

PEDIATRIC RISK REVIEW

Fresh insights on enduring safety issues

Central Vascular Access Devices: From Orders to Insertion

Selecting the most appropriate central vascular access devices (CVADs) is critical to providing reliable access for infusions, medications, and blood sampling in pediatric patients.¹ However, CVAD device selection is a complex process involving multiple disciplines and requiring careful consideration of numerous factors.

ONLY
30%

of children's hospitals use formal guidance to select central lines.¹²



PEDIATRIC CONSIDERATIONS

Complete a thorough evaluation before CVAD insertion, including a review of the patient's EMR and an interview with the patient or caregiver.⁵ Address prior CVAD history, including failed insertion attempts, anatomical abnormalities, and previous complications.⁵

Contraindications to CVAD insertion:⁸

- Local skin infection or non-intact skin over the planned insertion site
- Thrombosis of the vessel
- Bloodstream infection (generally recommended for cultures to be negative for 36-48 hours prior to a CVAD insertion.)
- Uncorrected coagulopathy
- Obstruction of the vein by a tumor or mass
- Abnormal vessels
- Patients with a low absolute neutrophil count (ANC)

Children who may require future hemodialysis should have their upper extremity and subclavian veins preserved to maintain potential sites for arteriovenous fistula formation.³ If long-term access is required for this population, a single-lumen, tunneled, cuffed, silicone catheter should be inserted in the right internal jugular vein.³



Child Health Patient Safety Organization®

psosupport@childpso.org | childrenshospitals.org/pso

PEDIATRIC RISK REVIEW

Central Vascular Access Devices

RECOMMENDED ACTIONS

Vessel preservation is a priority in pediatric patients, especially in those with chronic conditions such as intestinal failure, which may require a lifetime of CVADs for therapy.⁹ Selecting the most appropriate CVAD and utilizing a standardized pathway helps prevent harm and supports safe, consistent care.^{5,9} The following actions can help mitigate risks of harm related to CVADs

- Standardize the evaluation process for patients who require a CVAD.⁵ Inconsistent evaluation of the patient prior to CVAD placement can result in missed risk factors, failed insertion attempts, or the need to cancel the procedure.⁵
- Collaborate with the IT department to develop a standardized consultation and procedure note.⁵
- Use a detailed standard consent form for each type of CVAD available for placement.⁵
- Consider having the ordering provider or proceduralist obtain the CVAD kit to verify the correct type of CVAD is used.
- Confirm readiness and details of the CVAD insertion by conducting a pre-procedure verification process, marking the procedure site, and performing a timeout as outlined in the Universal Protocol.^{5,10}
- Collaborate with supply chain to standardize CVADs across the organization, focusing on narrowing selections and ensuring adequate supply.⁵
- Confirm catheter tip position following the procedure and prior to potentially damaging medication administration.¹¹
- Incorporate quality improvement initiatives and systematic data collection for monitoring CVAD metrics related to CVAD selections.^{2,5}

Find Pediatric Risk Review full text and all citations and references at childrenshospitals.org/riskreview.

The Pediatric Risk Review is approved for general distribution to improve pediatric safety and reduce patient harm. This document meets the standards of non-identification in accordance with 3.212 of the Patient Safety Quality Improvement Act (PSQIA) and is a permissible disclosure by Child Health PSO. In accordance with our Terms of Use and Code of Conduct, this material cannot be used for any commercial transactions that are unrelated to the document's original intent.

