meta analysis results

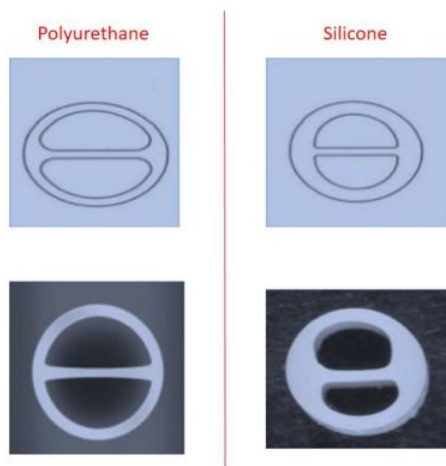
PICC – peripherally inserted central catheter, CVC – central venous catheter, TIVAP – totally implantable venous access port.



QUALI MATERIALI

Tutti i cateteri in commercio sono prodotti con materiali in grado di garantire la massima biocompatibilità. I prodotti maggiormente biocompatibili sono costituiti in Poliuretano alifatico (PUR) ed in Silicone. I cateteri in silicone tendono ad avere un diametro interno lievemente inferiore, a parità di diametro esterno (**Fig. 2**); risultano maggiormente morbidi, con scarsa interferenza con i farmaci ed una minor “rugosità”, che si traduce in una relativa minor adesione batterica. Il PUR, soprattutto quello di terza generazione, presenta numerosi vantaggi: innanzitutto una “rigidità modulata”, cioè la possibilità di ammorbidirsi durante la permanenza nel vaso in risposta alla temperatura corporea, aumentandone la biocompatibilità e la relativa neutralità chimica.

Figure2-Polyurethane vs Silicone catheters



Panel recommendation. The risk of catheter-related infections may be reduced by adopting intra-procedural strategies such as: (a) proper hand hygiene, (b) adoption of pre-assembled insertion kits, (c) maximal barrier precautions, (d) skin antisepsis with 2% chlorhexidine in 70% isopropyl-alcohol (preferably using one-dose disposable dispenser), (e) proper choice of the location of the exit site (considering tunneling the catheter—if required—according to the RAVESIO protocol), (f) ultrasound guided venipuncture, (g) sutureless securement of the catheter, (h) protection of the exit site with cyanoacrylate glue and semipermeable transparent dressing. (*Strong agreement: 26 agree, 0 uncertain, 0 disagree*)

Panel recommendation. For an optimal performance in the critically ill, all central venous access devices (CICC, PICC, and FICC) should be non-valved, open-ended, power-injectable, and made of polyurethane. (*Strong agreement: 25 agree, 0 uncertain, 1 disagree*)

Practical Guide to Central Venous Cannulation

Rodolfo Lanocita
Massimo Lamperti
Editors

 Springer



	VENA	RISCHI	VANTAGGI	LATO	DIALISI TEMPORANEA			
C I C C	Giugulare Interna	> Rischio infettivo in UTI	< Complicanze meccaniche	Se patologie polmonari → Approccio omolaterale	Prima scelta (se BMI > 28,4)	N O N T U N N E L L I Z Z A T I	T U N N E L L I Z Z A T I	I M P I A N T A B I L I
	Anonima	Non comprimibile (approccio SOLO USG)	Non collassabile	Se PM → preferire lato controlaterale	Possibile (Considerare non comprimibilità)			
	Ascellare	Approccio SOLO USG	< Rischio Infettivo	Destro → decorso più rettilineo	Considerare rischio trombotico e stenosi vascolare			
	Succlavia	Sovraclaveare eco Infraclaveare Blind	< Rischio Infettivo	Se Insuff. Renale Preferire Sinistra	Considerare rischio trombotico e stenosi vascolare			
F I C C	Femorale	> Rischio Infettivo > Rischio trombotico	Emergenza	Destro → decorso più rettilineo	Prima scelta (se BMI < 28,4)	N O N T U N N E L L I Z Z A T I	T U N N E L L I Z Z A T I	I M P I A N T A B I L I
P I C C	Vene Profonde Arto Superiore	Approccio SOLO USG	< Rischio Infettivo Basilica e brachiale < rischio trombotico/meccanico	No lato paretico/plegico Ponderare indicazione in pz con Insuff. Renale	NO			

**LE BUONE
PRATICHE PER
GLI ACCESSI
VASCOLARI**

Buone pratiche cliniche SIAARTI

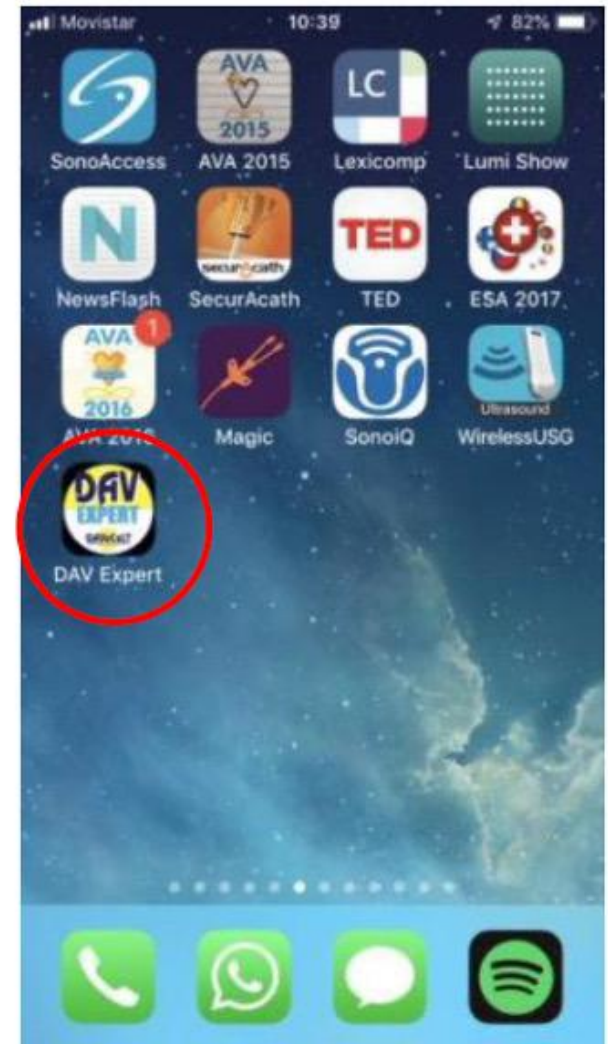
Autori

Ceroneo V, Valletti D, Monerocchio G,
Capozzoli O, Brazzi L, Gori F



Currently available on the web site
www.gavecelt.info

Available in Italian – Spanish - English



Guidelines

Association of Anaesthetists guidelines: safe vascular access 2025

Andrew J. Johnston, Matthew J. Simpson, Victoria McCormack, Andrew Barton, James Bennett, Anil Chalisey, Jeremy Crane, Stefanie Curry, Helen Laycock, Dhupal Patel, Teikchoon See, John Shubhaker, Kathryn Singh and Sarah Thornton

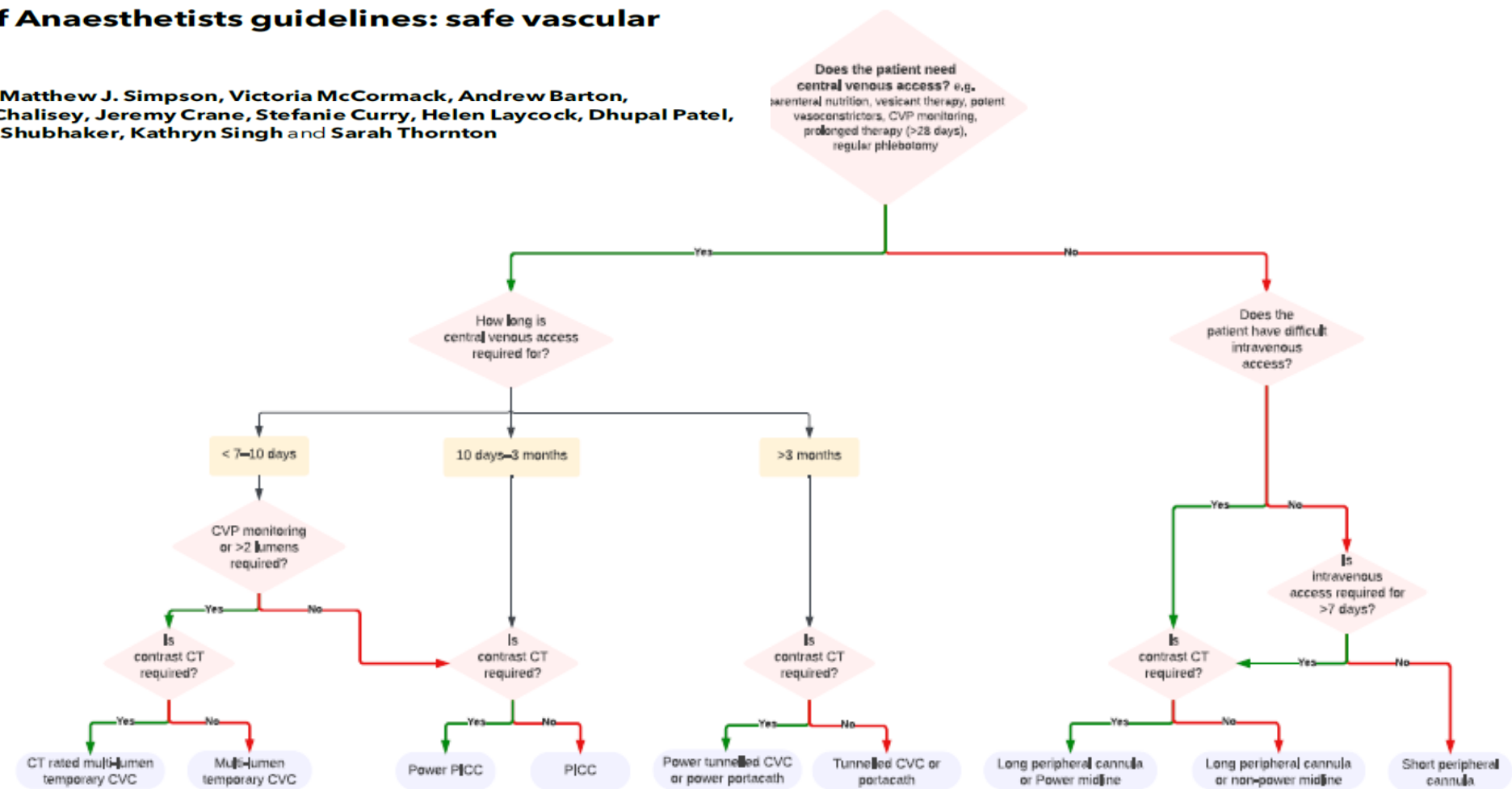


Figure 1 Decision-making tree for selecting a vascular access device. CVP, central venous pressure; CVC, central venous catheter; CT, computed tomography.

TAKE HOME MESSAGE

- La prevenzione inizia già alla richiesta del posizionamento
- Implementare l'expertise
- Senza valutare...non posizionare!
- Ultrasuoni e bundle mandatori
- Conoscere dispositivi e materiali

**Non pretendiamo che le cose
cambino se continuiamo a farle nello
stesso modo...** *A. Einstein*



davide.vailati@asst-melegnano-martesana.it

