Cryoprecipitate Contraindications

- Fibrinogen < 150 mg/dL
- Fibrinogen < 200 mg/dL with massive hemorrhage (i.e., acute blood loss >20% of total blood volume)
- Uremic platelet dysfunction & bleeding
- Documented Factor XIII deficiency & bleeding
- Documented Factor XIII deficiency & immediately prior to invasive procedure

Von Willebrand Disease only if other safer, factor concentrate products are not available

For more information check the following websites (login might be required)

- Clinical Practice Guidelines: Guideline 2.040: Blood Component Transfusion
- BBTMS website

Cryoprecipitate Basics

- It is prepared by isolating precipitated, high molecular weight glycoproteins from a unit of Fresh Frozen Plasma (FFP).
- The protein content includes: fibrinogen (factor I), fibronectin, factor VIII, factor XIII and von Willebrand factor (vWF).
- Thawing a unit for transfusion takes about 20 minutes at 30 to 37 °C.

<table>
<thead>
<tr>
<th></th>
<th>Average Volume†</th>
<th>Frozen Shelf Life at ≤ 18°C</th>
<th>Thawed Shelf Life at 20-24°C</th>
<th>Average Fibrinogen Content††</th>
<th>Average Factor VIII Content††</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Unit</td>
<td>30mL</td>
<td>12 months</td>
<td>6 hours</td>
<td>≥ 300 mg/unit</td>
<td>≥ 180 IU/unit</td>
</tr>
<tr>
<td>PrePooled Unit</td>
<td>100-150mL</td>
<td>12 months</td>
<td>4 hours</td>
<td>1500-2000 mg/PrePooled unit</td>
<td>800-1000 IU/PrePooled unit</td>
</tr>
</tbody>
</table>

†The FDA mandates a single unit of Cryoprecipitate must contain fibrinogen ≥ 150 mg/unit and factor VIII ≥ 80 IU/unit

††Volumes and content shown reflect averages for units from the UVA blood supplier. Prepooled units are pools of 5-6 single units.

Cryoprecipitate Dosing

- Quick adult dose is one prepooled unit
- Quick pediatric dose (< 70kg body weight) is one unit per 10 kg body weight
- Quick neonate (< 10kg body weight) dose is 1-3 mL/kg + 7mL for tubing
- To calculate a specific dose use this formula:

  \[
  \frac{\text{Post Fib} - \text{Pre Fib}}{\text{(PV) x } (1 \text{ dL})} \times \frac{1}{\text{(100 mL) x } (250 \text{ mg Fib})} = \text{# Bags of Cryoprecipitate}
  \]

Notes: Post Fib = fibrinogen level goal and Pre Fib = starting level. PV = plasma volume = \((70\text{mL/kg x kg body weight}) \times (1 - \text{Hct})\). Assume the average Fib content of single Cryoprecipitate (Cryo) units from the UVA blood supplier contain >250 mg Fib per (rather than the minimum 150 mg) and then divide the number of units by 6 units per pool to get the number of prepooled units needed. Remember that in-vivo recovery is less than 100%.

Cryoprecipitate Contraindications

- It is not indicated for warfarin reversal or bleeding in a vitamin K deficient patient.
- It is not a “concentrated” form of plasma (i.e., it is not concentrated FFP).
- It is not indicated when recombinant and/or plasma derived factor concentrates are available:
  - **Hemophilia A** (Factor VIII deficiency): today there are many FDA-approved recombinant factor VIII concentrates available such as Kogenate® FS, Helixate® FS, Recombinate, Advate, and XYNTHA®. At the time of this writing Helixate® is available at UVA.
  - **von Willebrand syndromes**: today there are FDA-approved human plasma derived factor concentrates such as Alphanate®, Wilate and Humate® P® are available. At the time of this writing Humate P® is available at UVA.
  - **Fibrin sealant**: today there are FDA-approved, human plasma derived fibrin sealants such as ARTISS, TISSEEL, Tachosil® and EVICEL™ are available. At the time of this writing these are not available at UVA.
  - **Congenital fibrinogen deficiency**: today there is a FDA-approved, plasma derived factor concentrate, RiaSTAP™, available for acute bleeding in patients with congenital fibrinogen deficiency, including a fibrinogenemia and hypofibrinogenemia. RiaSTAP™ is not indicated for dysfibrinogenemia. At the time of this writing RiaSTAP™ is not available at UVA.
  - **Factor XIII deficiency**: Corifact® is a FDA-approved, plasma-derived factor concentrate indicated for prophylaxis in congenital Factor XIII deficiency. At the time of this writing Corifact® is not available at UVA. (Corifact® is also known as Fibrogammin-P in other countries.)