

## Appendix A: Choice of cannula

The smallest and shortest cannula for the procedure should always be used, not the largest cannula that can be placed in the vein. Complications associated with cannulae increases as the size of the cannula in relation to the vein size increases. For the choice of cannula a variety of factors need to be considered, including the following.

Factor	Cannula choice	
	Larger diameter	Smaller Diameter
Lower arm (smaller vein)		X
Upper arm (larger vein)	X	
Irritant drugs (e.g. antibiotics, chemotherapy) osmolarity and pH of infusate		X
Large fluid volumes	X	
Viscous fluids (e.g. blood)	X	

The size of a cannula is usually expressed in terms of Imperial standard wire gauge (swg), which measures the cannula diameter; the smaller the gauge size, the larger the diameter. Standard wire gauge measurement is determined by how many cannulae fit into a tube with an inner diameter of 1 inch (25.4mm) and uses consecutive numbers from 13 to 24. The diameter, e.g. 1.2mm, may be expressed as a gauge, e.g. 18g.

### The most commonly available cannula sizes in the Trust are as follows:

Size	Colour	Possible uses
24g	Yellow	Chemotherapy, medications, short term infusions, fragile veins
22g	Blue	Most medications, IV hydration
20g	Pink	Blood transfusion, most medications ,IV hydration
18g	Green	Rapid IV hydration, rapid blood transfusion, most medications
16g	Grey	Rapid fluid infusion, massive blood loss replacement, trauma
14g	Orange	Emergency use rapid infusion blood or viscous fluid

Flow rates vary with equipment from different manufacturers it is usually documented on the cannula packaging. Flow rate through a cannula is related to its internal diameter and is inversely proportional to its length. However, as the length of the cannula increases, so does the likelihood of vascular complications, for example a large-gauge device of longer length (1.6–2cm) will fill the vessel, preventing blood flow around it, which could result in mechanical trauma to the vessel and encourage the development of phlebitis.

*Of note: Many cannulae have small ports on the top of the device. The advantage of a ported device is the ability to administer drugs without interfering with continuous infusion. However, the caps are often not replaced correctly, which leaves the system exposed to contamination and the possible risk of air entering. It has also been found that the ports cannot be adequately sterilized with a swab, as there is no flat surface. The use of ports may encourage the practitioner to not remove the dressing and inspect the site but merely administer the drug via the port. It is not recommended that routine medication is given through these ports.*