

MAGIC

Recommendations for PICC Insertion



Venous access device recommendations for infusion of peripherally compatible infusate



Device Type	Proposed Duration of Infusion			
	≤5 d	6–14 d	15–30 d	≥31 d
Peripheral IV catheter	No preference between peripheral IV and US-guided peripheral IV catheters for use ≤5 d			
US-guided peripheral IV catheter	US-guided peripheral IV catheter preferred to peripheral IV catheter if proposed duration is 6–14 d			
Nontunneled/acute central venous catheter	Central venous catheter preferred in critically ill patients or if hemodynamic monitoring is needed for 6–14 d			
Midline catheter	Midline catheter preferred to PICC if proposed duration is ≤14 d			
PICC		PICC preferred to midline catheter if proposed duration of infusion is ≥15 d		
Tunneled catheter				PICC preferred to tunneled catheter and ports for infusion 15–30 d
Port				

Appropriate
Neutral
Inappropriate
Disagreement

IV = Intravenous; PICC = peripherally inserted central catheters; US = ultrasonography

Venous access device recommendations for infusion of non-peripherally compatible infusate



Device Type	Proposed Duration of Infusion			
	≤5 d	6–14 d	15–30 d	≥31 d
Peripheral IV catheter	Inappropriate	Inappropriate	Inappropriate	Inappropriate
US-guided peripheral IV catheter	Inappropriate	Inappropriate	Inappropriate	Inappropriate
Nontunneled/acute central venous catheter	Central venous catheter preferred in critically ill patients or if hemodynamic monitoring is needed for 6–14 d		Inappropriate	Inappropriate
Midline catheter	Inappropriate	Inappropriate	Inappropriate	Inappropriate
PICC	Appropriate	PICCs rated as appropriate at all proposed durations of infusion		
Tunneled catheter	Inappropriate	Tunneled catheter neutral for use ≥15 d	No preference between tunneled catheter and PICC for proposed durations ≥15 d	
Port	Inappropriate	Inappropriate	Inappropriate	No preference among port, tunneled catheter, or PICC for ≥31 d

Appropriate
 Neutral
 Inappropriate
 Disagreement

IV = Intravenous; PICC = peripherally inserted central catheters; US = ultrasonography

Venous access device recommendations for patients with difficult venous access



Device Type	Proposed Duration of Infusion			
	≤5 d	6–14 d	15–30 d	≥31 d
Peripheral IV catheter	No preference between peripheral IV and US-guided peripheral IV catheters for use ≤5 d			
US-guided peripheral IV catheter	US-guided peripheral IV catheters preferred to peripheral IV catheters if proposed duration is 6–14 d			
Midline catheter	Midline catheters preferred to PICC if proposed duration is ≤14 d			
Nontunneled/acute central venous catheter	Central venous catheter preferred to PICC for use ≤14 d in critically ill patients			
PICC	Disagreement on appropriateness of PICC for durations <5 d	PICC use appropriate if proposed duration is ≥6 d; PICCs preferred to tunneled catheters for durations of 15–30 d		
Tunneled catheter			Tunneled catheter neutral for difficult IV access for use ≥15 d	No preference between tunneled catheter or port for use ≥31 d
Port				

Appropriate
Neutral
Inappropriate
Disagreement

IV = Intravenous; PICC = peripherally inserted central catheters; US = ultrasonography

Venous access device recommendations for patients who require frequent phlebotomy



Device Type	Proposed Duration of Infusion			
	≤5 d	6–14 d	15–30 d	≥31 d
Peripheral IV catheter	No preference between peripheral IV and US-guided peripheral IV catheter for use ≤5 d US-guided peripheral IV catheter preferred if venous access difficult			
US-guided peripheral IV catheter				
Midline catheter	Midline catheter preferred to PICCs if proposed duration is ≤14 d		Midline catheter neutral for frequent phlebotomy at this duration	
Nontunneled/acute central venous catheter	Central venous catheter preferred to PICC for use ≤14 d in critically ill patients			
PICC	Disagreement on appropriateness of PICC for durations <5 d	PICC use appropriate if proposed duration ≥6 d; PICC preferred to tunneled catheter for durations of 15–30 d		
Tunneled catheter			Tunneled catheter neutral for difficult intravenous access for use ≥15 d	
Port	Ports inappropriate for frequent phlebotomy, regardless of proposed duration of use			

Appropriate
Neutral
Inappropriate
Disagreement

IV = Intravenous; PICC = peripherally inserted central catheters; US = ultrasonography

Appropriate Indications for PICC Use



Appropriate indications for PICC use

Delivery of peripherally compatible infusates when the proposed duration of such use is ≥ 6 d*

Delivery of non-peripherally compatible infusates (e.g., irritants or vesicants), regardless of proposed duration of use

Delivery of cyclical or episodic chemotherapy that can be administered through a peripheral vein in patients with active cancer, provided that the proposed duration of such treatment is ≥ 3 mo†

Invasive hemodynamic monitoring or requirement to obtain central venous access in a critically ill patient, provided the proposed duration of such use is ≥ 15 d‡

Frequent phlebotomy (every 8 h) in a hospitalized patient, provided that the proposed duration of such use is ≥ 6 d

Intermittent infusions or infrequent phlebotomy in patients with poor/difficult peripheral venous access, provided that the proposed duration of such use is ≥ 6 d§

For infusions or palliative treatment during end-of-life care||

Delivery of peripherally compatible infusates for patients residing in skilled nursing facilities or transitioning from hospital to home, provided that the proposed duration of such use is ≥ 15 d¶

Inappropriate Indications for PICC Use



Inappropriate indications for PICC use

Placement for any indication other than infusion of non-peripherally compatible infusates (e.g., irritants or vesicants) when the proposed duration of use is ≤ 5 d

Placement in a patient with active cancer for cyclical chemotherapy that can be administered through a peripheral vein, when the proposed duration of such treatment is ≤ 3 mo and peripheral veins are available

Placement in a patient with stage 3b or greater chronic kidney disease (estimated glomerular filtration rate ≤ 44 mL/min) or in patients currently receiving renal replacement therapy via any modality

Insertion for nonfrequent phlebotomy if the proposed duration of such use is ≤ 5 d

Patient or family request in a patient who is not actively dying or in hospice, for comfort in obtaining daily blood samples for laboratory analysis

Medical or nursing provider request in the absence of other appropriate criteria for PICC use

Appropriate PICC Practices



Appropriate PICC practices

- Before ordering a PICC, consult relevant specialists (e.g., infectious diseases, oncology), operators (vascular access professional), and/or hospital pharmacists to determine optimal device choice and characteristics*
- After non-EKG or non-fluoroscopically guided PICC insertion, verify PICC tip position via chest radiography
- Only adjust PICCs that terminate in the upper or middle one third of the superior vena cava or right ventricle
- In the absence of indications for a multilumen PICC, use a single-lumen PICC of the smallest gauge
- Use normal saline rather than heparin to flush PICCs after infusion or phlebotomy
- Exchange PICCs to change device features (e.g., number of lumens) or treat dislodgement over a guidewire
- Provide ≥ 3 mo of uninterrupted systemic anticoagulation for treatment of PICC-related DVT in the absence of contraindications to such therapy†
- Use the smallest sized catheter and vein on the contralateral arm after ≥ 3 mo of therapeutic anticoagulation when placing a PICC in a patient with history of PICC-related DVT‡
- Provide a "line-free" interval to ensure clearance of bacteremia when managing PICC-related bloodstream infections

Inappropriate PICC Practices



Inappropriate PICC practices

- Urgent requests for PICC placement in a hemodynamically unstable patient in the wards or ICU
- Preferential placement of a PICC on the basis of arm dominance
- Chest radiography verification of the PICC tip after placement via verified EKG guidance or fluoroscopy§
- Adjustment of PICC tips that reside in the lower one third of the superior vena cava, cavoatrial junction, or right atrium
- Advancement of a partially dislodged PICC in the setting of external migration of the catheter of any length
- Removal of PICCs that are clinically necessary, centrally positioned, and otherwise functional in the setting of PICC-related DVT
- Routine removal or replacement of PICCs that are clinically necessary without objective evidence of catheter-associated bloodstream infection in febrile patients
- Removal of a PICC by a health care team member not trained to remove this device