

Problematiche speciali dei PICC-port nel paziente pediatrico

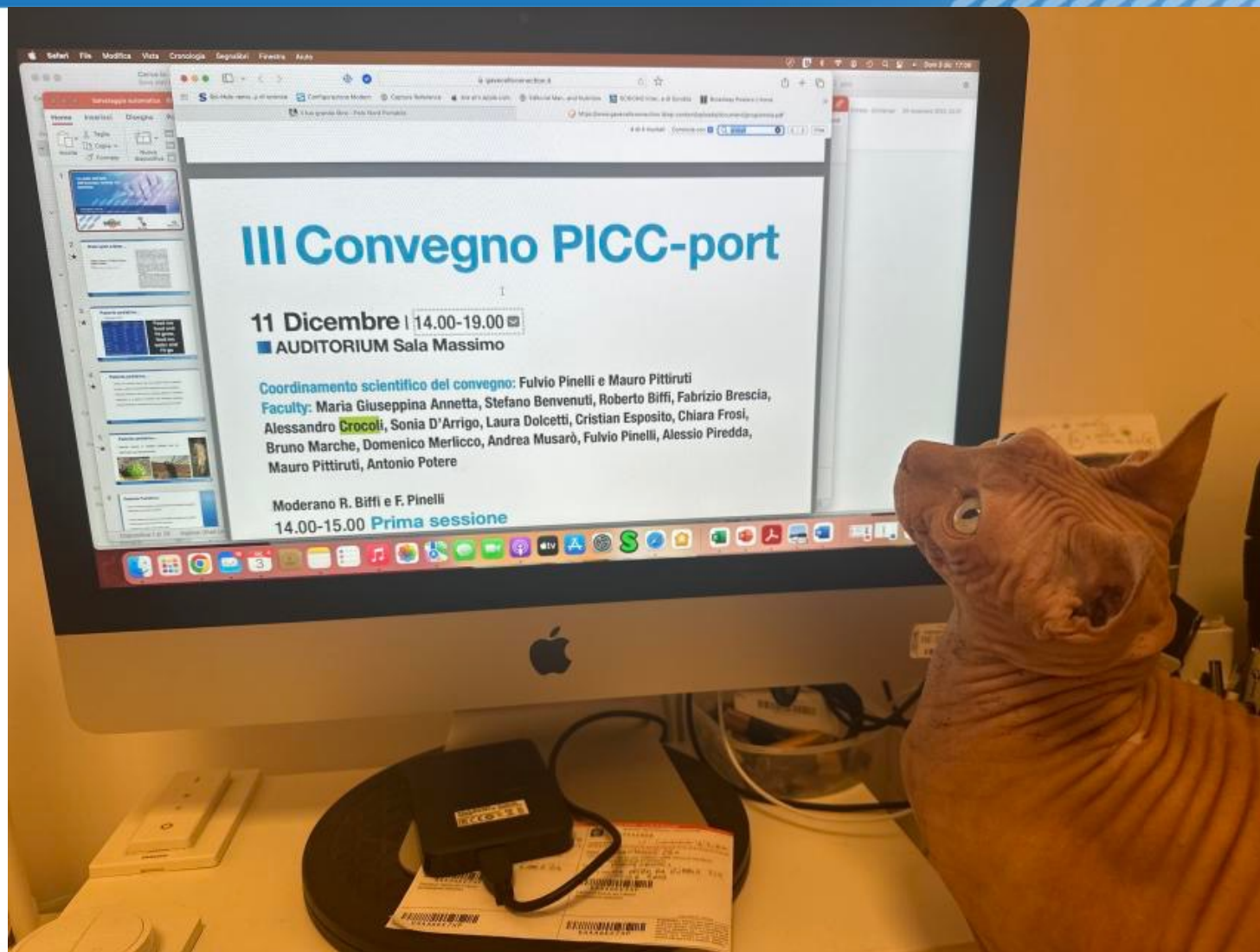
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III Convegno PICC-port





L'inserimento di dispositivi di accesso venoso totalmente impiantabili con serbatoio sottocutaneo (port) è una procedura ampiamente utilizzata nella pratica clinica.

I porti sono solitamente utilizzati nel paziente adulto sottoposto a trattamento chemioterapico o nelle terapie che richiedono un utilizzo “discontinuo” del dispositivo

ARM PORT / BRACHIAL PORT → dispositivo “adattato” allo stesso uso del CHEST Port, ma posizionato attraverso puntura diretta/preparazione chirurgica:

- della vena antecubitale del braccio
- della vena basilica / cefalica

BUONI RISULTATI IN TERMINI ESTETICI...



MA...

- NUMERO ENORME DI COMPLICANZE MECCANICHE (tra cui la ritenzione del dispositivo e l'impossibilità a rimuoverlo al termine delle terapie)
- TROMBOSI VENOSE PRESSOCHE' COSTANTI
- EARLY FAILURE DEL DISPOSITIVO.



MINISYMPOSIUM

James S. Donaldson

Pediatric vascular access

Venous ports can be placed in the upper arm in older children but have fewer complications when placed in the upper chest wall. We have abandoned placement of ports in the arms because of complications including wound dehiscence, skin erosion over the port, and difficulty accessing the port in the upper arm.



SIP – P Protocol

Brescia et al.

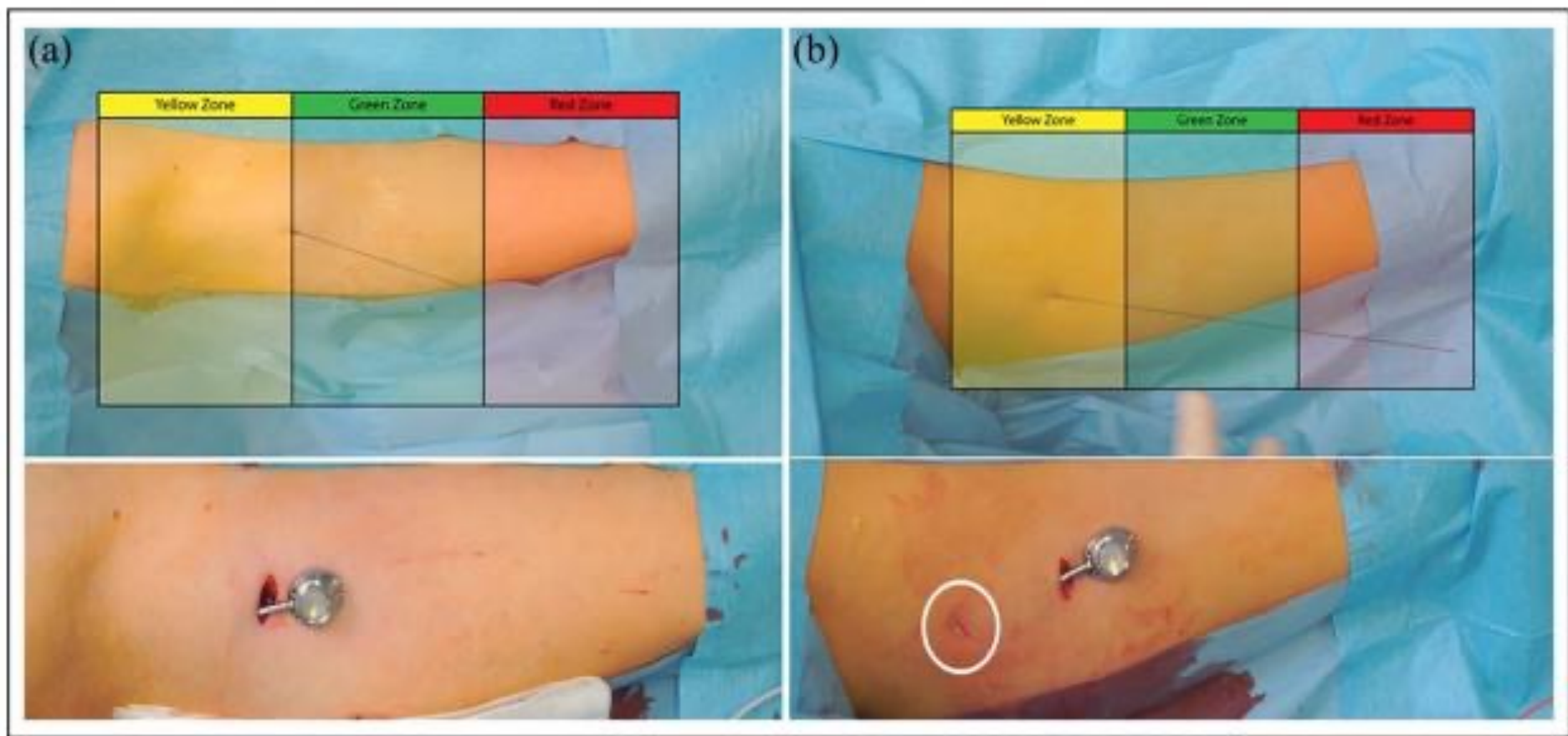
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Table 1. The eight steps of the SIP-P protocol.

Step 1	Pre-procedural assessment—systematic ultrasound examination of the veins of the arms (according to the RaPeVA protocol) so to choose the most appropriate vein and the best location for the reservoir
Step 2	Appropriate antiseptic technique—strict policy of hand hygiene, skin antisepsis with 2% chlorhexidine in 70% isopropyl alcohol, and use of maximal barrier precautions
Step 3	Choice of vein size and tunneling options—assessment of the diameter of the vein (considering that the ideal catheter-vein ratio should be of 1:3 or less), and evaluation of the opportunity of tunneling the catheter (considering that the reservoir should be in the green zone or on the border between yellow and green zone—according to Dawson's ZIM: thus, if the most appropriate vein is in the yellow zone the catheter must be tunneled)
Step 4	Clear identification of median nerve and brachial artery—identify each structure before venipuncture, using ultrasound
Step 5	Ultrasound-guided venipuncture—ultrasound-guided puncture and cannulation of a deep vein of the arm (either basilic, brachial, or axillary vein), preferably adopting the short axis/out-of-plane approach, always using a micro-introducer kit
Step 6	Ultrasound-based tip navigation—assess the correct direction of the guidewire by a supra-clavicular ultrasound scan (see the ECHOTIP protocol)
Step 7	Intra-procedural assessment of tip location—use intracavitary ECG and/or ultrasound (subcostal or apical view, using the “bubble test”: see the ECHOTIP protocol)
Step 8	Appropriate placement of the reservoir—subcutaneous placement of the reservoir above the biceps muscle, creating the pocket by hydro-dissection with local anesthetic and normal saline), closing the incision with intradermal absorbable sutures and cyanoacrylate glue

RaPeVA: Rapid Peripheral Vein Assessment; ZIM: Zone Insertion Method; ECHOTIP: protocol of ultrasound-based tip navigation and tip location (see text).





The site of the pocket creation can be either in the green zone or on the border between the yellow and the green zone according to Dawson's ZIM

Paziente pediatrico...

- Fabbisogno idrico...

Età	ATC (% peso corporeo)	Fluido extracellulare (%peso corporeo)	Fluido intracellulare (%peso corporeo)
Prematuri	80	45	35
A termine	75	40	35
1 mese-1 anno	65	30	35
1-12 anni	60	20	40
Adolescenti			
Maschi	60	20	40-45
Femmine	55	18	40
ATC, acqua totale corporea			

**Feed me
food and
I'll grow,
feed me
water and
I'll go**



Paziente pediatrico...

- Clearly, the simplest, safest, and most reliable source of vascular access in children is percutaneous peripheral venous cannulation.
- Although peripheral veins can be extremely difficult to cannulate (particularly in a patient in extremis), the emergency physician should nonetheless consider this as the primary means of access.



Paziente pediatrico...

- Vascular access in pediatric patients can be DIFFICULT and FRUSTRATING.



Paziente Pediatrico

- Even in non-emergent situations, successful and timely placement of a peripheral intravenous access (PIVA) is important.
- Multiple attempts at PIVA placement can be painful and frightening for a patient;
- affect Emergency Department/Pediatric Ward flow;
- and give the perception of poor quality of care.



Criticità del bambino

- Vene del braccio piccole
- Scarsa tolleranza alle puncture
- Alcune categorie di pazienti hanno CONTROINDICAZIONI
MAGGIORI al posizionamento di PICC



June 18, 2019

Don't PICC Your CKD Patients

Daniel D. Dressler, MD, MSc, SFHM, FACP, reviewing Paje D et al. Ann Intern Med 2019 Jun 4

Peripherally inserted central catheter placement is common in patients with advanced chronic kidney disease, despite guidance to the contrary.

This analysis suggests that we have room to improve on our vascular access selection for hospitalized patients with advanced CKD. Vein-protection strategies — including early patient education, PICC avoidance, vascular access teams empowered to minimize PICC use, and early nephrology and vascular surgery consultation — could improve vascular access decisions made by nonnephrologists when they care for hospitalized CKD patients.



Criticità del bambino

ELEVATO RISCHIO DI RITENZIONE DEL CATETERE!!!!

- young age at insertion
- increased port dwell time



IR Approaches to Difficult Removals of Totally Implanted Venous Access Port Catheters in Children: A Single-Center Experience

Table 1. Port Removals, 2003–2012 (N = 1,306)

	Difficult Removals (n = 58)	Simple Removals (n = 1,248)	P Value
Demographics			
Sex (M/F)	30/28	685/563	NS
Age at insertion (y)	3.7 (0.1–11.1)	5.4 (0.1–18.9)	.0019
Weight at insertion (kg)	18.25 (5–58.4)	20 (2.8–119.7)	NS
Age at removal (y)	7.1 (3–17.7)	7.5 (0.1–19.8)	NS
Weight at removal (kg)	28.5 (12.5–91)	26.3 (3.4–125)	NS
Primary diagnosis			
Acute lymphoblastic leukemia	45 (77.6%)	458 (36.7%)	< .001
Other tumors and malignancies	4 (6.9%)	598 (47.9%)	
Other diagnoses	9 (15.5%)	192 (15.4%)	
Dwell time (d)	1,087 (63–2,996)	615.5 (2–5,114)	< .0001
Removal procedure			
Duration of procedure (min)*	90 (60–240)	60 (25–180)	< .0001
Cost of removal procedure	\$1,322 (\$515–\$5,690)	\$939 (\$158–\$4,281)	< .0001



IR Approaches to Difficult Removals of Totally Implanted Venous Access Port Catheters in Children: A Single-Center Experience

Table 2 . Techniques Used to Remove Stuck Port Catheters (n = 58)

Technique Used	Grade of Difficulty	Port Removals
Required greater than normal traction and/or dissection along tract	1	13 (22%)
Required port catheter to be removed over guide wire	2	21 (36%)
Required secondary neck incision (in addition to grade 1 and 2 in 8; without a wire in 4), ± port catheter/wire exteriorized at neck	3	12 (21%)
Peel-away sheath (8 F) placed over port catheter wire combination, traction, dissection	4	2 (3%)
Femoral access with sheath (7 F, n = 3; 9 F, n = 2; 10 F, n = 2 sheaths). Snares used (GooseNeck 15 mm, n = 2; 20 mm, n = 4, 25 mm, n = 2; Trefoil, 15 mm, n = 1; > 1 snare tried in 2 patients)	5	7 (12%)
Additional maneuvers with other secondary wires, catheters	6	2 (3%)
Unable to be removed	7	1 (2%)



IR Approaches to Difficult Removals of Totally Implanted Venous Access Port Catheters in Children: A Single-Center Experience

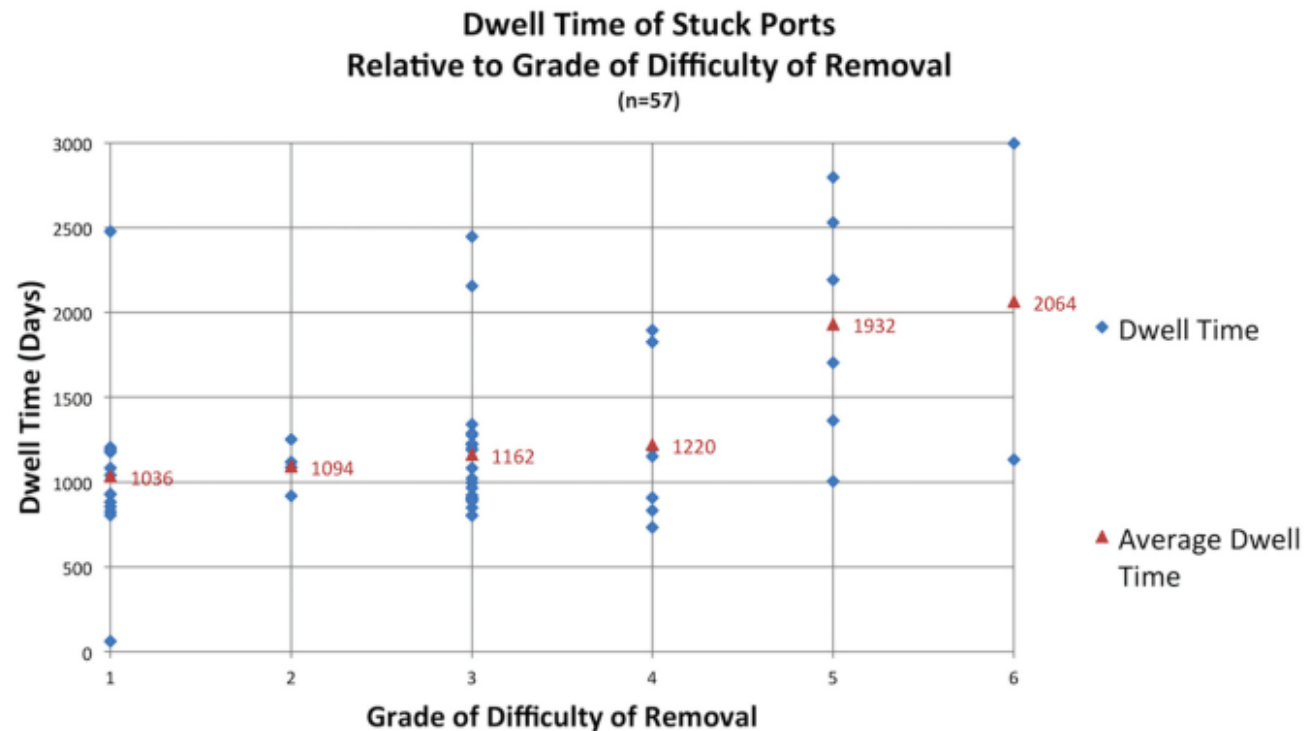


Figure 3. Relationship between port dwell time in stuck port catheters and the technique (Table 2) required to remove the port catheter. The seventh grade of removal ($n = 1$) is not included, as the port catheter was not removed.





CONCLUSIONI

A bundle of evidence-based strategies:

- may facilitate the appropriateness of the maneuvers,
- protect the patient from insertion related complications,
 - either immediate (puncture failure, arterial injury, hematoma, nerve damage, etc.)
 - or late (infection, venous thrombosis, etc.)



BRACHIAL
PORT

PICC
PORT





He's thinking
about other girls

We strongly need evidences
and bundles for PICC-PORT in children!

imgflip.com



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