

IV Update

A Review of Vascular Access & IV Infusion Topics
March 2021

Reducing the Kink

PICC lines are small-bore catheters that enter the venous system through a vein in the upper arm traveling often 45-55 cm's (approx. 17-22 inches) to reach the Superior Vena Cava (SVC), the large central vessel that returns de-oxygenated blood to the right side of the heart. This tip location is what defines a central line. One of the advantages PICC lines present over certain other central lines is their lower risk for central line associated blood stream infection (CLABSI). The small diameter of PICC line construction is a key aspect that contributes to this advantage.

If you have ever had the opportunity to change a PICC line dressing, you are probably already familiar with the fact that PICC lines are not only small-bore lines, they are also quite soft and floppy, some brands more than others. Generally, this is a good thing for the patient, as a soft and floppy foreign object inside a vein usually causes less irritation than a rigid one. This attribute also presents a challenge to any nurse trying to change a dressing in a sterile fashion, as all central lines require.

Although it is possible for a PICC line to kink under the skin or inside the vein, far more often it is the external portion that kinks. Sometimes this is due to a close proximity to the bend of the arm or a skin fold, a coiled external length that tightens into a kink, or a kink directly at the insertion site because the PICC is secured at an extreme angle. Sometimes these kinks are easy to see upon close inspection, but often they are hidden under the antimicrobial disk and require a second dressing change to uncover the problem.

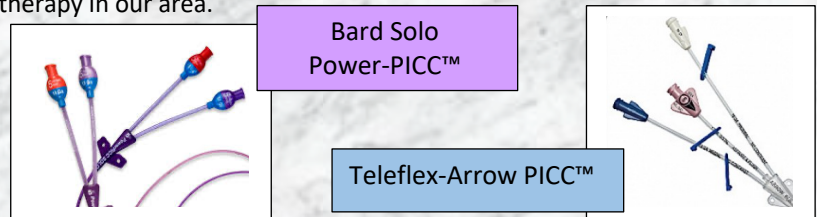
You may have a kinked catheter if the patient's PICC:

1. Was inserted within the last 24-48 hours, and now does not work.
2. Has been working great, and the dressing was changed, and now does not work at all.
3. Intermittently works. (It may have a partial kink that becomes a full kink with the patient's arm in certain positions.

Occlusions caused by a kinked PICC line (mechanical occlusion) nearly always require a dressing change to remedy. De-clotting a PICC that has a kink is not effective and should not be attempted. Catheter kinks should always be considered before moving on to declotting with Alteplase.

The Differences in PICC Lines

PICC lines are made by a number of different manufacturers, each model with their own unique characteristics meant to provide a specific advantage to the patient. There are marked differences between the PICC lines that are routinely used for patients in our community, and understanding these differences is key to proper assessment and maintenance of these important devices. For the purpose of this educational newsletter, our focus will be on the two most common PICC line types used for infusion therapy in our area.



Bard Solo Power-PICC™	Teleflex-Arrow PICC™
How can I tell the difference?	
The PICC lumen is purple, has a bulb-shaped valve at the access point, no clamps	The PICC lumen is white or light-blue, simple non-valved access point, slide-clamps on lumen
Why does one PICC have a clamp and the other one does not?	
Has an integrated valve to prevent blood reflux into the PICC and prevent air from entering the PICC	No integrated valve, slide-clamp activation prevents blood reflux into the PICC and prevents air from entering the PICC
Do I flush these PICC lines differently?	
Flush with pulsatile push-pause technique. Disconnect flush syringe when complete.	Flush with pulsatile push-pause technique. Before disconnecting flush syringe, slide clamp to closed while actively flushing the last mL's of flush solution. (Positive-pressure clamping technique)
Do I need to use Heparin when locking either PICC line?	
Per manufacturer: No Heparin required. Standard flush and lock with 0.9% Sodium Chloride	Per manufacturer: Follow facility protocol for locking solution, but the standard flush and lock is 0.9% Sodium Chloride when anti-reflux needleless access end-cap is applied.
PICC differences that impact dressing changes:	
When measuring external PICC length zero (0) cm is <i>one cm from the hub</i>	When measuring external PICC length zero (0) cm is <i>at the hub</i>
Is a different technique required when drawing blood from either PICC?	
Pull back syringe to 0.5 ml, pause 2 seconds to allow valve to open and blood to fill catheter. Continue to aspirate desired sample.	Pull back syringe with slow steady motion until desired sample is obtained.