European Society of
Regional Anaesthesia
& Pain Therapy

ESRA ITALIA

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XXIX CONGRESSO NAZIONALE

ESRA Italian Chapter

CESENA, Cesena fiere

7-9 Novembre 2024

Presidente del congresso
Vanni Agnoletti
Domenico Pietro Santonastaso
Andrea Tognù

MZ EVENTS

European Society of Regional Anaesthesia & Pain Therapy
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XXIX CONGRESSO NAZIONALE
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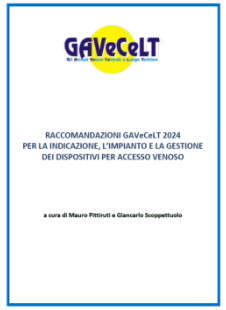
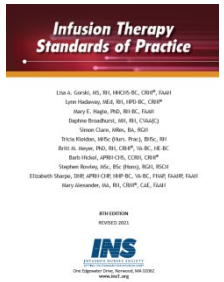
CESENA, Cesena fiere

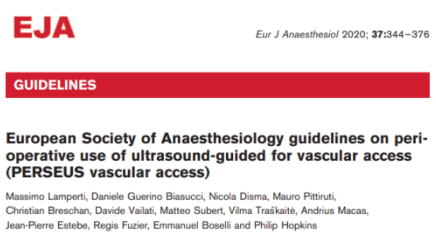
Studio ecografico delle vene della regione cervico-toracica (protocollo RaCeVA) e il protocollo SIC per il posizionamento ecoguidato dei CICC

Fabrizio Brescia
SOC Anestesia e Rianimazione – Team Accessi Vascolari
Centro di Riferimento Oncologico di Aviano - Pordenone

L'uso dell'ecografia offre significativi vantaggi in termini di sicurezza del paziente e qualità della procedura durante il posizionamento di qualsiasi accesso venoso centrale







Uso globale dell'ecografia

Valutazione ecografica preliminare

Venipuntura

Diagnosi immediata di complicanze da venipuntura

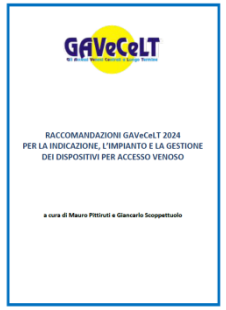
Tip navigation - corretta direzione del catetere

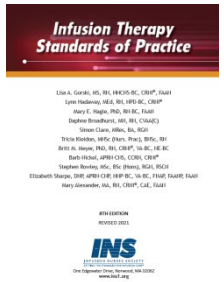
Tip location - posizione della punta del catetere

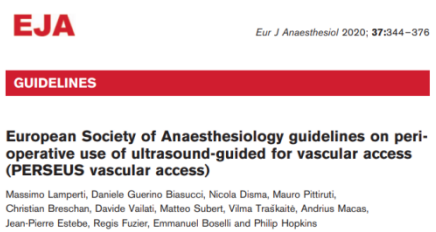
Diagnosi/monitoraggio delle complicanze tardive non infettive

Oltre l'ecografia…

Strategie che aumentano sicurezza ed economicità della procedura







Antisepsi cutanea con clorexidina al 2% in alcool

Massime precauzioni di barriera

Scelta corretta dell'exit-site

ECG intracavitario per la tip location

Sistemi di fissaggio sutureless e colla in cianoacrilato

Insertion bundle

Poche e chiare raccomandazioni basate su evidenze scientifiche capaci di agire sinergicamente per fornire sicurezza, efficacia ed economicità di una procedura

Ridurre al minimo le complicanze correlate al posizionamento di un catetere venoso centrale

- Complicanze legate alla venipuntura
- Malposizionamenti
- Aritmie
- Trombosi venose catetere-correlate
- Infezioni catetere-correlate

Editorial

JVA The Journal of Vascular Access

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1–6

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The SIC protocol: A seven-step strategy to minimize complications potentially related to the insertion of centrally inserted central catheters

Fabrizio Brescia[1], Mauro Pittiruti[2], Matthew Ostroff[3], Timothy R Spencer[4] and Robert B Dawson[5]

7
steps

Table 1. The seven steps of the SIC protocol.

Step 1	*Preprocedural evaluation*—choice of the vein by systematic ultrasound examination of the veins of the neck and of the supra/infraclavicular region (RaCeVA protocol) and choice of the ideal exit site (Central ZIM)
Step 2	*Appropriate aseptic technique*—hand hygiene, skin antisepsis with 2% chlorhexidine in 70% alcohol, maximal barrier precautions
Step 3	*Ultrasound-guided insertion*—ultrasound-guided venipuncture, ultrasound verification of the correct direction of the guidewire (tip navigation) and of the absence of pneumothorax (pleural scan)
Step 4	*Intra-procedural assessment of tip location*—verification of the central position of the tip by intracavitary ECG and/or by transthoracic echocardiography, using the "bubble test"
Step 5	*Adequate protection of the exit site*—reduction of the risk of bleeding and risk of contamination by sealing with cyanoacrylate glue
Step 6	*Proper securement of the catheter*—stabilization of the catheter using skin-adhesive sutureless devices, transparent dressing with integrated securement or subcutaneous anchorage
Step 7	*Appropriate coverage of the exit site*—use of semi-permeable transparent dressing, preferably with high breathability

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RaCeVA - **Ra**pid **Ce**ntral **V**ein **A**ssessment

E' uno strumento efficace… e veloce

- per eseguire la valutazione della vene della regione cervico-toracica con un approccio metodico e sistematico
- per escludere anomalie venose come trombosi, stenosi, compressione esterna, variazioni anatomiche di dimensioni e forme;
- per scegliere la vena adeguata per mantenere un catetere/vena appropriato (ideale 1:3 o meno) in modo da ridurre il rischio di trombosi catetere correlata
- per ottenere una valutazione anatomica completa per l'ottimale selezione del sito e della tecnica di venipuntura

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Step 7	Sliding lung (longitudinal)	Pleura (anterior chest wall)	Ribs

Review
JVA The Journal of Vascular Access

Rapid Central Vein Assessment (RaCeVA): A systematic, standardized approach for ultrasound assessment before central venous catheterization

The Journal of Vascular Access
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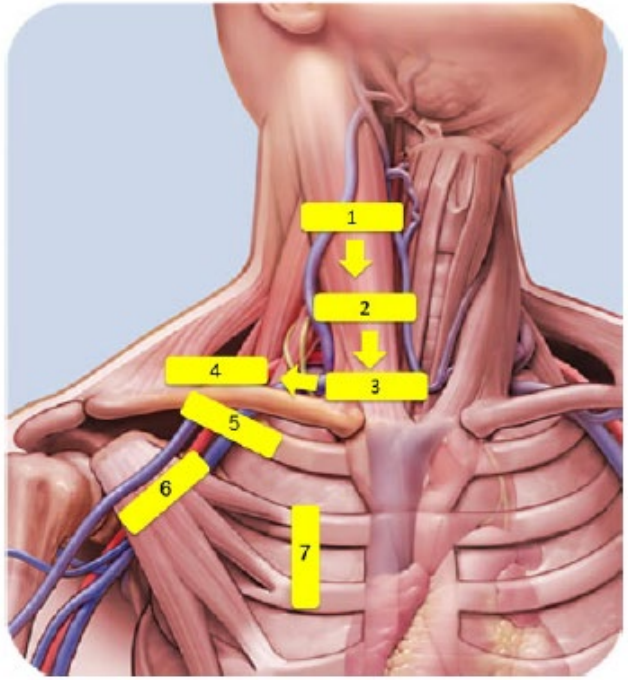
Timothy R Spencer[1] and Mauro Pittiruti[2]



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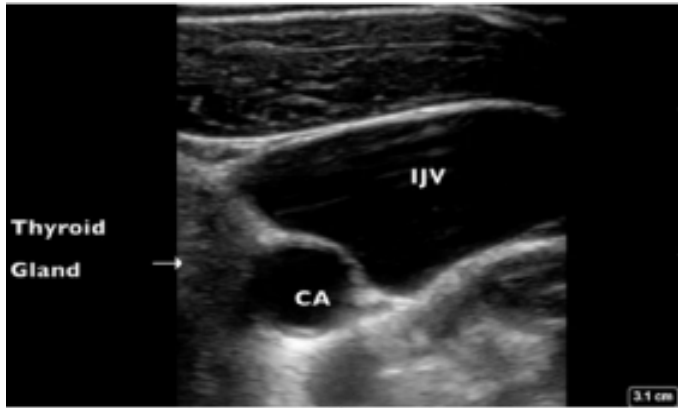

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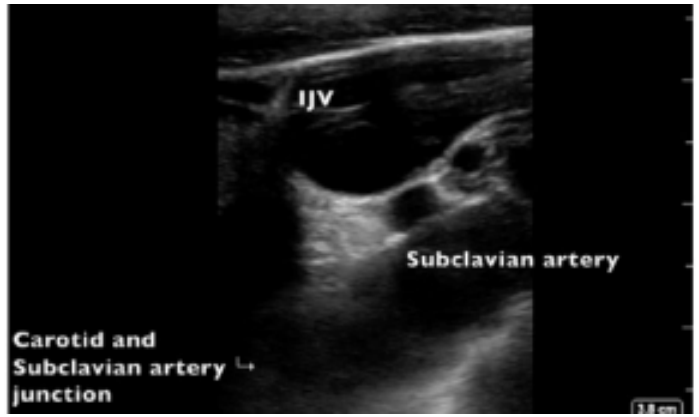

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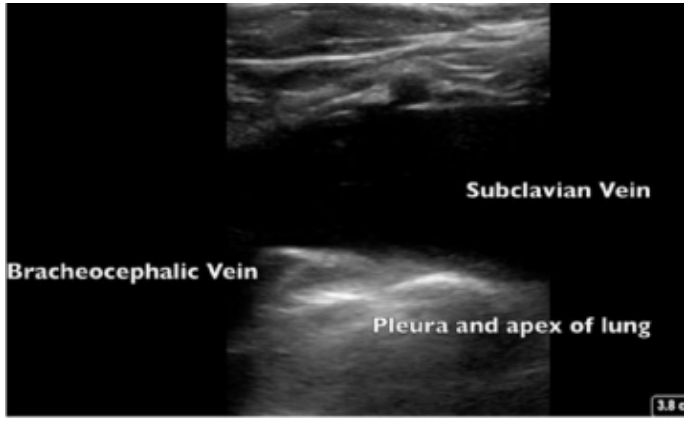

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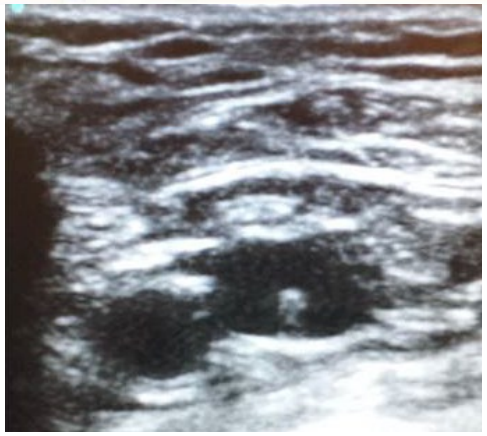

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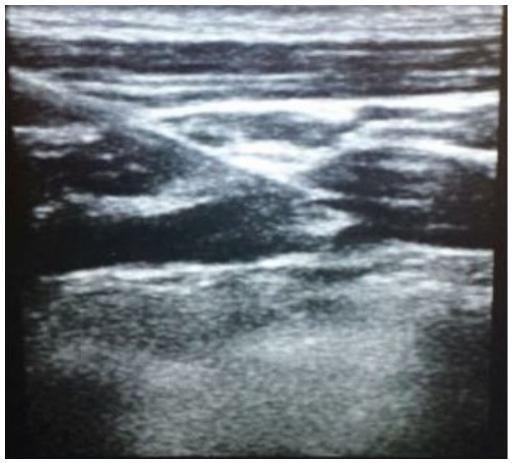

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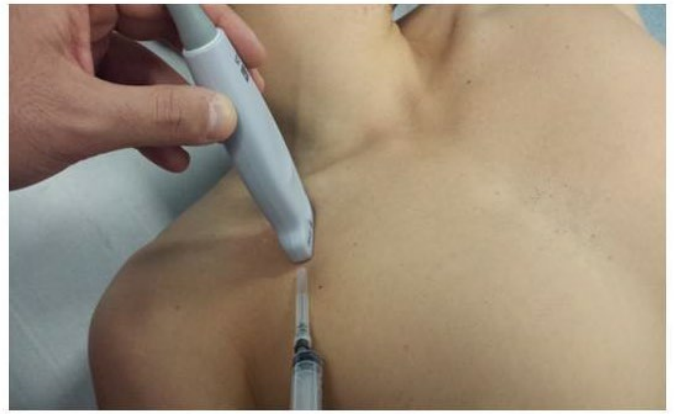

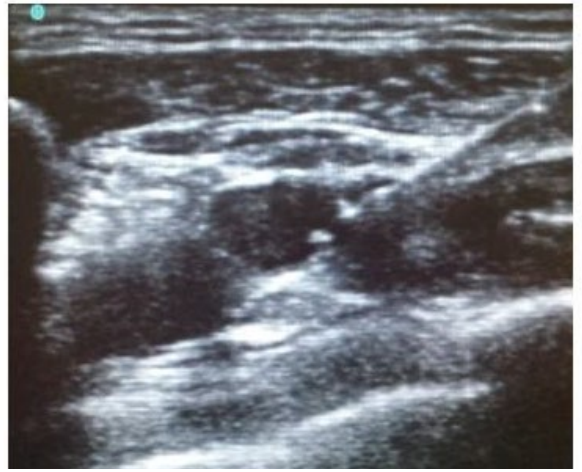

Techniques in vascular access

JVA The Journal of Vascular Access

A novel ultrasound-guided approach to the axillary vein: Oblique-axis view combined with in-plane puncture

Fabrizio Brescia[1], Daniele G Biasucci[2], Fabio Fabiani[1], Michela Favarato[1], Fabio Costa[3], Ferdinando Longo[3], Matteo Martuscelli[3], Michelangelo Vitiello[4] and Mauro Pittiruti[5,6]

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RaCeVA - **Ra**pid **Ce**ntral **V**ein **A**ssessment

Rapid Central Vein Assessment:

- It takes only 20–30 s for each side
- It is easy to teach, easy to learn
- It is a useful guide for a rational choice of the central vein to be accessed, in terms of:
  - Patient's safety
  - Cost-effectiveness
  - Improved performance of central venous catheterization

Review

JVA The Journal of Vascular Access

Rapid Central Vein Assessment (RaCeVA): A systematic, standardized approach for ultrasound assessment before central venous catheterization

The Journal of Vascular Access
1–11
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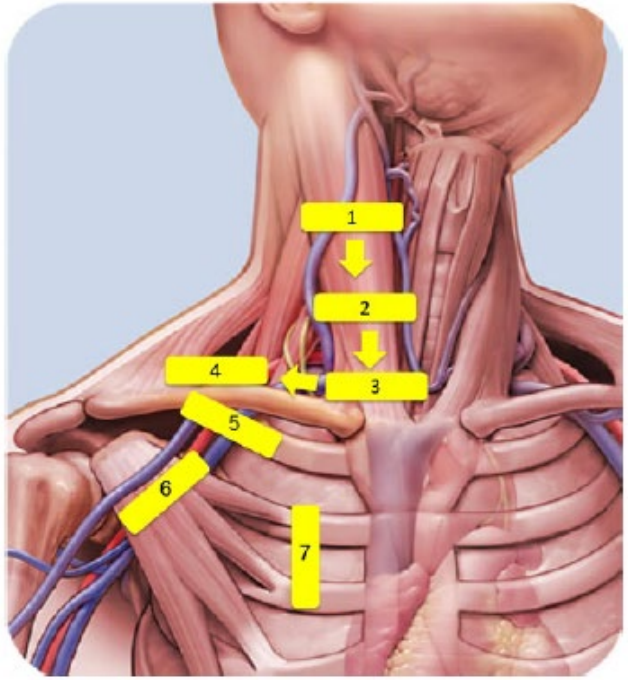

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Criteria for choosing the vein.

1. Size of the vein (internal diameter/caliber)
2. Depth of the vein (depth of target vessel from skin surface)
3. Respiratory variations (influence of respiratory cycle on vein diameter)
4. Compression by artery (influence of arterial pulsation on vein diameter)
5. Proximity to non-venous structures which must not be damaged (pleura, nerve, and artery)
6. Exit site location—convenience/appropriateness in terms for best care and maintenance

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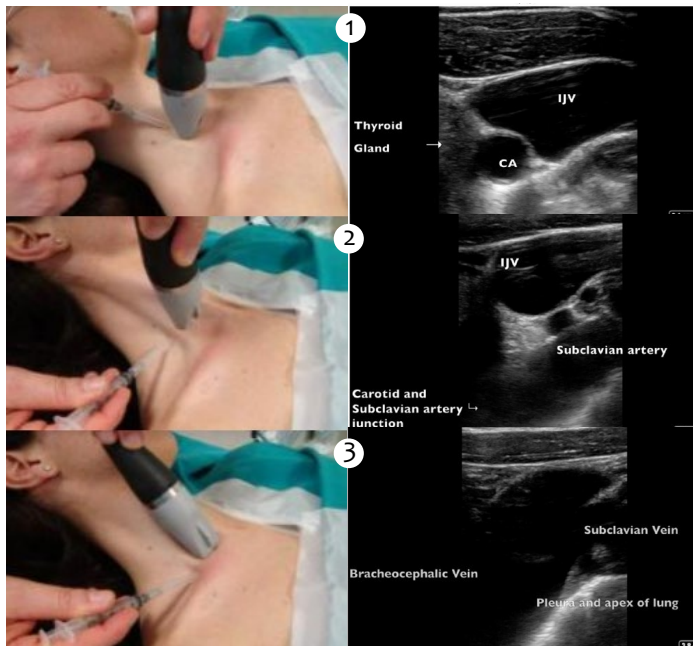

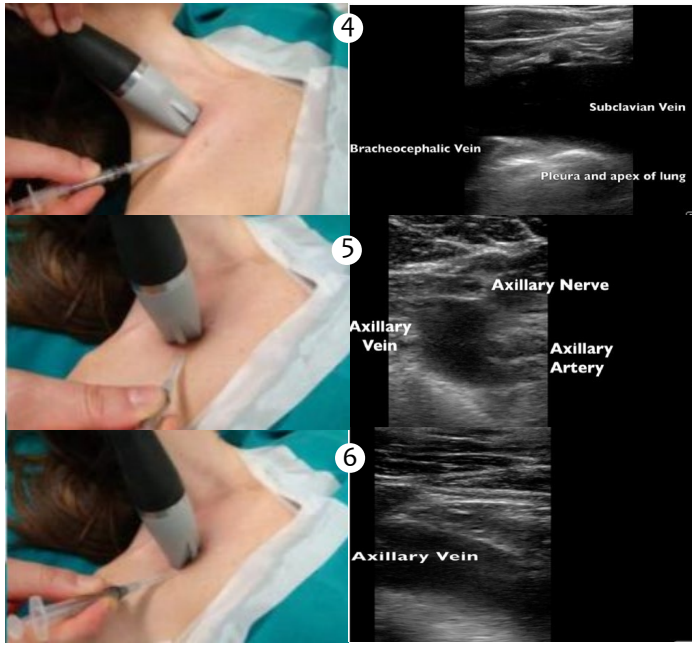

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Il rischio di infezione dell'accesso venoso centrale dipende anche dalla scelta dell'exit-site

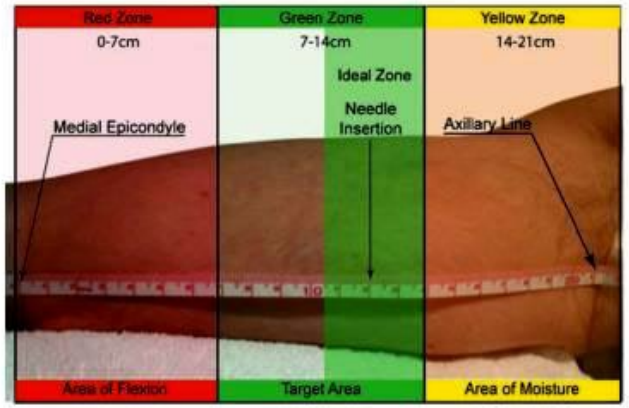
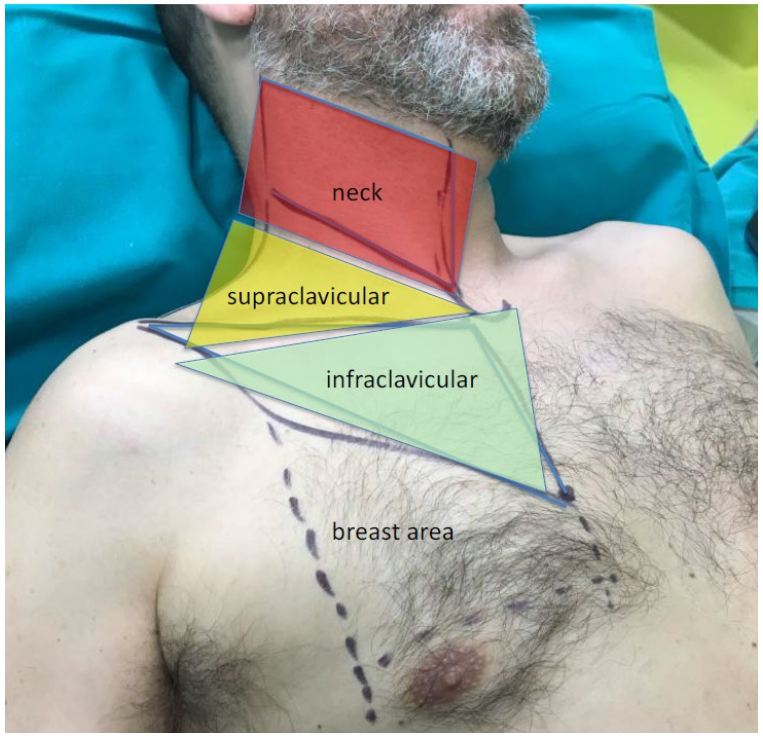


Figure 1. This person has a 21cm Total Zone Measurement (TZM), it divides into three 7cm zones to form the Red, Green and Yellow Zones. The ideal basilic vein image was located at 12cm from the medical epicondyle (MEC), in the Ideal Zone. Image by author.

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

Robert B. Dawson
MSA, BSN, RN, CRNI, CPUI, VA-BC

Central ZIM protocol



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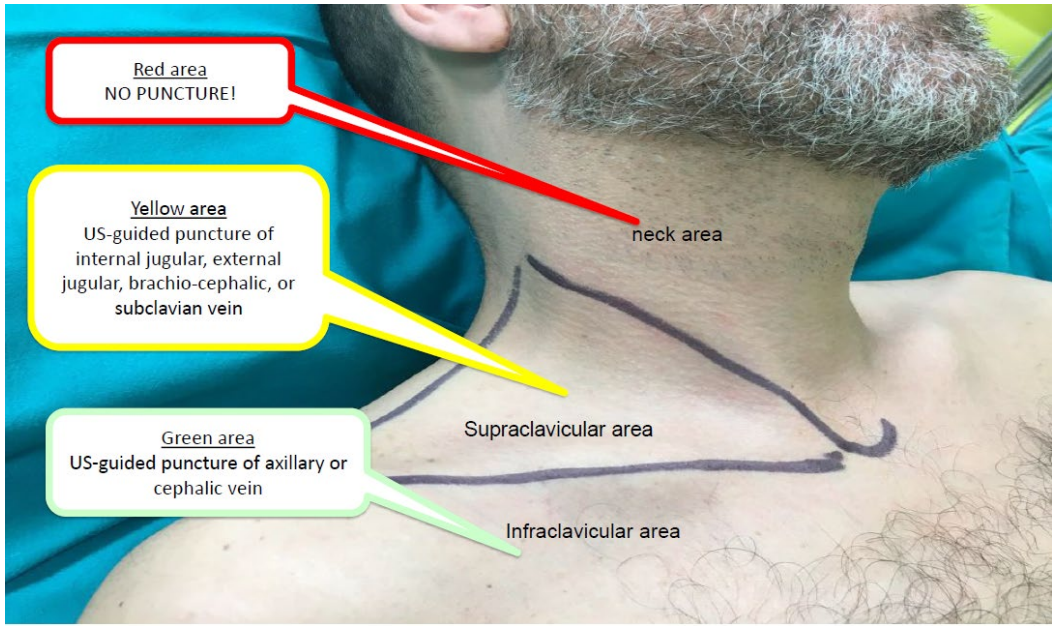
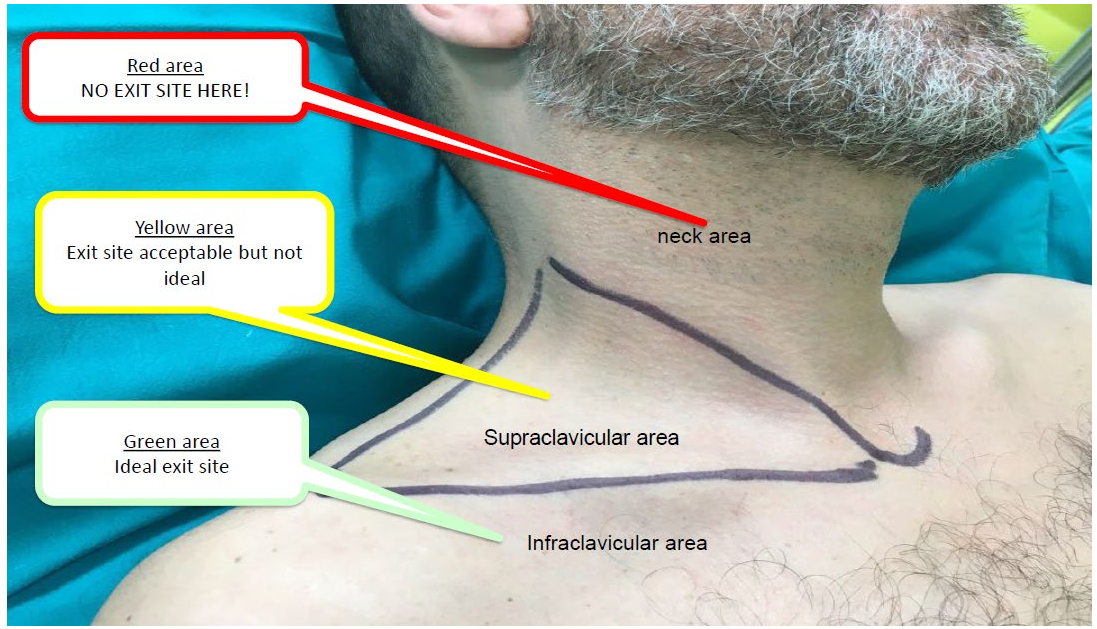
Central ZIM protocol

Venipuntura ecoguidata



Exit-site dei CICC



Un sito di venipuntura ottimale potrebbe non corrispondere ad un exit site ideale

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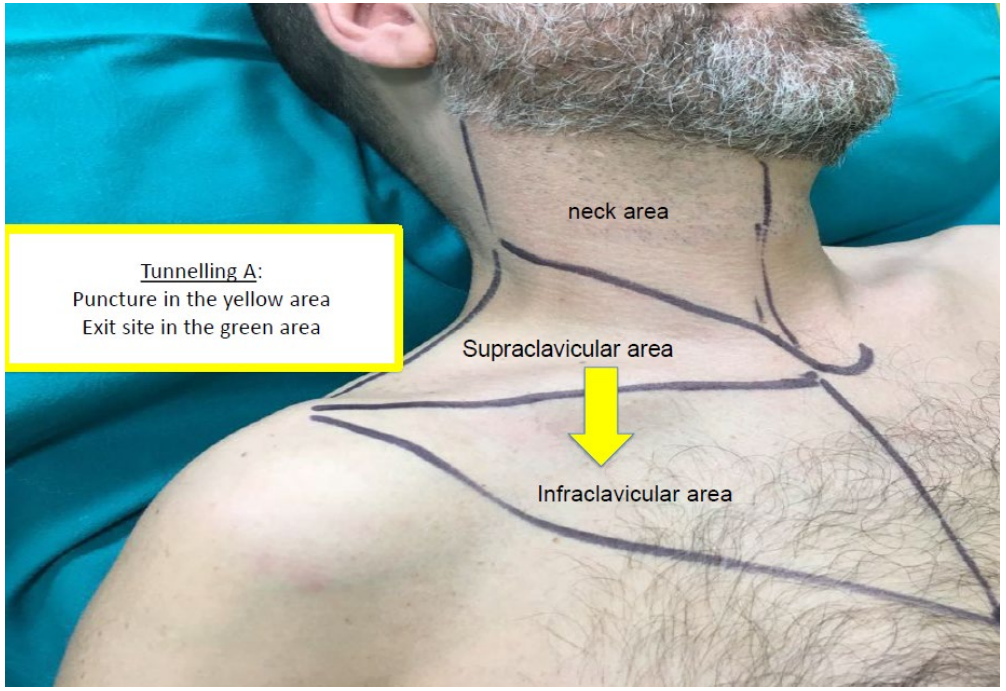
La **TUNNELLIZZAZIONE** del catetere è una strategia semplice ed efficace per ottenere un exit site ottimale



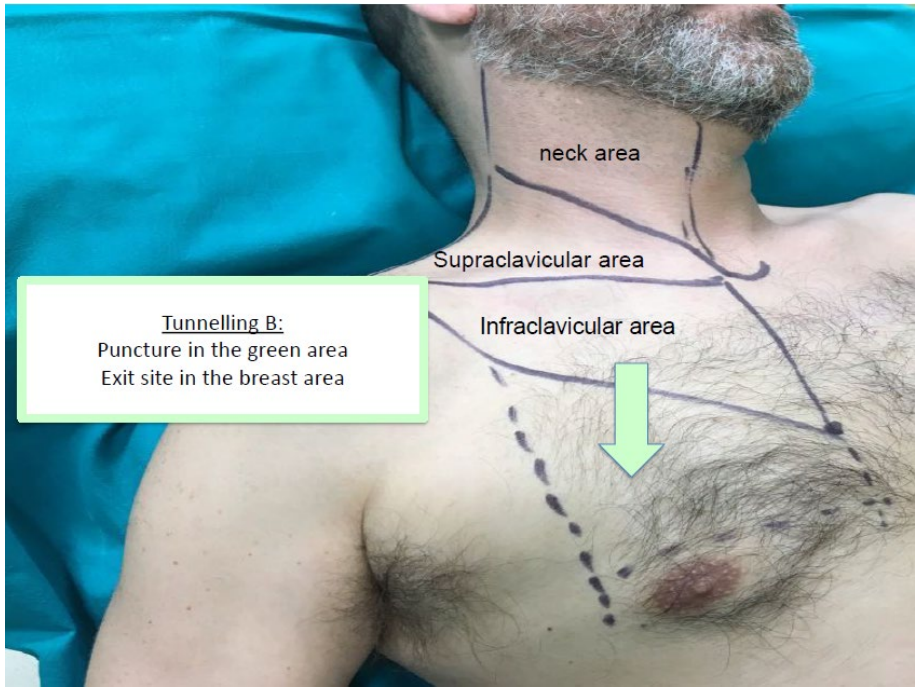


Table 1. The seven steps of the SIC protocol.

Step 1	*Preprocedural evaluation*—choice of the vein by systematic ultrasound examination of the veins of the neck and of the supra/infraclavicular region (RaCeVA protocol) and choice of the ideal exit site (Central ZIM)

Protocollo **RaCeVA** per la scelta del sito di venipuntura ideale

Protocollo **ZIM centrale** per la scelta dell'exit site ideale

Review

JVA The Journal of Vascular Access

Rapid Central Vein Assessment (RaCeVA): A systematic, standardized approach for ultrasound assessment before central venous catheterization

The Journal of Vascular Access
1–11

DOI: 10.1177/1129729818804718
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Timothy R Spencer[1] and Mauro Pittiruti[2]

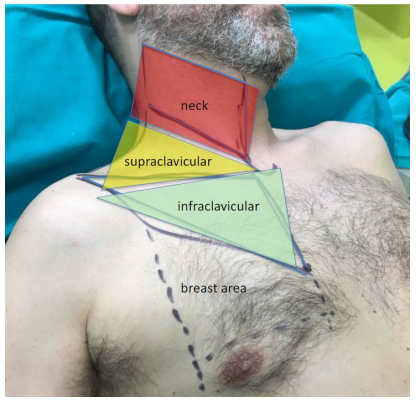


Table I. The seven steps of the SIC protocol.

Step 2	*Appropriate aseptic technique*—hand hygiene, skin antisepsis with 2% chlorhexidine in 70% alcohol, maximal barrier precautions

Lavaggio delle mani e antisepsi cutanea con clorexidina al 2% in alcol isopropilico al 70%

Section Three: Infection Prevention and Control

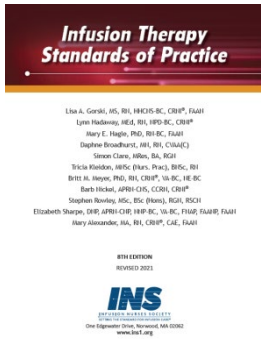
16. HAND HYGIENE

Standard

16.1 Hand hygiene is performed routinely during patient care activities.

B. Use an alcohol-based hand rub (ABHR), containing at least 60% ethanol or 70% isopropyl alcohol, routinely for hand hygiene unless the hands are visibly soiled, or if the patient is suspected of having/or there is an outbreak of a spore-forming pathogen or norovirus gastroenteritis.[1-6] (I)
   1. Unless hands are visibly soiled, an ABHR is preferred over soap and water in most clinical situations due to evidence of better compliance compared to soap and water. Hand rubs are generally less irritating to hands and are effective in the absence of a sink.[1-6] (II)
   2. Perform hand hygiene using an ABHR for at least 20 seconds.[1-6] (I)

C. Use either a nonantimicrobial or antimicrobial soap and water for hand hygiene and wash hands for at least 20 seconds:



Section Five: Vascular Access Device Selection and Placement

33. VASCULAR ACCESS SITE PREPARATION AND SKIN ANTISEPSIS

Standard

33.1 Skin antisepsis is performed prior to VAD placement.
33.2 The intended VAD insertion site is visibly clean prior to application of an antiseptic solution; if visibly soiled, cleanse the intended site with soap and water prior to application of antiseptic solution(s).

Practice Recommendations

A. Remove excess hair at the insertion site if needed to facilitate application of VAD dressings; use single-patient-use scissors or disposable-head surgical clippers; do not shave as this may increase the risk for infection.[1,2] (I)
B. Evaluate patient history of any allergy or sensitivity to skin antiseptics (see Standard 55, *Catheter-Associated Skin Injury*).[3,4] (V)
C. Perform skin antisepsis using the preferred skin antiseptic agent of alcohol-based chlorhexidine solution.[5-10] (I)
   1. If there is a contraindication to chlorhexidine solution, an iodophor (eg, povidone-iodine) or 70% alcohol may also be used.[5,6,10] (IV)
   2. Aqueous chlorhexidine may be considered if there is a contraindication to alcohol-based chlorhexidine.[3] (IV)

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epic3: National Evidence-Based Guidelines for Preventing Healthcare-Associated Infections in NHS Hospitals in England

H.P. Loveday[a*], J.A. Wilson[a], R.J. Pratt[a], M. Golsorkhi[a], A. Tingle[a], A. Bak[a], J. Browne[a], J. Prieto[b], M. Wilcox[c]

4.4 General Asepsis

Hand decontamination and meticulous attention to the aseptic technique are essential during catheter insertion, manipulation, changing catheter site dressings and for accessing the system. Hands should be decontaminated using ABHR or liquid soap and water when hands are visibly soiled or potentially contaminated with organic material, such as blood and other body fluids.[45,53]

The aseptic technique should be used for the insertion and management of IVDs. Structured education should be provided to ensure that healthcare workers are trained and assessed as competent in performing the aseptic technique. Gloves should be worn for procedures involving contact with blood or body fluids. Sterile gloves must be worn for the insertion and dressing of CVCs.[334]

IVAD4 Hands must be decontaminated, with an alcohol-based hand rub or by washing with liquid soap and water if soiled or potentially contaminated with blood or body fluids, before and after any contact with the intravascular catheter or insertion site.
Class A

IVAD5 Use the aseptic technique for the insertion and care of an intravascular access device and when administering intravenous medication.
Class B

Table 1. The seven steps of the SIC protocol.

Step 2	*Appropriate aseptic technique*—hand hygiene, skin antisepsis with 2% chlorhexidine in 70% alcohol, maximal barrier precautions

Journal of Hospital Infection 86S1 (2014) S1-S70
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epic3: National Evidence-Based Guidelines for Preventing Healthcare-Associated Infections in NHS Hospitals in England

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Massime precauzioni di barriera

4.7 Maximal Sterile Barrier Precautions during Catheter Insertion

Maximal sterile barrier precautions for the insertion of central venous catheters reduces the risk of infection

The importance of strict adherence to hand decontamination and the aseptic technique as the cornerstone for preventing catheter-related infection is widely accepted. Although this is considered adequate for preventing infections associated with the insertion of short peripheral venous catheters, it is recognised that central venous catheterisation carries a significantly greater risk of infection.

Studies examined by HICPAC concluded that if MSB precautions were used consistently during CVC insertion, catheter contamination and subsequent catheter-related infections could be reduced significantly.[345,352,443,444] A prospective randomised trial that tested the efficacy of MSB precautions to reduce infections associated with long-term, non-tunnelled subclavian silicone catheters, compared with routine procedures, found that they decreased the risk of CR-BSI significantly.[443]

MSB precautions involve wearing sterile gloves and gown, cap and mask, and using a full-body sterile drape during insertion of the catheter.[334] It has been generally assumed that CVCs inserted in the operating theatre pose a lower risk of infection than those inserted on inpatient wards or other patient care areas.[372] However, data examined by HICPAC from two prospective studies suggest that the difference in risk of infection depended largely on the magnitude of barrier protection used during catheter insertion, rather than the surrounding environment (i.e. ward vs operating theatre).[345,443]

A systematic review of the value of MSB precautions to prevent CR-BSI defined the components as: the person inserting the catheter should wear a head cap, face mask, sterile body gown and sterile gloves, and use a full-size sterile drape.

Table I. The seven steps of the SIC protocol.

Step 3	*Ultrasound-guided insertion*—ultrasound-guided venipuncture, ultrasound verification of the correct direction of the guidewire (tip navigation) and of the absence of pneumothorax (pleural scan)

- Venipuntura ecoguidata mediante kit di microintroduzione
- Controllo ecografico "real time" della direzione del filo guida e/o della direzione del catetere – Tip navigation
- Controllo ecografico dell'assenza di pneumotorace

Intensive Care Med
DOI 10.1007/s00134-012-2597-x

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Lawrence A. Melniker
Susan T. Verghese

International evidence-based recommendations on ultrasound-guided vascular access

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

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

Table 1. The seven steps of the SIC protocol.

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SEI VENE pungibili per via ecoguidata

Quattro vene pungibili per via **sopraclaveare**

4

– **Vena giugulare interna**

– **Vena succlavia**

– **Vena anonima**

– **Vena giugulare esterna (tratto profondo)**

Due vene pungibili per via **sottoclaveare**

2

– **Vena ascellare (tratto toracico)**

– **Vena cefalica (tratto toracico)**

Review
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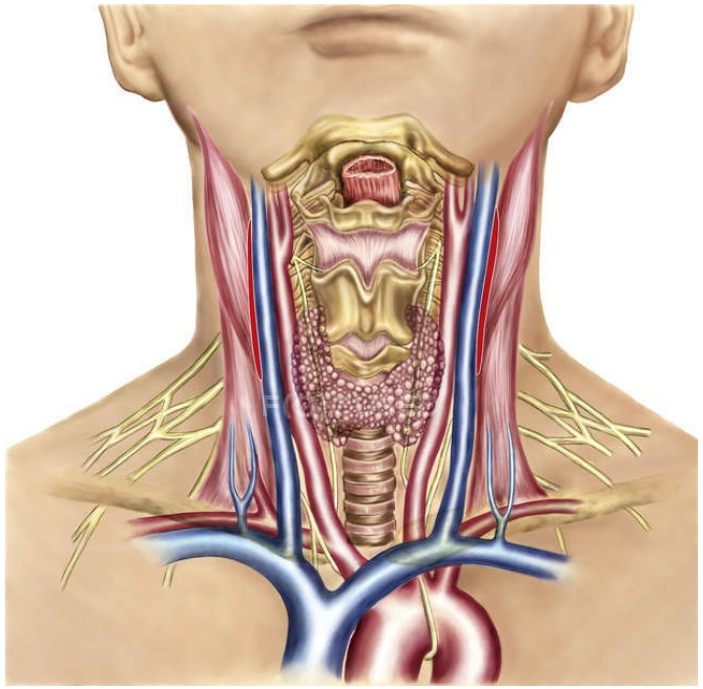
Rapid Central Vein Assessment (RaCeVA): A systematic, standardized approach for ultrasound assessment before central venous catheterization

Timothy R Spencer[1] and Mauro Pittiruti[2]



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Venipuntura in regione sovraclaveare

Review

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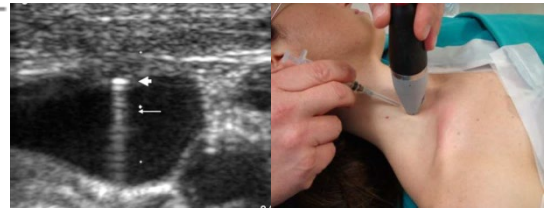
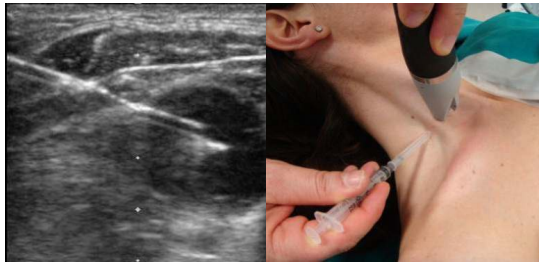
Rapid Central Vein Assessment (RaCeVA): A systematic, standardized approach for ultrasound assessment before central venous catheterization

Timothy R Spencer[1] and Mauro Pittiruti[2]

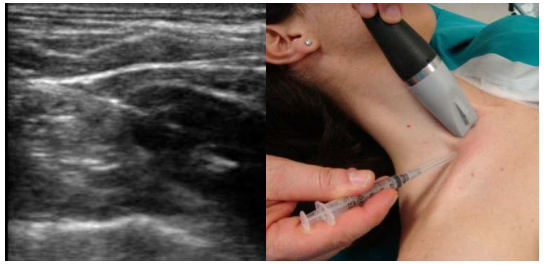
Vena giugulare interna (SA - out of plane)



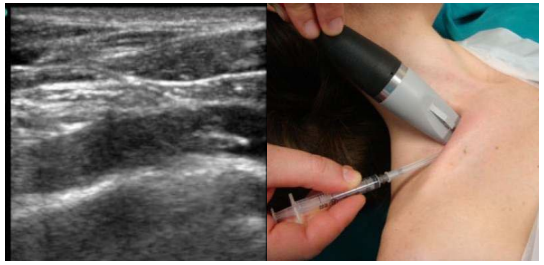
Vena giugulare interna (SA - in plane)



Vena anonima (LA - in plane)



Vena succlavia (LA - in plane)



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Venipuntura in regione infraclaveare

Review
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Timothy R Spencer[1] and Mauro Pittiruti[2]

Techniques in vascular access
JVA The Journal of Vascular Access

A novel ultrasound-guided approach to the axillary vein: Oblique-axis view combined with in-plane puncture

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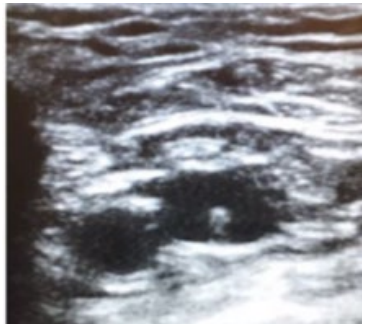
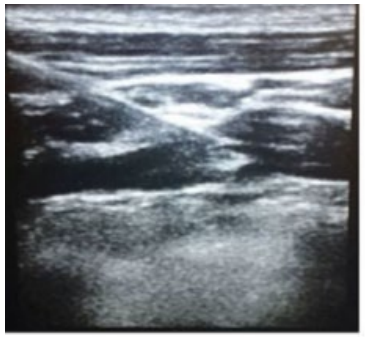
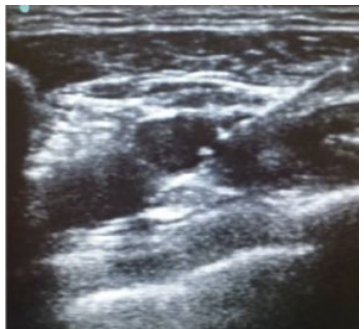
Vena ascellare (SA - out of plane)



Vena ascellare (LA - in plane)



Vena ascellare (OA - in plane)



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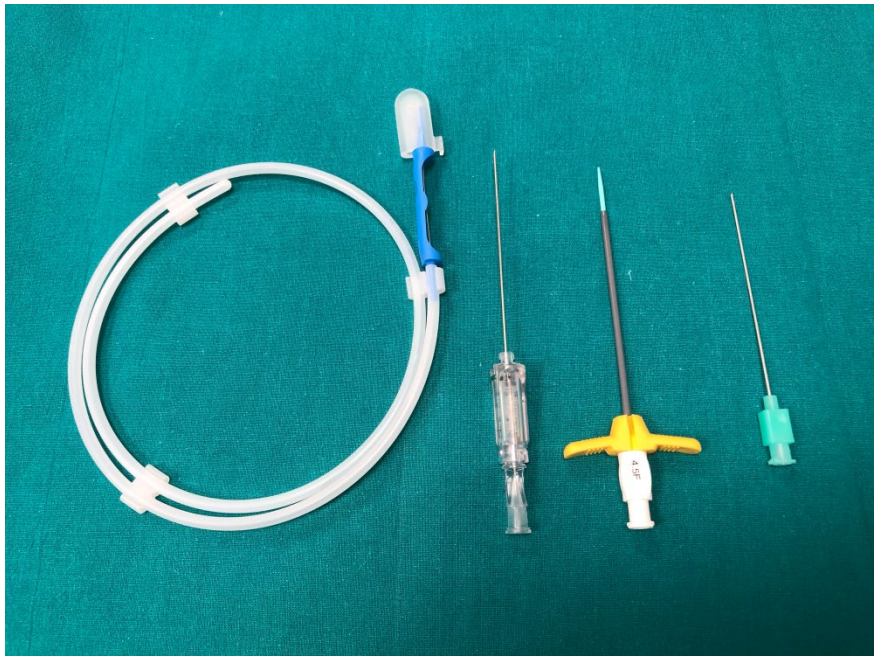
Step 3	*Ultrasound-guided insertion*—ultrasound-guided venipuncture, ultrasound verification of the correct direction of the guidewire (tip navigation) and of the absence of pneumothorax (pleural scan)

Kit da microintroduzione



Vantaggi

Venipuntura con ago minimamente invasivo

Guida metallica morbida che permette di superare facilmente qualunque ostacolo

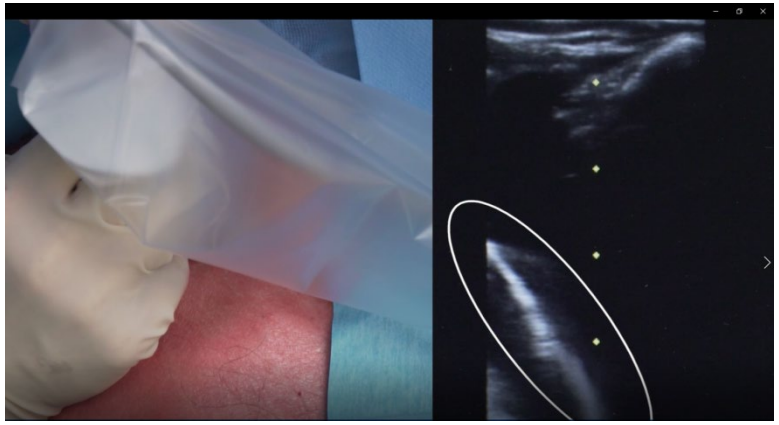
L'uso di un microintroduttore/dilatatore garantisce un dilatazione meno traumatica della vena

Table 1. The seven steps of the SIC protocol.

Step 3	*Ultrasound-guided insertion*—ultrasound-guided venipuncture, ultrasound verification of the correct direction of the guidewire (tip navigation) and of the absence of pneumothorax (pleural scan)

- Controllo ecografico “real time” della direzione del filo guida e/o della direzione del catetere – **Tip navigation**

- Controllo ecografico dell'assenza di pneumotorace



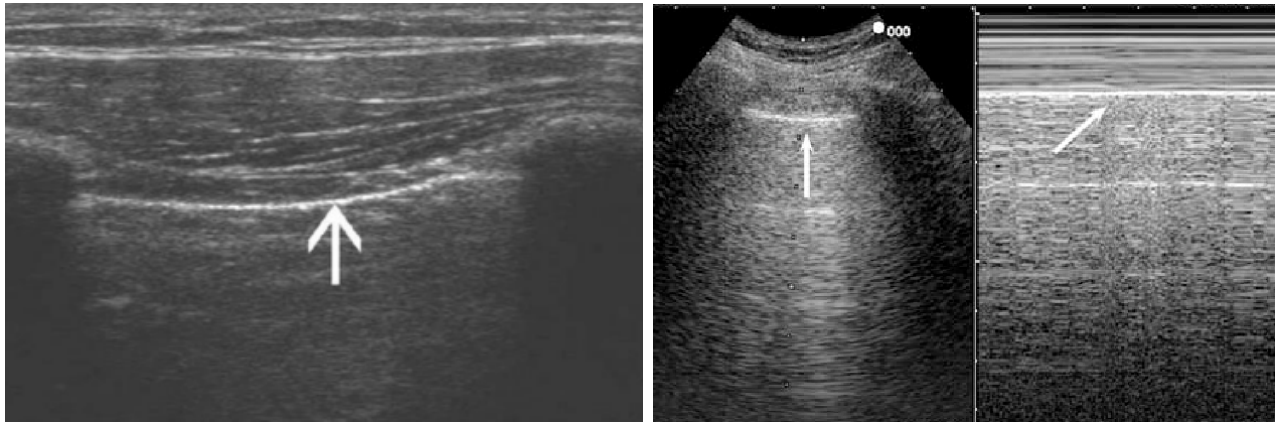
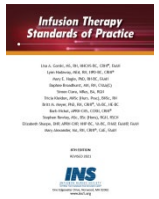
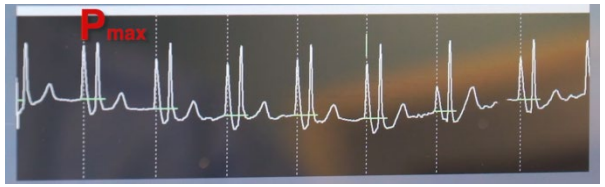


Table 1. The seven steps of the SIC protocol.

Step 4	*Intra-procedural assessment of tip location*—verification of the central position of the tip by intracavitary ECG and/or by transthoracic echocardiography, using the "bubble test"

Tip location





E. Use methods for identifying CVAD tip location during the insertion procedure (ie, "real-time") due to greater accuracy, more rapid initiation of infusion therapy, and reduced costs.[38-47] (III)
   1. Use electrocardiogram (ECG) methods with either a metal guidewire or a column of normal saline inside the catheter lumen and observe the ECG tracing to place the CVAD tip at the CAJ. Follow manufacturers' directions for use with other ECG-based technology using a changing light pattern to detect tip location.[1,2,4,11,23,24,26,27,43,44,48-61] (II)
   6. Postprocedure radiograph imaging is not necessary if alternative tip location technology confirms proper tip placement.[46,50,71] (II)

F. Confirmation of tip location by postprocedure chest radiograph remains acceptable practice and is required in the absence of technology used during the procedure. This method is less accurate because the CAJ cannot be seen on the radiograph, requiring identification of tip location by measurement from the carina, trachea-bronchial angle, or thoracic vertebral bodies. Patient repositioning or movement results in distal or proximal migration of the catheter tip by as much as 2 cm dependent on the movement.[4,12,69,72-75] (II)

Nei pazienti con fibrillazione atriale (7-11%), l'IC-ECG modificato può sostituire l'IC-ECG convenzionale come metodo di tip location

Original research article

JVA The Journal of Vascular Access

A modified intracavitary electrocardiographic method for detecting the location of the tip of central venous catheters in atrial fibrillation patients

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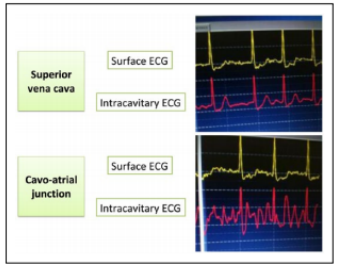
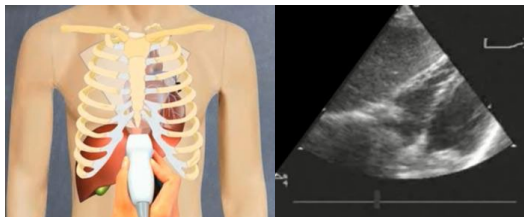


Figure 1. ECG patterns in AF patients when the tip is in the superior vena cava or at the cavo-atrial junction (CAJ), comparing the surface and intracavitary traces of lead II.

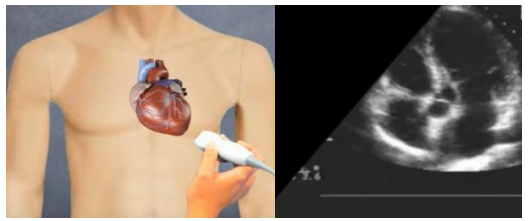
Table 1. The seven steps of the SIC protocol.

Step 4	*Intra-procedural assessment of tip location*—verification of the central position of the tip by intracavitary ECG and/or by transthoracic echocardiography, using the "bubble test"

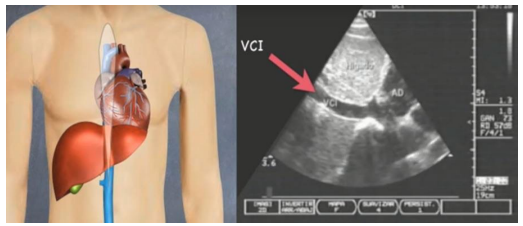
Tip location



Subcostal 4-chamber view



Apical 4-chamber view



Subcostal bicaval view

Ecocardioscopia transtoracica

- Finestra ecografica apicale o sottocostale 4-camere o bicavale
- Uso del '**bubble test**'

Rapida infusione di pochi ml di soluzione fisiologica attraverso il catetere:

- Premette di visualizzare meglio la punta del catetere se è localizzata nel campo ecocardiografico
- La comparsa delle 'bolle' nell'atrio destro immediatamente dopo l'infusione consente di stabilire che la punta del catetere è nel 1/3 inferiore della VCS o alla giunziona cavo-atriale

Table 1. The seven steps of the SIC protocol.

Step 5	*Adequate protection of the exit site*—reduction of the risk of bleeding and risk of contamination by sealing with cyanoacrylate glue
Step 6	*Proper securement of the catheter*—stabilization of the catheter using skin-adhesive sutureless devices, transparent dressing with integrated securement or subcutaneous anchorage
Step 7	*Appropriate coverage of the exit site*—use of semi-permeable transparent dressing, preferably with high breathability

Secure & Protect

Azione sinergica

Sistemi di fissaggio ad adesività cutanea o ad ancoraggio sottocutaneo

Colla in cianoacrilato

Membrane trasparenti ad alta traspirabilità

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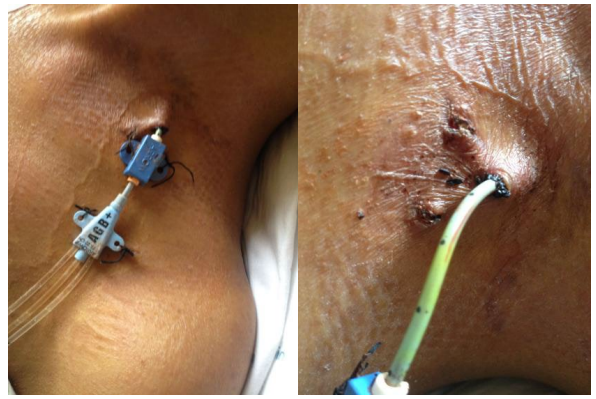
Stabilizzare il CICC senza punti di sutura. Usare dispositivi sutureless ad adesività cutanea o sistemi di fissaggio integrati nella medicazione adesiva o dispositivo ad ancoraggio sottocutaneo






MAI utilizzare i punti di sutura

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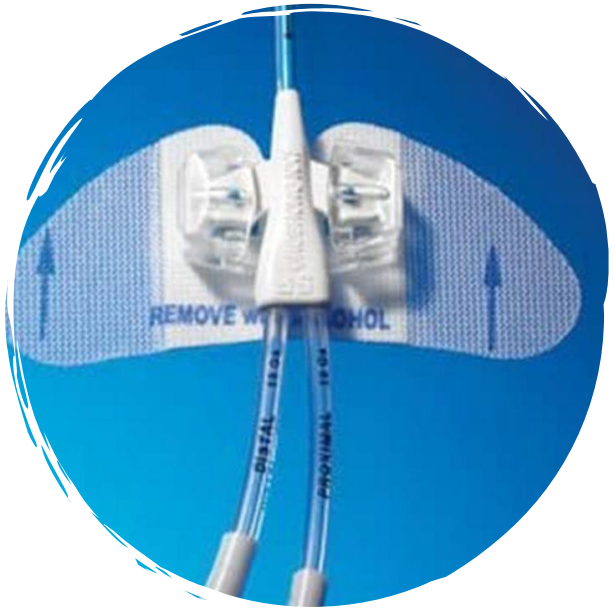
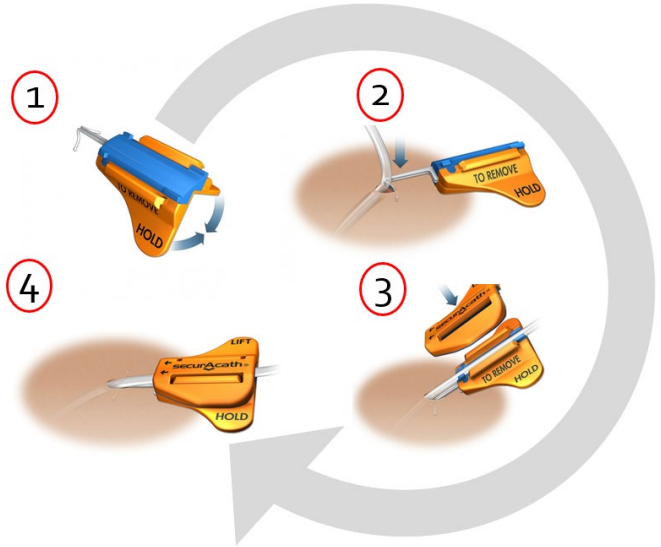


Table 1. The seven steps of the SIC protocol.

Step 5	*Adequate protection of the exit site*—reduction of the risk of bleeding and risk of contamination by sealing with cyanoacrylate glue
Step 6	*Proper securement of the catheter*—stabilization of the catheter using skin-adhesive sutureless devices, transparent dressing with integrated securement or subcutaneous anchorage
Step 7	*Appropriate coverage of the exit site*—use of semi-permeable transparent dressing, preferably with high breathability

Stabilizzare il CICC senza punti di sutura. Usare dispositivi sutureless ad adesività cutanea o sistemi di fissaggio integrati nella medicazione adesiva o **dispositivo ad ancoraggio sottocutaneo**



Original research article
JVA The Journal of Vascular Access

GAVeCeLT-WoCoVA Consensus on subcutaneously anchored securement devices for the securement of venous catheters: Current evidence and recommendations for future research

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Fulvio Pinelli[1], Mauro Pittiruti[2], Ton Van Boxtel[3], Giovanni Barone[4], Roberto Biffi[5], Giuseppe Capozzoli[6], Alessandro Crocoli[7], Stefano Elli[8], Daniele Elisei[9], Adam Fabiani[10], Cristina Garrino[11], Ugo Graziano[12], Luca Montagnani[13], Alessio Pini Prato[14], Giancarlo Scoppettuolo[15], Nicola Zadra[16], Clelia Zanaboni[17], Pietro Zerla[18], Evangelos Konstatinou[19], Matt Jones[20], Hervé Rosay[21], Liz Simcock[22], Marguerite Stas[23] and Gilda Pepe[15]

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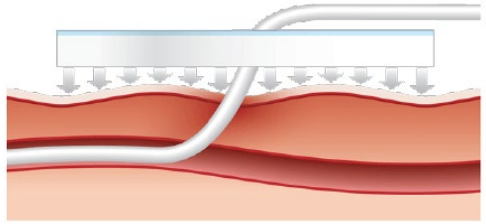
Utilizzare la **colla cianoacrilica** per sigillare l'exit site (e anche per il sito di puntura in caso di CICC tunnellizzato)

Dopo una settimana, nel caso di CICC non tunnellizzato, utilizzare una **spugna impregnata di clorexidina**



Protezione dal rischio di sanguinamento

Protezione dal rischio di contaminazione extraluminale

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Usare medicazioni trasparenti semipermeabili ad alta permeabilità (alto MVTR)

Adeguata protezione dell'exit site e riduzione della mobilità del catetere

- Riduzione della rischio di dislocazione
- Riduzione del rischio di trombosi venosa catetere-correlata
- Riduzione del rischio di infezione catetere correlata


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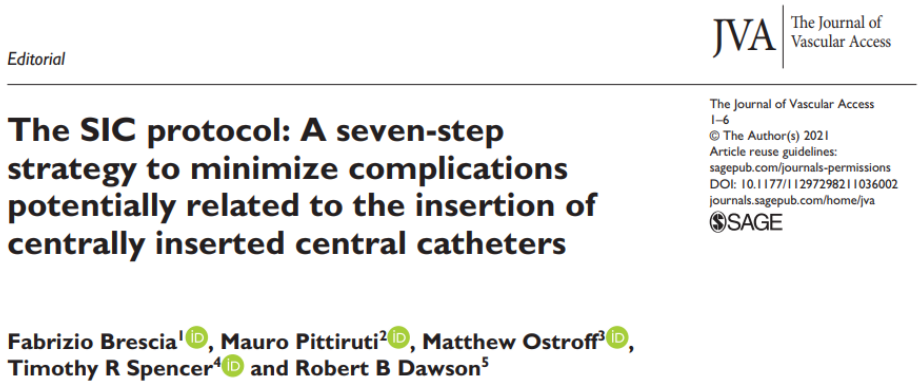
epic3: National Evidence-Based Guidelines for Preventing Healthcare-Associated Infections in NHS Hospitals in England

H.P. Loveday[a*], J.A. Wilson[a], R.J. Pratt[a], M. Golsorkhi[a], A. Tingle[a], A. Bak[a], J. Browne[a], J. Prieto[b], M. Wilcox[c]

Molte complicanze, anche quelle tardive, sono causate da scelte sbagliate al momento dell'inserimento



Editorial

JVA The Journal of Vascular Access

The SIC protocol: A seven-step strategy to minimize complications potentially related to the insertion of centrally inserted central catheters

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Fabrizio Brescia[1], Mauro Pittiruti[2], Matthew Ostroff[3], Timothy R Spencer[4] and Robert B Dawson[5]

Vantaggi di un insertion bundle

- Ridurre al minimo il rischio di tutte le complicanze, anche quelle potenzialmente costose
- Garantire procedure più rapide ed efficaci
- Migliorare la programmazione delle terapie e ridurre i tempi di attesa

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