

## **CVAD Care and Maintenance - Lumens With Valves**

Female1: Hi, Sherry. What are we going to do today?

Female2: Today we're talking about flushing and locking CVAD's and PICC's.

F1: And which one of these is the CVAD?

F2: So a CVAD is typically up in the neck, the jugular or the subclavian site. They're more short term type of line.

F1: And what do we use them for?

F2: The CVAD's themselves, typically the non-tunnel ones are for short-term access, so usually in ICU and whatever they might need during that time. And then you might have something like this tunneled one here. You can see it's got a little Dacron cuff there. That's more for a long-term-- it's a long-term CVAD maybe for chemotherapy, PN.

F1: And these ones-- so tunneled means that it goes under the skin before it goes into the vessel? Whereas this one is going directly into the vessel, right?

F2: Correct, yes.

F1: Okay, so why are there so many things here?

F2: Lumens. So you will see anywhere from one up to three, typically just three, lumens. You just need to be aware of each lumen. Each may have a particular purpose.

F1: Are they labeled?

F2: They might be. For example blood draws. Each lumen actually says whether it's the proximal, distal or medial.

F1: Okay, and what are these on the ends?

F2: These are the needleless caps and you just need to be aware of what kind [they are] and of [the] flushing protocol you have and how you flush those caps. So whether you flush all the way, whether you need to clamp before you take the saline flush off or not. [Know if the cap is neutral displacement, positive pressure etc. and the correct technique for flushing]

F1: So why is there just a cap on here and there's not a clamp like these ones?

F2: Good question. So some of these CVAD's and PICC's could either be open ended or close ended, meaning that they have an internal valve. So you can't see clamps here, so it's usually fairly safe to assume it's a closed tip or has an internal valve. But you want to know what you're working with, so double check [that] the clamp didn't fall off.

F1: Why is it important to have that valve in there?

F2: The valve essentially does the same thing as an external clamp. So it's just helping to prevent any blood from refluxing up and forming blood clots [in the lumen of the catheter]. As well, when you're taking the caps off it's going to help prevent air emboli.

F1: Oh, that's probably a good thing.

F2: Yeah.

F1: Is there any care that we have to do for these?

F2: Yes, so you need to know what your flushing protocol is for your institution. It will tell you how often you flush, whether it's for a continuously infusing line or a capped line. For a PICC it might be different from a CVAD. And then whether they're valved or non-valved. They might be heparinized. They are heparinized

for the [ones with an] external clamps when they're non-valved.

F1: Do we have to change these--

F2: Yes, the needleless caps typically are changed every seven days with the dressing change.

F1: Okay.

F2: So we're going to do a flush on this jugular CVAD. So I've got my three normal saline flushes here and some alcohol swabs.

F1: The subclavian?

F2: Subclavian or jugular. I think it's more the jugular. So I've washed my hands. I've got my alcohol swab here. I'm going to swab the needleless cap very well. They say up to 15 to 30 seconds depending what the policy is. And I really want to scrub that cap. We want that to dry. I'm just going to make sure it doesn't touch anything. And I know that I'm working with the medial port there. Take out my saline flush.

F1: So if you have to flush these, do you have to flush all lines or just--

F2: Yes. So you're not just flushing the line you're working with when you're doing the flushes, the maintenance flushes. You always flush all the lines. And get rid of the little air bubble. I know my end is still sterile. If I have concerns I'm going to reswab it. The big thing you want to be doing is check for patency which you're going to aspirate for a little bit of blood. You'll be watching for a little flashback of blood. Once I see that I know that the line's working. You may not always get that. And if that's the case you want to make sure you're able to flush it. So I'm very easily able to flush. I've got flashback earlier, so I'm just going to go ahead

and do my whole flush, 10 cc's and I want to do a turbulent flush. So that's really going to cleanse the inner lumen of that central line.

F1: And do you push it all in?

F2: So depending what kind of [needleless] cap you have... if you have a neutral cap you don't want to push it all in. You want to just stop just before. [Meaning don't bottom out the syringe]

F1: And why is that?

F2: Because it prevents it from bottoming out.

F1: So there's a little bit of fluid there, so that you're not going to--

F2: Yes [it] will help prevent the blood reflux. That one is done. This one has an internal valve or a closed end so I don't need to heparinize it. So essentially I'm going to continue along with the other ones. Go ahead and swab my distal port here. Swab that for your full 15 to 30 seconds. Get the air out.

F1: So you've cleansed that and now you're going to check--

F2: So I want to aspirate for a flashback of blood first. So essentially I'm just pulling back and looking a little bit of flashback of the blood. Once I see that we know that it's patent.

F1: So what happens if you don't get that flashback?

F2: So you may want to troubleshoot that. There should be a troubleshooting sort of algorithm. It may be as simple as getting the patient to change position, getting them to maybe straighten their arm out more or raise it a bit. Or it may be that it's clogged off, and we need to call either a PICC nurse or the MRP and they can declog it for us.

F1: So then now you're going to flush that.

F2: Yeah, so we want to do a turbulent flush which is essentially just stopping and starting and that's going to really help to cleanse or scrub the inner lumen of that central line.

And, of course, depending what type of needleless cap we have on you may leave some of the normal saline in the end of the syringe. And I can just take this off and it has an inner valve so I don't need to use the external clamp. There is no clamp. And I don't need to heparinize.

F1: Perfect.

F2: And to continue, I want to make sure I do the other as well.

F1: And what do we have to do after-- how do we chart this?

F2: You typically just sign off in the MAR's that you've done the flushing as per protocol and heparinize if need be.

F1: Thank you.