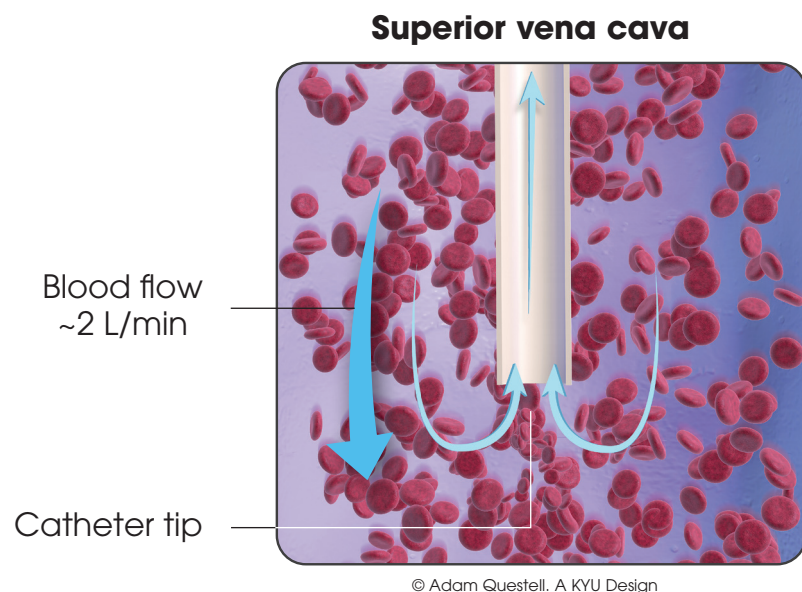


GOT PATENCY?

Your guide for assessing
catheter function



With a blood flow through the superior vena cava (SVC) of approximately 2 liters per minute,¹ a free-flowing blood return should be readily achievable



Before administering medications and solutions, you should be able to achieve a brisk, free-flowing blood return that is the color and consistency of whole blood²

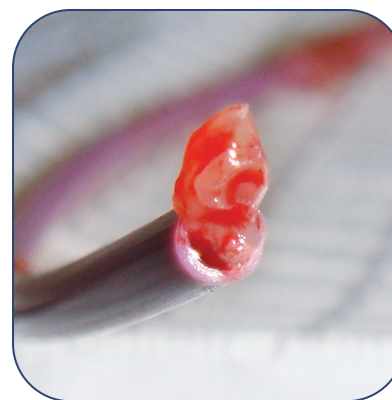
"During initial flush, slowly aspirate the VAD (vascular access device) for free-flowing blood return that is the color and consistency of whole blood, an important component of assessing catheter function prior to administration of medications and solutions."²

—INS Infusion Therapy Standards of Practice 2021, page S114, standard 41, practice criterion D

Catheter occlusions can be partial or complete³

- Partial occlusion: ability to infuse but not withdraw fluids, or the presence of sluggish flow*
- Complete occlusion: inability to infuse or aspirate

Partial occlusion



© Penny Offer, CRNI

Recovered triple-lumen catheter showing a fibrin tail

Complete occlusion



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Fibrin sheath encasing a completely occluded catheter

Flushing the line is not enough—you must be able to withdraw blood to rule out a partial occlusion.²

—INS Infusion Therapy Standards of Practice 2021, page S150, standard 49, practice criterion B

*One quantitative measure for sluggish flow is a blood return of less than 3 mL in 3 seconds, as recommended by the Oncology Nursing Advisory Board.⁴



Before administration of medications and solutions²

- Always perform hand hygiene, gather supplies, don gloves, and disinfect needleless connector

- Always **ASPIRATE AND FLUSH** the central venous access device (CVAD) for a positive blood return

1



Aspirate²

- **ASSESS** for brisk blood return that is the color and consistency of whole blood
 - May occur before, during, or after flush (check your CVAD protocol)



Flush²

- Slowly **INJECT** with preservative-free 0.9% sodium chloride, USP, using a 10-mL syringe into CVAD, noting any resistance or sluggish flow
- Do not forcibly flush (consider the pulsatile flush or push-pause technique)

2

Catheter is NOT PATENT

- **RESISTANCE** (or no blood return) when aspirating or flushing
- Blood return that is **SLUGGISH** or not the color and consistency of whole blood
- Need to **TROUBLESHOOT**



Troubleshoot^{2,5}

A. Check for presence of nonthrombotic obstruction

- **Mechanical**
 - **EXAMINE** tubing, extension set, CVAD, and needleless connector
 - **REPOSITION** patient (eg, raise arm, turn head)
- **Medication precipitation**
 - **REVIEW** intravenous medications administered via CVAD for incompatibilities



B. Suspect thrombotic occlusion after ruling out mechanical obstruction and medication precipitation

- **Thrombotic occlusion**
 - **FOLLOW** your CVAD policy for subsequent intervention

2



Catheter is PATENT

- **NO RESISTANCE** when aspirating and flushing
- **BRISK**, free-flowing blood return that is the color and consistency of whole blood
- Ready to **ADMINISTER** medications and solutions

3



Documentation²

- **DOCUMENT** whether patency was confirmed prior to administration of medications and solutions



References: 1. Mohiaddin RH, Wann SL, Underwood R, Firmin DN, Rees S, Longmore DB. Vena caval flow: assessment with cine MR velocity mapping. *Radiology*. 1990;177(2):537-541. 2. Infusion Nurses Society. Infusion therapy standards of practice. *J Infus Nurs*. 2021;44(suppl1):S1-S224. 3. McKnight S. Nurse's guide to understanding and treating thrombotic occlusion of central venous access devices. *Med Surg Nurs*. 2004;13(6):377-382. 4. Cummings-Winfield C, Mushani-Kanji T. Restoring patency to central venous access devices. *Clin J Oncol Nurs*. 2008;12(6):925-934. 5. National Institutes of Health. Management of central venous catheter occlusions. *Pharm Update*. 1999:1-4.