COUNTY OF VENTURA HEALTH CARE AGENCY	EMERGENCY MEDICAL SERVICES POLICIES AND PROCEDURES
Policy Title: Out of Hospital Transfusion of Blood Products	Policy Number 738
APPROVED: Administration: Steve L. Carroll, Paramedic	Date: April 10, 2025
APPROVED: Medical Director: Daniel Shepherd, M.D.	Date: April 10, 2025
Origination Date: April 10, 2025 Date Revised: April 10, 2025 Date Last Reviewed: April 10, 2025 Review Date: April 30,2027	Effective Date: April 10, 2025

I. PURPOSE: to define the indications, contraindications, method of administration, and documentation of the administration of blood products by Ventura County EMS Personnel.

II. AUTHORITY: Title 22 div 9: 100146(2) H&S Code Division 2.5: 1797.172, 1797.214, 1798(a)

III. POLICY: Transfusion of blood products is the gold standard method of resuscitation for hemorrhaging patients. Numerous studies have demonstrated that EMS initiated transfusion of blood products is both safe and effective. Paramedics in Ventura County are authorized to transfuse whole blood or PRBCs under a local optional scope of practice approved by the California EMS Authority.

The administration, storage, and management of blood products will only be performed by authorized agencies, in accordance with local policy and the local optional scope of practice.

IV. PROCEDURE:

a. Inclusion Criteria
   i. Adult Patient ≥ 14 Y.O.
   ii. Patient consent obtained (informed or implied)

b. Indications
   i. Life threatening hemorrhage
   ii. Vital Sign Criteria (1 or more required)
      1. SBP < 70 mmHg
      2. SBP < 90 mmHg and HR 110 (Shock index 1.2)
      3. EMS witnessed traumatic cardiac arrest

c. Contraindications
   i. Ground level fall
   ii. Isolated head injury
   iii. Patient refusal
   iv. Patient < 14 Y.O.
   v. Traumatic cardiac arrest not witnessed by EMS

d. Administration
    i. Obtain IV/IO Access – Large bore IV is preferred. IO if required.
    ii. Obtain pre-transfusion blood sample - When possible, obtain ≥ 3 mL venous blood sample in pink top tube prior to transfusion. Samples drawn from IO are not suitable for post transfusion analysis.
    iii. Verify Blood Product
        1. Serial Number
        2. Expiration Date
        3. Temperature
        4. Clarity / Consistency
    iv. Verify Patient
        1. No exclusion Criteria
        2. Indications Met
        3. Consent Obtained (informed or implied)
    v. Cross check blood product and patient verification with second provider.
    vi. Warm 1 unit (approx. 500 mL) Blood Product
    vii. Administer 1 unit (approx. 500 mL) IV/IO via rapid infuser
    viii. Monitor for infiltration
    ix. Monitor for signs of transfusion reaction
e. Post Transfusion Care
    i. Wristband or other highly visible identifier shall be placed on ALL patients who receive a transfusion, at the time the transfusion is performed. This identifier alerts hospital that an out of hospital blood transfusion was administered.
    ii. The paramedic who administered the blood products will ensure the receiving hospital team is aware that a transfusion was performed and that the following steps are taken during transfer of care.
        1. Verbal communication by EMS notifying the treating ED physician and care team that an out of hospital transfusion was performed and that wristband has been applied to notify others. Verbal report will include any signs/symptoms that may be the result of transfusion reaction.
        2. Information / Resources to allow receiving facility to perform type, screen, and/or crossmatch if necessary or desired.
            a. Pre-transfusion blood sample, when available, will be left with ED care team.
            b. Donor blood segment, bag, and tubing from donor blood bag will be left with ED care team.
            c. Provide ED with EMS transfusion information document
    iii. Documentation
        1. Blood transfusion required ePCR documentation includes but is not limited to the following transfusion specific fields.
            a. Donor blood type
            b. Donor blood serial number
            c. Donor blood expiration date
            d. Transfusion start time
            e. Transfusion end time

f. Total mL transfused
g. Patient receiving hospital MRN
h. Patient receiving hospital Visit Number
i. Consent type
j. Patient refusal (where applicable).
k. Physician signature ordering emergent transfusion.

iv. Continuous Quality Improvement
1. Individual Case Review
a. Patient inclusion criteria and indications met
b. Appropriate type of consent obtained and documented.
c. Procedure performed according to protocol and safety standards.
d. Documentation complete and accurate.
2. Aggregate Measures
a. Safety
i. Units of blood per month that expire / are discarded without use (N, %).
ii. Scene time > 20 minutes (N,%)
iii. Scene time > 10 minutes (N, %)
iv. Scene time (Avg, STD, Median, 90^{TH} percentile)
v. Patients transfused without meeting criteria (N,%)
vi. Transfusion Reactions (N,%)
vii. Temperature excursions resulting in blood waste (N,%).
viii. Impact on lights and sirens use – Count and total minutes.
b. Efficacy
i. Number of hospital blood products infused per patient (avg, std)
ii. Total blood products infused per patient (avg, std)
iii. Advanced airway placed (N, %)
iv. Survival to hospital admission (N, %)
v. Survival to hospital discharge (N, %)
vi. Hospital length of stay
3. CQI metrics will be provided at mutually agreed upon intervals, or as defined in policy. Failure to provide CQI metrics as defined may result in suspension of authorization to provide out of hospital transfusions.