

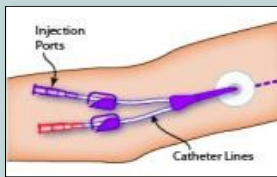
VASCULAR ACCESS DEVICES

What is it?

Central venous access devices (CVAD) provide access to the central venous system via the superior vena cava (SVC) or the inferior vena cava (IVC). A variety of vascular access devices exist to allow short or long term use of catheters for fluid, nutrition or medication infusion. The type of vascular access device depends on the duration of the medication to be administered, the child's anatomy, and the setting for the child. Catheters can be single, double, or triple lumen meaning there are one, two, or three separate ports for infusion. Incompatible fluids can therefore be infused via separate lumens of the same device. Catheters are held in place by sutures and/or products like a transparent dressing tape and securement devices. Other products like anti-microbial patches may also be used to prevent bacterial growth or infection. The transparent dressing is normally changed using sterile technique once a week or as needed.

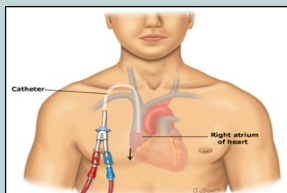
Types of devices

Peripherally inserted central catheter (PICC)



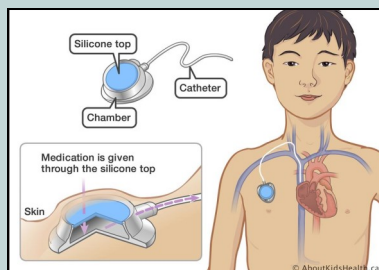
A thin, flexible catheter inserted into a vein of arm, leg, or neck and guided into a large vein in the chest near the heart. A specially trained nurse may insert a PICC line. A PICC is normally used when access is required 6 days to 1 year. Most often PICC lines are inserted above the antecubital space and in the school setting will most likely be seen in the arm.

Central venous line (CVL)

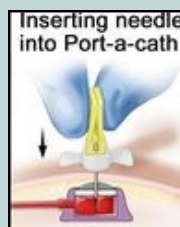
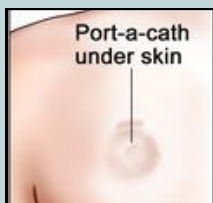


A catheter surgically placed into the large vein in the neck, chest, or groin and guided to the superior or inferior vena cava of the heart. CVLs are used for more long term therapy agents or those that might be irritating to be administered through a PICC line (i.e. TPN or chemotherapy.) In the school setting, a central line would most often be in the chest.

Implantable venous access device (Port)



An implantable device called a port-a-cath, or port, allows a central line to be accessed or de-accessed as needed. The portal is typically made from a silicone bubble and appears as a small bump under the skin. The portal requires access for use using a special needle inserted through the skin into the top of the rubber port reservoir. A numbing cream is often applied to the skin before the needle insertion. It is important to know if the site is accessed or de-accessed while the student is at school.



"Twiddlers Syndrome" occurs when the port has been moved under the skin because of trauma or "twiddling" by the child. If you notice the port is easy to move under the skin or swelling has occurred, do not use the port.

Complications

- Air embolism
- Infection
- Swelling
- Broke or damaged catheter
- Device malfunction



Kennedy Krieger Institute

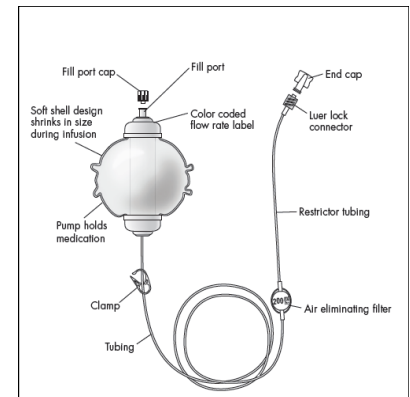
The Specialized Health Needs Interagency Collaboration (SHNIC) program is a collaborative partnership between the Kennedy Krieger Institute and the Maryland State Department of Education.

Types of pumps

There are a variety of infusion devices that allow for portable and convenient medication infusion. The following are pumps you may see in the school setting.

Eclipse

A pump where a balloon-type membrane holds and delivers the medication. Once started, this membrane acts as a pump to automatically squeeze the medication at a preset rate. Infusions can last 15 minutes to 5 hours. A pre-set flow rate means no complex programming or calculation is required. The Eclipse one-use pump is not electronic and can therefore be discarded after use. The pump must be at room temperature before use and should not be exposed to long periods of heat or cold. The student should carry the pump as close to level of access device (catheter).



C-Series

A pump that works the same as Eclipse pump with a balloon-type membrane. This pump can accommodate infusions that last 1-12 days.

Specific health issues for Individualized Healthcare Plan

- Student's diagnosis
- Type of catheter, French size and length, surgical date of placement
- Baseline skin assessment noting incisions, location of palpable device
- Current medication or fluids orders
- Note storage considerations (room temperature or refrigerated) and location of supplies such as clamps, swabs, tubing, saline, adhesives, or dressings
- Emergency protocol and supplies for possible complications that require immediate attention (dislodgement, breakage, occlusion, leakage, blood in the line, etc.)
- Fever protocol
- Consideration of team discussion for a possible 504 and Emergency Evacuation Plan
- Orders for activity restrictions
- Develop safety protocol for school setting (i.e. covering device, tubing, etc.)
- Communicate with school staff, parents, and provider any changes or concerns about the student's disease or device
- Medical device information (see SHNICs "Medical Device Information Guide")
- Emergency Care Plan (ECP) related to medical needs in the school setting including health care provider orders and staff education/training as appropriate

Resources & Manuals

The Joint Commission: CLASBI Toolkit-Pediatric Vascular Access Devices

https://www.jointcommission.org/-/media/tjc/documents/resources/health-services-research/clabsi-toolkit/clabsi_toolkit_tool_1-2_pediatric_vascular_access_devicespdf.pdf

Farou, N., Lucas, C., & Olympia, R. School Nurses on the Front Lines of Healthcare: Children With Medical Devices-Central Venous Access Device Malfunctions and Infections. *NASN School Nurse*, 2020.

Selekman, Janice, et al. *School Nursing: A Comprehensive Text*. F.A. Davis Company, 2019.