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

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

NOT REQUIRED

SECTION II - PRE-TRANSFUSION TESTING

UNIT NO.

TRANSFUSION NO.

PATIENT NO.

DONOR
ABO
Rh

RECIPIENT
ABO
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:

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

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

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 Fom 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

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