URGENT RESUSCITATION USING BLOOD PRODUCTS DURING TACTICAL EVACUATION FROM POINT OF INJURY

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Reviewed: 28 September 2016	
Supersedes: April 2012/June 2012	Version: CCOP-01: Version 1.6 with Appendices A-G
☐ Minor Changes (or)	■ New Document That Requires Thorough Reading
☐ Significant Changes	OPR: CCSG

1. PURPOSE

To provide essential instructions on urgent/life-saving resuscitation procedures using blood products during tactical evacuation (refers to both casualty evacuation and medical evacuation) from the point of injury (POI) for casualties suffering major blood loss/massive hemorrhage. Referred to as, Vampire Program. All USCENTCOM clinical operating protocols (CCOPs) are posted to the CCSG SharePoint site at https://intelshare.intelink.gov/sites/ccsg/SitePages/CCSG-CLINOPS.aspx.

2. APPLICABILITY

This CCOP 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 (e.g., flight medic, crew chief, registered nurse, enlisted medical personnel, physician, nurse practitioner, or physician assistant), assigned/attached or allocated to perform tactical evacuation (CASEVAC and MEDEVAC) duties that involve direct or indirect patient care.

b. All operational units participating in the USCENTCOM Vampire Program will comply with quality assurance and patient safety reporting requirements IAW USCENTCOM Regulation (CCR) 40-1.

3. REFERENCES

a. Armed Services Blood Program (ASBP), "*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. CCR 40-1, "Quality Management (QM) Programs in Healthcare Operations," 5 Feb 2016.

c. CCR 40-4, "Clinical Operations (CLINOPS) Program," (Draft) 30 Jan 2016.

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 Officer (JBPO) is the single manager for the CCSG on all blood products used within theater at treatment facilities and for patient evacuation. JBPO approves the implementation of this CCOP within US CENTCOM's Theater and maintains copies of signed review and approval forms (refer to Appendix A).

c. USCENTCOM Service Component and/or CJTF Command Surgeons have oversight on operational units performing pre-hospital blood/blood product transfusions.

d. Unit Flight Surgeon (FSO)/Senior Medical Officer (SMO) confirms by completing the review and approval form (refer to Appendix A) that individual and unit training has been fulfilled; and mandatory equipment and supplies are in place to implement transfusion procedures. A copy of this form will be sent to the JBPO for final approval.

5. FIELD INDICATIONS FOR TRANSFUSION DURING TACTICAL EVACUATION

a. The following are indications for transfusion in the presence of **SEVERE** traumatic injury:

(1) Systolic BP <100 or absence of radial pulse; or

(2) Heart rate >100; or

(3) Any above knee amputation or double/triple/quadruple amputation (regardless of vital sign indication).

WARNING: The amputation patterns above are the only traumatic injuries that constitute a **STAND-ALONE IMMEDIATE FIELD INDICATOR** for transfusion that requires no confirmation with vital sign parameters.

CAUTION: Control external bleeding before or simultaneously with initiation of blood product transfusion.

NOTE: Amputation is defined as any severe trauma to a limb that involves complete or partial loss of the limb (this includes limbs that are severely mangled but not completely severed).

b. Traumatic Arrest: patient with exsanguination who had signs of life when received from ground forces and has since become pulseless should receive immediate transfusion (***transfusion is more important than chest compressions in cases of exsanguination and should take priority***).

(1) Traumatic injuries where early blood transfusions are most likely to be needed:

(a) Penetrating thoracic/abdominal/junctional (junctional includes axilla/inguinal/cervical) injury.

(b) Pelvic fracture.

(c) Multiple injuries.

(d) Proximal amputations (above knee or elbow).

c. Initiate transfusion with 1 unit of blood product. Give additional units if clinically indicated. Avoid over-resuscitation with crystalloid which may increase bleeding, particularly from non-compressible torso hemorrhage.

d. Refer to Appendix B for list of clinical indicators for hemorrhagic shock.

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 RBC's contains a volume of 300-400 mL. In an exsanguinating patient, a unit of blood can be given quickly. Ensure good blood flow through IV or IO access before initiating transfusion.

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

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

1. Low titer Group O whole blood (LTGOWB), or, if not available

NOTE: Low Titer Group O Whole Blood has been screened for anti-A and anti-B antibodies; these units contained 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 incompatibility (typically minor and most often subclinical clinical consequences). The whole blood supplied to MEDEVAC units will be exclusively drawn in the United States from the ASBP-approved sites and distributed in theater by the ASBP blood distribution system. The LTGOWB units will be fully tested following FDA current guidelines.

2. Plasma, RBCs, and platelets in a 1:1:1 ratio, or, if not available
3. Plasma and RBCs in 1:1 ratio, or, if not available
4. Reconstituted dried plasma, liquid plasma, or thawed plasma alone or RBC's alone

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

NOTE: Patients requiring blood can safely receive uncrossmatched low titer Group O whole blood or Type O RBC's until type-specific products are available.

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

CAUTION: Whole Blood collected in theater will NOT be supplied for use onboard MEDEVAC aircraft.

NOTE: If a minimal amount (just a few milliliters) is given, consider Rhogam therapy. The immunologic consequences of administration of an entire unit of O POS whole blood or RBC to an O NEG female of child-bearing potential cannot safely be reversed with Rhogam. ***Treatment of exsanguination takes precedence over potential future pregnancy outcomes***.

(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.

CAUTION: 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 days**. Check with issuing facility or blood supply unit for availability.

(3) The recommended mission loads for tactical evacuation are based on OPTEMPO and determined by the theater or JTF surgeon.

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

(c) Specific missions may require additional blood products, units will refer to the JBPO.

NOTE: If whole blood or plasma is **UNAVAILABLE**, evacuation personnel will fly with RBCs exclusively.

WARNING: Unused blood products (i.e., Whole Blood and Freeze Dried Plasma) 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.

CAUTION: After removal of the blood product from the storage container, begin transfusion immediately. The transfusion must be completed within **4 hours** after the start of the transfusion. If the transfusion is delayed, blood products that are removed from storage and exceed the proper storage temperature range will be returned to issuing facility or delivered to the MTF per local policy for proper disposal.

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

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

(a) If requested and available, thaw frozen plasma IAW local procedures and label products (A or AB) with 5 day expiration date.

(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 G).

CAUTION: Ensure thawed plasma is at refrigerated temperature (1-6°C) before placing Safe-T-VUE on unit.

NOTE: Evacuation personnel will follow Appendix G for Safe-T-VUE procedures when required.

(d) Document in Theater Medical Data Store (TMDS) the issuance of blood products to an evacuation team (e.g., DUSTOFF; Pararescue; Tactical Critical Care Evacuation Team).

(e) Complete appropriate sections of the *SF518 Blood or Blood Component Transfusion Record* for issuing blood products (Appendix E); place inside GHC pocket or attach form to each unit of blood product issued.

(f) Verify the blood information on the SF518 against the blood product label 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 email to the JBPO at centcom.macdill.centcom-hq.mbx.ccsg-joint-blood-program@mail.mil, to coordinate issuing requirements and documentation of 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 attached (Appendix G) and an SF518 Form.

(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.

c. **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 BSD/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.

> ***CAUTION***: Units will monitor containers and document status (e.g., dry/no leaking noted) at a minimum of every **24 hours**.

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

> ***NOTE***: Notify the issuing facility (BSD/MTF/Lab) as soon as possible when blood products have been used.

> ***WARNING***: At no time will container or its contents (blood products) be placed in a refrigerator or other cooling device outside a blood bank.

(4) GHC is only approved for **48 hours** use; prior to expiration end users will contact issuing facility (BSD/MTF/LAB) to coordinate the return and exchange of a container and blood products per mission requirements.

> ***WARNING***: If issuing facility lacks capacity to condition containers, the unit FSO/SMO can apply for an Exception to Policy (ETP) from JBPO to recondition their own containers. Refer to **CCOP-01A** *Reconditioning Blood Product Storage Containers for Tactical Evacuation* for policy and procedures, which can be found on the CCSG SharePoint site at https://intelshare.intelink.gov/sites/ccsg/SitePages/CCSG-CLINOPS.aspx.
>
> ***The ETP **WILL NOT** authorize units to hold blood products beyond 48 hours. Units approved to recondition containers will continue to return and exchange blood products with their issuing facility.

(5) Unit FSO/SMO will track and monitor compliance of GHC storage and transport performed by unit personnel.

WARNING: Blood products will not be used if container is leaking; or the temperature indicator (Safe-T-VUE) on the blood product is out of standard (refer to Appendix G). ***Notify the issuing facility and return container and products for replacement.

d. **Individual and Unit Training Requirements**

(1) At a minimum, medical personnel who participate in the administration of blood products during evacuation will be trained in the following topics:

(a) Indications for transfusion (Appendix B); transfusion procedures (Appendix C); documentation (Appendices E & F); PEARLS for transfusion (Appendix D) and when required, submission of a patient safety report (PSR).

(2) At a minimum, non-medical personnel who assist will be trained in the following:

(a) Transfusion procedures; equipment/supplies; and documentation requirements for the SF518.

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

(a) Emergency procedures for in-flight complications.

(b) Storage container/blood product exchange requirements.

e. **Essential Items Required for Implementing a Vampire Program**

(1) Approved blood component transport container.

(a) Recommend between 4 and 6 each GHCs for a Vampire Program (NSN 6530-01-505-5301 (OCP)/5306(Desert)).

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

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

(3) Theater Medical Data Store (TMDS) accounts for an issuing facility (BSD/MTF (Role2/3) and LAB); and receiving unit (evacuation unit):

(a) Personnel will notify the JBPO at centcom.macdill.centcom-hq.mbx.ccsg-joint-blood-program@mail.mil, for account requests.

(b) When directed by the JBPO, requesting personnel will go to the TMDS website at: https://tmds.tmip.osd.mil/portal/sec/portal/default; select ACCEPT and on next page select "NEEDS ACCESS" and complete the registration form and select "REGISTER USER ACCOUNT".

f. **Warming Devices for Blood Transfusion**

(1) Use of infusion warming devices is **HIGHLY** recommended. These will be FDA approved

for the actual use in transfusion of blood products (examples of devices include: Belmont® Buddy-lite™, EnFlow® or Thermal Angel).

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.

NOTE: Warming devices must have an airworthiness release (AWR) or other appropriate certification for use within rotary and/or fixed wing. Contact robert.e.eshelman.civ@mail.mil at the U.S. Army Aeromedical Research Laboratory (USAARL) for copies and updates of AWRs.

NOTE: Units will ensure regular medical maintenance is performed on warming devices IAW CENTCOM Medical Logistics policy/procedures.

g. **Tranexamic Acid (TXA)**

(1) Patients receiving blood transfusion within three hours of injury should also receive TXA. Refer to the Tactical Combat Casualty Care (TCCC) guidelines for administration of TXA.

i. **Record Keeping and Documentation Requirements**

(1) Transfusions will be documented into TMDS by evacuation personnel.

NOTE: Issuing facility personnel may also enter transfusions 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.

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

DARIN K. VIA
CAPT, MC, USN
Command Surgeon

Appendix A – **REVIEW AND APPROVAL FOR UNIT**: _____

1. Blood product administration is always physician directed. This CCOP is considered a USCENTCOM clinical operating protocol that is approved and implemented under the direction of the unit's FSO/SMO by qualified personnel once signed below by the unit FSO/SMO, Senior Training NCO, Unit Commander, and by the USCENTCOM JBPO.

2. It is the responsibility of the FSO/SMO, Senior Training NCO, and Unit Commander to ensure all personnel implementing CCOP-01 remain current for the length of the units deployment in all required skills to safely implement urgent blood resuscitation during tactical evacuation within USCENTCOMs Theater.

a. FSO/SMO Signature of Approval

(1) Name/Rank _____ Date_____

(2) Unit _____ Email _____

b. Senior Training NCO Signature of Approval

(1) Name/Rank _____ Date _____

(2) Email _____

c. Unit Commander Signature of Approval

(1) Name/Rank _____ Date _____

(2) Email _____

d. FSO/SMO will forward a signed copy to the JBPO office at centcom.macdill.centcom-hq.mbx.ccsg-joint-blood-program@mail.mil.

3. JBPO has reviewed and approved implementation of CCOP-01 for:

(Insert Unit Name) _____

a. JBPO Signature of Approval

(1) Name/Rank _____ Date_____

b. JBPO will forward a signed copy to the requesting unit FSO/SMO.

c. JBPO will maintain a copy of approval record for length of the unit's deployment.

4. Once signed by JBPO, this protocol will be in effect the length of deployment but not to exceed 12 months. For deployments scheduled beyond 12 months, protocol will be reviewed prior to the end of 12 months and resigned by the FSO/SMO, Senior Training NCO, Unit Commander and the JBPO.

PRE-TRANSFUSION GUIDELINES

TACTICAL COMBAT CASUALTY CARE

PATIENT STABILIZATION REQUIREMENTS

1	HEMORRHAGE	Bleeding is CONTROLLED by use of pressure dressing, tourniquet or fibrin bandage
2	AIRWAY	Secured and patent (Follow TCCC Guidelines)
3	RESPIRATIONS	Assess, apply oxygen, diagnose/decompress tension pneumothorax
4	CIRCULATION	IV/IO access obtained; place at least 2 large bore IV (18G minimum; 14G preferred). If unable to establish IV in 90 seconds – place an IO.
5	HYPOTHERMIA	Apply Blanket; Consider Fluid Warmer
6	MONITOR	Place casualty on cardiac monitor IF possible (minimum HR, B/P and SpO2)

CLINICAL INDICATIONS OF HEMORRHAGIC SHOCK

Clinical Evidence Hemorrhagic Shock is Present		
H	HYPOTENSION	Systolic Blood Pressure <100mmHg
T	TACHYCARDIA	>100 BPM; Unresponsive to a 250-500cc fluid bolus (NS/LR)
R	RESPIRATIONS	Rapid/Shallow
P	PULSE (POOR CHARACTER)	Weak and Thready (ineffective)
M	MENTAL STATUS	Decreased (excluding head injury)
S	SKIN COLOR	Pale/Cyanotic
C	CONTINUED BLEEDING	From Non-Compressible Wound

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 Pre-Hospital**)
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 and completed SF 518 for the 5 items listed here or transcribe items from Blood Label onto blank SF518: (**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 site ****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 SF518 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 >100mmHg; 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)

1. **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)

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 patients 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 move to appropriate levels (SBP>100; HR<100; MAP 70-80).
2. Special attention should be paid to non-compressible injuries (chest; abdominal; and pelvis) so as to NOT raise 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)

EMERGENCY ACTION 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 SF518 date/time and actions taken

POST TRANSFUSION PEARLS

1. After 1st transfusion, re-evaluate casualty and initiate 2ndunit ONLY if criteria is still met (Appendix A)
2. If 1st unit is initiated based on "Stand-Alone" injury (Double/Triple/Quadruple 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 SF518s for patients record
2. Report any adverse events; transfusion reactions ; and actions taken en route
3. Report interrupted transfusions and provide explanation
4. Report O POS blood given to female patients between the age of 10-50

ISSUING FACILITY (BSD/MTF/LAB)

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)* _____

VOLUME REQUESTED *(If applicable)*

_____ ML

REMARKS:

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

***

NOT REQUIRED

DATE REQUESTED

DATE AND HOUR REQUIRED

KNOWN ANTIBODY FORMATION/TRANSFUSION REACTION *(Specify)*

IF PATIENT IS FEMALE, IS THERE HISTORY OF:

RhIG TREATMENT? DATE GIVEN: _____

HEMOLYTIC DISEASE OF NEWBORN? _____

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.

SIGNATURE OF VERIFIER

DATE VERIFIED

TIME VERIFIED

SECTION II - PRE-TRANSFUSION TESTING

NOT REQUIRED

UNIT NO.	TRANSFUSION NO.
	PATIENT NO.
DONOR	RECIPIENT
ABO	ABO
Rh	Rh

TEST INTERPRETATION

ANTIBODY SCREEN | CROSSMATCH

***

PREVIOUS RECORD CHECK: ☐ RECORD ☐ NO RECORD

SIGNATURE OF PERSON PERFORMING TEST

☐ CROSSMATCH NOT REQUIRED FOR THE COMPONENT REQUESTED | DATE

REMARKS:

Unit Expires:

SECTION III - RECORD OF TRANSFUSION

PRE-TRANSFUSION DATA

INSPECTED AND ISSUED BY *(Signature)*

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)

SEX | WARD

*****Pre-Hospital Mission – T&S and Crossmatch Not Required – Only Universal Donor Products Used**

BLOOD OR BLOOD COMPONENT TRANSFUSION
Medical Record

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

Complete Only The Blue Highlighted Boxes

RECEIVING UNIT (Tactical Evacuation Unit)

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)* _____

VOLUME REQUESTED *(If applicable)*

_____ ML

REMARKS:

TYPE OF REQUEST *(Check ONLY if Red Blood Cell Products are requested.)*

- ☐ TYPE AND SCREEN
- ☐ CROSSMATCH

***

DATE REQUESTED

DATE AND HOUR REQUIRED

KNOWN ANTIBODY FORMATION/TRANSFUSION REACTION *(Specify)*

IF PATIENT IS FEMALE, IS THERE HISTORY OF:

RhIG TREATMENT? DATE GIVEN: _____

HEMOLYTIC DISEASE OF NEWBORN? _____

NOT REQUIRED

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.

SIGNATURE OF VERIFIER

DATE VERIFIED

TIME VERIFIED

SECTION II - PRE-TRANSFUSION TESTING

UNIT NO.	TRANSFUSION NO.
	PATIENT NO.
DONOR	RECIPIENT
ABO	ABO
Rh	Rh

TEST INTERPRETATION

ANTIBODY SCREEN	CROSSMATCH

***

NOT REQUIRED

PREVIOUS RECORD CHECK:

☐ RECORD ☐ NO RECORD

SIGNATURE OR PERSON PERFORMING TEST

☐ CROSSMATCH NOT REQUIRED FOR THE COMPONENT REQUESTED | DATE

REMARKS:

***Pre-Hospital Mission – T&S and Crossmatch Not Required – Only Universal Donor Products Used

SECTION III - RECORD OF TRANSFUSION

PRE-TRANSFUSION DATA

INSPECTED AND ISSUED BY *(Signature)*

AT *(Hour)* | ON *(Date)*

IDENTIFICATION

I have examined the Blood Component container label and this form and I find a 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 Proocedures.
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)

SEX | WARD

Document As Much As Possible for Patient Identification

BLOOD OR BLOOD COMPONENT TRANSFUSION

Medical Record

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

Complete Only the Purple Highlighted Boxes

SAFE-T-VUE TEMPERATURE INDICATOR

ISSUING FACILITY INSTRUCTIONS

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 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 on a clean dry surface.

NOTE: 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.

NOTE: Use of cold pack on the surface below the blood product will help to maintain temperature

4. Hold Safe-T-VUE against the blood product with finger tips. Peel off the "REMOVE" label to expose the adhesive.

NOTE: Be careful to only handle around the edge of the indicator to expose RED DOT and WHITE DOT.

5. Attach Safe-T-VUE directly to the lower third of the blood product bag where there is a large volume of product.

CAUTION: Ensure thawed plasma is at refrigerated temperature (1-6°C) before placing Safe-T-VUE on unit

NOTE: Be certain the Safe-T-VUE indicator is in complete contact with the blood component bag being monitored. No air pockets should be under the indicator (e.g., fold in the bag; over any labels; or any other obstruction).

6. 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.

7. Issuing facility will complete documentation on SF518 for each blood product unit (Refer to Appendix E/H), place inside GHC pocket and secure container.
8. Receiving personnel will understand color change temperature indication:
    a. When WHITE DOT turns solid RED, temperature has reached ≥10°C
        - Return blood product to issuing facility (BSD/MTF/LAB)
    b. Appearance of SMALL RED DOTS is an indication blood product requires cooling or immediate refrigeration.
        - Return product to issuing facility (BSD/MTF/LAB) for appropriate cooling/refrigeration
    c. WHITE DOT – product is acceptable for transfusion

< 9°C ≈9.5°C ≥ 10°C