

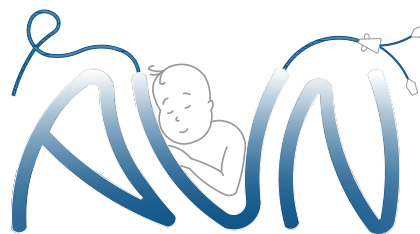


Il 2ND Convegno GAVePed Conference

3 Dicembre December 3rd

Il RaSuVa per la mappatura delle vene superficiali del neonato

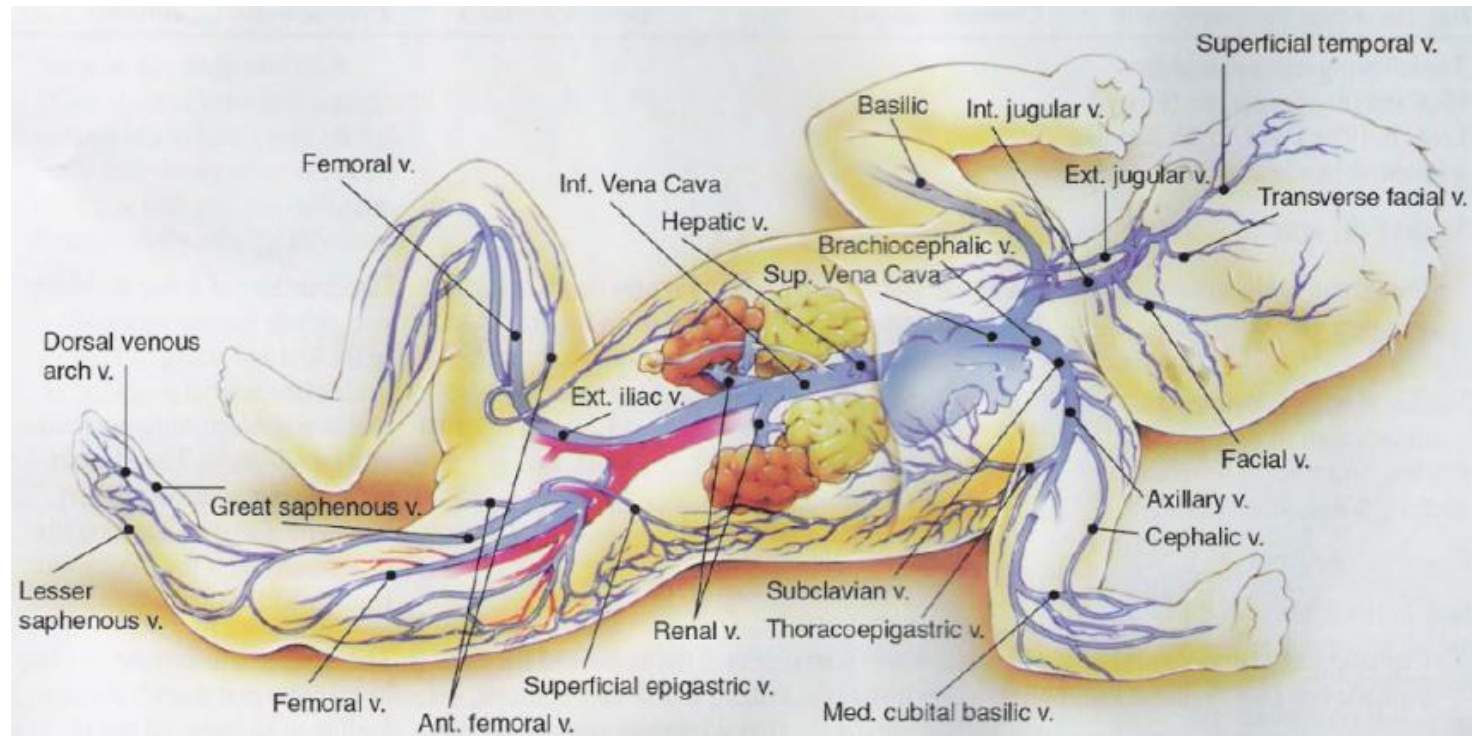
Vito D'Andrea



GdS Accessi Vascolari Neonatali



Vene





Standardizing Umbilical Catheter Usage in Preterm Infants

abstract

BACKGROUND AND OBJECTIVE: Absence of guidelines on umbilical arterial catheter (UAC) and umbilical venous catheter (UVC) use and inability to predict the hospital course may sway the frontline staff to overuse umbilical catheters in preterm infants. Our objective was to evaluate the feasibility of implementing guidelines standardizing the use of umbilical catheters and its impact on the incidence of sepsis and resource use.

TABLE 1 Guidelines for Vascular Access in Preterm Infants <33 Weeks' Gestation

Gestation	UVC	UAC	PIV
≤26 wk	Recommended	Recommended	
27–28 wk	Recommended	Recommended for selected cases ^a	
≥29 wk	Avoid except in selected cases ^{a,b}	Recommended for selected cases ^a	Recommended

Nurses were to inform the staff neonatologist if PIV could not be established after 4 attempts.

^a Use only if the patient is intubated and ventilated, or $\text{FiO}_2 > 40\%$ on continuous positive airway pressure, or the patient is hemodynamically unstable, needing fluid bolus or inotropes.

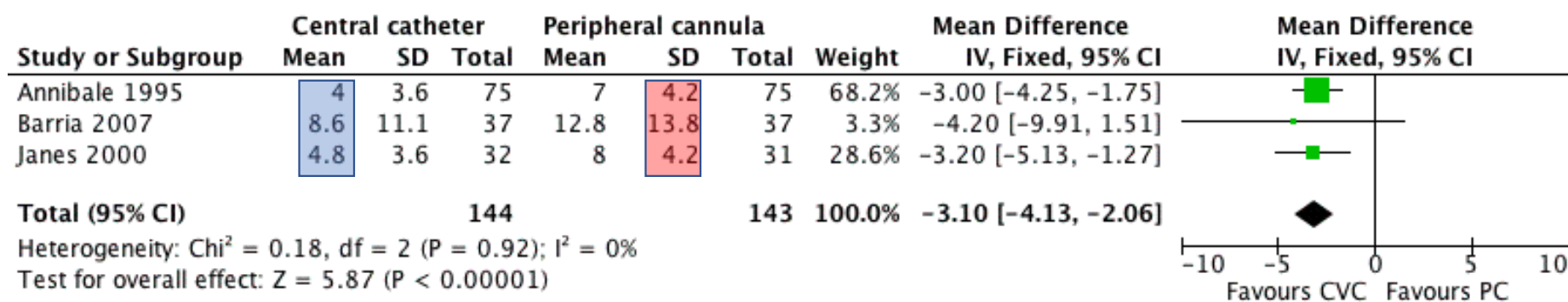
^b Difficulty establishing PIV access.

Indicazioni TIN UCSC

EG (sett)	Vena Omb.	Arteria Omb.	Vena Perif.
<26	SI	SI, se A o B	NO
27 - 28	SI	SI, se B	NO
29 - 31 + A o B o C o D o E o G	SI	NO	NO
29 - 31	NO	NO	SI
32 - 33 + A o B o C o D o E	SI	NO	NO
32 - 33 + F	NO	NO	SI
32 - 33	NO	NO	NO
≥ 34 + A o B o C o D o E	SI	NO	NO
≥ 34 + F	NO	NO	SI
≥ 34	NO	NO	NO

- A. Ventilazione assistita con tubo OT
- B. Instabilità emodinamica
- C. CPAP con Fio₂ >30%
- D. Difficoltà reperire accesso periferico
- E. SGA + centralizzazione del circolo/AED/ARED
- F. PN < 1500 g
- G. PN ≤ 1000 g

Figure 6. Forest plot of comparison: I Percutaneous central venous catheter versus peripheral cannula, outcome: I.6 Numbers of cannulae/catheters per infant.



Comparison of Findings With Current Guidelines

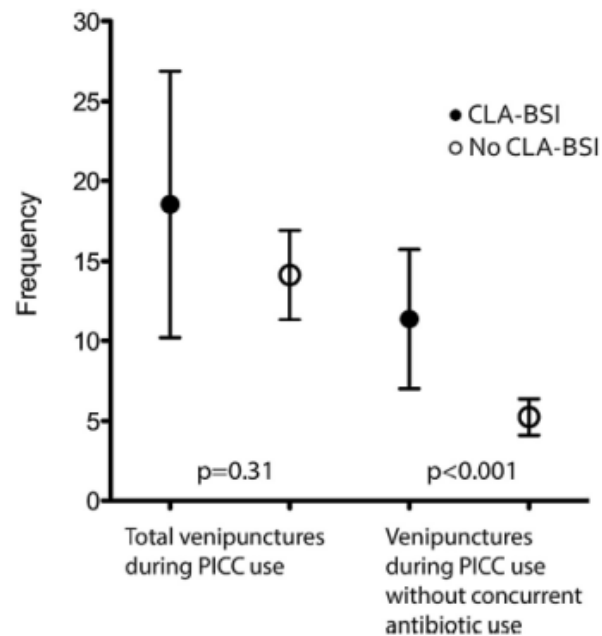
In 2011, the US Centers for Disease Control and Prevention Healthcare Infection Control Practices Advisory Committee guidelines² recommended PICC instead of a short peripheral cannula "when the duration of intravenous therapy will likely exceed six days." The findings of this meta-analysis support this.

Ainsworth S, McGuire W.

Percutaneous central venous catheters versus peripheral cannulae for delivery of parenteral nutrition in neonates.

Cochrane Database of Systematic Reviews 2015, Issue 10. Art. No.: CD004219.

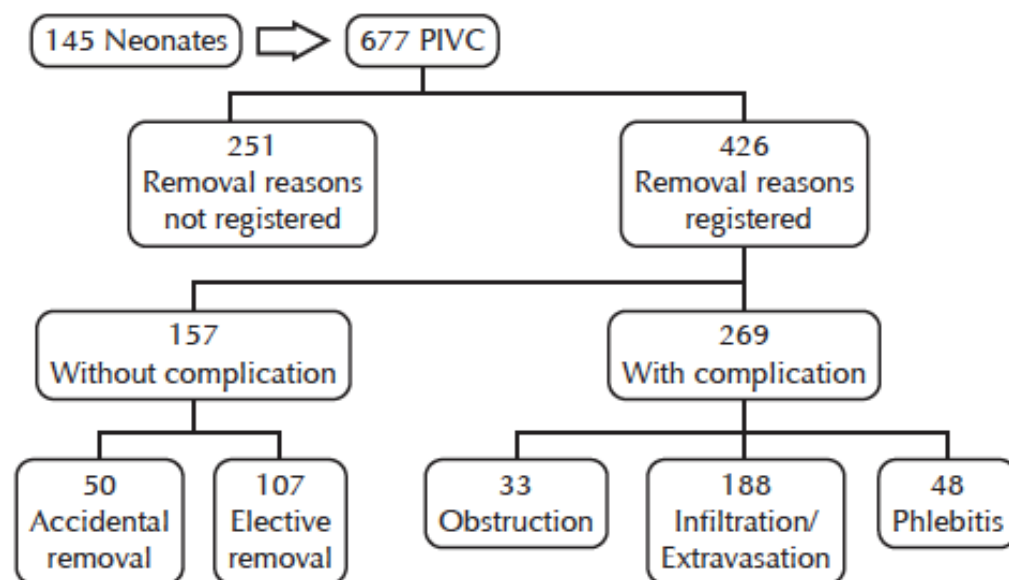
DOI: 10.1002/14651858.CD004219.pub4.



	OR	95% CI	<i>p</i>
Gestational age ≥ 32 wk	1.5	0.14–15.47	0.74
Birth bodyweight ≥ 1500 g	1.47	0.15–14.28	0.74
Duration of PICC use without concurrent antibiotic use (d)	0.94 ^a	0.85–1.03	0.17
Venipunctures during PICC use without concurrent antibiotic use (times)	1.16 ^a	1.05–1.26	0.003
Congenital heart disease	3.17	0.73–13.87	0.13
CNS disease	3.53	0.92–13.56	0.07

Peripheral intravenous cannulation: complication rates in the neonatal population: a multicenter observational study

	n (%)	Location of the catheter	
Catheters	518	Dorsum of the hand	197 (38)
Number of attempts per patient; mean (SD)	2.22 (± 1.58)	Foot	118 (23)
Maximum attempt rate	10	Lower arm	78 (15)
First time success rate	234	Wrist	35 (7)
Indwelling time in hours; median	34.1	Elbow	32 (6)
		Ankle	16 (3)
		Head	15 (3)
		Lower leg	10 (2)
		Other	17 (3)



Length of stay with catheter

Up to 24 hours	99	36.80	44	28.03	0.0121¹
24-48 hours	90	33.46	46	29.30	
48-72 hours	45	16.73	27	17.20	
72-96 hours	21	7.81	19	12.10	
More than 96 hours	14	5.20	21	13.38	

Elective replacement of intravenous cannula in neonates—a randomised trial

	Standard (<i>n</i> = 55)	Elective (<i>n</i> = 58)
Site of first PIVC (<i>n</i> , %)		
Hand	49 (89.1)	51 (87.9)
Foot	3 (5.5)	5 (8.6)
Forearm	2 (3.6)	1 (1.7)
Unknown	1 (1.8)	1 (1.7)
Time to first resite (h) (median, IQR)	63(48–88)	56 (43–74)
Total number of resites (median, IQR)	1 (0–2)	1 (1–2)
Number of attempts during resites (median, IQR)	1 (1–3)	3 (2–4)**
Duration of PIVC use in study (days) (median, IQR)	5 (3–6)	5 (4–6)
Duration of PIVC use in study (h) (median, IQR)	119 (90–151)	111 (99–148)

Efficacy of Vein Visualization Devices for Peripheral Intravenous Catheter Placement in Preterm Infants

Variables	Transilluminator group (<i>n</i> = 30)	Infrared group (<i>n</i> = 30)	Control group (<i>n</i> = 30)	Statistical test; <i>P</i> value
Dwell time of PIVC, mean $\pm$ SD, d [Min-Max]	1.27 $\pm$ 0.45 (1-2)	1.57 $\pm$ 0.50 (1-2)	1.27 $\pm$ 0.45 (1-2)	<i>F</i> = 4.10; <i>P</i> = .02

Peripheral intravenous cannulation: complication rates in the neonatal population: a multicenter observational study

	Number of total attempts	Successful attempts (%)	Failed attempts (%)	Indwelling time in hours (mean and SD)
Neonatologist	273	149 (55)	124 (45)	49 (45)
Physician assistant	241	126 (52)	115 (48)	49 (47)
Resident	354	121 (34)	233 (66)	37 (35)
IV nurse	176	72 (41)	104 (59)	53 (43)
Other	67	27 (40)	40 (60)	42 (42)
Total	1111	495 (45)	616 (55)	47 (43)



ORIGINAL RESEARCH CONTRIBUTION

Validation and Refinement of the Difficult Intravenous Access Score: A Clinical Prediction Rule for Identifying Children With Difficult Intravenous Access

Michael W. Riker, MD, Chris Kennedy, MD, Brad S. Winfrey, RN, Kenneth Yen, MD, MS, and M. Denise Dowd, MD, MPH

Predictor Variable	Scores		
Visibility	Visible = 0		Not visible = 2
Palpability	Palpable = 0		Not palpable = 2
Age	≥ 36 months = 0	12–35 months = 1	< 12 months = 3
Prematurity	Not premature = 0		Premature = 3
Skin shade	Light = 0	Dark = 1	



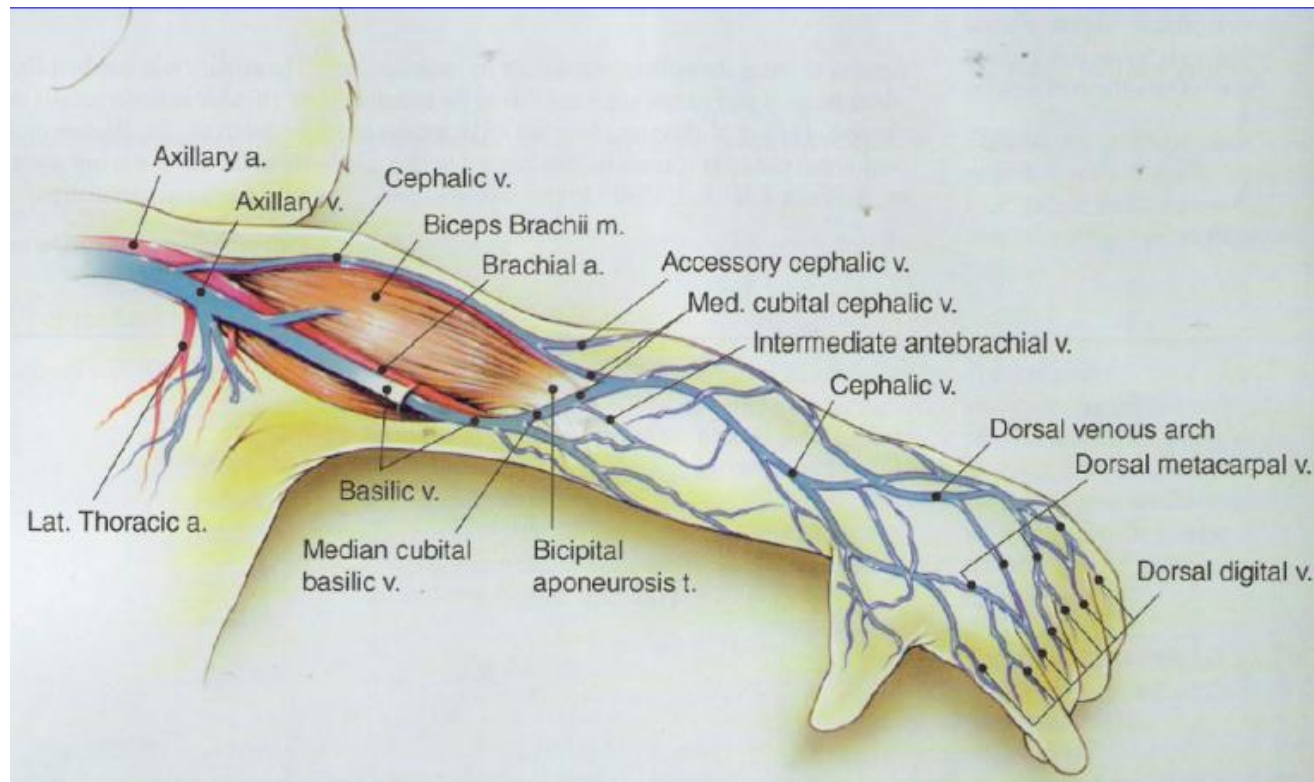
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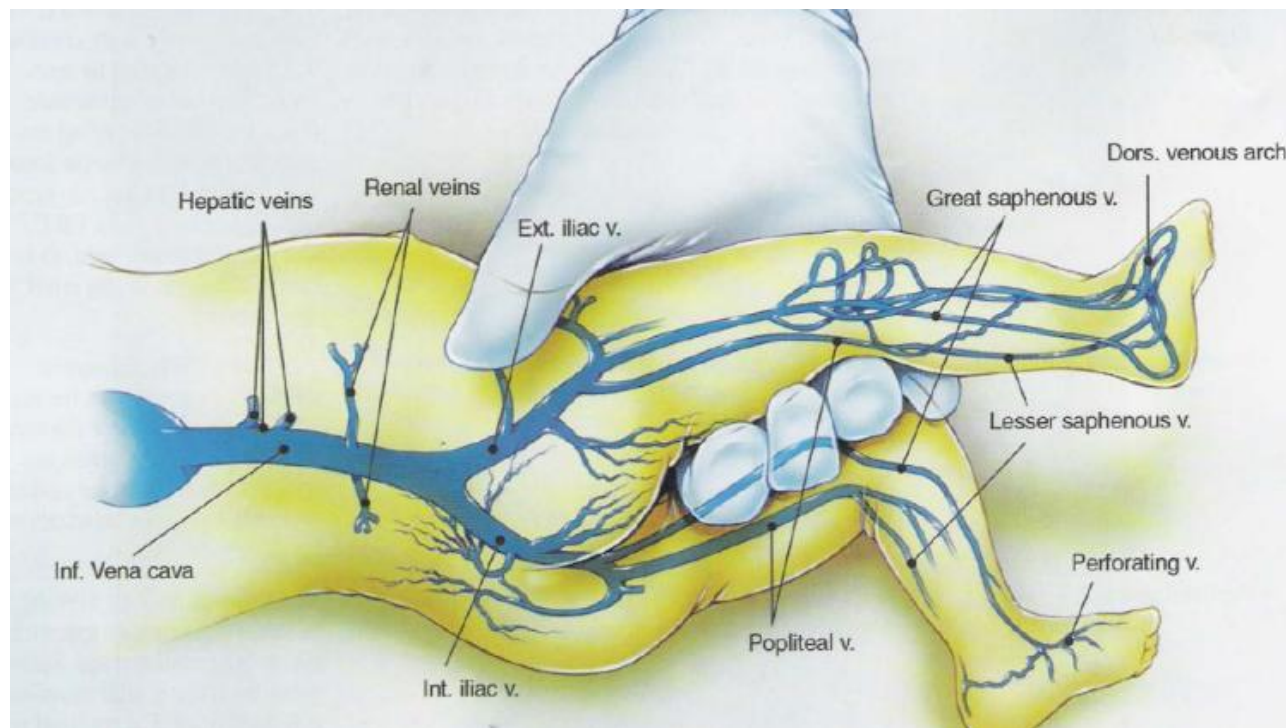
Michael W. Riker, MD, Chris Kennedy, MD, Brad S. Winfrey, RN, Kenneth Yen, MD, MS, and M. Denise Dowd, MD, MPH

Model	% Correctly Identified as IV Failure (n)/118	% Incorrectly Identified as IV Failure (n)/248
DIVA 4 (Yen)	61.0 (72)	27.8 (69)
DIVA 5 (Yen)	66.1 (78)	36.7 (91)
DIVA 4 (Riker)	62.7 (74)	28.2 (70)
DIVA 3 (Riker)	56.8 (67)	22.2 (55)
*Using scoring system in Table 1, with score ≥ 4 as cutoff value for predicting failure.		

Vene

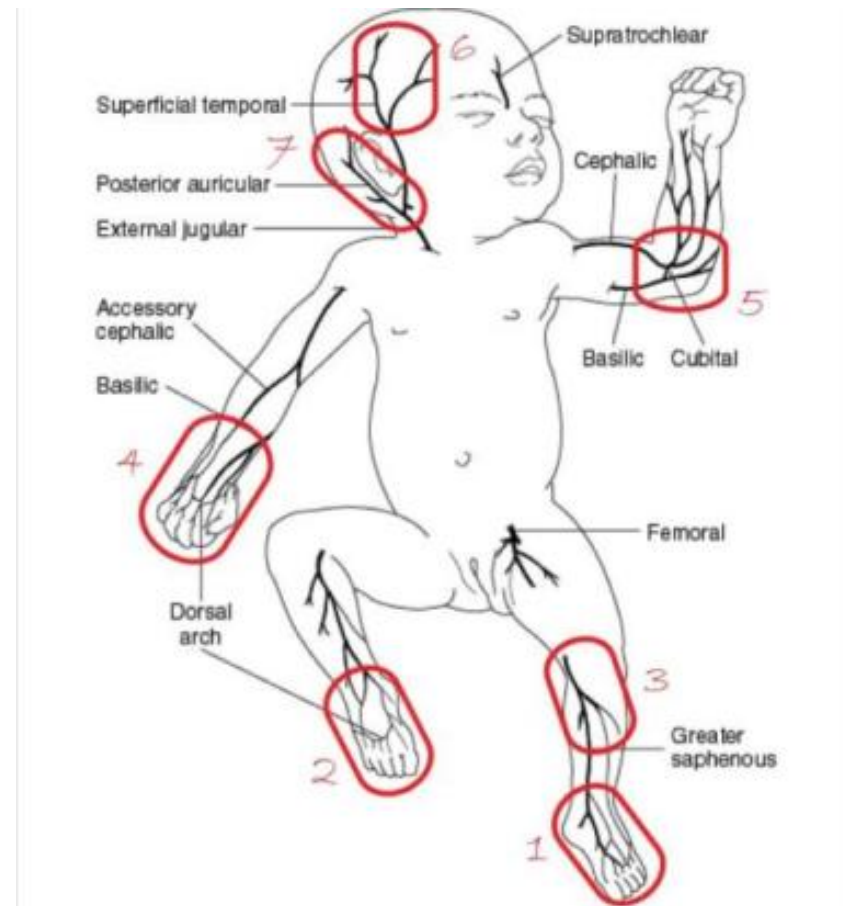


Vene



RASUVA: Rapid Superficial Vein Assessment

Necessità di un protocollo sistematico per la scelta della vena superficiale per la inserzione di una agocannula o di un ECC



RASUVA: «from foot to head»

Esame sistematico delle vene superficiali del neonato (con e senza tecnologia NIR, con e senza laccio)



Malleolo mediale (MM)	Vd
	Fd
	Vs
	Fs
Malleolo laterale (ML)	Vd
	Fd
	Vs
	Fs
Retropoplitea (RP)	Vd
	Fd
	Vs
	Fs
Mano e polso (MP)	Vd
	Fd
	Vs
	Fs
Antecubitale (AC)	Vd
	Fd
	Vs
	Fs
Preauricolare (PR)	Vd
	Fd
	Vs
	Fs
Postauricolare (PO)	Vd
	Fd
	Vs
	Fs



Malleolo
mediale



Malleolo mediale
(con laccio)



Malleolo laterale



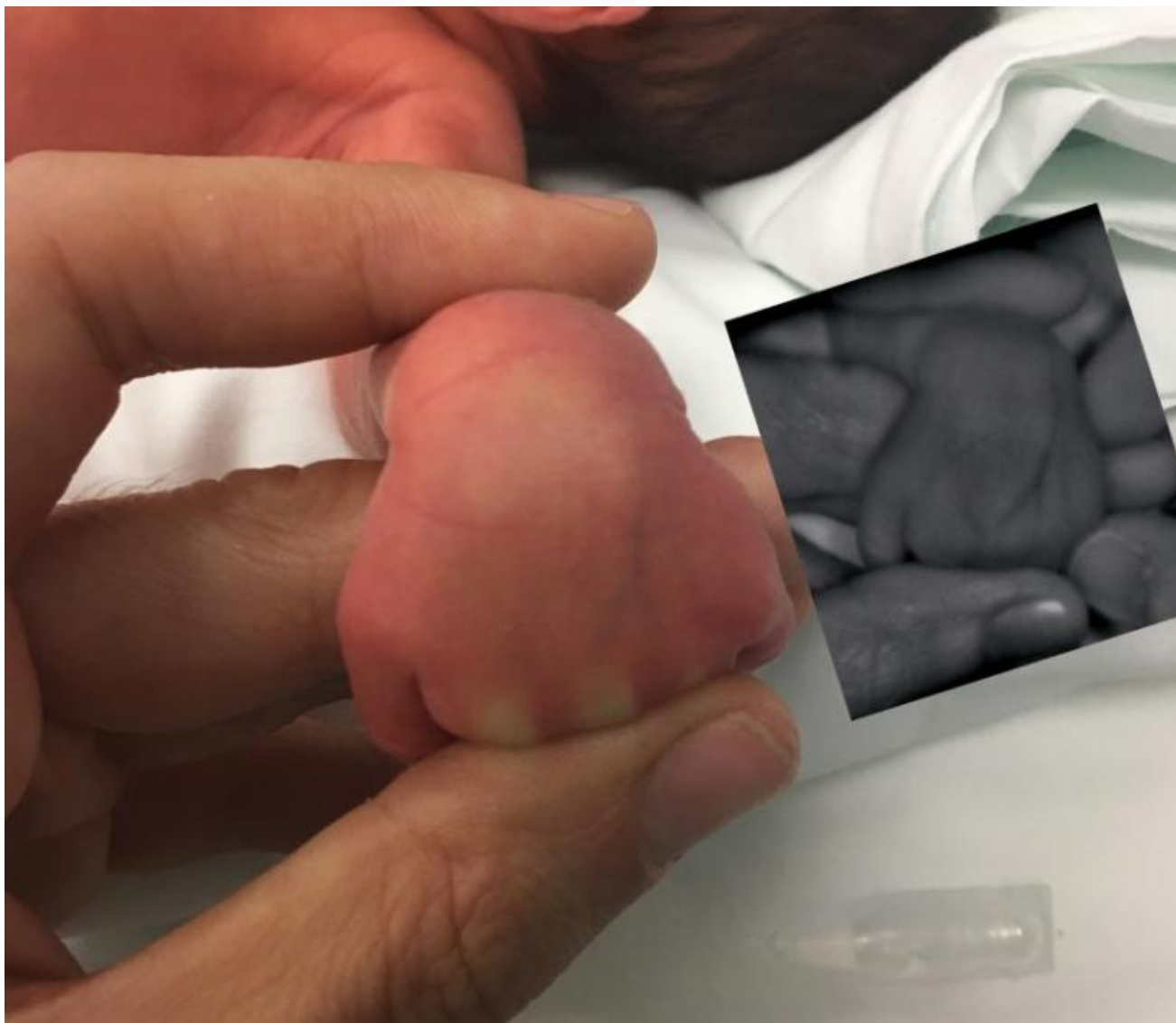
Malleolo laterale
(con laccio)



Retropoplitea



Retropoplitea
(con laccio)



Mano e
polso



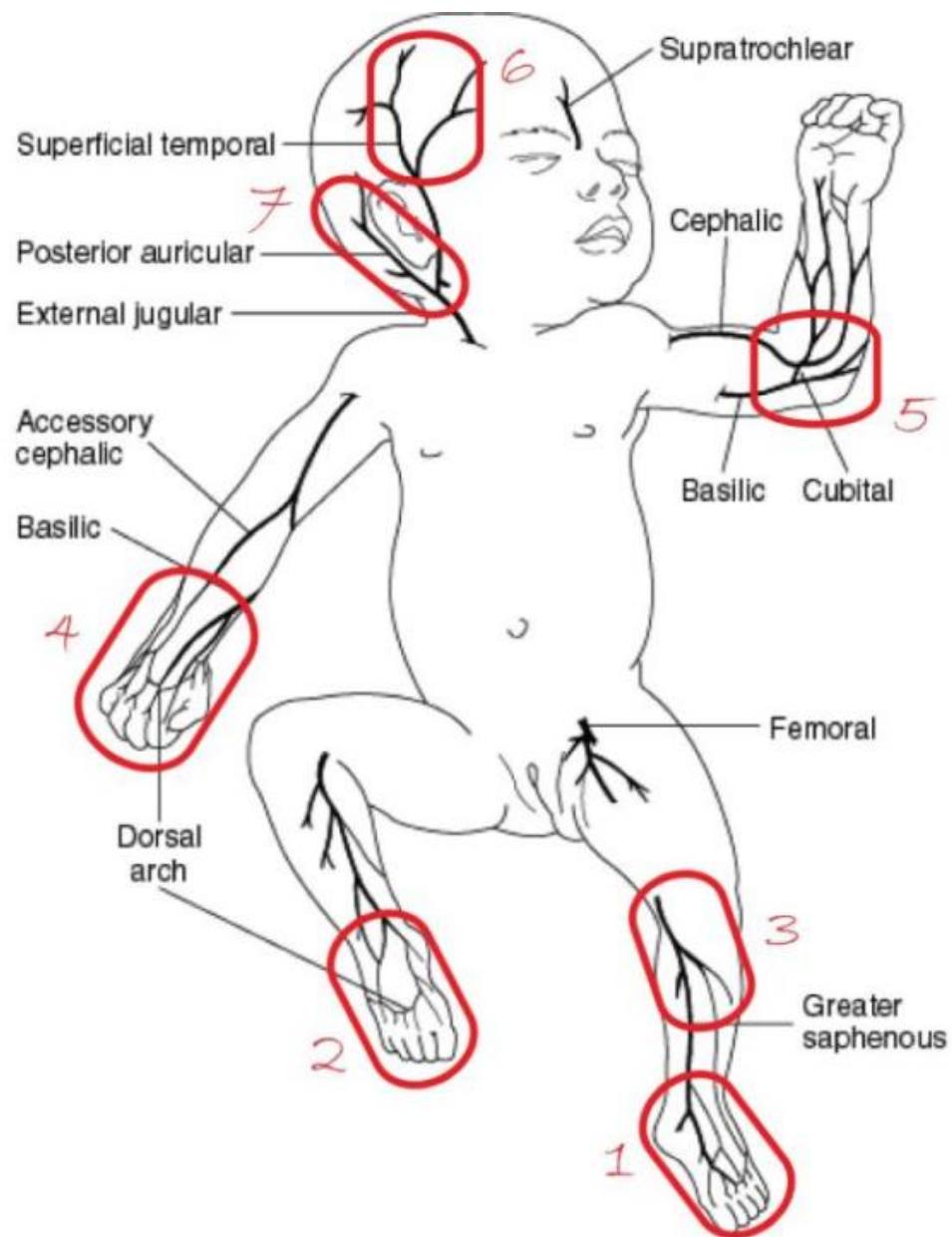
Mano e polso
(con laccio)



Antecubitale



Antecubitale
(con laccio)



- 1 – malleolo mediale
- 2 – malleolo laterale
- 3 – retropoplitea
- 4 – mano e polso
- 5 - antecubitale
- 6 – preauricolare
- 7 - retroauricolare

RaSuVA

Ordine di preferenza:

Per agocannula

- 1) *Arti inferiori (safena esclusa)*
- 2) *Mani e polso*
- 3) *Scalpo*

Per posizionamento ECC

- 1) *Antecubitale*
- 2) *Safena al malleolo mediale*
- 3) *Scalpo*

RSUVA: UNO STRUMENTO AMBIZIOSO

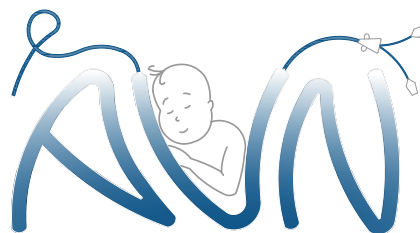
- ☐ Mappatura delle vene del neonato
- ☐ Scelta delle vena più idonea (AVP vs ECC)
- ☐ Aumentare la probabilità di successo della prima venipuntura
- ☐ Preservare le vene del neonato



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GRAZIE



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