CCOP -01: BLOOD ADMINISTRATION PROGRAM

Urgent Resuscitation Using Blood Products and Walking Blood Bank SOP

Original Release/Approval: 5 Sep 2025	Note: CCOP-01 requires an annual review
Reviewed: N/A	**Approved for Adult Use Only** (age 18-65)
Supersedes: all previous versions	Version 1.0: CCOP-01 with Appendices A-L (includes new WBB SOP)
☐ Minor Changes (or)	■ New Document That Requires Thorough Reading
☐ Significant Changes	OCR: JBPO, CLINOPS OPR: CCSG

1. **PURPOSE**

To provide essential details on the appropriate management and administration of approved blood components for transfusion to adult casualties/patients (age 18-65) suffering major blood loss/massive hemorrhage during evacuation/movement from the point of injury (POI). Referred to as Blood Administration Program (BAP).

2. **APPLICABILITY**

This United States Central Command (USCENTCOM) Clinical Operating Protocol (CCOP-01), Blood Administration Program, applies to all USCENTCOM Service Components, Combined and other Joint Task Forces (CJTFs), and all U.S. military forces operating under Title 10 within the geographic area of responsibility (AOR) assigned or allocated to Commander, USCENTCOM by approved Global Force Management (GFM) processes (e.g., Command Plan) and Department of Defense (DoD) civilian medical employees deploying with U.S. Forces (hereafter referred to as "DoD personnel") consistent with DoD and Service specific guidance.

a. Medical and non-medical personnel assigned/attached or allocated to perform medical evacuation and/or patient movement duties that involve direct or indirect patient care (e.g., flight medic, crew chief, registered nurse, enlisted medical personnel, physician, nurse practitioner, or physician assistant).

3. **REFERENCES**

a. Armed Services Blood Program, *Joint Blood Program Handbook*, HQs Departments of the Army, Navy and the Air Force, (Army Technical Manual 8-227-12, NAVMED P-6530, AFH 44-152-IP), 1 December 2011.

b. Joint Trauma System Clinical Practice Guideline (JTS CPG), Damage Control Resuscitation (CPG ID: 18), Publication Date: 12 July 2019.

c. Joint Trauma System Clinical Practice Guideline (JTS CPG), Whole Blood Transfusion (CPG ID: 21), Publication Date: 15 May 2018.

d. Joint Trauma System Clinical Practice Guideline (JTS CPG), Tranfusion of Type A Whole Blood for the Role 3 (CPG ID: 96), Publication Date: 30 May 2025.

e. Joint Trauma System Clinical Practice Guideline (JTS CPG), Prehospital Blood Transfusion (CPG ID: 82), Publication Date: 30 October 2020.

f. Tactical Combat Casualty Care (TCCC) Guidelines for Medical Personnel, Publication Date: 15 December 2021.

g. CCR 40-1, Medical Services Healthcare Operations, 28 February 2023.

h. CCR 40-4, Medical Logistics for Healthcare Operations, 19 July 2021.

4. **RESPONSIBILITIES**

a. USCENTCOM Command Surgeon (CCSG) establishes and maintains the USCENTCOM Joint Blood Program consistent with DoD directives, instructions, and policies.

b. USCENTCOM Joint Blood Program Office (JBPO) is the single manager for all blood products used within theater at treatment facilities and for patient evacuation/movement.

c. USCENTCOM Service Component and/or CJTF Command Surgeons have oversight of operational units performing pre-hospital blood/blood product transfusions. Command Surgeon approves the implementation of a BAP within USCENTCOM.

d. The unit Senior Medical Officer (SMO) / Flight Surgeon (FSO) provides documented evidence of individual and unit training; and confirmation all mandatory equipment and supplies have been acquired to implement a BAP.

e. The Command Surgeon Office, in conjunction with the JBPO, will evaluate all new blood product requests. A minimum allocation during steady-state operations is expected to be 6 units of Low Titer Type O Whole Blood (LTOWB) per operating bed.

5. **FOLLOW JTS CLINICAL PRACTICE GUIDELINES FOR CLINICAL INDICATIONS FOR TRANSFUSION OF BLOOD PRODUCTS AND HEMOSTATIC ADJUNCTS.**

6. **PROCEDURE**

a. **Blood Component Therapy Approved for Transfusion during Tactical Evacuation**

(1) Red blood cells (RBCs) increase the recipient's oxygen-carrying capacity by increasing the mass of circulating red cells. Plasma and platelets work together to improve blood clot formation and clot stability. On average a unit of whole blood contains a volume of 500-600 mL and a unit of RBCs contains a volume of 300-400ml. In an exsanguinating patient, a unit of blood can be given quickly. Ensure good blood flow through IV or IO access before initiating transfusion. Refer to Appendix B for Transfusion procedures.

CAUTION: Rapid infusion against resistance **CAN CAUSE** mechanical shearing of RBCs and should be avoided.

CCOP-01 BLOOD ADMNISTRATION PROGRAM: URGENT RESUSCITATION USING BLOOD PRODUCTS AND WALKING BLOOD BANK SOP

(a) Blood products will be administered to treat hemorrhagic shock in the following priority depending on availability and according to Tactical Combat Casualty Care guidelines:

1. Cold Stored appropriate Whole Blood (LTOWB or TS-WB), or, if not available

2. Pre-screened Fresh Low Titer Group O Whole Blood (LTOWB), or, if not available

3. Pre-screened Type Specific Whole Blood, or, if not available

4. Plasma, RBCs, and platelets in a 1:1:1 ratio, or, if not available

   (a) In the Role 2/3 environment, where balanced transfusion products may be available, this is preferred over FWB (i.e. Pre-screened LTOWB donated via a WBB)

   (b) The remainder of the algorithm remains the same.

4. Plasma and RBCs in 1:1 ratio, or, if not available

5. Reconstituted dried plasma, liquid plasma, or thawed plasma alone or RBCs alone

6. Fresh group O (typed by Eldon card or equivalent) whole blood from unknown titer walking blood bank

NOTE: Low Titer Group O Whole Blood (LTOWB) has been screened for anti-A and anti-B antibodies; these units contain a low titer of anti-A and anti-B and are therefore considered a universal donor product that may be given to recipients of any blood type with a minimum risk for a minor ABO incompatibly (typically minor and most often subclinical consequences).

NOTE: National Blood Bank-Type Specific Whole Blood (NBB-TSWB) will be supplied to facilities with laboratories capable of determining recipient blood types; therefore, it will only be available at Role 3 and above and shall only be transfused at those facilities. . These facilities must have blood banking capabilities that can perform pretransfusion testing specifically ABO blood group determination. This will allow LTOWB to be reserved for prehospital and Role 2 resuscitation and for patients at the Role 3 during the initial phase of resuscitation, when their ABO-group is unknown. Additionally, all Type A TSWB will have yellow labels to indicate: 1) that is it Group (Type) A; 2) that is it Whole Blood; and 3) that it is intended for transfusion to Group A recipients only.

Using NBB-TSWB expands the donor pool and helps alleviate supply constraints associated with NBB- LTOWB; however, as mentioned above, adopting NBB-TSWB requires careful recipient blood typing to ensure ABO compatibility, and prevent acute hemolytic transfusion reactions. Determination of a recipient's blood type must be done by directly testing their RBCs and plasma.

If the Role 3 is not able to support manual saline tube or automated analyzer ABO testing, the facility will not provide NBB-TSWB (Type A Whole Blood) for transfusion. To increase patient safety, the Role 3 **should** perform blood type determination on a second independently collected patient sample before issuing NBB-

TSWB. If a discrepancy between the forward and reverse blood type is observed, patients should receive LTOWB (NBB-LTOWB or WBB-LTOWB) or appropriate component therapy using universally compatible products. If the patient can be accurately blood typed and they are group A, then, can switch to Type A NBB-TSWB or WBB-TSWB once blood type is determined.

Type A Whole Blood (NBB-TSWB) will be stored and used only at MTFs which utilize anti-sera and red cell reagents to conduct forward and reverse blood typing. Currently in the deployed environment, this is only Role 3 MTFs.

(b) O POS (either low titer O whole blood or Type O RBCs) is the standard for transfusion during evacuation.

CAUTION: Whole Blood collected in theater will NOT be supplied for use onboard MEDEVAC aircraft. The whole blood supplied to MEDEVAC units will be exclusively drawn in the United States from the ASBP approved sites and distributed in theater through the blood distribution system. The LTOWB units will be fully tested following FDA current guidelines.

NOTE: Patients requiring blood can safely receive uncrossmatched Low Titer O Whole Blood until type-specific products are available.

CAUTION**:** The primary difference for the providers when using TSWB vs. LTOWB is that the recipient's blood type must be known when performing a type-specific transfusion. *Administering an incompatible blood type can have devastating consequences for* a patient. In order to avoid a potentially lethal transfusion reaction during a type-specific transfusion, the blood type of the recipient must be identical to the blood type of the donor's blood.

(c) If available, use O NEG on females of childbearing potential (age <50 years old). Inform receiving facility if female is given O POS blood for documentation in the medical record.

NOTE: If a minimal amount (just a few milliliters) is given, consider Rh Immune Globulin Therapy (ie. RhoGAM). The immunologic consequences of administration of an entire unit of OPOS whole blood or RBC to an O NEG female of child-bearing potential cannot safely be reversed with RhoGAM. T**reatment of exsanguination takes precedence over potential future pregnancy outcomes.**

(d) Monitor for signs of transfusion reaction, such as hypotension, flushed face, wheezing, fever, rigors, flank pain. If reaction is suspected – IMMEDIATELY discontinue transfusion; identify type of reaction; follow specific transfusion reaction procedures outlined in Appendices C and D; DO NOT discard blood product/supplies; provide blood product, filter set, IV tubing/solution to the receiving MTF/Blood Bank.

(2) Plasma is recognized as an important component in preventing and treating coagulopathy

in trauma. On average a unit contains a volume of 200-250 mL and is transfused rapidly.

(a) Type A or AB thawed plasma is the current standard for transfusion during evacuation.

(b) Thawed plasma only has a shelf life of 5 days and may not be available for the pre-hospital mission. Liquid plasma (never frozen) has a shelf life of 26 or 40 days. Check with issuing facility or blood supply unit for availability.

(3) The recommended mission loads for tactical evacuation are based on operations tempo and determined by the theater or Joint Task Force Surgeon. Specific missions may require additional blood products; units will refer to the JBPO.

(a) Golden Hour Container (GHC) maximum capacity is four (4) units RBC/LP or 2 units of whole blood.

(b) If LTOWB is UNAVAILABLE, evacuation personnel will fly with RBCs and LP exclusively.

(c) Product must finish infusion within 4 hours of spiking the bag. If not complete, then it needs to be stopped and the remainder of the product discarded. If the initiation of transfusion (spiking of the bag) is delayed, then the blood may be returned to storage if it has not exceeded appropriate transport temperature, which is a max of 10ºC. The only way this can be determined is with use of a Safe-T-Vue sticker on the actual blood bag.

(d) Unused blood products (i.e. WB and freeze-dried plasma [FDP]) furnished by forward U.S. or Coalition Forces will not be used by evacuation personnel. Recommend products be left with forward forces. Blood products (WB and FDP) spiked by forward forces and transfusing at time of pick up will be continued during evacuation.

NOTE: Emergency transfusion of pediatric patients relies on clinical assessment rather than specific vital signs since normal heart rate and blood pressure are age dependent. Clinical signs of shock are the same as in adults (cool, pale, weak or absent radial pulse, delayed capillary refill, decreased mental status). Pediatric fluid resuscitation related to trauma begins with 10 mL/kg of first blood product, then repeat as needed based on response.

b. **Walking Blood Bank Collections, Testing, and Product Usage**

(1) WBB is the emergency transfusion option that will be reserved for contingency planning (clinical judgement, combat, mass casualty events, and prolonged evacuation) where failure to act will likely result in death. Emergency whole blood considerations and order of product preference:

(a) Prescreened Low titer group O blood type (universal blood product) is the preferred product. Potential donors should be prescreened every 120 days.

(b) ABO type-specific (donor and patient ABO match); in cases when Rh negative WB is preferred but unavailable, Rh-positive WB may be transfused; document in patient record as required.

** Do not rely on a potential recipient's dog tags, uniform badges, tattoos, proclamations, or any other external markings for recipient ABO type.

(c) Type O WB not screened for titers.

1. Donors who were not pre-screened must have their ABO/Rh determined prior to donation using a rapid test kit (e.g. Eldon Card) or clinical laboratory test method.

2. To the extent that the clinical situation and resources permit, donors will be tested using specific rapid infectious disease tests (e.g., Malaria, HIV, HCV, Rapid Plasma Reagin and Hepatitis B Surface Antigen) prior to donation or product transfusion.

(2) CENTCOM units will train on Walking Blood Bank procedures, in line with Appendix L, CENTCOM Emergency Walking Blood Bank Standard Operating Procedures.

(a) WBB training/exercise will be conducted monthly and/or with each change in medical personnel.

(b) Training compliance will be reported to and tracked by the Joint Blood Program Officer.

(c) Training goal should be 28 minutes with a maximum acceptable time of 55 minutes from time the WBB is activated to the time transfusion of newly collected and tested unit begins.

(d) Training resources can be located at the following locations:

Joint Trauma System: (page 11)
https://jts.health.mil/assets/docs/cpgs/Whole_Blood_Transfusion_15_May_2018_ID21.pdf

c. **Receiving Blood Components from an Issuing Facility (U.S. and Coalition)**

(1) **U.S. issuing facility personnel from the Medical Detachment Blood Support (MDBS), MTF (Role 2/3) or Laboratory (LAB) will:**

(a) If requested and available, thaw frozen plasma according to local procedures and label plasma products (Type A or AB) with 5-day expiration date. "Never frozen" liquid plasma has a shelf life of 26 or 40 days and may be more readily available. Check with the issuing facility for availability of thawed or liquid plasma.

(b) Ensure Golden Hour Container (GHC) is properly charged and removed from freezer 25-30 minutes prior to loading blood products.

(c) Ensure all blood products issued have a Safe-T-VUE (NSN 6515-08-T00-3056) attached and activated for temperature monitoring (Refer to Appendix K). Ensure thawed plasma is at refrigerated temperature (1 to 6ºC) before placing Safe-T-VUE on the unit.

(d) Evacuation personnel will follow Appendix K for Safe T-VUE procedures when required.

(e) Document in the Theater Medical Data Store (TMDS) the issuance of blood products to

a medical evacuation/patient movement unit (e.g., MEDEVAC; PJ; Tactical Critical Care Team). If TMDS is not available coordinate with the USCENTCOM JBPO for documentation.

(f) Complete a *Standard Form (SF) 518 Shipping Blood or Blood Component Transfusion Record* for blood issue; sign under certification that products meet all applicable policies and testing as required; and provide a copy to the requesting unit (Refer to Appendix F and Appendix I).

(g) Verify the blood information on the SF518 against the blood product label (product type, donor identification number, ABO/Rh type, and expiration date) with receiving evacuation unit personnel.

(2) **Non-U.S. Issuing Facility**:

(a) When U.S. blood products are to be issued from a Coalition facility, send an email to the USCENTCOM JBPO to coordinate issuing requirements and document units received.

(3) **Receiving unit (Evacuation Unit) personnel will**:

(a) Prior to sealing GHC, ensure each blood product loaded into the GHC has an activated Safe-T-VUE (Appendix K) attached and an SF518 initiated appropriately (Refer to Appendix F).

(b) Accept blood products into receiving unit's TMDS inventory.

NOTE: If receiving unit is unable to access TMDS, the issuing facility will access account and receive the products under the receiving unit's TMDS inventory.

(c) Unit FSO/SMO will track and monitor unit's compliance with issuing and receiving requirements.

d. **Storage, Transportation and Monitoring of Blood Products**

(1) All blood and blood components must be maintained in a controlled environment and stored under appropriate conditions.

(2) Blood products carried outside a MDBS/MTF/Lab will only be transported in an approved storage container (e.g., Golden Hour Container NSN 6530-01-505-5301; OCP/5306; Desert) for a maximum of 48 hours.

(3) Units will monitor containers and document status (e.g., dry/no leak noted) at a minimum of every 24 hours.

(4) Once loaded and sealed, container will remain closed and intact at all times until blood product is required for patient care.

(5) Notify the issuing facility (MDBS/MTF/Lab) as soon as possible when blood products have been used.

(6) GHC is only approved for 48 hours use. Prior to expiration, end users will contact issuing facility to coordinate the return and exchange of a reconditioned container and blood products per

mission requirements.

WARNINGS:

- At no time will container or its contents (blood products) be placed in another refrigerator or other cooling device.

- Blood products will not be used if the container is leaking; or the temperature indicator (Safe-T VUE) on the blood products it out of standard (refer to Appendix K).

- Notify the issuing facility and return container and products for replacement.

e. **Individual and Unit Training Requirements**

(1) At the beginning of every deployment rotation and mid-way thru the rotation (at a minimum), medical personnel who participate in the administration of blood products during evacuation will be trained in the following topics:

(a) Clinical Indications of Hemorrhagic Shock (Appendix A).

(b) Transfusion Procedures (Appendix B).

(c) Transfusion Reactions (Appendices C, D).

(d) PEARLS for transfusion (Appendix E).

(e) SF 518 documentation (Appendices F, H & I).

(f) Submission of a patient safety report when required.

(2) Units who implement this CCOP will train appropriate personnel on the following:

(a) Emergency Walking Blood Bank Procedures (Appendix L).

(b) Emergency procedures for in-flight complications.

(c) Storage container/blood product exchange requirements (Appendices H, J &K).

f. **Essential Items Required for Implementing a Blood Administration Program**

(1) Approved blood component transport container.

(a) Recommend between 4 and 6 of each GHC for a BAP (NSN 6530-01-505-5301 (OCP)/5306(Desert)).

(2) HemaCool (NSN 4110-01-506-0895) or other freezer with temp check to ensure a temperature ≤ to (-)18°C to support reconditioning of GHC.

(3) Safe-T-VUE (NSN 6515-08-T00-3056) for temperature monitoring (Refer to Appendix K).

(4) Theater Medical Data Store (TMDS) accounts for issuing and receiving facility; go to (https://tmds.health.mil/portal/) and select "Request Account". Notify the CENTCOM JBPO before requesting access.

g. **Warming Devices for Blood Transfusion**

(1) Use of infusion warming devices is highly recommended. These must be FDA approved for the actual use in transfusion of blood products (examples include Belmont® Buddy-lite™, EnFlow® or Thermal Angel).

(2) Units will ensure routine medical maintenance is performed on warming devices IAW CENTCOM Medical Logistics policies/procedures.

(3) All warming devices will have an airworthiness release (AWR) certification for use within rotary and/or fixed wing. Personnel will understand and adhere to all notes/cautions and warnings listed in the AWR.

WARNING: Warming devices will have safety mechanisms built in that prevents the output temperature from exceeding 42°C. Unit personnel will be familiar with safety mechanisms for the device used.

h. **Record Keeping and Documentation Requirements**

(1) Transfusions will be documented into TMDS.

NOTE: Issuing facility personnel may also enter transfusion into TMDS if evacuation unit lacks TMDS access.

(2) Personnel will refer to the Theater Blood Application Training Guide for directions on Inventory Management and for Transfused Products.

(3) Complete SF518 documentation and turn over at the destination MTF for placement in the patient's medical record.

7. The proponent for CCOP-01 is the USCENTCOM Command Surgeon.

LARRY J. MCCORD
COL, MC, USA
COMMAND SURGEON

APPENDIX A: CLINICAL INDICATIONS OF HEMORRHAGIC SHOCK

Clinical Evidence Hemorrhagic Shock Is Present		
H	**Hypotension**	**Systolic blood pressure <100mmHg**
T	**Tachycardia**	**>100 BPM; Unresponsive to a 250-5000cc fluid bolus (NS/LR)**
R	**Respirations**	**Rapid/shallow**
P	**Pulse (poor character)**	**Weak and thread (ineffective)**
M	**Mental status**	**Decreased (excluding head injury)**
S	**Skin Color**	**Pale/cyanotic**
C	**Continued bleeding**	**From non-compressible wound**

APPENDIX B – TRANSFUSION PROCEDURES

TRANSFUSION PROCEDURES

MAINTAIN UNIVERSAL PRECAUTIONS (Gloves & Eye Protection)

STEP 1: ESSENTIAL BLOOD ADMINISTRATION ITEMS

1. "Y" Type Filtered Blood Administration Set (UNDER NO circumstances should non-filtered tubing be used) 2. Blood Product to Transfuse (Universal Donor is approved for Prehospital)	3. 0.9% NS (Dedicated Line Only for Blood Products) 4. Blood Pressure Cuff/Monitor 5. Blood Warmer Device 6. Pressure bag (if available)

STEP 2: PRE-TRANSFUSION TASK

Two Person Verification Process
Verify Blood Label. Complete SF 518 for 5 items below or transcribe items from Blood Label onto blank SF 518:
(1) Unit#; (2) Type of Product; (3) Donor ABO/Rh (Must be O for RBCs; and A or AB for Plasma);
(4) Expiration Date; and (5) Temperature Indicator (RED = NOT ACCEPTABLE)

1. CLOSE all 3 clamps on Y tubing
2. NOTE: When using blood/fluid warming device, attach line to fluid warmer cartridge and fluid warmer extension line.
a. Ensure warming device is functioning IAW manufacturers guidelines
3. Insert 1st spike into NS bag and hang; OPEN clamp and prime only the "Y" section; CLOSE clamp
4. Insert 2nd spike into blood product and hang; OPEN clamp and run the length of the tubing
5. Attach line to IV or IO sites **Ensure good flow through IV/ IO before initiating transfusion**
6. Ensure all clamps are CLOSED
7. Note/document pre-transfusion vitals - at a minimum BP and HR
8. Medical person will visually inspect blood product if possible for gas, discoloration, clots, foreign objects, or, sediment, and ensure no cracking of the plastic bag that has led to leaking.
a. Visually inspect the Temperature Indicator (RED = NOT ACCEPTABLE)
9. Non-Medical person can assist with documentation on the SF 518 for Pre and Post transfusion information

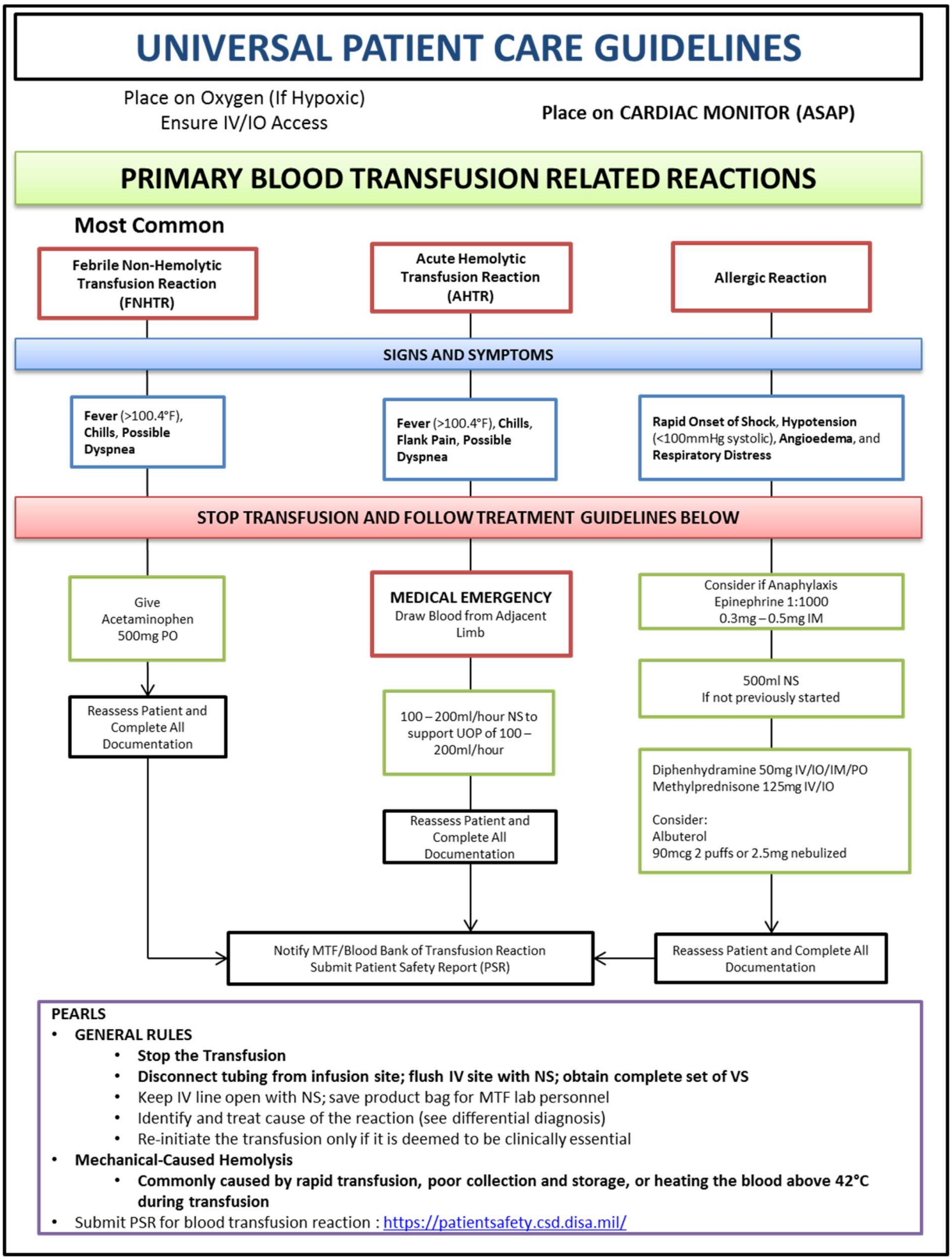
STEP 3: TRANSFUSION TASK

1. OPEN main line clamp for blood product to begin infusion.
   a. **ENSURE CLAMP to NS REMAINS CLOSED.**
   b. **UNDER NO CIRCUMSTANCES** will other medications or IV fluid (including 3%NS) be introduced through transfusion line. This will cause hemolysis/clotting of blood products.
2. **Blood products must be transfused within 4 hours of removal from a storage container** - if not, the product(s) will be returned to issuing facility or delivered with patient to MTF to be discarded.
3. If using pressure infuser set pressure to 300 mmHg.
4. Monitor vitals IAW TCCC Guidelines.
5. When blood product has been infused, CLAMP blood product line and OPEN NS line to deliver residual blood product.
6. If 2nd Unit required - CLOSE NS clamp.
7. Spike 2nd Unit - OPEN blood product and main line clamps to begin 2nd infusion.
8. Monitor closely and continue VS assessment.
9. VS goal: SBP >l00mmHg; and/or Pulse <100; MAP 70-80 mmHg

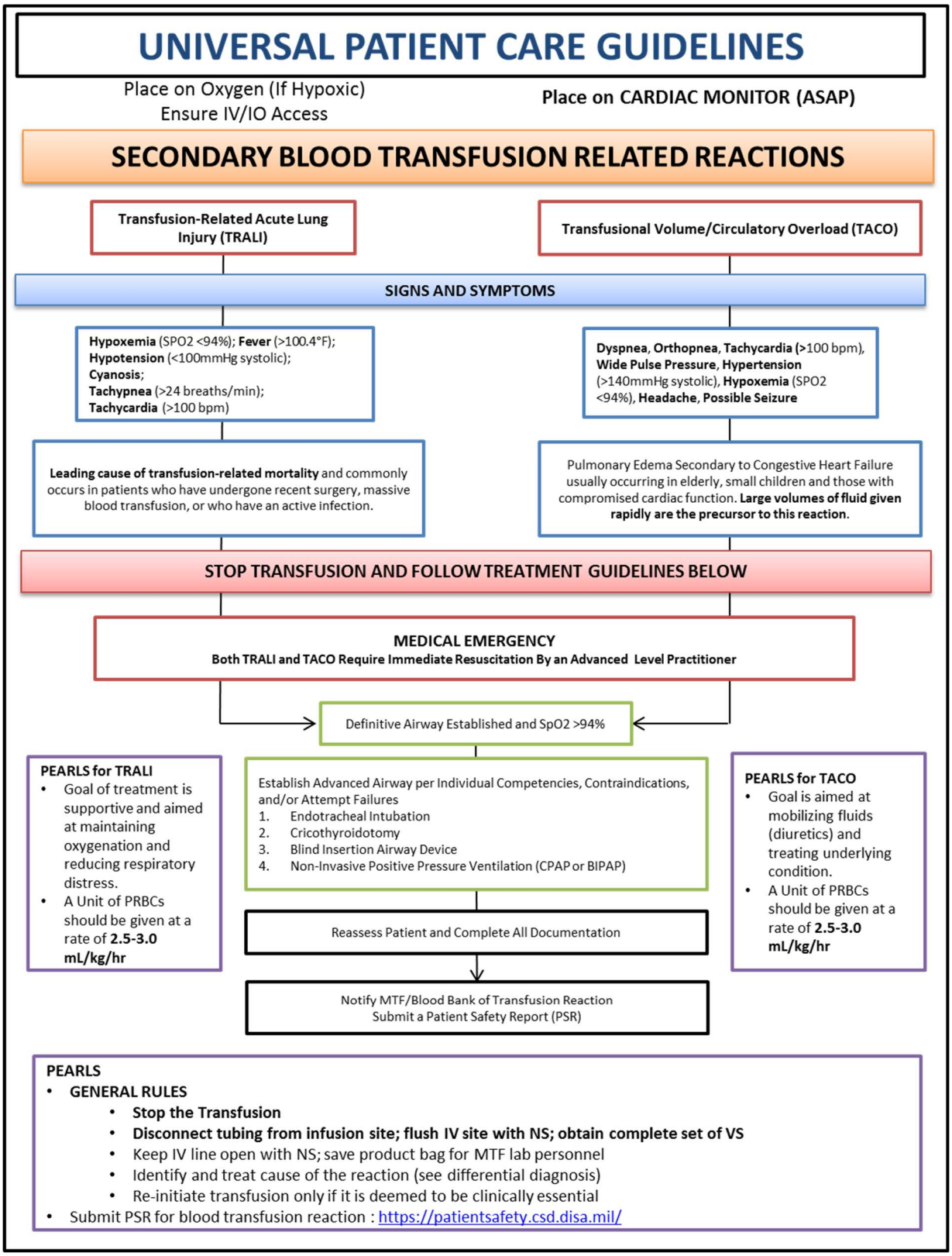
STEP 4: DOCUMENTATION TASK

1. Pre-transfusion Data **a. Unit Number** **b. Type of Blood Product (RBC/ Plasma)** **c. Donor ABO/Rh** **d. Expiration Date** **e. Vital Signs (HR and B/P)**	**2. Post Transfusion Data** **a. Vital Signs** **b. Date/Time started/completed** **c. Note if interrupted and reason for interruption** **d. Patient Identification (as much as possible)**

APPENDIX C – PRIMARY BLOOD TRANSFUSION RELATED REACTIONS



APPENDIX D – SECONDARY BLOOD TRANSFUSION RELATED REACTIONS



APPENDIX E – PEARLS FOR TRANSFUSIONS

PEARLS FOR TRANSFUSIONS

PRE-TRANSFUSION PEARLS

1. Use of 2% Lidocaine (2-3ml) with 0.9% NS is permitted to flush any IO site prior to blood product transfusion.
2. Consider pain control measures to reduce tachycardia resulting from uncontrolled pain.
3. Once removed from storage container blood products will be transfused in under 4 hours
4. ONLY USE "Y" filtered blood administration sets
5. If directly involved in patient care, 1st Verifier (Medical Person) can direct a non-medical person to be the 2nd Verifier and record data on the SF518
6. DO NOT use blood product if storage container is leaking or temperature indicator is RED
7. **If using enFLow® fluid warmer – add IV extension tubing
8. DO NOT allow blood warmer to be placed directly on patient's skin as this may cause burning
9. If Thawed plasma is available it should be given prior to RBC; normal ratio is 1:1

DURING TRANSFUSION PEARLS

1. Transfusion infusion rates can be titrated to slower rates if VS parameters improve to appropriate levels (SBP>100; HR<100; MAP 70-80).
2. Special attention should be paid to non-compressible injuries (chest; abdominal; and pelvis) to avoid raising the SBP over 90mmHg.
3. Once transfusion is initiated, decrease all other fluids to KVO rate.
4. In-flight emergencies:
a. Contact unit FS or tactical operation center for medical direction; or
b. Divert to nearest MTF (Do not delay divert waiting on medical direction)
5. If transfusion is interrupted, record date/time and reason for interruption on SF518 if not able to resume within 5 min
6. Under NO CIRCUMSTANCES will other medications or IV fluids (to include 3% NS) be introduced through transfusion line.
7. Blood output temperature from a warmer device WILL NOT EXCEED 42°C (107°F)

DURING TRANSFUSION PEARLS

1. Suspected /confirmed transfusion reaction: STOP TRANSFUSION 2. Disconnect tubing from infusion site; flush IV site with NS	3. Keep IV Line OPEN with NS 4. Re-initiate transfusion only if it is deemed clinically essential 5. Document on SF 518 date/time and actions taken **6. Provide all materials to Lab/Blood Bank for reaction work-up**

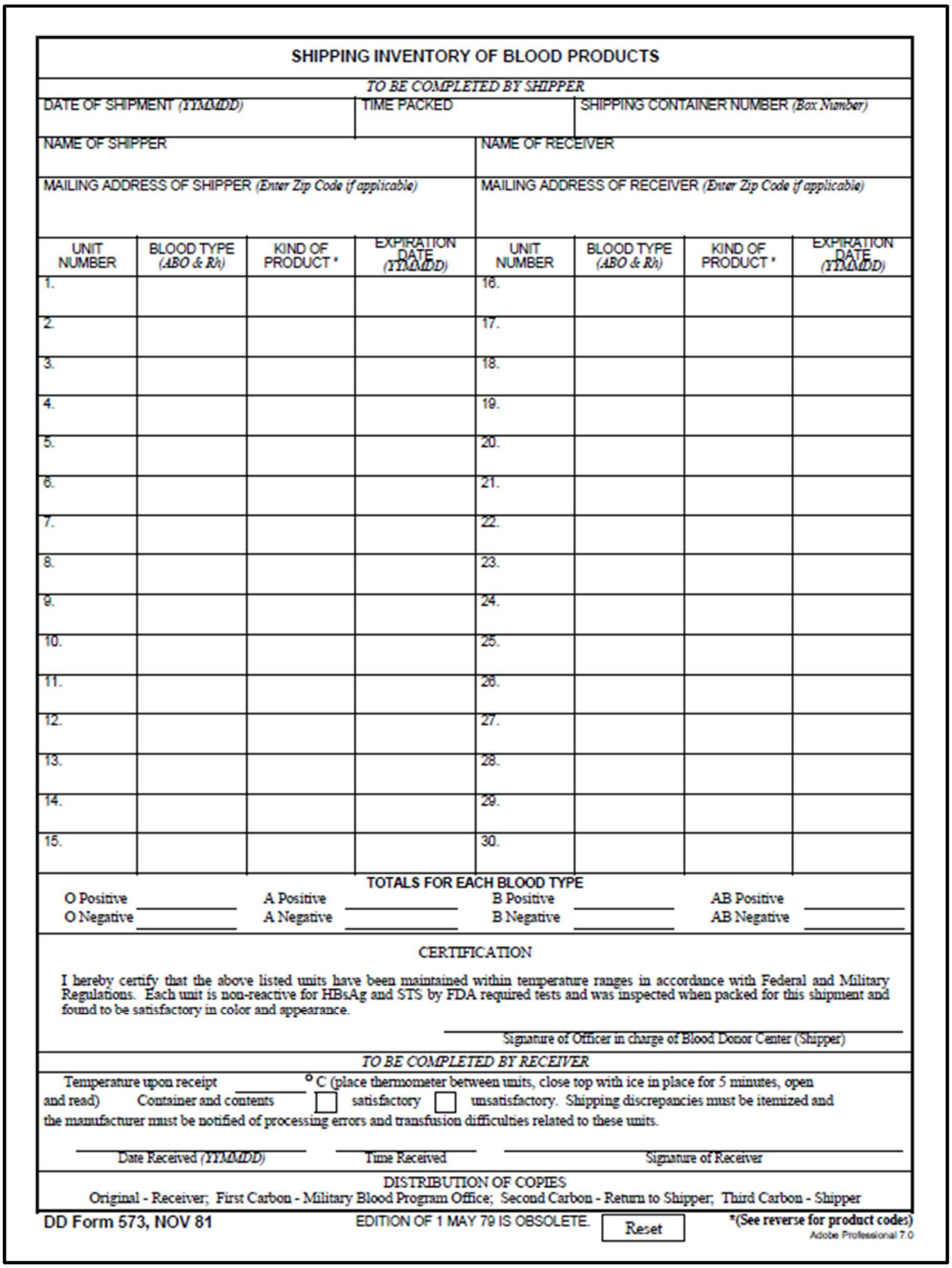
POST TRANSFUSION PEARLS

1. After 1st transfusion, re-evaluate casualty and initiate 2nd unit ONLY if criteria is still met (Appendix A)
2. If 1st unit is initiated based on "Stand-Alone" injury (Multiple Amputation); subsequent units will be based on VS parameters
3. Complete documentation on SF518
4. Consider Tranexamic Acid (TXA) – follow TCCC Guidelines for Administration

PATIENT HAND-OFF (COMMUNICATION)

1. Provide receiving MTF with completed SF 518s for patient's record
2. Report any adverse events; transfusion reactions; and actions taken enroute
3. Report interrupted transfusions and provide explanation
4. Report O POS blood given to female patients under the age of 50

APPENDIX F–ISSUING FACILITY SF518 DOCUMENTATION REQUIREMENT



SHIPPING INVENTORY OF BLOOD PRODUCTS

TO BE COMPLETED BY SHIPPER

DATE OF SHIPMENT *(YYMMDD)*	TIME PACKED	SHIPPING CONTAINER NUMBER *(Box Number)*
NAME OF SHIPPER		NAME OF RECEIVER
MAILING ADDRESS OF SHIPPER *(Enter Zip Code if applicable)*		MAILING ADDRESS OF RECEIVER *(Enter Zip Code if applicable)*

UNIT NUMBER	BLOOD TYPE *(ABO & Rh)*	KIND OF PRODUCT *	EXPIRATION DATE *(YYMMDD)*	UNIT NUMBER	BLOOD TYPE *(ABO & Rh)*	KIND OF PRODUCT *	EXPIRATION DATE *(YYMMDD)*
1.				16.			
2.				17.			
3.				18.			
4.				19.			
5.				20.			
6.				21.			
7.				22.			
8.				23.			
9.				24.			
10.				25.			
11.				26.			
12.				27.			
13.				28.			
14.				29.			
15.				30.			

TOTALS FOR EACH BLOOD TYPE

O Positive _____ A Positive _____ B Positive _____ AB Positive _____
O Negative _____ A Negative _____ B Negative _____ AB Negative _____

CERTIFICATION

I hereby certify that the above listed units have been maintained within temperature ranges in accordance with Federal and Military Regulations. Each unit is non-reactive for HBsAg and STS by FDA required tests and was inspected when packed for this shipment and found to be satisfactory in color and appearance.

_____
Signature of Officer in charge of Blood Donor Center (Shipper)

TO BE COMPLETED BY RECEIVER

Temperature upon receipt _____ °C (place thermometer between units, close top with ice in place for 5 minutes, open and read) Container and contents ☐ satisfactory ☐ unsatisfactory. Shipping discrepancies must be itemized and the manufacturer must be notified of processing errors and transfusion difficulties related to these units.

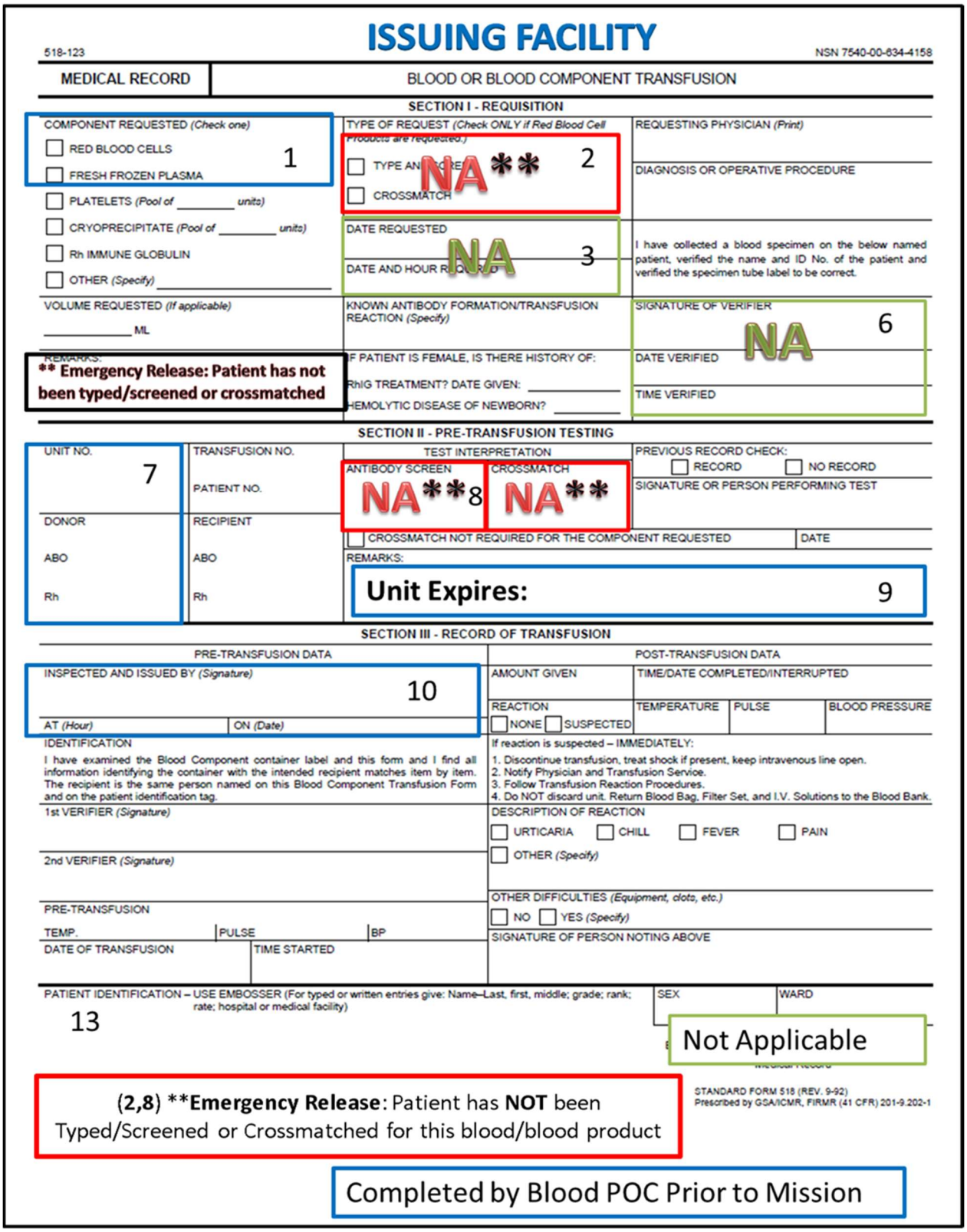
_____	_____	_____
Date Received *(YYMMDD)*	Time Received	Signature of Receiver

DISTRIBUTION OF COPIES
Original - Receiver; First Carbon - Military Blood Program Office; Second Carbon - Return to Shipper; Third Carbon - Shipper

DD Form 573, NOV 81 EDITION OF 1 MAY 79 IS OBSOLETE. Reset *(See reverse for product codes)

Adobe Professional 7.0

APPENDIX G – ISSUING FACILITY DD573 DOCUMENTATION REQUIREMENTS



ISSUING FACILITY

518-123 NSN 7540-00-634-4158

MEDICAL RECORD | BLOOD OR BLOOD COMPONENT TRANSFUSION

SECTION I - REQUISITION

COMPONENT REQUESTED (Check one)
- RED BLOOD CELLS
- FRESH FROZEN PLASMA
- PLATELETS (Pool of _____ units)
- CRYOPRECIPITATE (Pool of _____ units)
- Rh IMMUNE GLOBULIN
- OTHER (Specify) _____

1

TYPE OF REQUEST (Check ONLY if Red Blood Cell Products are requested.)
- TYPE AND SCREEN
- CROSSMATCH

NA** 2

DATE REQUESTED

DATE AND HOUR REQUIRED

NA 3

REQUESTING PHYSICIAN (Print)

DIAGNOSIS OR OPERATIVE PROCEDURE

I have collected a blood specimen on the below named patient, verified the name and ID No. of the patient and verified the specimen tube label to be correct.

VOLUME REQUESTED (If applicable)
_____ ML

KNOWN ANTIBODY FORMATION/TRANSFUSION REACTION (Specify)

SIGNATURE OF VERIFIER

NA 6

DATE VERIFIED

TIME VERIFIED

REMARKS:
** Emergency Release: Patient has not been typed/screened or crossmatched

IF PATIENT IS FEMALE, IS THERE HISTORY OF:
RhIG TREATMENT? DATE GIVEN: _____
HEMOLYTIC DISEASE OF NEWBORN? _____

SECTION II - PRE-TRANSFUSION TESTING

UNIT NO. 7

TRANSFUSION NO.

PATIENT NO.

DONOR
ABO
Rh

RECIPIENT
ABO
Rh

TEST INTERPRETATION

ANTIBODY SCREEN: NA** 8

CROSSMATCH: NA**

PREVIOUS RECORD CHECK:
- RECORD
- NO RECORD

SIGNATURE OR PERSON PERFORMING TEST

CROSSMATCH NOT REQUIRED FOR THE COMPONENT REQUESTED

DATE

REMARKS:

Unit Expires: 9

SECTION III - RECORD OF TRANSFUSION

PRE-TRANSFUSION DATA

INSPECTED AND ISSUED BY (Signature) 10

AT (Hour) | ON (Date)

IDENTIFICATION

I have examined the Blood Component container label and this form and I find all information identifying the container with the intended recipient matches item by item. The recipient is the same person named on this Blood Component Transfusion Form and on the patient identification tag.

1st VERIFIER (Signature)

2nd VERIFIER (Signature)

PRE-TRANSFUSION
TEMP. | PULSE | BP

DATE OF TRANSFUSION | TIME STARTED

POST-TRANSFUSION DATA

AMOUNT GIVEN | TIME/DATE COMPLETED/INTERRUPTED

REACTION: NONE / SUSPECTED | TEMPERATURE | PULSE | BLOOD PRESSURE

If reaction is suspected – IMMEDIATELY:
1. Discontinue transfusion, treat shock if present, keep intravenous line open.
2. Notify Physician and Transfusion Service.
3. Follow Transfusion Reaction Procedures.
4. Do NOT discard unit. Return Blood Bag, Filter Set, and I.V. Solutions to the Blood Bank.

DESCRIPTION OF REACTION
- URTICARIA
- CHILL
- FEVER
- PAIN
- OTHER (Specify)

OTHER DIFFICULTIES (Equipment, clots, etc.)
- NO
- YES (Specify)

SIGNATURE OF PERSON NOTING ABOVE

PATIENT IDENTIFICATION – USE EMBOSSER (For typed or written entries give: Name–Last, first, middle; grade; rank; rate; hospital or medical facility)

13

SEX | WARD

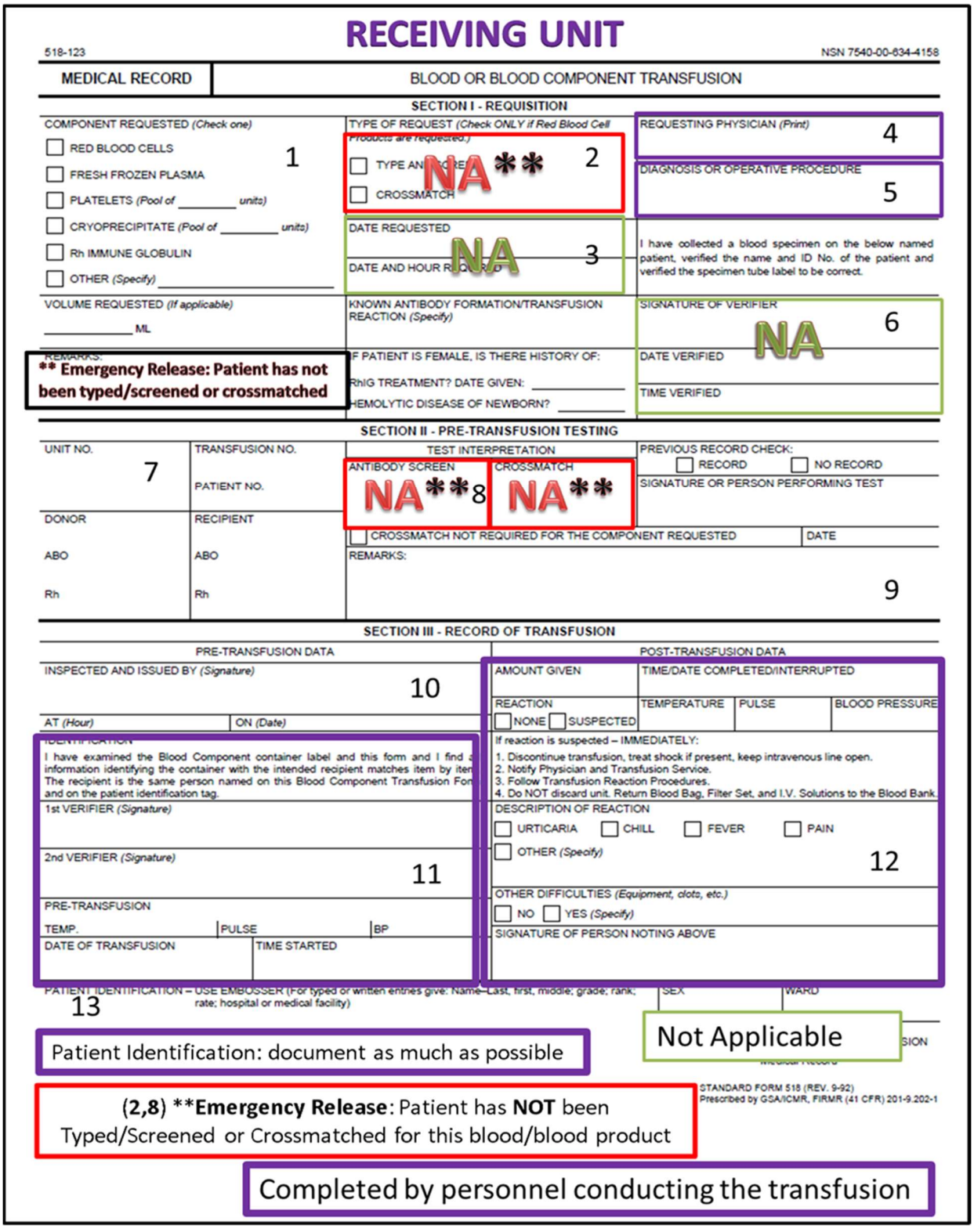
Not Applicable

(2,8) **Emergency Release: Patient has NOT been Typed/Screened or Crossmatched for this blood/blood product

STANDARD FORM 518 (REV. 9-92)
Prescribed by GSA/ICMR, FIRMR (41 CFR) 201-9.202-1

Completed by Blood POC Prior to Mission

APPENDIX H – RECEIVING UNIT (MEDICAL EVACUATION/PATIENT MOVEMENT) SF518 DOCUMENTATION REQUIREMENTS



APPENDIX I – SF518 DOCUMENTATION INSTRUCTIONS

1. **Issuing Facility Releasing Blood Products**

   a. SECTION I – **Requisition**
   (**1**) Component Requested (**Check One – Ex. pRBC or FFP**)
   (**2**) Type of Request (**Mark NA**)
   (**3**) Date Requested/Date and Hour Requested (**Mark NA**)
   (**6**) Signature of Verifier (**Mark NA**)

   b. SECTION II – **Pre-Transfusion Testing**
   (**7**) Document Unit # and Donor ABO/Rh
   (**8**) Test Interpretation (**Mark NA in both**)
   (**9**) Remarks: Document Unit expiration date

   c. SECTION III – **Record of Transfusion**
   (**10**) Pre-Transfusion Data:
   1. Issuer will sign/date/time under *Inspected and Issued by*

2. **Receiving Personnel**

   a. SECTION I – **Requisition**
   (**4**) Requesting Physician (**Unit FS/Senior Medical Officer**)
   (**5**) Diagnosis (**Document type of Injury – GSW/Double Amputation, etc**.)

   c. SECTION III – **Record of Transfusion**

   (**11**) Pre-Transfusion Data
   1. Identification Statement: 1st Verifier Signature and 2nd Verifier Signature
   2. Pre-Transfusion vitals
   3. Date of Transfusion / Time Started

   (**12**) Post-Transfusion Data
   1. Date/Time (**Circle complete or interrupted**)
   2. Reaction
   3. Post transfusion vitals
   4. Signature must be the medical person performing transfusion

NOTE: Section III **WILL** be completed on all SF518s by personnel performing the blood transfusion procedure unless blood continues to transfuse at arrival to MTF.

NOTE: Each SF518 document will be transferred over to the MTF with each unit of blood product given during evacuation/movement.

APPENDIX J – STORAGE CONTAINER PROCEDURES

1. Pre-Conditioning Golden Hour Container (GHC)

(a) Ensure the GHC is preconditioned properly before use.

CAUTION: The Vacuum Insulated Panel (VIP) cannot be used past recommended replacement date.

(1) Remove the thermal insulated container (TIC) from the storage container and place in a freezer below -18°C for a minimum of 8 hours, ensuring the lid is separated from the base during conditioning.

(2) Annotate date/time on the GHC Preconditioning Log when each TIC was placed in and removed from the freezer.

(3) Remove the TIC from freezer and let stand at room temperature for 25-30 minutes before loading RBCs, thaw FFPs or LP.

(4) Perform a visual inspection upon removing from the freezer to ensure there are no cracks or leaks.

(5) Shake TIC, if liquid can be heard, the TIC is not conditioned and must NOT be used.

(6) Place the conditioned TIC into the VIP of the storage container.

(7) Ensure each VIP is gripped tightly by the GHC.

(8) Loose skins may hinder or prevent vacuum formation, which is essential in maintaining the appropriate temperature for transport.

APPENDIX K – SAFE-T-VUE TEMPERATURE INDICATOR

1. Safe-T-VUE® 10 is a temperature sensitive indicator that easily adheres directly to blood bags during transport and changes color from WHITE to RED when the 10°C indication temperature has been reached or exceeded.
   (a) Safe-T-VUE is non-reversible and indicates that a high temperature condition existed, even if temperature returns to a lower level. As long as the indicator remains WHITE, blood may be stored for future use.
2. Prepare the Safe-T-VUE temperature indicator by refrigerating for a minimum of 24 hours at 1-6°C.
3. Remove the blood product and one Safe-T-VUE indicator from the refrigerator at the same time and place it on a clean dry surface. Remove excess moisture from the blood product bag by using a dry wipe/paper towel on the surface where the Safe-T-VUE is to be applied.
4. Use of a cold pack on the surface below the blood product will help to maintain temperature.
5. Hold Safe-T-VUE against the blood product with fingertips. Peel off the "REMOVE" label to expose the adhesive. Be careful to only handle around the edge of the indicator to expose RED DOT and WHITE DOT.
6. Attach Safe-T-VUE directly to the lower third of the blood product bag where there is a large volume of product and without obscuring any product information.
7. Be certain the Safe-T-VUE indicator is in complete contact with the blood product bag being monitored. No air pockets should be under the indicator (e.g., fold in the bag; over any labels; or any other obstruction).
8. Fold WHITE DOT onto the RED DOT and press firmly together to activate.

CAUTION: Be careful to ONLY press on the GREEN color-coded end to activate properly.

CAUTION: It is important to place pressure on the outer edge of the WHITE DOT, and not the center, when pressing onto the RED DOT to prevent false activation.

9. Complete documentation on SF518 for each blood product unit place inside GHC pocket and secure container.
10. Color change temperature indication:

(a) When WHITE DOT turns solid RED, the temperature has reached ≥10°C
- Quarantine the units and request guidance from the CENTCOM JBPO

(b) Appearance of SMALL RED DOTS is an indication blood product requires cooling or immediate refrigeration.
- Return the product to the refrigerator for appropriate cooling/refrigeration.

(c) WHITE DOT – acceptable for use

Emergency Walking Blood Bank SOP

Overview

Walking Blood Bank capability is required of all CENTCOM units. This document is a procedural guide for executing a Walking Blood Bank.

Facility Identification and Address

USCENTCOM
Laboratory Services

Purpose

This operating procedure establishes guidelines for emergency fresh whole blood (FWB) collection, testing, transfusion, and documentation. The use of FWB is reserved for trauma victims who are anticipated to require massive transfusion (10 or more whole blood units in 24 hours) or for patients with clinically significant coagulopathy (bleeding with thrombocytopenia or INR>1.5). Due to the risk of infectious disease, the use of FWB is only authorized when blood product inventories are depleted or exhausted (i.e. MASCAL) as a life-saving option.

The decision to use FWB is a medical decision that must be made by a physician who has full knowledge of both the clinical situation and the availability of compatible blood components. FWB has not been tested for infectious agents in accordance with FDA requirements so the risks and benefits should be thoroughly considered.

FWB that is not Low-Titer O Whole Blood (LTOWB) must be an ABO type-specific match to the casualty. Type O whole blood, unless donor has been tested and established to be low titer, is NOT universal. If not matched, a fatal hemolytic reaction may occur. LTOWB will be given to patients with an unknown blood group. Once a patient receives LTOWB, it is impossible to definitively identify blood group with field equipment. Every effort should be made to provide Rh negative FWB to females of child-bearing potential (age <50 years) who are Rh negative or of unknown blood type.

Donors who are fully pre-screened within the last 120 days and are identified as low-titer O donors must be used first for FWB donations. Next, consider fully pre-screened donors of other blood groups for group-specific transfusions (e.g., A to A). Donors who have not been pre-screened for Transfusion Transmitted Diseases (TTD) should be considered only when no other donors are available. FWB must be collected from male and never-pregnant female donors. Coalition Forces will only be used as a last resort.

Summary of Changes

Major Revision.
Updated information regarding National Blood Bank-Type Specific Whole Blood (WBB-TSWB)

Approval Signature

NEHA K. PATEL
Lt Col, USAF, MC, FS
USCENTCOM Medical Director