

UVAHS Blood Bank & Transfusion Medicine Services (BBTMS)

Cryoprecipitated Antihemophilic Factor (Cryoprecipitate)

Please call the BBTMS at 924-2273 for more information

Current UVA BBTMS Cryoprecipitate Transfusion Guidelines

- 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.

	Average Volume [†]	Frozen Shelf Life at ≤ -18°C	Thawed Shelf Life at 20-24°C	Average Fibrinogen Content ^{*†}	Average Factor VIII Content ^{*†}
Single Unit	30mL	12 months	6 hours	≥ 300 mg/unit	≥ 180 IU/unit
PrePooled Unit	100-150mL	12 months	4 hours	1500-2000 mg/PrePooled unit	800-1000 IU/PrePooled unit

*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:

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

Notes: Post Fib = fibrinogen level goal and Pre Fib = starting level. PV = plasma volume = (70mL/kg x kg body weight) x (1 - 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 afibrinogenemia 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.)