

COURSE OUTLINE FOR TRAINING EMERGENCY MEDICAL TECHNICIANS-CC/P IN BLOOD COMPONENT ADMINISTRATION /MONITORING

Approved by the New York State Department of Health

PURPOSE

The purpose of this course outline is to provide a guide for organizations in developing and implementing a standardized curriculum for the training of EMT-CC/Ps in blood component administration and/or transfusion monitoring.

PREREQUISITE

Certification as an Emergency Medical Technician – Paramedic (EMT-P) or Emergency Medical Technician – Critical Care (EMT-CC) to provide care of patients receiving blood components. NYS EMS agency physician Medical Director to assist in training. NYS certified Paramedic, Certified Instructor Coordinator (CIC) to provide educational oversight. NYS physician from the NYS certified blood bank who has entered in an agreement with the EMS agency to provide services, to include educational consultation. Recommendation of NYS physician from a Level 1 Trauma Center blood bank for educational consultation.

COURSE OBJECTIVES

Upon completion of training, the EMT-CC/Ps will be able to:

1. List common indications for therapeutic blood component administration.
2. List the information and supplies to be obtained prior to departure.
3. Identify the requirements for venous access and fluids to be used for blood administration.
4. Describe the patient identification process at the patient's side with hospital staff and verification during transport.
5. Describe patient monitoring to be performed prior to and during transfusion and data to be collected and reported.
6. List common signs and symptoms of transfusion reactions and identify the actions to take in the event of a possible transfusion reaction.
7. Document blood component administration according to REMAC protocol and ambulance service policies and procedures.

ESSENTIAL COURSE CONTENT

I. Applicable Requirements and Guidance

- Public Health Law, Article 30
- DOH EMS regulations
- DOH regulations, Subpart 58-2
- DOH *Guidelines for Monitoring Transfusion Recipients*, including *Transfusion Reaction Response Guide*
- REMAC protocols pertaining to blood administration and recipient monitoring, including the role of EMT-CC/Ps

II. Types of Blood Components

- Content, how they are prepared, physiologic action/therapeutic effects
- Packed red blood cells
- Fresh frozen plasma and other types of plasma
- Platelets, including whole blood-derived concentrates and apheresis platelets

- Components that have undergone special processing, such as irradiated, leukoreduced, CMV-safe, and sickle hemoglobin-negative components

III. Indications for Blood Component Administration

- Packed red blood cells – including acute blood loss due to trauma and conditions that cause anemia
- Fresh frozen plasma and 24-hour plasma – deficits of coagulation factors other than Factor VIII; not indicated for volume replacement
- Platelets – including thrombocytopenia due to disease or chemotherapy, platelet dysfunction, platelet consumption, with bleeding; prior to invasive procedure or prophylactic; not indicated in ITP/TTP absent life-threatening bleeding

IV. Blood Groups and Compatibility

- ABO groups (O, A, B, and AB)
- Rh (Rh-positive, Rh-negative; influence of latter on perinatal care)
- Other blood groups (blood may be labeled negative for other antigens)
- ABO compatibility of cellular components
- ABO compatibility of plasma components

V. Pre-Transport Actions

- Obtaining authorized provider's orders, including component(s), volume and infusion rate, and PRN orders for actions to be taken if circumstances change; standard order form
- Procedures for obtaining, packaging, and storage of blood components for transport in temperature-validated cooler provided by blood bank. Proper packaging: coolant for red blood cells (usually wet ice) with separation of blood components from coolant to prevent freezing; no coolant for platelets.
- Obtaining blood administration set(s) provided by blood bank or other source
- Obtaining baseline vital signs, including blood pressure, pulse, respirations, and temperature

VI. Patient/Unit Identification

- Confirmation of current patient consent or, absent consent, documentation of situation requiring emergency transfusion in accordance with established criteria
- Bedside comparison of blood component label(s), tag(s) and patient's wristband by two staff authorized by law to administer blood
- Bedside verification, prior to departure, of blood component label(s), tag(s) and patient's wristband by the EMT-CC/P and RN or physician

VII. Blood Administration Per REMAC Protocol

To include:

- Preparation of equipment and supplies, in accordance with infection control standards
- Assessment of peripheral venous access. Establishment of a dedicated line for blood administration only, to be no smaller than 18 gauge in adults, or as ordered by physician for infants
- Use of blood administration set
- Fluids – only 0.9% saline may be mixed with blood in the same line (volume expanders and medications must not be administered through this line)
- Patient preparation, including patient education if applicable

- Obtaining pre-administration baseline patient data, including vital signs (blood pressure, pulse, respirations, and temperature)
- Administration of pre-transfusion medications if ordered and indicated
- Verification of patient identity (wristband), with blood unit label and all paperwork immediately prior to administration

VIII. Recipient Monitoring For All Blood Units (Including Units Initiated by Hospital Staff and Units Initiated by the EMT-CC/P)

To include:

- Infusion rates and duration; documentation
- Documentation of patient data during blood component administration, including vital signs (at specified intervals, per protocol, TBD)
- Reporting changes in patient data/vital signs to medical control practitioner, if outside established limits, following comparison with patient baseline vital signs and established parameters

IX. Transfusion Reactions

Immediate reactions, including acute hemolytic transfusion reactions, bacterial contamination, transfusion-related acute lung injury (TRALI), febrile non-hemolytic transfusion reactions, allergic reactions, urticarial reactions, and volume overload

- Signs and symptoms
- EMT-CC/P responsibilities, if signs/symptoms are outside of established parameters (discontinue administration of blood, keep line open with saline, and alert medical control physician)
- Transfusion reaction protocol (including clerical check, blood and urine specimens, and retention of the component bag[s]) and EMT-CC/P role
- Interventions/therapy, as ordered by medical control physician

X. Actions upon Arrival at Destination Hospital

- Required documentation and disposition of records, to include instructing hospital staff to send blood tag(s)/slip(s), empty blood bag(s), and any unused units to the blood bank
- Disposition of supplies and equipment

PSYCHOMOTOR TRAINING

The EMT-CC/P must observe demonstration of mock transfusions using the same supplies to be used in the field, including mock blood unit. The EMT-CC/P must successfully perform mock transfusions, under direct observation, to the satisfaction of the trainer. Training must include all documentation and retention of blood bags, unit tags/transfusion slips, and paperwork for delivery to the blood bank.

CONTINUING EDUCATION

An ongoing competency maintenance program, at a minimum, should include annual refresher training, as required.

MODIFICATIONS

When blood administration or monitoring protocols are modified, EMT-CC/Ps performing blood administration and/or monitoring tasks must undergo appropriate, documented training in the modified procedures, in accordance with revised standard protocol and a revised curriculum.

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