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

Original Release/Approval: 08 February 2016	Note: CCOP-01 requires an annual review
Reviewed: 05 February 2016	**Approved for Adult Use Only** (age 18-65)
Supersedes: April 2012/June 2012	Version: CCOP-01: Version 1.0 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, "*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 Office (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 USCENTCOM'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 initiating 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. Refer to Appendix B for list of clinical indicators for hemorrhagic shock.

NOTE: Clinical judgment will be used when there is no obvious bleeding or vital sign changes.

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. On average a unit contains a volume of 300-400 mL and must be transfused at a rate the patient can tolerate. 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) O POS RBCs are the standard for transfusion during evacuation. If available, O NEG RBCs should be used on females of childbearing potential age <50 years. Inform receiving facility regarding female given O POS blood for documentation in the medical record.

NOTE: If a minimal amount (just a few milliliters) is given, consideration can be given to Rhogam therapy. The immunologic consequences of administration of an entire unit of O POS 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***.

NOTE: Patients requiring blood can safely receive uncrossmatched Type O blood until type-specific products are available.

(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. Check with issuing facility or blood supply unit for availability.

(3) The recommended mission load for tactical evacuation in:

(a) High OPTEMPO is two (2) units of Plasma and two (2) units of RBC; or

(b) Low OPTEMPO is one (1) unit Plasma and one (1) unit RBC.

NOTE: Golden Hour Container (GHC) maximum capacity is four (4) units.

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

NOTE: If Plasma is **UNAVAILABLE**, evacuation personnel will fly with RBCs exclusively.

NOTE: Normal blood product transfusion ratio is 1:1 (1 unit Plasma to 1 unit RBC).

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: Pediatric fluid resuscitation related to trauma begins with 20mL/kg LR bolus in <20 min x 2 attempts before the use of blood products (Reference: ATLS and Tintinalli Emergency Medicine).

CAUTION: Blood products must be transfused within **4 hours** of removal from storage container. If not, unit will be returned to issuing facility or delivered to the MTF 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.

MAVITY.MARK.E.1083465553
Digitally signed by MAVITY.MARK.E.1083465553
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USAF, cn=MAVITY.MARK.E.1083465553
Date: 2016.02.08 09:43:16 -05'00'

MARK E. MAVITY
Col, USAF, MC, CFS
Command Surgeon