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| 1.0 | | | Principle | | | | | |
|  | | | To determine the appropriateness of a request for cryoprecipitate and to thaw, pool and label cryoprecipitate in preparation for transfusion.  Cryoprecipitate (CRYO), provides a source of fibrinogen. | | | | | |
| 2.0 | | | Scope and Related Policies | | | | | |
|  | | | 2.1 | Refer to the Clinical Guidelines for Transfusion for the use of human blood and blood components for description and criteria for the appropriate use of cryoprecipitate.9.1  Refer requests that do not meet the criteria to a Medical Director or designate. See QCA.020 – Medical Director Consultation Protocol. | | | | |
|  | | | 2.2 | All blood products shall be inspected for abnormal appearance before use and the visual inspection must be documented. If an abnormality is detected, the unit must not be issued and the blood supplier shall be notified regarding the final disposition of the product. Any such notification must be documented.9.2 | | | | |
|  | | | 2.3 | Refrigerators and freezers when used for storage of blood components or blood products shall have an audible temperature alarm with a backup power supply.9.2 Refrigerators and freezer alarm activation points shall be set at temperatures that allow for corrective action to be taken prior to the blood components and blood products reaching unacceptable temperatures. 9.2 | | | | |
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|  | | | 2.4 | Adult recipients may be transfused with cryoprecipitate of any ABO group. Cryoprecipitate of different ABO groups may be pooled. If units of different ABO groups are pooled, the pool must be labeled as ‘undetermined blood type’ or not specify any blood group. 9.2  If cryoprecipitate for a pediatric patient is requested, ABO group compatible should be issued. | | | | |
| 3.0 | | | Specimens | | | | | | |
|  | | | Historical Blood Group:If a patient has been tested on at least two separate occasions, the ABO Group and Rh type may be taken from the Transfusion Medicine records (history), as per facility policy. If no record exists, or only one previous testing, a Group and Rh must be done. | | | | | | |
| 4.0 | | | Materials | | | | | | |
| **Equipment:** 37°C waterbath/circulating waterbath or thawing device  Timer (calibrated)  Hand sealer and sealing clips or heat sealer  Tubing stripper  **Supplies:** Cryoprecipitatecomponents  Plastic bags for over-wrap  Hemostats or clamps  Protective gloves  Alcohol swabs  Plasma transfer set  Scissors  Compatibility/Component label/ Issue Voucher  Sterile normal saline in an IV infusion bag (optional) | | | | | | | | | |
| 5.0 | | | | | Quality Control | | | | |
|  | | | | | 5.1 | Storage and shelf life:9.1 | | | |
|  | | | | |  | |  |  |  | | --- | --- | --- | | Component | Shelf life when frozen | Shelf life when thawed | | Cryoprecipitate (CRYO) | 12 months at -18°C or colder | Pooled/Open system: Up to 4 hours stored at 20-24°C if pooled.  Must not be re-frozen | | | | |
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|  | | | | | 5.2 | The temperature of the waterbath/ thawing device used to thaw cryoprecipitate must be checked and documented each time the equipment is used.9.2 | | | |
|  | | | | | 5.3 | The waterbath/thawing device used for thawing blood components should be cleaned on a regular basis and whenever there is a risk of contamination (i.e., leaking of a blood product container). | | | |
|  | | | | | 5.4 5.5  5.6 | Cryoprecipitate is thawed in a plastic over-wrap to prevent contamination of the ports.9.2  Waterbaths and other heating devices used to thaw blood products shall not be used for incubation of tests containing biological specimens.9.2  Cryoprecipitate must be thawed at a temperature of 30 to 37°C. or by use of an approved thawing device.9.2 | | | |
|  | | | | | 5.7 | Automated thawing devices may be used for thawing cryoprecipitate. The manufacturer's instructions must be followed. | | | |
|  | | | | | 5.8 | Pooling or other open manipulation of blood products should be performed in a clean environment designated only for this purpose. Ideally a biological safety cabinet or laminar flow hood should be used. Manufacturer’s directions should be followed when using a biological safety cabinet or a laminar flow hood. | | | |
|  | | | | | 5.9 | Verify expiry date of normal saline prior to pooling if being used. | | | |
| 6.0 | | | | Procedure | | | | | |
|  | | | | Check level of water in waterbath. If the water level is low, add warm water and allow the temperature to equilibrate to an acceptable temperature (30°C-37°C). | | | | | |
|  | | | | Remove the number of cryoprecipitate units from the freezer as requested.One unit of cryoprecipitate contains approximately 285g of fibrinogen. An order for 10 units of cryoprecipitate for an average sized adult patient is typical at many hospitals (1-2 units of CRYO per every 10kg body weight)9.1 | | | | | |
|  | | | | * 1. Carefully inspect each bag for signs of cracking or breakage, especially around the ports at the top of the unit. | | | | | |
|  | | | | * 1. Place units in a plastic over-wrap bag. Each over-wrap bag should contain no more than 2 units. See Procedural Notes 8.1. | | | | | |
|  | | | | Compress the bag around the cryoprecipitate to remove as much air as possible. Secure the top of the bag with a clamp or a hemostat, if desired. | | | | | |
|  | | | | * 1. Read and record the temperature of the waterbath/thawing device. The temperature must be 30°C to 37°C. | | | | | |
|  | | | | * 1. Place the wrapped cryoprecipitate into the waterbath/thawing device. | | | | | * + 1. Weights may be placed on top of the units to keep them submerged and speed thawing. |
|  | | | | * + 1. Keep the end of the plastic bag above the water level to prevent contamination of the ports. |
|  | | | | Check the cryoprecipitate every 5 minutes. Gently knead the thawed units to re-suspend the cryoprecipitate. Thawing time should not exceed 10 minutes. For automated heating devices, set timer for 5 minutes. | | | | | |
|  | | | | * 1. Remove the cryoprecipitate bag(s) from the waterbath/thawing device when thawing is complete. | | | | | |
|  | | | | * 1. Inspect each unit(s) for evidence of leaking and perform visual inspection. See IM.003 – Visual Inspection of Blood, Blood Components and Fractionated Products. | | | | * + 1. If the container(s) is not intact or does not meet visual inspection criteria, discard as per IM.005 - Final Disposition of Blood, Blood Components and Other Related Products Not Suitable for Transfusion Manual Procedure. Select a different unit from the freezer. | |
|  | | | | * 1. Assemble materials in designated pooling area. See Quality Control 5.8. | | | | | |
|  | | | | * 1. Re-suspend the thawed cryoprecipitate carefully and completely, either by kneading it into the residual 10 -15 mL of plasma or by adding approximately 10 mL of 0.9% sodium chloride (normal saline for IV use) and gently re-suspend. | | | * + 1. Wearing clean gloves remove a plasma transfer set from its package and close the clamp on the line. | | |
| * + 1. Using aseptic technique, loosen but do not remove the cap from one end of the transfer set. | | |
| * + 1. Remove the protective cap from one port of the IV saline bag. | | |
| * + 1. Remove the cap from the transfer set and insert into the port of the IV saline bag. | | |
| * + 1. Remove the protective cap from one port of one of the cryoprecipitate bags. | | |
| * + 1. Using a similar technique, insert the other end of the plasma transfer set into the first cryoprecipitate bag. | | |
| * + 1. Elevate the saline bag and open the clamp of the transfer set and allow 10 mL of saline to flow into the first cryoprecipitate bag. Clamp the transfer set and mix thoroughly to resuspend the precipitate. | | |
|  | | | | * 1. Transfer the contents of the first bag to the next bag and each subsequent bag using the ever increasing volume to flush the dissolved cryoprecipitate until all contents are in the final bag. | | | | | |
|  | | | | * 1. Use a tubing stripper to ensure as much as possible of cryoprecipitate mixture flows into the last bag. | | | | | |
|  | | | | * 1. Close the clamp. Use a tube sealing method (heat sealer or hand sealer and clips) to seal the tubing three times. See Procedural Notes 8.2. | | | | | |
|  | | | | * 1. Cut the tubing, leaving two seals close to the cryoprecipitate bag. | | | | | |
|  | | | | * 1. Record the lot number and expiry date of 0.9% sterile IV saline added. | | | | | |
|  | | | | * 1. Prepare the label for the pooled cryoprecipitate bag with the following modified component information:9.2 * Product name (e.g., pooled cryoprecipitate) * Number of units in pool * Name of facility preparing component * Unique numeric or alphanumeric identification of pooled component. See Procedural Notes 8.3 * ABO of pooled component (if all units of same ABO) * Approximate volume of pooled component * Date and Time of expiry of pooled component   Label the pooled cryoprecipitate bag with the following recipient information:   * Recipient’s family and given name(s) * Recipient’s identification number(s) * ABO group of recipient | | | | | |
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|  | | | | * 1. Attach the compatibility/component label to the bag of pooled cryoprecipitate. | | | | | |
|  | | | | * 1. Issue product. If there is no computer system used to issue blood components, write the patient and product information onto the Issue/Transfusion record. See Procedural Notes 8.4 and IM.004-Manual Issuing of Blood, Blood Components and Other Related Products Using the Issue/Transfusion Record. | | | | | |
|  | | | | * 1. Store at 20-24°C until issue | | | | | |
| **7.0** | | Reporting – N/A | | | | | | | |
| 8.0 | | Procedural Notes | | | | | | | |
|  | | 8.1 | | | Depending on the type of bag used for overwrap, double bagging may be desirable. Thin plastic bags are easily pierced by the edges of frozen units. | | | | |
|  | | 8.2 | | | Manufacturer’s directions should be followed when using a heat sealer. | | | | |
|  | | 8.3 | | | Unit number must include the unit ID number, the check digit and the source code of the original unit(s). If pool numbers are used, there must be a log or computer system capable of tracking the original unit numbers indefinitely. | | | | |
|  | | 8.4 | | | When labeling units, the following criteria should be met:   * Place the label onto the CBS supplier label on the pooled bag (do not apply the label directly to the plastic) * Only labels with adhesive approved for use on blood bags should be used. Do not use scotch tape, masking tape or other adhesives that are not approved * Do not use felt pen on bag labels | | | | |
| **9.0** | | References | | | | | | |
|  | | 9.1 | | | Clinical Guide to Transfusion (On-line edition at https://profedu.blood.ca/en/transfusion/clinical-guide/blood-components) **Chapter 2** (published September 8, 2017)  P 8-9 of 10) | | | |
|  | | 9.2 | | | Standards for Hospital Transfusion Services Version 4 – April 2017. Canadian Society for Transfusion Medicine, 5.4.3.2, 5.4.3.3, 3.2.2.2 3.2.2.3, 3.3.1.2, 3.3.1.3, 5.6.4.1, 5.6.4.2,5.6.7.4, 5.6.7.2, 5.6.7.5, 5.7.2 | | | |

# 10.0 Revision History

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| **Revision Date** | **Summary of Revision** |
| September 01, 2014 | * Revised name of manual * Removed reference to LR, FVIII, FXIII and VWF from Principle * Added refer to QCA 020 to 2.1 * Removed 2.4,2.5,2.7 * Added ‘thawing device’ to waterbath in materials and sections 5.0 and 6.0 * Added 5.5 and 5.6 * Updated all references to include the most recent version/edition and adjusted the page numbers cited as necessary |
| October 12, 2017 | * Section 2.4 – updated that it is acceptable to give any ABO group of cryo to adult recipients * Section 6.2 – removed requirement for ABO compatible and provided dosing recommendations * Updated references for CSTM Standards and CBS Clinical Guide |