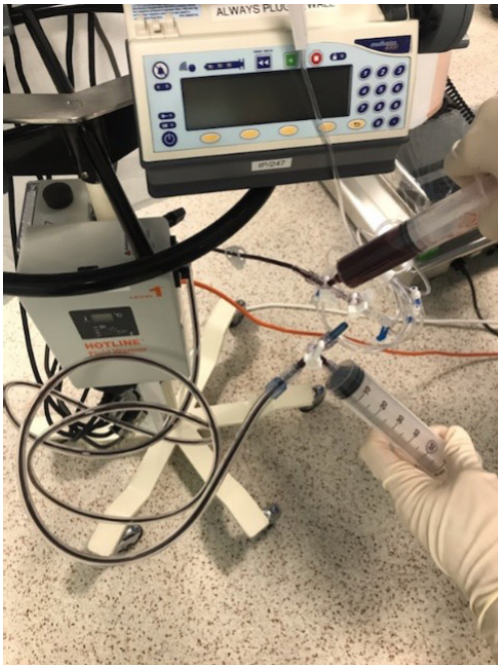





TIPS FOR ADMINISTERING FLUIDS AND BLOOD PRODUCTS IN CHILDREN

TOPIC	EXAMPLE	FIGURE or LINK
Rapid volume resuscitation:	Infusion pump, level I or pressure bag	<p>TIPS FOR VOLUME RESUSCITATING PEDIATRIC PATIENTS</p> <div style="background-color: #4CAF50; color: white; padding: 5px; margin-bottom: 10px;">                     Warm fluids                      Monitor for electrolyte imbalances                      Prevent air embolism                 </div> <div style="display: flex; justify-content: space-between;"> <div style="background-color: #fff9c4; padding: 10px; border-radius: 10px; width: 45%;"> <p><b>HD stable:</b> Use infusion pump</p> <p>Transfuse blood products at 2-5 mL/kg/hr</p> </div> <div style="background-color: #FFC107; padding: 10px; border-radius: 10px; width: 45%;"> <p>Hemodynamic instability or major bleeding requiring rapid fluid delivery with IV size <math>\geq 18</math> g</p> <div style="background-color: #D32F2F; color: white; padding: 5px; margin-bottom: 5px;">                         Use rapid infuser when available                     </div> <div style="display: flex; justify-content: space-between;"> <div style="background-color: white; color: #D32F2F; padding: 5px; border-radius: 10px; width: 45%;">                             Hemodynamic instability or major bleeding with IV size <math>\leq 18</math> g                         </div> <div style="background-color: white; color: #D32F2F; padding: 5px; border-radius: 10px; width: 45%;">                             Use warmed fluids or a fluid warming device                         </div> </div> <div style="background-color: white; color: #D32F2F; padding: 5px; border-radius: 10px; width: 45%;">                             Use a pressure bag at 300 mmHG or hand held syringes                         </div> </div> </div>
Warming fluids:	Use stop-cock to push blood through proximal end of Hotline™ with distal end either: <ol style="list-style-type: none"> <li>a. Connected to patient iv or</li> <li>b. Connected to syringe to receive warmed blood (see figure)</li> </ol>	
	Ranger™ (Pediatric Cassette)	



TOPIC	EXAMPLE	FIGURE or LINK
	<p>Bair hugger™ pediatric sized blanket with temperature settings and placed under the patient. A clear plastic sheet can be placed over the patient.</p>	
	<p>Bair hugger™ fluid warming set</p>	
	<p>Warming cabinets: approved for safe warming of iv fluids (NOT BLOOD)</p>	
<p>Intraosseous Access:</p>	<p>Insertion devices and techniques (land marking)</p>	<p><a href="https://www.youtube.com/watch?v=v7A8b1GQA08">https://www.youtube.com/watch?v=v7A8b1GQA08</a> Intraosseous needle insertion video (NEJM)</p>
<p>Fluid boluses:</p>	<p>Push/pull method: a. Figure provides example of 40-micron filter and dispensing pin used to draw blood from RBC unit; link provides example of fluid bolus in children</p>	 <p><a href="https://www.youtube.com/watch?v=UpUW_Nh9T1s">https://www.youtube.com/watch?v=UpUW_Nh9T1s</a></p>



TOPIC	EXAMPLE	FIGURE or LINK
	<p>b. Infusion pumps: typically, back pressure manufacturer default alarm set at 6 psi (300 mmHg), consider lowering to 2 psi (100 mmHg) to alert for interstitial extravasation of fluid.</p>	 <p><a href="#">CADTH Guidelines for Infusion pumps in pediatrics August 2009</a></p> <p><a href="#">CADTH Infusion pump pressure settings and guidelines October 2015</a></p>
<p>Administering blood products:</p>	<p>Pediatric Vascular Access</p>	<p><a href="#">Link for IV insertion video in pediatric patients</a></p> <p><a href="https://academic.oup.com/bjaed/article/15/4/199/305980">https://academic.oup.com/bjaed/article/15/4/199/305980</a></p>
	<p>Vascular access using ultrasound</p>	
	<p>Filtration</p>	<p>A standard blood administration set with a 170-260-micron filter or equivalent efficacy approved by Health Canada must be used for infusion of fresh blood components (RBC, plasma, platelets, cryoprecipitate). Transfusion may occur as fast as tolerated but must be completed within 4 hours.</p> <p><a href="https://blood.ca/en/hospital-services/products/component-types/circular-information">https://blood.ca/en/hospital-services/products/component-types/circular-information</a></p>
<p>Vein finders:</p>	<p>Vein Viewers</p>	