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

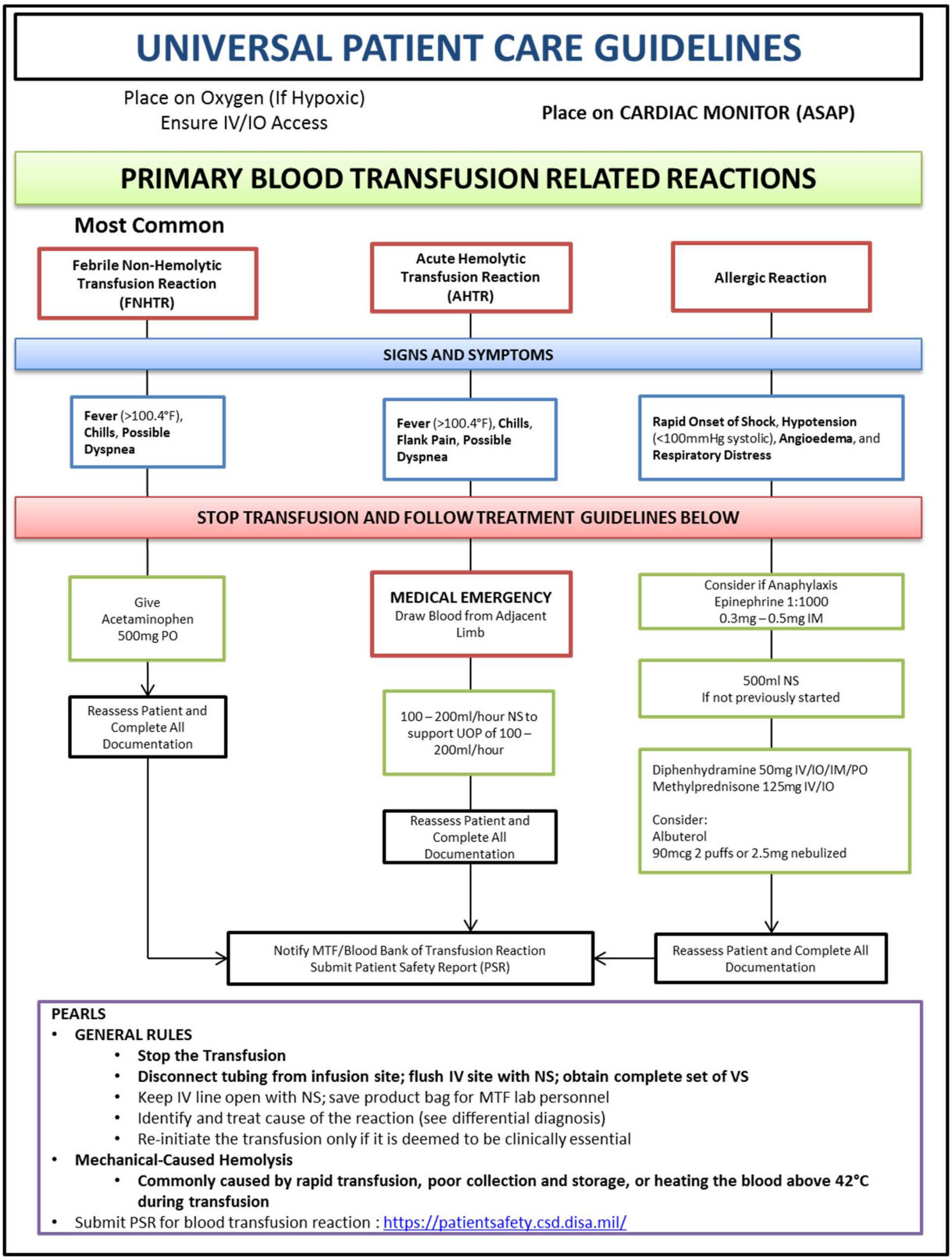
STEP 3: TRANSFUSION TASK

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

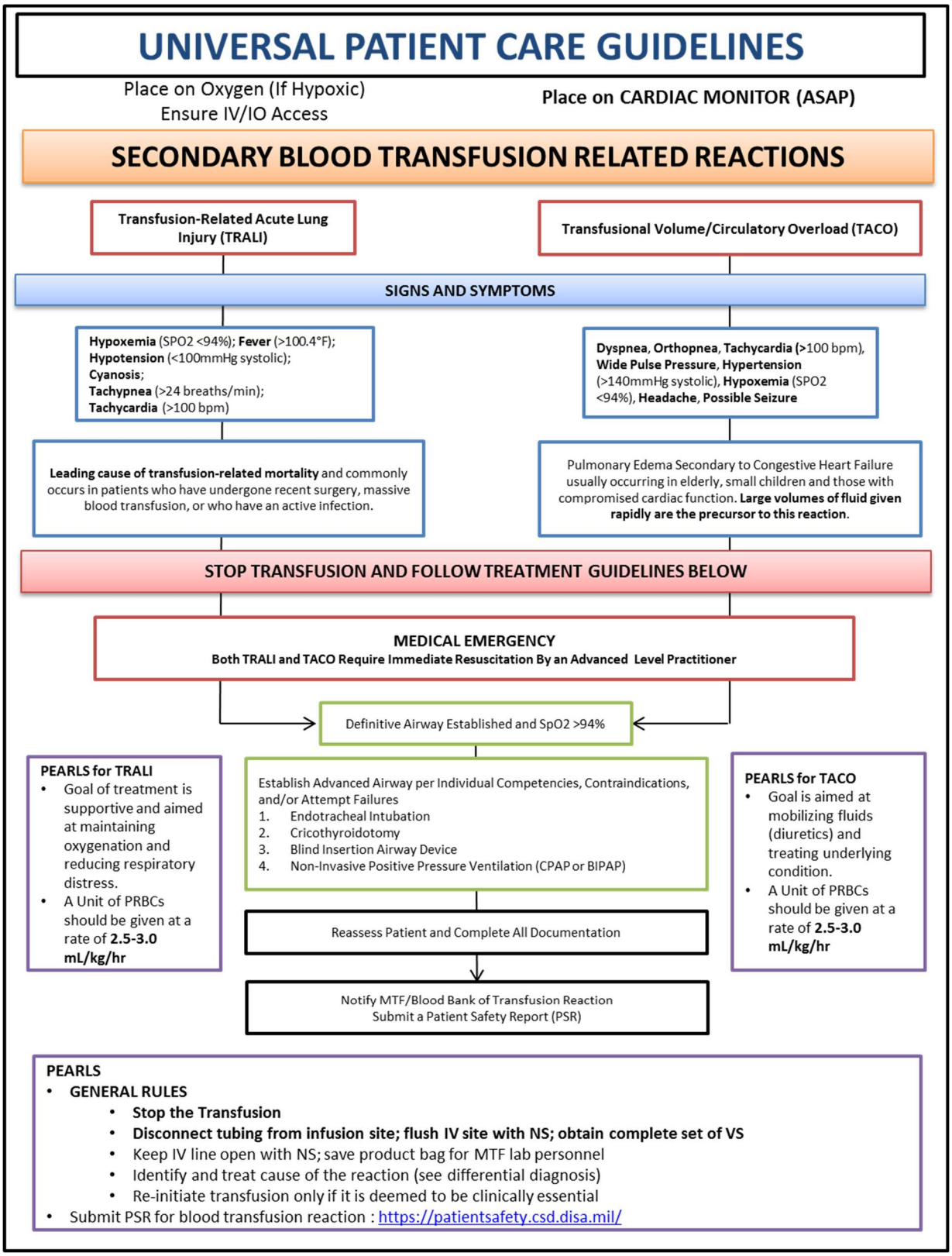
STEP 4: DOCUMENTATION TASK

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**

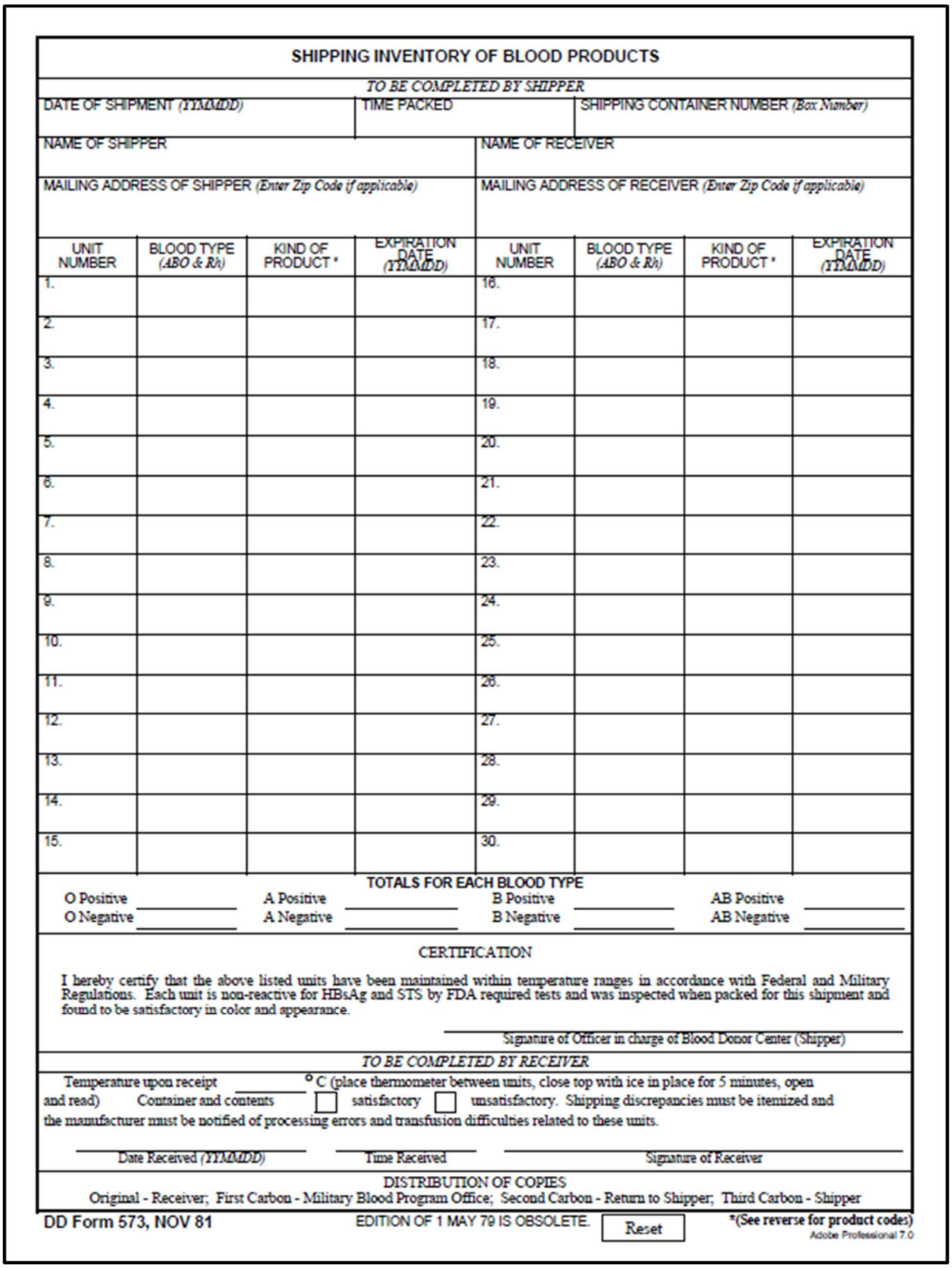
POST TRANSFUSION PEARLS

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.

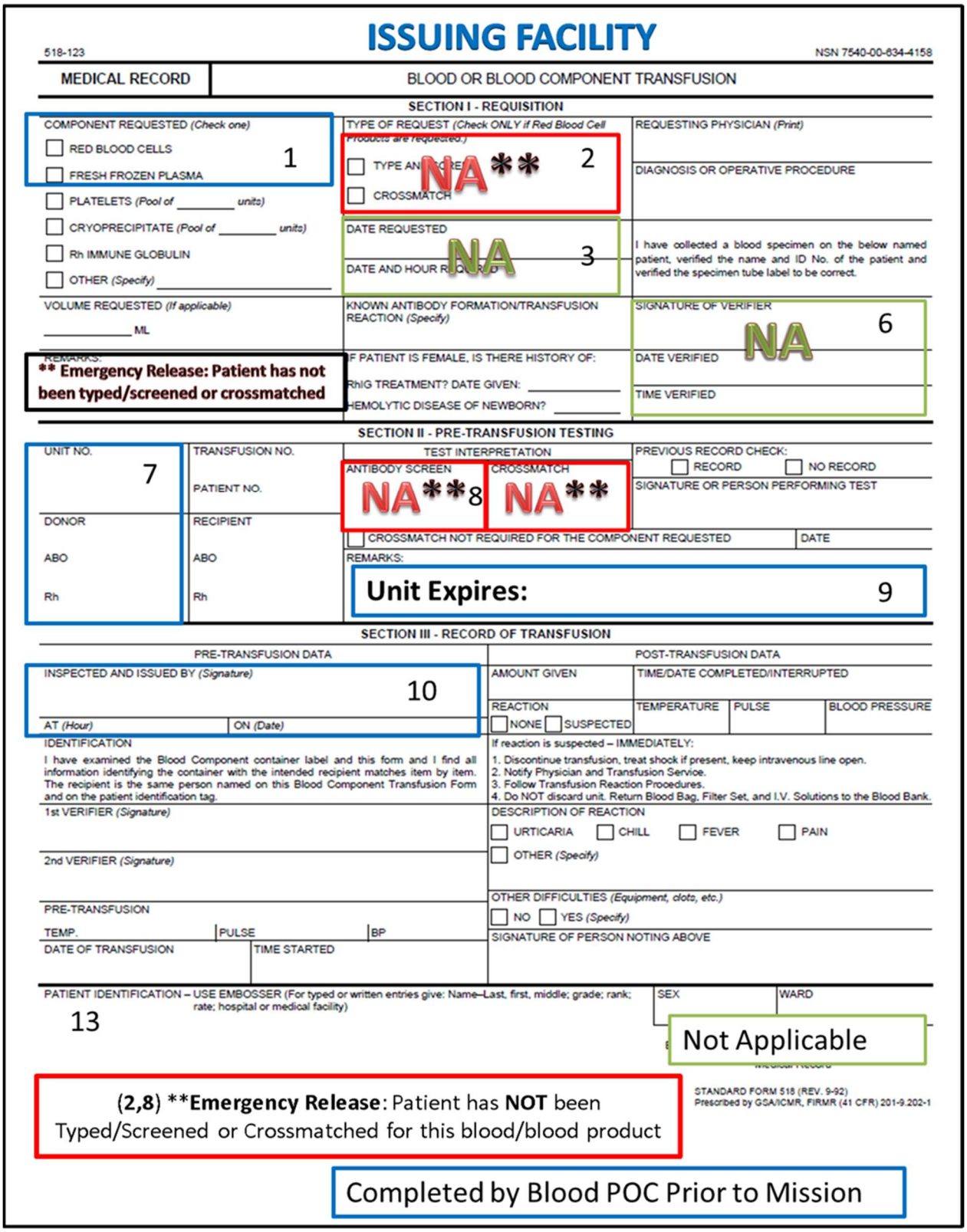
_____	_____	_____
Date Received *(YYMMDD)*	Time Received	Signature of Receiver

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

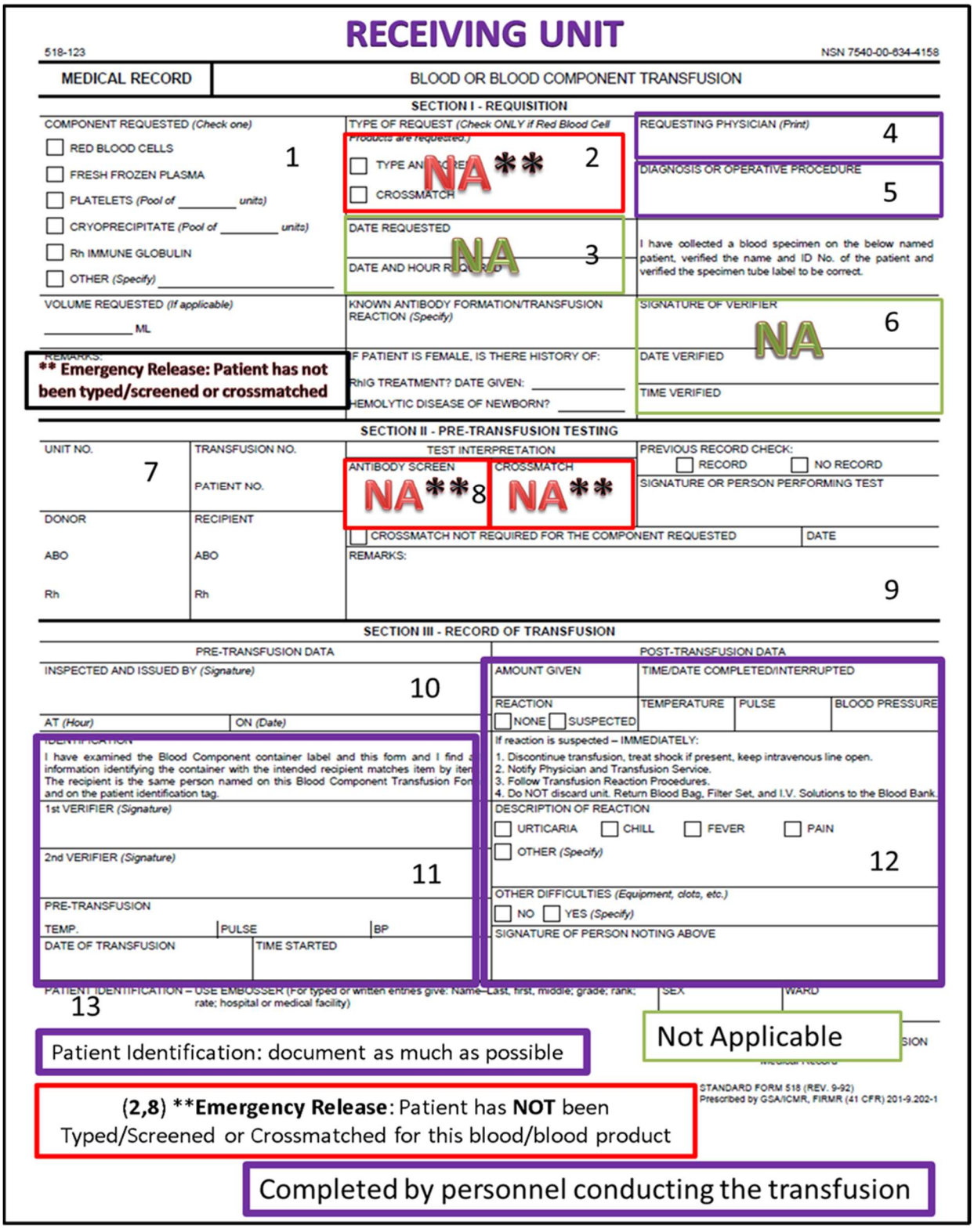
Not Applicable

(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