

Care of Percutaneous Central Catheters:

(Iowa Neonatology Handbook)

A. IV fluids need not contain heparin if the flow rate is 5 ml/hr or greater; if flow rate is < 5 ml/hr fluid should contain heparin, usually at a concentration of 0.25 - 0.5 unit/ml, but at a rate not to exceed 100 U/kg day; (50 U/kg/day in infants <1000 g).

B. Initial IV fluids should contain dextrose at a concentration not greater than 10%; if the catheter tip is positioned in a central vein, the dextrose concentration may be advanced slowly to as high as 25% (see A above).

C. IV rates should be kept at 3 ml/hr or greater, and less than that recommended by the catheter manufacturer (generally <20 ml/hr for a 27 or 28-gauge catheter)

Guide for use of fluids in intravascular catheters.¹

(UCSF Children's Hospital)

Infusion Fluid	UVC ²	UAC ³	Peripheral Arterial Catheter
0.9% NaCl	+	+	+
0.45% NaCl	+	+	+
5% Glucose	+	+	+
6 to 12.5% Glucose	+	+	0
Ringer's Lactate	+	+	0
Calcium	+	+ ⁴	0
Antibiotics and Other Medications	+	+	0

(+ = acceptable; 0 = unacceptable)

1 Do not give intravenous alimentation with lipids and/or amino acids via UVC or UAC.

2 This guide assumes that it is known that the tip of the UVC is in IVC or right atrium and not in the portal system or the left side of the heart.

3 This assumes that it is known that the tip of the UAC is in proper position.

4 Give calcium into UAC as a push only in emergency situations.

Staging Severity of IV Infiltration

(Auckland City Hospital)

Stage I	<ol style="list-style-type: none"> 1. Painful IV site 2. No erythema 3. No Swelling
Stage II	<ol style="list-style-type: none"> 1. Painful IV site 2. Slight swelling (0-20%) 3. No blanching 4. Good pulse below infiltration site 5. Brisk capillary refill below infiltration site
Stage III	<ol style="list-style-type: none"> 1. Painful IV site 2. Marked swelling (30-50%) 3. Blanching 4. Skin cool to touch 5. Good pulse below infiltration site 6. Brisk capillary refill below infiltration site
Stage IV	<ol style="list-style-type: none"> 1. Painful IV site 2. Very marked swelling (>50%) 3. Blanching 4. Skin cool to touch 5. Decreased or absent pulse* 6. Capillary refill > 4 seconds* 7. Skin breakdown or necrosis* <p>* The presence of any of these constitutes a stage IV infiltration</p>

Actions for Intravenous Infiltration Injuries

Step	Action
1	Remove I.V. immediately at first sign of infiltration.
2	If significant infiltration or necrosis occurs, notify CCN, NS-ANP, or Registrar immediately.
3	Estimate the <u>severity</u> of the injury by Millam's 1988 Staging Guidelines.
4	For Stage 1 and 2 injuries: <ol style="list-style-type: none"> 1. Elevate limb, observe circulation, and document findings.
5	For all Stage 3-4 injuries: <ol style="list-style-type: none"> 1. An incident report must be initiated. 2. Photographs of the injury should be made for the medical notes and a digital copy made available for plastic surgeons. 3. Parents to be notified and informed of actions taken.
6	For Stage 3-4 injuries AND for extravasation injuries with potentially injurious solutions (caffeine, dopamine, dobutamine, blood, solutions containing $\geq 12.5\%$ dextrose, or IVN) <ol style="list-style-type: none"> 1. Clysis treatment should be initiated as soon as possible following the discovery of a Stage 3-4 injury or extravasation of injurious solutions. 2. After clysis has been carried out, plastic surgery referral may or may not be required. This should be determined over the next few days of careful observation. 3. The plastic surgeon on call should be notified for all Stage 4 infiltrations if no improvement after clysis.