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TECHNICAL MANUAL

ARMED SERVICES BLOOD PROGRAM

JOINT BLOOD PROGRAM HANDBOOK

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HEADQUARTERS, DEPARTMENTS OF THE ARMY,
THE NAVY, AND THE AIR FORCE
1 December 2011

ASBP
Armed Services Blood Program

THIS TECHNICAL MANUAL PROVIDES INFORMATION ON JOINT BLOOD OPERATIONS AND SERVES AS A GUIDELINE FOR THOSE INDIVIDUALS INVOLVED IN THEATER BLOOD OPERATIONS. THE MANUAL SHOULD BE USED IN CONJUNCTION WITH OTHER GUIDANCE SUCH AS THEATER BLOOD POLICY, CLINICAL PRACTICE GUIDELINES (CPGs), FRAGMENTARY ORDERS (FRAGOs), ETC.

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WASHINGTON, DC, *1 December 2011*

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You can help improve this manual. If you find any mistakes, or if you know a way to improve procedures, please let us know. Mail your memorandum or DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to the Armed Services Blood Program Office (ASBPO), 5109 Leesburg Pike, Room 698, Falls Church, VA 22041-3258.

***This publication supersedes TM 8-227-12/NAVMED P-6530/AFH 44-152, dated January 1998.**

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PREFACE

This Joint Blood Program Handbook outlines the functions and responsibilities of the operating elements of the Armed Services Blood Program (ASBP) that could be required to ensure the management and distribution of Class VIII B (Blood) during a contingency operation. Use of the information contained in this handbook is for those in the Military Health System (MHS) areas, who manage and assist in any way with blood and blood products distribution.

Upon activation, or "Stand-up," of the Joint Blood Program Office (JBPO) during a domestic emergency or operational contingency, the Combatant Command JBPO and/or the Commander, Joint Task Force (CJTF) JBPO will issue a message indicating "WHO'S WHO IN CLASS VIII B MANAGEMENT" for the Joint Area of Operations (JAO). During a "stand-up," make sure that you place the information from that message into this booklet and carry it with you when you deploy for easy reference when you arrive at the assigned duty station within the JAO. If there are any questions of a technical or organizational nature regarding the Joint Blood Program in your JAO, get answers for those questions by going directly to the JBPO, do not guess.

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CHAPTER 1
INTRODUCTION

1-1. Interacting With The Blood Distribution System

a. Anyone working with blood and blood products in a military environment, whether collecting (drawing from donors), testing and packaging, transporting and storing, and/or transfusing final products, must understand and become knowledgeable about the Armed Services Blood Program (ASBP) blood distribution system. It is important to note that blood and blood products have been used in each and every military operation since World War II. The keystone of the entire blood program is the planning, coordinating, and training of all personnel involved in the blood mission to make things work as they should once the blood needs for an operation have been identified by the Combatant Command.

b. The medical team at the field medical treatment facility (MTF), forward medical company, forward surgical team, or ships afloat, must be aware that blood products will not just suddenly appear at their facility. The Joint Task Force's (JTF's) medical planning team must plan for and request blood products through the communications and coordination channels for the system to work. (Tables 1-1 and 1-2 contain lists of available blood products.)

c. This section will address: (1) WHO should the medical team talk with when blood products are required? (2) HOW does the medical team communicate blood product requirements (what products, how much, where required, when required)? (3) HOW does the medical team receive blood products? (4) WHEN can the medical team get blood products from the ASBP?

Table 1-1. Blood Products (Class VIII B)

PRODUCT	UNIT OF ISSUE	SHELF LIFE FOR: STORAGE	SHELF LIFE FOR: TRANSFUSION	LEVEL AVAILABLE	APPROX. DISTRIBUTION (%)			
					O	A	B	AB
LIQUID RED BLOOD CELLS	APPROX. 310 mL	42 DAYS (ADSOL)	42 DAYS (ADSOL)	II* III & IV	80 50	20 40	- 10	- -
WHOLE BLOOD	APPROX. 450 mL	N/A	24 HOURS	II & III				
FROZEN/ DEGLYCEROLIZED RED BLOOD CELLS	APPROX. 200 mL	10 YEARS	14 DAYS (POST-WASH, CLOSED SYSTEM)	III & IV	85	15	-	-
FRESH FROZEN PLASMA/PF24	APPROX. 220 mL	1 YEAR	24 HOURS (POST-THAW)	II*, III & IV	15	25	20	40
THAWED PLASMA	APPROX. 220 mL	1 YEAR	5 DAYS (POST-THAW)	II*, III & IV	15	25	20	40
PLATELETS	APPROX. 225 mL	5 DAYS (20 - 24° C)	5 DAYS (CLOSED) 4 HOURS (OPEN)	III & IV	-	-	-	-
CRYOPRECIPITATE AHF	APPROX. 15 mL	1 YEAR	6 HRS (CLOSED) 4 HRS (OPEN)	II*, III & IV	-	-	-	-

* Level II facilities with surgical capability.

Table 1-2. Blood Bank Procedures by LEVELs

LEVEL	BLOOD PRODUCT	ABO & Rh Group	TRANSFUSION SERVICE	STORAGE CAPACITY	BLOOD SUPPLY
LEVEL I	NONE	NONE	NONE	NONE	NONE
LEVEL II	RED BLOOD CELLS (RBCs)	O, A Rh +/-	ABO Typing	50 UNITS RBCs/ FLD REFRIG	LEVEL III BSU
	FRESH FROZEN PLASMA (FFP/PF24)	O, A, B, AB		20 UNITS	LEVEL III BSU
	WHOLE BLOOD	O, A, B, AB	TYPE SPECIFIC		
LEVEL III	RED BLOOD CELLS	O, A, B Rh +/-	TYPE & SCREEN IMMED SPIN CROSSMATCH	480 UNITS LIQUID RBCs	LEVEL III BSU
	WHOLE BLOOD	O, A, B, AB	TYPE SPECIFIC		
	FROZEN/ DEGLYCEROLIZED RBCs	O, A Rh +/-	TYPE & SCREEN IMMED SPIN CROSSMATCH	475 UNITS FROZEN	LEVEL III BSU
	FRESH FROZEN PLASMA (FFP/PF24)	O, A, B, AB		100 UNITS	LEVEL III BSU
	PLATELETS	O, A, B, AB Rh +/-	REQUIRES APHERESIS CAPABILITY	5 UNITS (20 - 24° C)	LEVEL III BSU
	CRYOPRECIPITATE AHF	O, A, B, AB Rh +/-		50 UNITS	LEVEL III BSU
LEVEL IV	SAME AS LEVEL III	SAME AS LEVEL III	FULL SERVICE	SAME AS LEVEL III	BDC/ ASWBPL

(1) Who should the medical team talk with when blood products are required?

(a) The Commander may have a surgeon's staff. In those situations, he or she should appoint or designate a person to be the blood program officer. One example can be found at each combatant command surgeon's office where there is a Joint Blood Program Officer (JBPO). The JBPO is usually a laboratory officer who is a specialist in blood banking and is trained within the blood distribution system. These JBPOs are involved with the planning of the blood distribution system for operations within their combatant command. The JBPO is also responsible for monitoring the Expeditionary Blood Transshipment Centers (EBTCs), Blood Products Depots (BPDs), and Blood Supply Units (BSUs) who provide storage of blood products for further transport to MTFs.

(b) In a combatant command, depending on its size or based on the military operation, the Commander may designate Area Joint Blood Program Officers (AJBPOs). These officers may be assigned to the JTF and work for the JTF surgeon. They plan, coordinate, and communicate the same way as the JBPO does, only within a more defined geographical area. They are laboratory officers knowledgeable in blood banking procedures and a good source for answering any blood distribution questions. They coordinate deliveries of blood products to area facilities and then report to the JBPO as well as their respective command element. The AJBPO is responsible for making sure the blood distribution program for the operation is working.

(c) The BSU is designated in the operation plans. The BSU's role is normally assigned to a fixed MTF, a casualty receiving ship, or a field MTF. The BSU is given missions based on capabilities. The BSU is trained to store and distribute blood products to MTFs. It is usually the MTF and doctor's point of contact (POC) to the distribution system. Medical teams need to know what BSU

they are being supported by and obtain a POC and phone number from the AJBPO/JBPO/JTF staff. Personnel in the blood distribution system should communicate with one another.

(2) How does a medical team communicate with the BSU?

(a) Once the medical team knows who their BSU POC is, how does the medical team communicate their blood requirements? The Department of Defense (DoD) has standardized message formats so each Service can communicate with other Service organizations. Two standardized messages are the Blood Report (BLDREP) and the Blood Shipment Report (BLDSHIPREP). Each MTF is required to submit a daily BLDREP to its blood product supplier. This can be by Secret Internet Protocol Router Network (SIPRNET), Non-secure Internet Protocol Router Network (NIPRNET), immediate message or other encrypted message. The exact report format and reporting period will be provided by the AJBPO/JBPO according to theater policy.

(b) A standard BLDREP will provide the facility's current blood inventory, the dispositions of products in the last 24 hours, the amount of blood products required within the next 12 to 48 hours, the amount of blood expiring in the next 7 days, and the estimated blood products required in the next 7 days. It may give the location of the MTF and it has a narrative section to address any problems and provide any other information required by higher commands.

(c) A standard BLDSHIPREP will provide the receiver of blood products with a heads up as to when a blood shipment will be arriving. It will provide the number of products being shipped by ABO group and Rh type. If the shipment is arriving by air, the report will usually have a mission number and transportation control number to specify which plane the blood products will be arriving on. It will give the shipper's address and the POC. Examples of BLDREPs and BLDSHIPREPs with codes for using these reports are explained in FM 8-55 and TM 8-227-11/NAVMED P-5123/AFI 44-118. It is imperative that medical teams requiring blood products for their facilities make sure their staffs are trained on how to submit these reports. Examples are found in appendix B.

(3) How does the medical team receive their blood products?

(a) The most important element in the blood distribution system rests with the transportation capabilities that DoD has available during a mission. Those resources can quickly become limited. Therefore, communication of requirements and coordination of transportation assets is very important. Fortunately, blood distribution occurs on a daily basis for peacetime transportation of blood products around the world. Thus, personnel involved, especially with the strategic lift capabilities, are always ready to implement contingency capabilities. Because strategic lift is limited, coordination of blood requirements with sufficient advanced notice is required. MTFs need to coordinate blood transportation directly with their supplying BSU. Any shortfalls should be brought to the attention of the AJBPO/JBPO.

(b) Tactical transportation capabilities must be flexible to meet requirements of the mission. The MTF may have blood products shipped directly to their unit (unit distribution) or they

may have to go to a specific location to receive their blood products (point distribution). In these routine instances, usually organic wheeled-vehicle assets are used. Problems arise when distance, terrain, security, and time become factors.

(c) When wheeled-vehicles are not available or the MTF's location is not open to wheeled transport, helicopters may be used. Air evacuation helicopters have a secondary mission to ship blood products forward to MTFs. Helicopter support to casualty receiving ships requires advanced coordination. Helicopters have the capability to sling load blood products when more blood is required than can be held within the helicopter. When helicopter capability is limited due to security, distance, and increased demands, tactical airlift, such as C-130s, can airland or airdrop blood products. Such requirements must be well coordinated. The JBPOs and AJBPOs should have knowledge of these capabilities and are responsible for coordinating these capabilities for the MTFs. See appendix C, appendix D, and appendix E.

(4) When can the medical team get blood products from the ASBP?

The military is involved in many different types of contingency operations, each one unique from all of the others. The medical team may find itself involved in a forward surgical element which is being deployed as part of the first wave of assault troops. In that situation, the medical team will need to deploy with blood products. In other cases, the medical team may be deploying with a MTF in a second wave of troop movements and will not have to take on casualties until days after entering the theater. In this particular situation, the medical team would not deploy with blood products, but would request them prior to accepting patients. In all cases, the medical team needs to ask the questions, "When are blood

and blood products required?" And, "When can we get them?" The blood distribution system can accommodate the MTFs as long as there has been coordination and advanced notice.

1-2. Blood Distribution System

a. The ASBP blood distribution system (see figure 1-1) is a highly organized and repeatedly exercised system for the continental United States (CONUS) collection of blood products (left side of diagram) and flows following the solid lines to the deployed theater MTFs (right side of diagram). Blood requests flow following the dotted lines from MTFs to the left.

(1) CONUS military Blood Donor Centers (BDCs) collect and ship blood products to resupply designated Armed Services Whole Blood Processing Laboratories (ASWBPLs) as directed by the respective Service Blood Program Office (SBPO). Contracts with civilian blood agencies are activated if ASBP shortfalls are experienced.

(2) Each ASWBPL ships blood products to the designated Expeditionary Blood Transshipment Center (EBTC) as directed by the Armed Services Blood Program Office (ASBPO).

(3) Each EBTC issues blood products to designated BSUs based on daily allocations established by the AJBPO or JBPO. Each EBTC submits a daily BLDREP to their AJBPO.

(4) Pre-positioned frozen blood products stored in combatant command Armed Services Blood Product Depots (BPDs) are issued to EBTCs and/or BSUs as directed by the JBPO.

(5) Located in Level III or IV medical support, BSUs supply blood products to service MTFs and submit daily BLDREPs to the designated AJBPO.

(6) Each AJBPO cross-levels blood products between BSUs and submits a daily BLDREP to the JBPO.

(7) Each MTF or element, including a naval vessel, that requires blood must submit a daily BLDREP to its designated BSU.

(8) The JBPO cross-levels products within the combatant command (COCOM) and submits a daily BLDREP to the ASBPO and the COCOM Surgeon.

(9) JBPOs provide information on program status to the command surgeons, who coordinate with the Joint Staff.

(10) ASBPO is chartered to ensure implementation of ASBP policies and to coordinate provision of blood products to the combatant commands in concert with the Joint Staff/J4 (Logistics).

b. Blood product requirements are preplanned and established in each combatant command's OPLANs. The BLDREP activates the execution of plans. The BLDREP includes a request for blood products and inventory status. Information copies of BLDREPs and BLDSHIPREPs are provided in accordance with OPLANs (appendix B).

1-3. Blood Tracking System

Every blood product will be tracked through final disposition using the COCOM approved automated information system (AIS). During times of no or low communications, or when the AIS is unavailable, blood product tracking will be accomplished according to COCOM policy.

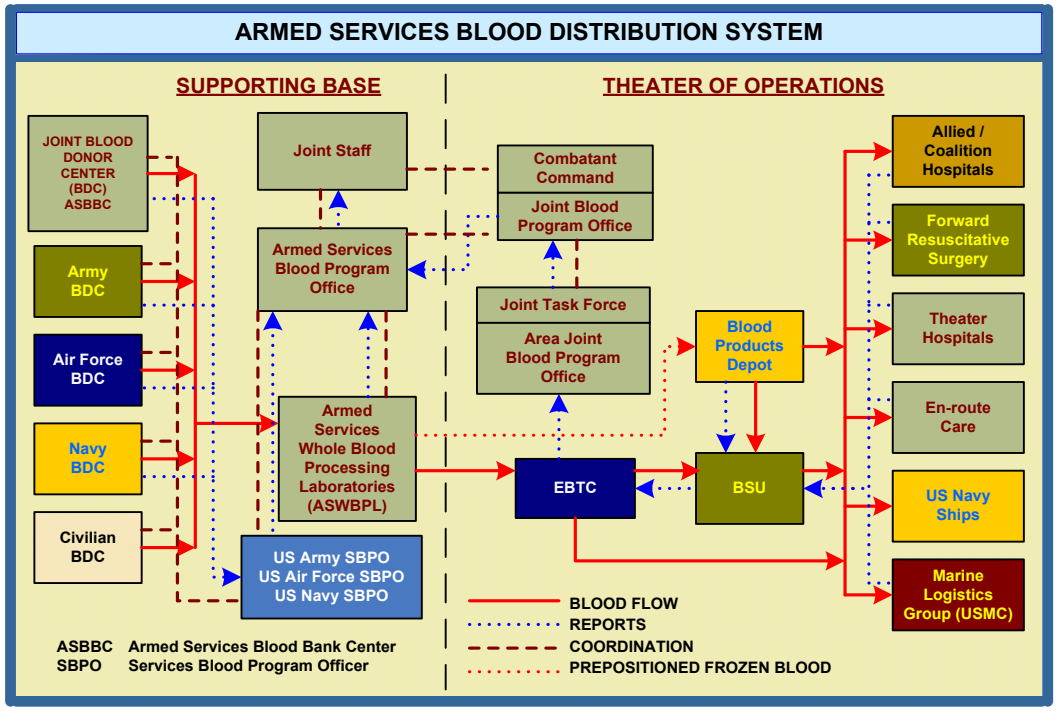

Figure 1-1 Armed Services Blood Distribution and Reporting System

CHAPTER 2
BLOOD PROGRAM OFFICES

2-1. Armed Services Blood Program Office

The ASBPO manages the blood program for the DoD. The ASBPO was established by DoD in 1952 as a joint field operating agency. The ASBPO is subject to the authority, direction and control of the Secretary of Defense through Health Affairs and operational control of the Joint Chiefs of Staff.

2-2. Joint Blood Program Office

a. The JBPO is responsible for the joint blood program management in a theater of operations. The JBPO functions as part of the combatant command surgeon's office but may establish an AJBPO for regional blood management. (See figure 2-1.) The functions of the JBPO are to:

(1) Support the combatant command surgeon or augment the Commander, Joint Task Force (CJTF) surgeon's staff.

(2) Be the central point of contact to ASBPO.

(3) Coordinate joint blood products requirements and capabilities in the theater of operations. The major assessment areas for a JBPO are manpower, training levels, and supplies.

(4) Coordinate requirements, distribution, and facilities. It is the JBPO's responsibility to be sure blood is where it’s needed. This means finding out early how to get blood to forward units and Navy ships as well as MTFs.

(5) Monitor shortfalls for blood products and supplies for blood collection, deglycerolization, and transfusion.

(6) Ensure readiness through distribution system exercises and training. Other theater staff (AJBPO, BSU, and MTF officers) may need extra training on: coordination with medical planners or transportation officers to anticipate blood/supply needs; making transportation arrangements; or the use of liquid/frozen products.

(7) Ensure compliance with ASBP policies, Food and Drug Administration regulations, and AABB (formerly known as American Association of Blood Banks) standards in peacetime, during contingencies, and during wartime to the greatest extent possible.

(8) Perform as the combatant command subject matter expert in determining blood requirements based upon Joint Staff casualty projections and maintaining blood in medical sustainment analysis.

(9) Provide the joint blood concept of operations; coordinate with logistics, transportation, and communication personnel on the Joint Staff for the combatant command.

(10) Serve as COCOM POC for managing blood bank lookback actions. Manage infectious disease testing resolution actions for emergency blood donations.

2-3. Area Joint Blood Program Office

a. An AJBPO, when established by the JBPO, coordinates requirements and distribution of all blood products to support the BSU and MTFs in a specific area, regardless of the Service component. Not all operations will require the establishment of an AJBPO. AJBPO personnel may not be blood bank specialists but they will have most of the same responsibilities as the JBPO, so they may need training and additional guidance from the JBPO.

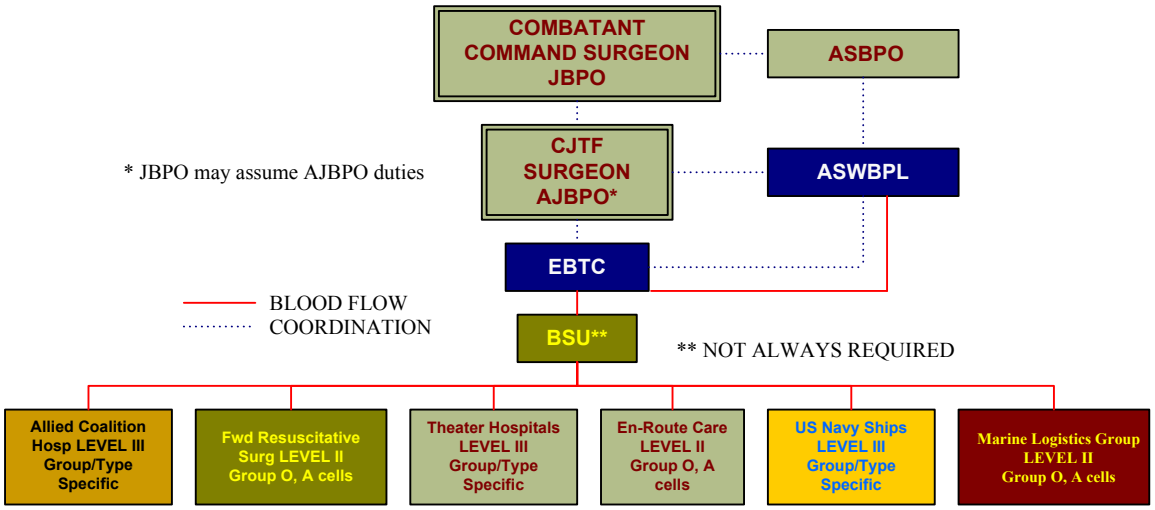

Figure 2-1. Joint Blood Program Theater Operations

CHAPTER 3
BLOOD PROGRAM ELEMENTS

3-1. Armed Services Whole Blood Processing Laboratory

a. An ASWBPL is a U.S. Air Force directed, Tri-Service staffed central repository for blood required in contingencies/wartime. An ASWBPL releases blood to combatant commands upon approval by the ASBPO. Theater MTFs may NOT go directly to the ASWBPL for blood. Functions of the ASWBPL are to:

(1) Retype blood for ABO and Rh only.

(2) Pack, ice, palletize, and coordinate blood for shipment to the theater.

(3) To the maximum extent possible, maintain an inventory of approximately 150 liquid RBCs, 1000 FFP/PF24 units, 200 units of Cryoprecipitate, and a sufficient number of Collins boxes to meet mission requirements.

(4) Participate in the Frozen Blood Program (manufacture, store, ship, and/or modify fRBCs) and provide frozen blood training as directed by the Air Force Blood Program Office.

3-2. Expeditionary Blood Transshipment System

a. An EBTC serves as the central receiving point in theater for blood shipments from the ASWBPL and for issue to the BSUs. An EBTC can store and process up to 3,000 units of blood weekly. It is usually operated by U.S. Air Force personnel located at a major airhead. Theater EBTC blood products are managed by the JBPO.

The functions of the EBTC are to:

(1) Inspect blood received from the ASWBPL or other blood agencies BPDs or other EBTCs.

(2) Store, ice/re-ice, and ship blood and blood products.

(3) Issue blood to BSUs.

3-3. Blood Products Depot

a. BPDs are located in the combatant commands (Pacific Command, European Command, Central Command) to maintain pre-positioned frozen blood stocks which are intended to absorb initial wartime blood requirements until mobilization can catch up to demand. BPDs are Service operated and managed by the JBPO via the AJBPO; however, the blood products are for use by all components. Not all combatant commands need a BPD. Functions of the BPD are to:

(1) Store frozen blood products until required.

(2) Thaw and deglycerolize frozen red cells and distribute to BSUs.

3-4. Blood Supply Unit (normally a role given to an Army Medical Detachment, Blood Support (MDBS))

a. A BSU is responsible for receiving, storing and distributing blood within the theater of operations. It is required to provide an adequate storage supply of blood products based on MTF proposed requirements and blood reports. The BSU can be identified to provide support in a specific geographical area regardless of Service components and can support multiple MTFs as designated by the JBPO.

The following units/facilities can serve as a BSU: Army Medical Detachment, Blood Support (MDBS), Fleet Hospital, Naval amphibious vessels, hospital ships, MTFs, EBTC, and BPDs when designated. BSU functions are to:

(1) Receive, store, and distribute blood to supported MTFs.

(2) Provide an adequate supply of blood and blood products based on requirements to the theater.

(3) Provide storage capabilities that maintain temperature requirements for liquid blood.

(4) Have the capability to produce ice for shipping and re-icing of blood in theater.

(5) Have the capability to store frozen blood products including frozen plasma (FFP/PF24), frozen red cells, and cryoprecipitate. May have the capability to deglycerolize frozen red cells.

(6) Have the means to ship frozen blood products to Level II and Level III MTFs including the ability to obtain/store dry ice.

(7) Supply blood and blood products to MTFs based on the following authorized blood usage:

(a) Level I: No blood use is authorized. Examples of Level I facilities are battalion aid stations and shock trauma platoons.

(b) Level II: Group O and A liquid red blood cells (Rh Pos/Neg) and FFP/PF24. Examples of Level II facilities are the Forward Operating Bases (FOBs), Forward Support Medical Companies (FSMCs), Forward Surgical Teams (FSTs), Main Support Medical Companies (MSMCs), Casualty Receiving and Treatment Ships (CRTS), and collecting clearing companies.

(c) Level III: Various group and type specific liquid red blood cells and FFP/PF24 and platelets. Level III facilities are hospital ships, fleet hospitals, Combat Support Hospitals (CSHs), and Air Force Expeditionary Medical Support (EMEDS).

(8) BSUs have the capability to collect blood and apheresis platelets in emergencies. Refer to appendix F for protocols regarding blood drawn in theater.

(9) MTFs to be supported by the BSU and the number of BSUs are designated/determined by the JBPO.

CHAPTER 4
BLOOD PRODUCT USAGE

4-1. Transfusion Indications

a. Fresh whole blood: Fresh whole blood (FWB) is neither intended nor indicated for routine use.

(1) In general, the use of FWB should be limited to casualties who are anticipated to require a massive transfusion when the physician determines that optimal component therapy is unavailable or in limited supply, or in patients that are not responding to stored component therapy.

(2) The decision to initiate a FWB drive should be made in consultation with the appropriate MTF medical authority (e.g., Trauma Director) and Laboratory/Blood Bank OIC.

(3) Emergency collected FWB must be ABO group identical and preferably Rh identical to the intended recipient. If not ABO identical, a fatal hemolytic reaction may occur.

(4) The decision to use FWB that has not been screened using rapid field tests and/or completed FDA-approved donor testing for infectious agents is a medical decision that must be made after thorough consideration of risks and benefits. The use of FWB should be documented in the recipient's medical record and reported to the JBPO. See appendix F for additional information on FWB collections.

b. Red blood cells: Red blood cell (RBC) transfusions increase oxygen-carrying capacity in anemic patients. One unit of RBCs will usually increase hemoglobin by 1 g/dL and hematocrit by 2 to 3 percent. In deciding to transfuse, the physician should consider age; the etiology, degree, and time course of the anemia; hemodynamic stability; and coexisting cardiac, pulmonary, or vascular conditions. There is no across-the-board threshold or "trigger." If volume expanders are indicated, fluids, crystalloids, or non-blood colloids should be administered.

DO NOT TRANSFUSE RBCS:

(1) For volume expansion only.

(2) To enhance wound healing or to improve general well-being.

c. Red blood cells, frozen: Frozen red cells, group O and A, are stocked in BPDs for use during the initial stages of a contingency operation before liquid blood can be shipped from the CONUS donor centers and the ASWBPL, or as an emergency supplement to theater blood supplies. Frozen, deglycerolized red cells are excellent cellular products which have been washed free of plasma proteins and maintain a high level of oxygen transport. They can be used any time red cell transfusions are indicated.

(1) Frozen red blood cells may be used during peacetime to increase transfusion physicians' familiarity with the product and to maintain laboratory personnel competencies.

(2) One technician using three cell washing machines can deglycerolize 12 units in 12 hours.

(3) Thawed frozen red cells MUST BE DEGLYCEROLIZED BEFORE TRANSFUSION—glycerol is toxic.

(4) Deglycerolized red cells stored at 1 to 6° C expire 14 days after thawing if the closed system integrity has not been compromised. If open system, 24 hours shelf-life.

d. Fresh frozen plasma/PF24: FFP/PF24 should be administered to increase the level of clotting factors in patients with a demonstrated deficiency or suspected coagulopathy. Laboratory tests should be used to monitor patients with a suspected clotting disorder. If prothrombin time (PT) and partial thromboplastin time (PTT) are <1.5 times normal, FFP/PF24 transfusion is rarely indicated. Patients with thrombotic thrombocytopenia purpura (TTP) or hemolytic uremic syndrome (HUS) may benefit from FFP/PF24 transfusion.

DO NOT TRANSFUSE FFP/PF24:

(1) For volume expansion only.

(2) Where specific factor replacements are available.

e. Thawed Plasma: Thawed plasma is derived from FFP and PF24 that has been thawed at 30° - 37° C in a closed system and stored at 1° - 6° C for 1 to 5 days. The expiration date is 5 days after thawing of the original component. Thawed plasma contains somewhat reduced amounts of labile coagulation Factors V and VIII. Thawed plasma should not be more than one half of the plasma transfused in any twenty four hour period.

f. Platelets: Platelet transfusions are administered to control or prevent bleeding caused by deficiencies in platelet number or function. One unit of apheresis platelets (3×10^{11} platelets in 250 – 300 mL of plasma) should increase the platelet count in a non-bleeding patient by 30,000 – 60,000/µL.

Physicians may consider giving platelets to patients with low platelet counts when the count drops to or below 10,000 – 20,000/μL. The pre-operative minimum platelet count "trigger" is generally set between 50,000 to 100,000/μL, subject to physician judgment. Platelet transfusions at higher counts may be required with bleeding and for patients at a higher risk of bleeding because of coagulation defects, sepsis, medication, or disease.

DO NOT TRANSFUSE PLATELETS:

When thrombocytopenia is due to platelet destruction (e.g., antibody mediated thrombocytopenia such as Idiopathic Thrombocytopenic Purpura (ITP), drug induced Thrombotic Thrombocytopenic Purpura (TTP), Hemolytic Uremic Syndrome (HUS), Hemolysis, elevated liver enzymes, Low Platelet (HELLP) syndrome, etc.), unless the patient has life threatening bleeding not treatable by other means.

g. Cryoprecipitate (Cryo): Cryo is a concentrated source of certain plasma proteins namely: Factor VIII:C (the procoagulant activity), Factor VIII:vWF (von Willebrand factor), fibrinogen and Factor XIII. Each bag contains approximately 80 to 120 units of Factor VIII and at least 150 mg of fibrinogen. Cryo may be indicated for the treatment of congenital or acquired fibrinogen or Factor XIII deficiency. Typically Cryo is not used to treat hemophilia A and von Willebrand disease since virus-inactivated concentrates provide a better option. Cryo can sometimes be used as a source of fibrinogen

and mixed with thrombin to prepare "fibrin sealant" to aid in surgical hemostasis and for other purposes. ABO-compatible Cryo is not required since Cryo contains so little plasma. However, this volume of plasma may be clinically significant in infants. Cryo should not be used to treat patients with coagulation factor deficiencies other than Fibrinogen and Factor XIII.

4-2. Transfusion Risks

Infection and alloimmunization are the major complications associated with transfusion of blood components. There is a relationship between risks and the number of donor exposures.

a. Hepatitis C Virus (HCV) can be transmitted by blood transfusion. With the introduction of screening tests to detect HCV antibodies in donated blood, the risk of transfusion-related HCV has been substantially decreased. HCV Nucleic Acid Testing (NAT) has further reduced the exposure window period.

b. Human Immunodeficiency Virus(es) (HIV) pose a relatively small hazard. The wide range of estimated risk reflects geographic variance. HIV-1 Nucleic Acid Testing (NAT) has further reduced the exposure window period.

c. Other Infectious Diseases or Agents may be transmitted via transfusion (for example, hepatitis B, HTLV-I/II, cytomegalovirus, WNV, Chagas, and those causing malaria and other rare diseases).

d. Fatal Hemolytic Transfusion Reactions can occur. They are caused by an ABO incompatibility primarily due to errors in patient identification at the bedside.

e. Alloimunization may occur. Recipients of any blood component may produce antibodies against donor antigens, alloimmunization. This condition can result in inadequate response to transfusion.

f. Delayed Hemolytic Transfusion Reactions can occur when a patient previously sensitized to red cell antigens (alloimmunization through prior transfusion or pregnancy) is re-exposed to these antigens. This condition can result in a delayed destruction of transfused red cells and an inadequate response to transfusion.

g. Transfusion Related Acute Lung Injury (TRALI) is a serious blood transfusion complication characterized by the acute onset of non-cardiogenic pulmonary edema following transfusion of blood products. TRALI is thought to be immune mediated. Antibodies directed toward Human Leukocyte Antigens (HLA) or Human Neutrophil Antigens (HNA) have been implicated.

h. Allergic Reactions, Febrile Reactions, and Circulatory Overload may also occur.

APPENDIX A
REFERENCES

A-1. Publications

AFI 44-105, Air Force Blood Program.

AR 40-3, Army Medical, Dental, and Veterinary Care.

Code of Federal Regulations, Title 21, Parts 600-799.

DOD Directive 6000.12, Health Services Operations and Readiness.

DOD Instruction 6480.4, ASBP Operational Procedures.

FM 4-02.1, Army Medical Logistics.

FM 4-02.24, Area Support Medical Battalion Tactics, Techniques, and Procedures.

FM 4-02.25, Employment of Forward Surgical Teams Tactics, Techniques and Procedures.

FM 8-55, Planning for Health Service Support.

TM 4-02.70/NAVMED P-5120/AFMAN 41-111_IP, Standards for Blood Banks and Transfusion

Joint Pub 4-02, Doctrine for Health Service Support in Joint Operations.

OPNAVINST 6530 4B, Department of the Navy Blood Program.

TM 8-227-3/NAVMED P-5101/AFMAN 41-119, Technical Manual of AABB.

TM 8-227-11/NAVMED P-5123/AFI 44-118, Operational Procedures for the Armed Services Blood Program Elements.

Joint Theater Trauma System Clinical Practice Guidelines, The United States Army Institute of Surgical Research, http://www.usaisr.amedd.army.mil/.

Combatant Command Joint Blood Program Regulations.

Combatant Command Operation Plan.

A-2. Forms.

DD Form 1502, Frozen Medical Material Shipment—Perishable-Keep Frozen.

DD Form 572, Blood Donation Record

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APPENDIX B
REQUIRED MESSAGE FORMATS

B-1. Blood Report (BLDREP).

a. Purpose: The BLDREP is used in the worldwide ASBP to report blood inventories, request blood, and project requirements. NOTE: The format of this report may vary and will be dictated by the COCOM JBPO.

b. Originator: MTF, BSU, EBTS, BPD, AJBPO, JBPO, ASBPO.

c. Method of transmission: Electronic mail is the primary mode of transmission; however, use of the voice template is an acceptable alternative (figures B-1, B-2, and B-3). Communications capabilities of the originator and addressee, as well as the urgency of the message subject and text material, determine method of transmission.

d. Frequency of transmission/update: Frequency required is as follows, unless otherwise directed.

(1) MTF to BSU: Daily as of 2359Z; report required no later than 0200Z.

(2) EBTC to AJBPO/JBPO: Daily as of 2359Z; report required no later than 0400Z.

(3) BPD to AJBPO/JBPO: Daily as of2359Z; report required no later than 0400Z.

(4) BSU to AJBPO/JBPO: Daily as of 2359Z; report required no later than 0400Z.

(5) AJBPO to JBPO: Daily as of 0400Z; report required no later than 0800Z.

(6) JBPO to ASBPO: Daily as of 0800Z; report required no later than 1200Z.

e. Completion procedures:

(1) Information copies should be minimized and be specifically required by the OPLAN.

(2) JBPO may assign codes for blood program activities. Locations are reported only on the first report or relocation. Naval vessels can disregard the location requirement. General codes are listed in table B-1.

B-2. Blood Shipment Report (BLDSHIPREP).

a. Purpose: The BLDSHIPREP is used in the worldwide ASBP to report blood shipments. The BLDSHIPREP should be used by any medical facility to notify the receiving facility that blood has been shipped. NOTE: The format of this report can vary and will be dictated by the COCOM JBPO.

b. Originator: ASWBPL, EBTC, BPD, BSU.

c. Method of transmission: Message traffic (e-mail) is the primary means of transmission; however, use of the voice template is an acceptable alternative (figures B-4, B-5, and B-6). Communications capabilities of the originator and addressee, as well as the urgency of the message subject or text material, should determine the method used.

d. Frequency of transmission/update: Frequency is as required or directed to provide information on blood shipments.

e. Procedures:

(1) Information copies should be minimized and be specifically required by the respective OPLAN.

(2) The responsible JBPO may assign codes for activities. Locations of activities will be reported on the first report or upon relocation. Naval vessels can disregard the location requirement. General use codes are listed in table B-1.

(3) ASWBPL may ship direct to a BSU if no EBTC is established, or as directed by the ASBPO.

Table B-1. BLDREP/BLDSHIPREP Message Codes		
Category	**Code Definition**	
MANAGEMENT	A = JPBO	B = AJBPO
FACILITIES	C = ASWBPL	D = BDC
	E = BPD	F = EBTC
	G = BSU or MDBS	H = MTF
	I = Naval Vessel (NV)	
PRODUCTS	J = Red Blood Cells	K = Whole Blood
	L = Frozen Red Blood Cells	M = Frozen Plasma (FFP or FP24)
	N = Platelets (Liquid or Frozen)	O = Cryoprecipitate
	P = To be determined	
BLOOD GROUPS	Q = Random Group and Type O, A, B	R = Random Group and Type O, A
	S = Random Type O	T = Random Type A
	U = Random Type B	V = Random Type AB
TIME FRAME	W = Required within 12 hours	X = Required within 24 hours
	Y = Required within 48 hours	
MISCELLANEOUS	Z = Not applicable or see remarks	

PRIORITY: Determined by JBPO/AJBPO
FM: Input sending location (your) Plain Language Address (PLAD)
TO: Input receiving location (BSU, AJBPO) Routing Indicator (RI), if available, and PLAD
INFO: Input information addressee RI and/or PLAD
CLASSIFICATION: Determined by JBPO/AJBPO
OPER: Input operation name
MSGID: Input report type and reporting unit name and ID code
ASOFDTG: Date-time (Zulu) of Message
REPUNIT: Name, designator code, and activity brevity code of the reporting unit
BLDINVT: Total of each product on hand by amount and product code
BLDREQ: Total number of each product requested (amount/code)
BLDEXP: Total number of each product expiring in the next 7 days
BLDEST: Estimate total number of each product required for resupply in the next 7 days by amount and product code
CLOSTEXT or RMKS: Additional comment, remarks, or information
DECL: Message downgrading instructions; mandatory if message is classified

Figure B-1. Definition of BLDREP Elements

FM: CDR 32ND MEDLOGBNBSU//
TO: CDR JTF CHARLIE SURGEON/AJBPO//
INFO: CDR 16MEDGRP/LOG//
CONFIDENTIAL
OPER/VALIANT ENTERPRIZE//
MSGID/BLDREP/BSU/1012221//
REF/A/CDRUSACOM/090300ZJAN92/-/NOTAL//
ASOFDTG/100001ZJAN92//
REPUNIT/32ND MEDLOGBN/GBZ44327432//
BLDINVT/-/-/300JQ/60MV//
BLDEXP/-/-/15JQ//
BLDEST/-/-/300JQ/30MV//
RMKS/COLLECTED 12 UNITS WHOLE BLOOD FOR EMERGENCY
DECLAS OADR

Figure B-2. Example of a completed BLDREP (elements / format may vary as directed by theater policy)

Originator responds: (Addressee) this is (Originator) Blood Report
Addressee answers:
Originator responds: This is (Originator)

Flash Immediate Priority Routine Top Secret Secret Confidential Unclassified

BLOOD REPORT – "Give the line number and then the required information in ( )"

1.	As of	__	(Date, time zone of this report)
2.	Unit	__	(Reporting unit name/designator)
3.	Activity	__	(Reporting unit's activity brevity code)
4.	Location	__	(Location of reporting unit lat/lot for delivery) Naval vessels only
5.	Rendezvous	__	(Estimate day, time, month, year of rendezvous) Naval vessels only
6.	Arrival	__	(Arrival at the projected rendezvous location)
7.	Status of	__	(Name/code of activity reporting blood status if other than message originator)
8.	Activity	__	(Reporting units activity code letter if other than originator)
9.	On Hand	__	(Number/code each product on hand)
10.	Needed	__	(Number/code product requested)
11.	Expiration	__	(Estimate of total number of products by group/type to expire in next 7 days)
12.	Re-supply	__	(Estimate of total number of products by group/type to expire in next 7 days)
13.	Narrative	__	_____
14.	Time	__	(Date, time zone when required)
15.	Authentication	__	(Message authentication IAW JTF procedures)

Figure B-3. BLDREP Voice Template

PRIORITY: Determined by JBPO/AJBPO
FM: Input sending location (your) PLAD
TO: Input receiving location (BSU, AJBPO) RI if available, and PLAD
INFO: Input information addressee RI and/or PLAD
CLASSIFICATION: Determined by JBPO/AJBPO
OPER: Input operation name
SUBJ: BLDSHIPREP
MSGID: Input report type and reporting unit name and ID code
ASOFDTG: Date-time (Zulu) of message
REPUNIT: Name, designator code, and activity brevity code of unit
ISHIPD: Blood product/number by blood type/and total number shipped
BLDSHP: Airbill or Transit Control Number (TCN #)/aircraft or flight #/estimated time of arrival (date and time)
POC: Point of contact (name, rank, phone number and location)
CLOSTEXT or RMKS: Additional comment, remarks, or information
DECL: Message downgrading instructions mandatory if message is classified

Figure B-4, Definition of BLDSHIPREP Elements

FM: CDR USAMEDDAC FT KNOX KY/HSLBB//
TO: ASWBPL MCGUIRE AFB NJ//
INFO: CDRUSAHSC FT SAM HOUSTON TX/MCHO-CL-R//
UNCLASS
OPER/DULL BRASS//
MSGIDBLDSHIPREP/FT KNOX BDC/101222ZJAN92//
REF/A/CDRUSAHSC/090300ZJAN92/-/NOTAL//
ASOFDTG/100001ZJAN92//
REPUNIT/CMBC/D/FT KNOX KY//
1SHIPD
/BP/OPOS/ONEG/APOS/ANEG/BPOS/BNEG/ABPOS/ABNEG/TOTAL//
/J/160/40/140/32/20/8/0/0/400//
/M/0/0/0/0/0/0/24/0/24//
BLDSHIP/AB 12134/DELTA 32/101500ZJAN92/14//
POC/NEVARREZ/SSG/PRIPHN:DSN555-1212/-/FT KNOX KY/SEPHN:DSN555-1213//
CLOSETEXT/BLOOD NEEDS RE-ICED BY 130001ZJAN92/CMBC SHIPMENT N01//

Figure B-5. Example of a complete BLDSHIPREP (elements / format may vary as directed by theater policy)

Originator responds: (Addressee) this is (Originator) Blood Report
Addressee answers:
Originator responds: This is (Originator)

Flash Immediate Priority Routine Top Secret Secret Confidential Unclassified

BLOOD REPORT – "Give the line number and then the required information in ( )"

1.	As of	__	(Date, time zone of this report)
2.	Unit	__	(Reporting unit's name/designator)
3.	Activity	__	(Reporting unit's activity brevity code)
4.	Location	__	(Location of reporting unit lat/lot (UMT) Naval vessels only; Project law/long, UMT or place for delivery of products
5.	Rendezvous	__	(Estimate day, time, month, year of rendezvous) Naval vessels only
6.	Arrival	__	(Arrival at the projected rendezvous location)
7.	Product	__	(Brevity codes of products being shipped)
8.	O Positive	__	(Number of units)
9.	O Negative	__	(Number of units)
10.	A Positive	__	(Number of units)
11.	A Negative	__	(Number of units)
12.	B Positive	__	(Number of units)

Figure B-6. BLDSHIPREP Voice Template (1 of 2)

13.	B Negative	__	(Number of units)
14.	AB Positive	__	(Number of units)
15.	AB Negative	__	(Number of units)
16.	Total	__	(Total number of units of the blood product being shipped)
17.	Control	__	(Airbill number or transportation control number. Air flight number.)
18.	Mission	__	(Mission number assigned)
19.	Arrival	__	(Estimated day, time, time zone, month, of shipment arrival at destination)
20.	Boxes	__	(Number of boxes in shipment)
21.	Contact	__	(Name of shipper's POC)
22.	Phone	__	(24-hour telephone number of shipper's POC)
23.	Narrative	__	_____
24.	Time	__	(Message hour, minutes, time zone required)
25.	Authentication	__	(Message authentication IAW JTF procedure)

Figure B-6. BLDSHIPREP Voice Template (2 of 2)

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APPENDIX C
AIRLIFT REQUEST GUIDANCE

For fixed-wing, contact the Air-Head Aerial Port Squadron (APS) or the Joint Patient Movement and Regulating Center (JPMRC). Theater Airlift is coordinated by the Combined Air Operations Center (CAOC), Air Mobility Division (AMD). Communication with the AMD is vital to facilitate emergency requests for fixed wing aircraft. For rotary-wing support to forward medical units or Navy ships, go through the Army Medical Logistics Company. Their personnel should be trained in sling-load and other helicopter support. Shipments to Navy ships are coordinated through Naval Logistics Support. Marine aircraft may be utilized after coordination with Marine Logistics Support.

Important information to know before making the airlift request includes:

a. On-load location (include grid coordinate)
b. POC at on-load location
c. Off-load location (include grid coordinate)
d. POC at off-load location
e. Mode of transportation
f. Type of delivery (air-land, air-drop, over-land)
g. Number of boxes
h. Weight and size of shipment
i. Distance
j. Priority
k. Special handling/delivery instructions

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APPENDIX D
BLOOD PROGRAM PLANNING FACTORS

Table D-1. Blood Programming Guide

Programming Factor	Requirement
6:6:1 (RBCs:FFP/PF24:Apheresis Platelets)	Mass Transfusion
3 Units RBCs	Per Wounded in Action (WIA) and Non-Battle Injury (NBI)
0 Units RBCs	Per Disease Non-Battle Injury (DNBI)
1.60 Units FFP/PF24	Per WIA and NBI
0.15 Units Platelets	Per WIA and NBI
15 FFP/PF24 Units	Per Frozen Blood Shipping Container
30 Units Cryoprecipitate	Per Frozen Blood Shipping Container
20 Units Whole Blood	Per Standard Shipping Container
30 Units liquid RBCs	Per Standard Shipping Container
12 Units fRBCs	Per Standard Shipping Container
14 lbs. Cubed Iced (wet)	Per Standard Shipping Container
20 – 30 lbs. Dry Ice	Per Standard Shipping Container
120 Shipping Containers	Per 463 L Pallet, weight 5394 lbs.
3600 Units RBCs	Per 463 L Pallet, size 442 cubic ft.
3000 Units RBCs	Per EBTC/Week
150 Units RBCs	Contingency Blood at ASWBPL
480 Units RBCs	Per DEPMEDS D303 ISO
500 Units RBCs	Per DEPMEDS D404 ISO
3900 Unit Storage	Per MDBS/Day

Table D-1. Blood Programming Guide (continued)

Programming Factor	Requirement
4 Units Thawed/Washed	Per 12 Hours, Per Machine
2 to 3 Washers	1 Technician can operate at a time
2 L of Wash Solution	Per Unit Washed
48 Boxes or 1440 Units	CDS (Containerized Delivery System)
50 Boxes or 1500 Units	UH60 Helicopter (inside)
48 Boxes or 1440 Units	Slingload UH60 Helicopter
30 Boxes or 900 Units	UH-1 Helicopter (inside)
40 Boxes or 1200 Units	Slingload UH-1 Helicopter
400 Frozen Units, 40 FFP/PF24	LHD Amphibious Ship
400 Frozen Units, 40 FFP/PF24	LHA Amphibious Ship
1400 Frozen Units, 110 FFP/PF24	T-AH (Hospital Ships)
1-6º C	Blood Storage Temperature
1-10º C	Blood Shipment Temperature
-65º C or Below	Frozen Blood Storage Temperature
-40º C or Below	Frozen Blood Shipment Temperature
-18º C or Below	FFP/PF24/Cryo Storage Temperature
-18º C or Below	FFP/PF24/Cryo Shipment Temperature
20-24º C	Platelet Storage/Shipment Temperature

APPENDIX E
SHIPPING INFORMATION

E-1. Reusable Cardboard and Styrofoam Standard Shipping Container.

a. Capacity: 20 units WB, 30 units PRBC, 15 units RCF/FFP/PF24, 30 units CRYO.

b. Dimensions of box: 18 inches (L) X 19 inches (W) X 16 inches (H), 3.2 cubic feet.

c. Weight of: empty box - 9.5 pounds, wet ice - 14 pounds, dry ice - 20 to 30 pounds.

d. Weight of box + blood + wet ice: 44 - 54 pounds.

e. Tonnage: number of boxes X 0.0225.

E-2. 463L Pallet.

a. Dimension: 108 inches X 88 inches X 4 inches.

b. Maximum load height: 96 inches (6 boxes).

c. Pallet with cargo net: 354 pounds.

d. Maximum allowed weight: 8,000 pounds.

E-3. Pallet with Blood Products.

a. Units per box: PRBC-30; RCF/FFP/PF24-15, CRYO-30.

b. Units per pallet: PRBC - 3,600; RCF/FFP/FP24 - 1,800, CRYO - 3600.

c. Weight per box: PRBC - 44 pounds; RCF/FFP/FP24 - 39 pounds.

d. Weight of shipment: PRBC - 5,400 pounds; RCF/FFP/FP24 - 4,680 pounds.

e. Volume of shipment: PRBC - 442 cubic feet; RCF/FFP/FP24 - 360 cubic feet.

E-4. Shipment Icing and Storage Procedures.

a. Liquid red cells.

(1) Liquid blood storage specifications: store at 1 to 6° C; ship at 1 to 10° C.

(2) Repack liquid blood shipments every 48 hours using 14 pounds of wet cubed ice. DO NOT USE BLUE ICE OR CHEMICAL ICE PACKS. If ambient temperature exceeds 90° F, re-icing will be required every 24 to 30 hours.

(3) Place re-icing instruction labels, DD Form 1502 (Frozen Medical Material Shipment – Perishable - Keep Frozen), on the outside of the box to indicate re-icing during transit.

(4) Add a temperature monitoring device to each box to indicate temperature variations in shipping.

(5) If pick-up exceeds 12 hours, maintain blood at 4° C.

b. Frozen products.

(1) Pack frozen products in reusable cardboard and Styrofoam standard containers (Collins Box) and add 20 – 30 lbs dry ice. Dry ice needs to be replenished every 48 hours.

(2) Dry ice is hazardous material for air transport. Label the outside of the box to indicate that it contains dry ice.

(3) Frozen RBCs must be shipped at -65º C or below and FFP/PF24/Cryo must be shipped at -18º C or below.

(4) Frozen RBCs can be stored for 10 years at -65° C. Deglycerolized RBCs stored at 1 to 6° C expire 14 days post-thaw if the closed system integrity has not been compromised.

(5) FFP/PF24/Cryo expires 1 year from the date of collection when stored at less than -18° C.

(6) FFP/PF24 stored at 1 to 6° C expire 24 hours post-thaw. However, if converted to Thawed Plasma, these products can be maintained for 5 days from the date original product was thawed if stored at 1 to 6° C.

Note: Dry ice will sublime (change from solid to gas) and disappear. Inert packing materials, i.e. paper towels, newspaper, styrofoam packing peanuts, etc., should be used to reduce the movement of frozen products as the amount of dry ice decreases.

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APPENDIX F
EMERGENCY DONATION PROCEDURES

F-1. Emergency Blood Collections.
With proper planning, the Armed Services Blood Program will normally be able to provide adequate inventories of blood products to meet mission requirements. Unfortunately, situations arise where the need to transfuse exceeds the number of blood products available. In such cases, so called non-U.S. Food and Drug Administration (non-FDA) compliant blood products are used. There are two general types of non-FDA compliant blood products: 1) blood products, usually whole blood or apheresis platelets, collected in theater and released for transfusion prior to the completion of FDA-required testing; and 2) blood products, acquired from host nation or other countries, which may not be subject to the same set of stringent standards as is required by the US FDA.

Whenever emergency blood collections are required, every attempt will be made to ensure those donors are pre-screened with the required FDA-licensed blood donor testing no more than 90 days prior to donation. On the day of donation, donors should be tested using ASBPO/JBPO approved rapid infectious disease screening test kits. In addition, a set of tubes will be collected for retrospective FDA-required blood donor testing using licensed methodologies.

When choosing donors for whole blood, donors should be selected in the following order:

a. Donors who have been pre-screened with all the FDA licensed blood donor screening tests no more than 90 days prior to donation.
b. Donors who have previously been used in emergency situations and have tested negative for the retrospective infectious disease testing.
c. Donors who have not been pre-screened.

Donor eligibility at the time of collection will be determined by using ASBPO/COCOM-approved donor history screening protocols in addition to performing the rapid infectious disease screening tests. A set of specimen sample tubes will be collected and sent out to a designated FDA regulated donor screening laboratory for retrospective testing. All screening results will be sent to the Theater Joint Blood Program Office (JBPO).

F-2. Apheresis Blood Collections.

The short shelf life of liquid platelet products makes them almost impossible to transport from CONUS blood donor centers to overseas MTFs. Thus, theater apheresis collection facilities are used to collect platelets products. Since FDA-licensed testing is not readily available in the theater setting, apheresis platelets are collected using the emergency collection protocol. The same policies as described for whole blood apply to platelets except all platelet donors must be pre-screened no more than 90 days prior to donation. The donor eligibility screening, rapid infectious disease testing and retrospective infectious disease testing described above also applies to platelet donors.

Note: The employment of emergency transfusion protocols involving the use of non-FDA compliant blood products should be limited to instances where such products are not available or when these products cannot be delivered at an acceptable rate to sustain resuscitation of a bleeding patient.

F-3. Blood Support to Rh Negative Patients.

a. Medical implications.

(1) Females: Transfusing Rh positive RBCs to Rh negative females at Level II of medical care, where blood grouping and typing capabilities may not be available, can result in future complications if the patient is of child-bearing age and develops an anti-D antibody (and a future fetus is Rh positive), hemolytic disease of the newborn may result. Once a D antibody is formed, Rh immune globulin is no longer effective. Thus, it is paramount to reduce the transfusion of Rh positive blood to Rh negative females of child-bearing age.

(2) Males: The impact of sensitization in males is not as great, thus priority for Rh negative blood is given to females of child-bearing age.

b. Procedures.

(1) When Rh negative blood inventories are adequate, Rh negative red cells are to be provided to Rh negative females and males.

(2) Each MTF should have written procedures describing selection of blood products for patient treatment during inventory shortages that must address Rh negative RBC management. In the absence of ABO and/or Rh patient testing capabilities, all patients should receive O RBCs to the maximum extent possible and Rh negative blood should be transfused to patients whose ID tags/cards indicate Rh negative status.

(3) If there is a shortage of group O, Rh negative RBCs, priority of Rh negative blood for transfusions will be given to Rh negative females of child-bearing potential.

(4) Level III MTFs and higher have the capability to group, type, and crossmatch blood with group and Rh type specific RBCs and are not authorized to use ID tags and cards for selection of suitable donors or blood products.

(5) In those cases where the blood type of a female patient cannot be confirmed, Rh negative blood will be given.

(6) In extreme cases where there may not be enough Rh negative blood to meet all the needs of female patients, the use of Rh positive blood becomes an EMERGENCY REQUIREMENT in saving a patient's life.

NOTES:

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APPENDIX G
ACRONYMS

Acronym	Description
AABB	Organization formerly known as the American Association of Blood Banks)
ABO	A, B, AB & O (Human Blood Groups)
AFH	Air Force Handbook
AFI	Air Force Instruction
AFMAN	Air Force Manual
AIS	Automated Information System
AJBPO	Area Joint Blood Program Office/Officer
AMD	Air Mobility Division
AOR	Area of Responsibility
APS	Aerial Port Squadron
AR	Army Regulation
ASBBC	Armed Services Blood Bank Center
ASBP	Armed Services Blood Program
ASBPO	Armed Services Blood Program Office
ASBP	Armed Services Blood Program
ASWBPL	Armed Services Whole Blood Processing Laboratory

Acronym	Description
BDC	Blood Donor Center
BLDREP	Blood Report
BLDSHIPREP	Blood Shipment Report
BPD	Blood Product Depot
BSU	Blood Supply Unit
CAOC	Combined Air Operations Center
CJTF	Commander, Joint Task Force
COCOM	Combatant Command
COMM	Commercial
CONUS	Continental United States
CPG	Clinical Practice Guidelines
CRTS	Casualty Receiving and Treatment Ship
Cryo	Cryoprecipitate
CSH	Combat Support Hospital
DSN	Defense Switched Network

Acronym	Description
EBTC	Expeditionary Blood Transshipment Center
EMEDS	Expeditionary Medical Support
ETA	Estimated Time of Arrival
ETD	Estimated Time of Departure
FAX	Facsimile
FDA	Food and Drug Administration
FFP	Fresh Frozen Plasma
FM	Field Manual
FOB	Forward Operating Base
FRAGO	Fragmentary Order
fRBC	Frozen Red Blood Cell
FSMC	Forward Support Medical Company
FST	Forward Surgical Team
FWB	Fresh Whole Blood
HCV	Hepatitis C Virus

Acronym	Description
HELLP	Hemolysis, Elevated Liver Enzymes, Low Platelet
HIV	Human Immunodeficiency Virus
HLA	Human Leukocyte Antigen
HNA	Human Neutrophil Antigen
HUS	Hemolytic Uremic Syndrome
IAW	In Accordance With
J4	Directorate of a Joint Staff (Logistics)
JAO	Joint Area of Operations
JBPO	Joint Blood Program Office/Officer
JTF	Joint Task Force
MDBS	Medical Detachment Blood Support
MHS	Military Health System
MSMC	Main Support Medical Company
MTF	Medical Treatment Facility
NAT	Nucleic Acid Testing

Acronym	Description
NAVMED	Navy Medical
NIPRNET	Non-secure Internet Protocol Router Network
OIC	Officer In Charge
OPLAN	Operational Plan
OPNAVINST	Chief of Naval Operations Instruction
PF24	Plasma Frozen Within 24 Hours of Collection
PLAD	Plain Language Address
POC	Point of Contact
PT	Prothrombin Time
PTT	Partial Thromboplastin Time
RBC	Red Blood Cell
Rh	Rhesus Factor (RBC D Antigen)
SBPO	Service Blood Program Office/Officer
SIPRNEET	Secure Internet Protocol Router Network

Acronym	Description
TACFAX	Tactical Digital Facsimile
TCN	Transit Control Number
TM	Technical Manual
TRALI	Transfusion Related Acute Lung Injury
TTP	Thrombotic Thrombocytopenic Purpura
USA	United States Army
USAF	United States Air Force
USMC	United States Marine Corps
USN	United States Navy
WNV	West Nile Virus

By Order of the Secretaries of the Army, Navy, and the Air Force:

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THIS TECHNICAL MANUAL PROVIDES INFORMATION ON JOINT BLOOD OPERATIONS AND SERVES AS A GUIDELINE FOR THOSE INDIVIDUALS INVOLVED IN THEATER BLOOD OPERATIONS. THE MANUAL SHOULD BE USED IN CONJUNCTION WITH OTHER GUIDANCE SUCH AS THEATER BLOOD POLICY, CLINICAL PRACTICE GUIDELINES (CPGs), FRAGMENTARY ORDERS (FRAGOs), ETC.