

CENTRAL VENOUS CATHETER OCCLUSION

Management of a blocked line and nonfunctional cuffed central venous catheter (CCVC) or implanted venous access device (IVAD)

The management of an occluded central line is challenging as the cause of the occlusion is often not known. Most blockages are caused by fibrin clots, therefore the instillation of alteplase should be attempted first if the cause of the occlusion is unknown. Infusion of lipids (fat emulsion) especially with TPN, can result in blockage from a gradually thickening deposit of lipid in the line. In these cases a 70% ethanol instillation may be helpful. A blocked line may be due to precipitation of poorly soluble components in IV solutions such as calcium or certain drugs. Hydrochloric acid 0.1 Normal (0.1 N) may be used for calcium-phosphorus precipitates or precipitates of low pH drugs (eg. vancomycin). Sodium bicarbonate 8.4% may be used for precipitates of high pH drugs (eg. phenytoin).

It may be necessary to try all three methods to clear the line in an attempt to avoid the surgical procedure of line removal. Each procedure may be repeated twice in 24 hours. Each procedure requires a physician's order which specifies the concentration and volume of either alteplase, 70% ethanol, hydrochloric acid 0.1 Normal, or sodium bicarbonate 8.4%. Orders reading "TPA into central line as per protocol" are NOT acceptable. Please refer to the Child and Youth Health Manual, policy NCL 012 for monitoring parameters and management of potential toxicities.

GUIDE TO WRITING ORDERS FOR CLEARING CENTRAL LINES	
agent	(specify one) alteplase 1 mg/mL ethanol 70% hydrochloric acid 0.1 Normal sodium bicarbonate 8.4%
volume	instil 1 mL/blocked lumen, or a smaller volume if actual catheter volume is known; the number of lumens to be treated must be specified
dwel time	1 hr for each instillation prior to attempting to aspirate. Refer to Nursing Policy and Procedure
frequency	plan on ONE instillation only and evaluate afterwards; if the decision to repeat the procedure is made, a new prescription is required.

For example,

Ethanol 70% 1 mL into each lumen (2) of CVC. Dwell time: 1 hour

or

Alteplase 1 mg/mL. 1 mL into lumen (1) of CVC. Dwell time: 2 hour