

# Tecniche di pseudo-tunnellizzazione



# XVI PICC Day

## Convegno Nazionale Annuale sui PICC

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*Techniques in vascular access*

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# Rapid Assessment of Vascular Exit Site and Tunneling Options (RAVESTO): A new decision tool in the management of the complex vascular access patients

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1-7

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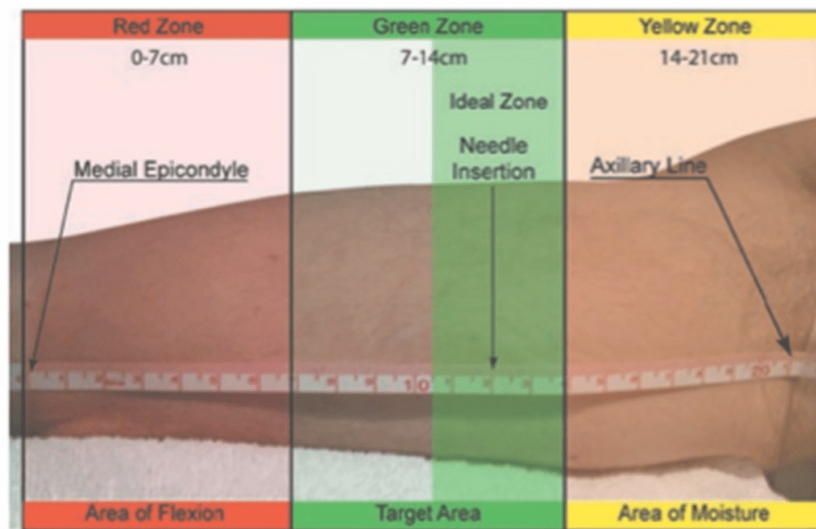
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**Table 1.** RAVESTO—Rapid Assessment of Vascular Exit Site and Tunneling Options.

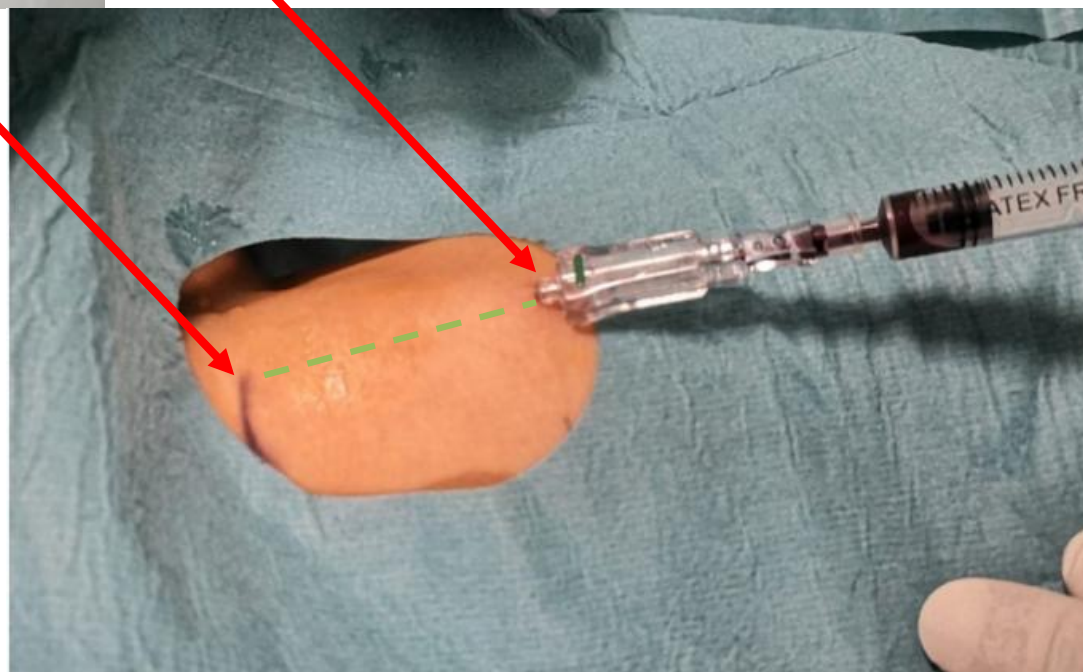
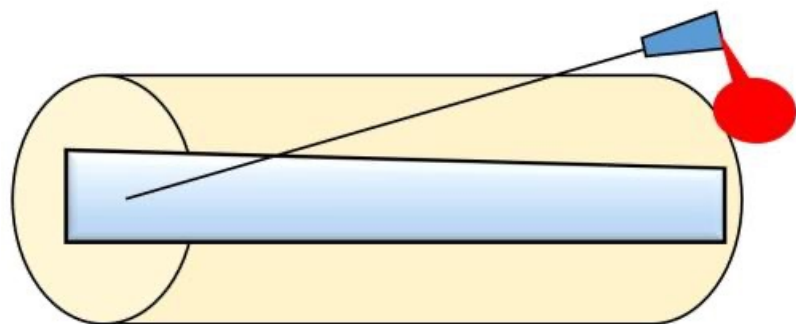
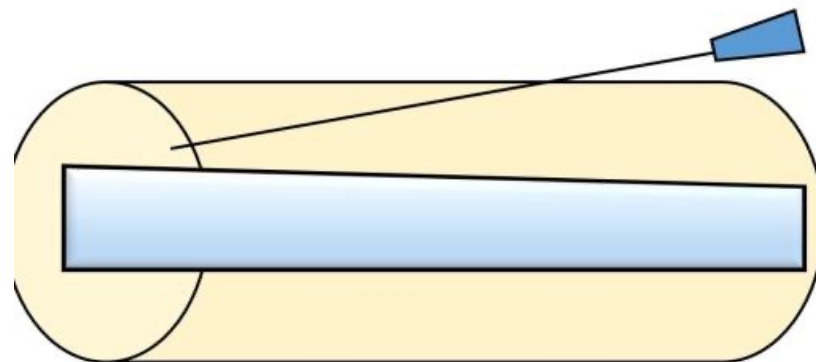
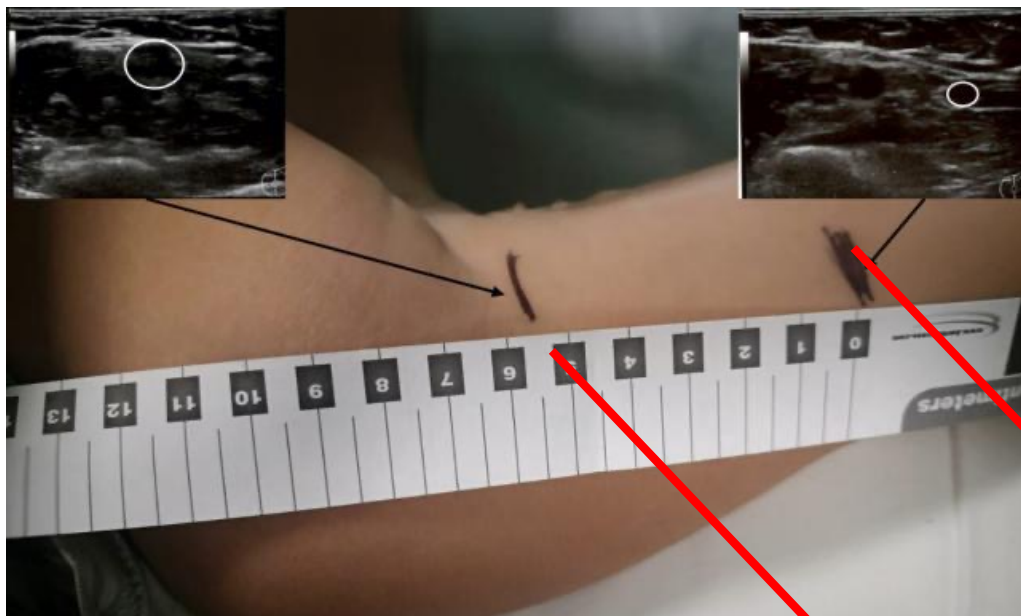
Central venous access device	Type and path of tunnel	Indications for tunneling
PICC	Tunnel to Dawson's green area	Puncture site in Dawson's yellow area; non-hospitalized patients with expected long intravenous treatment
CICC (supraclavicular puncture)	Tunnel to infraclavicular area	Long term intravenous treatment in non-hospitalized patients (antibiotics, parenteral nutrition, chemotherapy); expected difficulties in management of the exit site in hospitalized patients (beard, humidity, tracheostomy, instability, etc.)
	Tunnel to arm	Compromised skin integrity of the chest area; oral or endotracheal secretions over chest; implanted device on ipsilateral chest; chest surgery; contracted shoulder; etc.
	Tunnel to back	Cognitive disorder resulting in device removal; contraindication to chest or arm exit site
CICC (infraclavicular puncture)	Tunnel to lower chest	Long term intravenous treatment in non-hospitalized patients (antibiotics, parenteral nutrition, chemotherapy); expected problems in management of the exit site in hospitalized patients (tracheostomy, etc.)
	Tunnel to arm	Compromised skin integrity of the chest area; oral or endotracheal secretions over chest; implanted device on ipsilateral chest; chest surgery; contracted shoulder; etc.
	Tunnel to back	Cognitive disorder resulting in device removal; contraindication to chest or arm exit site
FICC (puncture at the groin)	Tunnel to the abdomen	Non-emergency line in walking patients with contraindication to PICC/CICC
	Tunnel to mid-thigh	Non-emergency line in bedridden patients with contraindication to PICC/CICC
FICC (puncture at mid-thigh)	Tunnel to the abdomen	Non-emergency line in walking patients with contraindication to PICC/CICC
	Tunnel to distal thigh	Long term intravenous treatment in bedridden patients with contraindication to PICC/CICC



**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

“Pseudo-tunneling” can be performed with all access devices and involves a single puncture (Figure 10). By this method, the venipuncture device (needle or catheter-over-needle) creates a long subcutaneous trajectory before reaching the vessel.<sup>5</sup> This technique has also been defined as “extended subcutaneous route.”<sup>16</sup> Considering that tunneling is defined as that technique where the entry site of the needle into the skin (puncture site) is different from the catheter exit site, the “extended subcutaneous route” cannot be regarded as a real tunneling, hence the term “pseudo-tunneling.” This technique has limited indications since the exit site can be moved only few centimeters far from the venipuncture site. It may be useful in neonates, in children and in PICCs requiring short tunneling.



## Pseudo-tunneling procedure: An easy technique for insertion of PICCs and Midline catheters in patients with small veins of the arm

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Cristian Pintossi<sup>1</sup>, Caterina Annovazzi<sup>1</sup>, Francesca Zanatta<sup>1</sup> and  
Daniele Alberti<sup>2,3</sup>

**Conclusions:** Our data suggest pseudo-tunneling technique is a safe and effective procedure for of Peripherally Inserted Central Catheters and Midline insertion avoiding central venous catheterization even in patient with small vein at the arms.

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### ORIGINAL ARTICLE

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## Pseudo-tunneling procedure: an advantageous and safe technique for brachial catheters in younger children

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**Conclusions:** Our data suggests that pseudo-tunneling is a safe and effective procedure for brachial device implants to avoid central venous catheterization even in pediatric patients.



## Results

From January 2014 to August 2022 150 PICCs and 221 midlines were insert in patients with too small deep veins at the middle third of the arm with this technique, 60 and 113 respectively in pediatric patients.

Of 371 procedures only 40 pediatric patients required general anesthesia because other painful procedures needed to be performed at the same time of PICC insertion in 38 patients, and in 2 cases the children were younger than 5 years old.

In adult patients the pseudo-tunneling technique was applied successfully at the first time in 85% of patients and at the second attempt in 15% of procedures; in children 79% of procedures succeeded at the first attempt while 21% required a second attempt. None of these procedures ended unsuccessfully.

## **Vantaggi pseudotunnellizzazione classica**

- Consente di allontanare l'exit site dal sito di ingresso nella vena
- Particolarmente utile per le vene profonde del braccio
- Allontana l'exit site da siti potenzialmente infetti
- Consente il posizionamento di PICC cuffiati
- Non utilizza altri device
- Non necessita di altre incisioni

## **Vantaggi pseudotunnellizzazione modificata vs classica**

- Non necessita di diversi punti di iniezione di anestetico
- Il tunnel è facilitato dall'idrodistensione provocata dall'anestetico locale
- Molto comoda col paziente pediatrico sedato

## **Svantaggi pseudotunnellizzazione classica**

- Consente di allontanare l'exit site dal sito di ingresso nella vena di solo pochi centimetri
- Necessita di una buona manualità dell'operatore

## **Svantaggi pseudotunnellizzazione modificata vs classica**

- Necessita della collaborazione del paziente
- Necessita di una attenta valutazione del paziente e dalla sua compliance prima della manovra

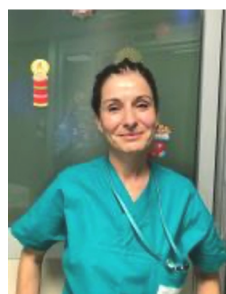


**Spedali Civili of Brescia**

**Ospedale dei Bambini**

**Montichiari**

**Gardone V.T.**



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