

# Ultrasound Guided Peripheral Intravenous Cannulation

Calculation of cannula size and length required according to the vein diameter and depth

**\*Size:** cannula occupies 1/3 or less of vein diameter

**\*Length:** minimum 2.75cm of the cannula in the vein, 2/3 of cannula length

1. According to vein size, calculate the cannula size:									
Vein Size	0.2cm	0.3cm	0.36cm	0.38cm	0.43cm	0.45cm	0.55cm	0.58cm	0.65cm
	↓	↓	↓	↓	↓	↓	↓	↓	↓
*Cannula Size (Gauge)	24	22	20	19	18	17	16	15	14

  

2. According to vein depth, calculate the cannula size:								
Depth to top of vein		0.25cm	0.5cm	0.75cm	1.0cm	1.25cm	1.5cm	<ul style="list-style-type: none"> <li>Consider midline for peripherally infusates or CVAD for non-peripherally compatible infusates.</li> <li>30 degree angle is most common</li> </ul>
*Length Required	Inserted at 15 degree angle	3.8cm	4.8cm	5.7cm	6.7cm	7.6cm	8.6cm	
	Inserted at 30 degree angle	3.3cm	3.8cm	4.3cm	4.8cm	5.3cm	5.8cm	
	Inserted at 45 degree angle	3.2cm	3.5cm	3.9cm	4.2cm	4.6cm	4.9cm	

Adapted by Kerrie Curtis & Evan Alexandrou (2024) from: Catheter/Vein Scale, *PICC Excellence*, 2021.

References: Bahl, A., Hijazi, M., Chen, N. W., Lachapelle-Clavette, L., & Price, J. (2020). Ultralong Versus Standard Long Peripheral Intravenous Catheters: A Randomized Controlled Trial of Ultrasonographically Guided Catheter Survival. *Annals of Emergency Medicine*, 76(2), 134-142; Nakayama, Y., Takeshita, J., Nakajima, Y., & Shime, N. (2020). Ultrasound-guided peripheral vascular catheterization in pediatric patients: a narrative review. *Critical Care (London, England)*, 24(1), 592. doi:10.1186/s13054-020-03305-7