

Table 1. Vascular Access Dashboard

Device	PIV	USGPIV	MIDLINE	PICC	CVC non-tunnelled	Antimicrobial CVC	Tunnelled CVC	PORT
Indicators	Immediate intravenous access, general infusions. Treatment with peripherally compatible infusion. Forearm placement more reliable	Difficult access patient (DIVA) with 1 or more attempts Treatment 5 days or less than 14 days (transition to midline). Requires longer peripheral catheter	Difficult access patient (DIVA) less than 14 days. More reliable than USGPIV and may be more appropriate in ICU setting	Central catheter indications for peripherally incompatible infusions/irritants, vesicants, vasoactive medications. Measure vein size to approximate catheter to vein ratio of less than 45%.	Central catheter indications. Critically ill patients requiring vasopressors, haemodynamic monitoring. Subclavian preferred for lower infection risk.	Antimicrobial catheters reduce incidence of infections and may be most appropriate for ICU patients. Central catheter indications. For high risk patients or those with history of infections.	Central catheter indications. Longer term treatment for Parenteral nutrition, cancer, other	Central catheter indications. Longer term treatment for Parenteral nutrition, cancer, other
Treatment	Peripherally compatible infusions	Peripherally compatible infusions	Peripherally compatible infusions	Peripherally incompatible infusions or based on duration	Peripherally incompatible infusions or based on duration	Peripherally incompatible infusions with history of infection	Peripherally incompatible infusions and based on duration	Peripherally incompatible infusions and based on duration
Duration	Treatment 5 days or less. Clinically indicated removal policy may extend time if required and without complications for less than 6 days	Treatment less than 6 days or up to 14 days. Clinically indicated removal policy may extend time if required and without complications	Treatment exceeding 6 days and less than 14 days. Clinically indicated removal policy may extend time if required and without complications	Treatment with any infusion greater or equal to 15 days up to 30 days. Difficult access patient greater than 6 days. Preference for midline with less than 15 days. Any duration for peripherally incompatible infusions.	Treatment 6-14 days. Any duration for peripherally incompatible infusions. Preferred device for critically ill/unstable patients or if haemodynamic monitoring is needed.	Treatment up to 30 days. May be appropriate for catheter exchanges. Applies to PICC and chest inserted CVC (CICC)	Treatment 15-30 days or longer	Treatment 15-30 days or longer
Contra-indications	Circulatory impairment, or hemiparesis. For chronic renal failure (CKD) patients insertion focused on dorsum of the hand.	Circulatory impairment, or hemiparesis. For chronic renal failure (CKD) patients insertion focused on dorsum of the hand.	Circulatory impairment, or hemiparesis, history of upper extremity deep vein thrombosis. No appropriate for CKD patients	Greater risk of thrombosis with unstable, hypercoagulable or patients with history of thrombosis.	Coagulopathies and other patient specific contraindications.	Sensitivity to chlorhexidine or other impregnations.	Without availability of trained inserter	Morbid obesity, coagulopathies
RISK LEVEL	0.2-0.5/1000 catheter days	0.2-0.5/1000 catheter days	0.2-0.8/1000 catheter days	2.1/1000 catheter days Higher risk in Intensive Care areas	2-5/1000 catheter days	1.2-1.6/1000 catheter days	1.6/1000 catheter days	0-0.4/1000 catheter days

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results of MAGIC refer to the complete publication (Chopra et al. 2015).

Peripherally Inserted Central Catheters (PICCs)

Peripherally inserted central catheters (PICCs) are currently used in all care settings with a

reported volume of 2.9 million per year used in the USA market alone (iData Research 2014). Specific indications for PICCs in intensive care areas include administration of vasopressors, delivery of peripherally incompatible infusions, parenteral nutrition, frequent blood sampling of three times a day or more,

need for invasive haemodynamic monitoring, or patients who may require infusions greater than 15 days (Table 1 Vascular Access Dashboard). Importantly several studies (including a recent randomised trial and a meta-analysis of 64 studies) suggest that the risk of upper-extremity thrombosis is higher for PICCs in