

APPENDIX N: ALS INTERFACILITY TRANSFER GUIDELINES

Minimum Standards for Interfacility Transfers:

1. Staffing, Training

Minimum staffing at the Intermediate level requires one EMT-Basic and one EMT-Intermediate. Minimum staffing at the Paramedic level requires one EMT-Paramedic and EMT-Intermediate or EMT-Basic, in accordance with 105 CMR 170.305(C)(2).

EMTs providing patient care during Interfacility Transfers must meet the following requirements as outlined in 105 CMR 170.000 et al:

- a. current certification as an EMT in Massachusetts;
- b. completion of Department approved supplemental training that is specific to and consistent with levels of certification of involved EMTs and includes
 - expanded roles and responsibilities
 - additional, approved treatment modalities, equipment, devices, and technologies; and
 - ambulance service policies and procedures regarding ALS Interfacility Transfers
- c. has maintained current authorization to practice pursuant to the Affiliate Hospital Medical Director's review of clinical competency

Guidelines for approved ALS Interfacility Transfer training programs have been issued separately by the Department. It shall be the responsibility of the transferring ambulance service to ensure and to verify appropriate training of its personnel providing ALS Interfacility Transfers. This includes ensuring that all its personnel successfully complete refresher training in providing ALS Interfacility Transfers at least every two years, and whenever new equipment or medication is approved for use on interfacility transfer calls.

2. Affiliation Agreements; Medical Control

An ambulance service must be licensed at an ALS level by the Department to provide ALS care during Interfacility Transfers, and it must maintain an affiliation agreement, in accordance with 105 CMR 170.300, with a hospital licensed by the Department for Medical Control, pursuant to 105 CMR 130.1501-130.1504 of the Hospital Licensure regulations. Such affiliation agreements must designate an Affiliate Hospital Medical Director (105 CMR 170.300(A)(2) and 105 CMR 130.1502(C)), whose medical oversight functions are defined in 105 CMR 130.1503. Standards for Affiliate Hospital Medical Directors are defined in 105 CMR 130.1504.

3. Communications:

All communications with a Medical Control physician must be recorded.

4. Scope of Practice:

Section 170.360(A) of the EMS Regulations states, "No ambulance service or agent thereof shall transport a patient between health care facilities who is receiving medical treatment that is beyond the training and certification capabilities of the EMTs staffing the ambulance unless an additional health care professional with that capability accompanies the patient..." Depending on the individual's condition, there may be situations in which a physician or some other specialist's presence might be necessary; such determination shall be made by the on-line medical control physician in consultation with the physician at the sending hospital. All involved in this decision should consider whether the benefits of the transfer sufficiently outweigh the risks; a patient's greatest benefit may result from being transported by a standard IFT crew to a higher level of hospital care rather than delay for other transport.

The scope of practice for each EMT level is defined (1) in regulation (105 CMR 170.810, 170.820 and 170.840), (2) through established training programs approved by the Department, and (3) through the Statewide Treatment Protocols consistent with the Interfacility Transfer Guidelines.

The following are patient condition classifications and corresponding requirements for EMT personnel during ambulance transport:

- a. Routine, scheduled transport; Patient clearly stable for transport with no requirement for airway management and no device in place that is actively running or requires any maintenance or monitoring. Patient may have a device in place, but device must be locked and clamped, not require any maintenance and not be actively running. Such inactive devices may include, but are not limited to, IVs, nasogastric tubes, feeding tubes, PICC lines and bladder irrigation.

Minimum Staffing: BLS licensed ambulance service; two EMT-Basics

- b. Patient clearly stable for transport (as above) who has a “maintenance” IV running without additives; (e.g., cancer patient transported for radiation therapy, with unadulterated crystalloid IV solution running).

Minimum Staffing: ALS-Intermediate licensed ambulance service; one EMT-Intermediate attending to patient care and one EMT-Basic driving

- c. Patient with an acute or sub acute problem, who is either completely or, at least, to the best of a facility’s ability, stabilized; who has the potential to become less stable during transport. Instrumentation or medication running must be consistent with the Interfacility Transfer Guidelines.

Minimum Staffing: ALS-Paramedic licensed ambulance service; one EMT-Paramedic and one EMT-Intermediate or EMT-Basic, in accordance with 105 CMR 170.305(C)(2). The EMT with the highest level of certification must attend to patient care.

- d. Patient with an acute problem with high potential to become unstable; Critical care patient with any other instrumentation or medication running that is not included in the Interfacility Transfer Guidelines.

Minimum Staffing: Appropriate additional medical personnel (per 105 CMR 170.360(A)) must accompany the patient during transfer; any level of ambulance service licensure; two EMT-Basics. The ALS Interfacility Transfer Subcommittee recommends that the referring hospital consider Critical Care Transport for such a patient. In the event that CCT is unavailable, medical personnel accompanying the patient must be able to manage all equipment and instrumentation associated with the patient’s care and provide advanced resuscitative measures if needed.

- e. Critical Care Transports (see 105 CMR 170.000, for regulatory requirements regarding critical care transport).

Under no circumstances shall EMTs function or be assigned to transfers beyond, or potentially beyond, the scope of their training and level of certification. The scope of practice for all EMTs is limited to the levels of EMT certification and training and by licensure level of the ambulance service by which they are employed.

If (1) a patient’s medical condition necessitates immediate transport to another health care facility and (2) the patient’s medical treatment during transport will exceed the level of licensure of the transferring ambulance service and/or level of certification of the transferring ambulance’s

personnel, and (3) the transferring facility will not provide appropriate additional personnel pursuant to 105 CMR 170.360(A), Critical Care Transport by ground or air should be employed.

The transferring facility may at any time opt to exceed these minimum requirements by transferring patients in BLS ambulances with appropriate medical personnel as defined in 170.360(A) or by Critical Care Ground or Air Transport.

5. Quality Assurance/Quality Improvement

- a. Ambulance services providing ALS Interfacility Transfers shall be required to have quality assurance/quality improvement policies specific to ALS Interfacility Transfers in conjunction with both their affiliate hospital medical directors and their ambulance service medical directors, if any, and include at a minimum:
 - review of appropriateness of transfers, denials, and conformance with EMTALA regulations;
 - review of critical skills (e.g., intubations, cardiac arrest management, IV therapy), and other measures of system function as deemed appropriate by the Department;
 - steps for system improvement and individual remediation, available for Department review, of cases found to be deficient in critical interventions
- b. Ambulance services shall report to the Department and the Affiliate Hospital Medical Director any violations of 105 CMR 170.000, this Administrative Requirement and/or prevailing treatment protocols as they relate to ALS Interfacility Transfers.
- c. EMT skill maintenance and didactic knowledge will be continually assessed and appropriate measures taken to ensure quality of patient care by affiliate hospital medical directors and by ambulance service medical directors, if any.

Patient ALS Transfer Procedure

Once an ALS Interfacility Transfer has been deemed appropriate by the transferring ambulance service (see “Scope of Practice” above), paramedic staff, upon arrival at the transferring facility, will:

- receive a report from the staff of the transferring facility;
- assess the patient; and
- in cases where the patient’s care during the transfer exceeds the standing-order scope of practice as defined by the current version of the Statewide Treatment Protocols for an EMT-Paramedic or the patient is unstable or is likely to become unstable as defined previously (see “Scope of Practice” above) will provide a concise, complete and accurate patient report to an On-Line Medical Control physician, according to the EMS service’s and the Affiliate Hospital’s policies and procedures. When EMTs have a concern regarding the safety of the patient being transferred, the EMT-Paramedic will contact an On-Line Medical Control physician for guidance.

The report should include, at a minimum, the following information:

- a. Names of transferring and receiving facilities;
- b. Patient’s diagnosis;
- c. Reason(s) for transfer;
- d. Brief history of present illness and any intervention(s) which has occurred to date;
- e. Pertinent physical findings;
- f. Vital signs;
- g. Current medications and IV infusions;

- h. Presence of or need for additional medical personnel;
- i. Anticipated problems during transport, if any;
- j. Anticipated transport time; and
- k. Staffing configuration of the transporting ambulance

NOTE: Complete copies of all pertinent medical records, including X-Rays, CT Scans, consultative notes and ECGs, as available, must accompany the patient to the receiving facility.

When necessary, the Medical Control Physician and paramedic will discuss with the transferring physician the orders for maintenance of existing and/or addition of new therapies according to the needs of the patient, within the scope of existing treatment protocols and EMT scope of practice. The Medical Control Physician will be responsible for all actions/interventions initiated by the EMS personnel during transport unless the referring physician accompanies the patient.

If the transferring physician is unavailable, or the patient is unstable, the Medical Control Physician may recommend to the transferring facility additional therapies prior to the transfer of the patient in the interest of patient safety and quality care.

In some situations, consistent with the intent of EMTALA, the transfer of a patient not stabilized for transport may be preferable to keeping that patient at a facility incapable of providing stabilizing care. If the transferring facility cannot provide appropriate medical care or appropriately trained and experienced personnel to accompany the patient, alternative means of transfer, including Critical Care Transport, must be utilized. The use of a local Emergency Ambulance Service is strongly discouraged in such a situation. All such responses must be reported by the ambulance service to the Department's Division of Health Care Quality and the Affiliate Hospital Medical Director for review. It is primarily the responsibility of the referring physician and Medical Control Physician to determine the appropriate method of transferring an unstable patient.

When a facility sends its own staff with the patient during transfer (additional medical personnel) and the patient's condition deteriorates en route, EMS personnel must contact the Medical Control Physician for appropriate intervention orders and notify the receiving facility of the change in patient status.

If the accompanying staff is an RN s/he will maintain patient care responsibility, functioning within his/her scope of practice and under the orders of the transferring physician. The Paramedic and the RN will work collaboratively in the provision of patient care. If the patient's condition deteriorates en route, the Paramedic may assume full responsibility in conjunction with their Medical Control Physician for care that exceeds the RN's scope of practice and/or the transferring physician's medical orders. Prior to transfer with an RN, the referring physician must contact the service's Medical Control Physician and provide staffing rationale.

If the accompanying staff includes a physician from the transferring facility, that physician shall be in charge of patient care. Prior to transfer, the transferring physician accompanying the patient must contact the service's Medical Control Physician and coordinate patient care between the physician-in-charge and the paramedic practicing within the Statewide Treatment Protocols. Clear lines of command and responsibility shall be established prior to transport.

Interstate ALS Interfacility Transfers

Interstate transfers are permitted. Paramedics must obtain Medical Control through normal channels, through the Affiliation Agreement for Medical Control of the ambulance service for whom they are working. Appropriate provisions for re-contacting the Medical Control physician en route, if necessary, should be made prior to departure from the transferring facility. If a transfer originates out of state and

no contact with Medical Control Physician is possible, the transfer should be made at the BLS level only with appropriate additional personnel provided by the transferring facility.

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PART 1 – Determining the Need for Critical Care Transport

The purpose of this section is to determine which patients must be transported by critical care transport (CCT). Scenarios and circumstances beyond the scope of practice of the paramedic (including, but not limited to those described below) require CCT. CCT can be furnished by any of the following:

- Licensed critical care service
- An advanced life support (ALS) vehicle with hospital MD and / or RN on board.
(A respiratory therapist is acceptable in place of MD and / or RN for ventilator management only)
- Any advanced (ALS) or basic life support (BLS) vehicle staffed by a self-contained and properly equipped critical care team.

If CCT is unavailable **AND** sending facility staff is unavailable, **AND** this patient has a condition requiring time-sensitive intervention **AND** it is approved by **MEDICAL CONTROL**, this patient may be transferred by any ALS ambulance, provided that all interventions are within the scope of practice of the transporting paramedic and vehicle.

The **MEDICAL CONTROL** physician and **SENDING PHYSICIAN** should be in direct communication if there are any **concerning** issues prior to patient transport.

1.1 – PEDIATRIC PATIENTS (8 years of age or younger)

- Any neonate patient (30 days of age or younger) requiring transfer to a higher level of care.
- Any pediatric patient with critical illness or injury.

NOTE: On-line **MEDICAL CONTROL** should be involved in determining whether pediatric patients require critical care

- Any pathology associated with the potential for imminent upper airway collapse and / or obstruction (including but not limited to airway burns, toxic inhalation, epiglottitis, retropharyngeal abscess, etc.). If any concerns whether patient falls into this category, contact **MEDICAL CONTROL**.

NOTE: On-line **MEDICAL CONTROL** should be involved in determining whether pediatric patients require critical care

- Any intubated pediatric patient requiring an interfacility transfer.

- All conditions that apply to adult medical patients also require CCT for the pediatric patient.

1.2 – ADULT MEDICAL PATIENTS

- Unless approved by **MEDICAL CONTROL**, patients requiring more than three (3) medication infusions by IV pump, not including maintenance fluids must be transported by CCT.
- Unless approved by **Medical Control**, any patient receiving more than one vasoactive medication infusion must be transported by CCT.
- Any patient who is being actively paced (either transvenous or transcutaneous) must be transported by CCT.
- Patients being transferred due to an issue with a ventricular assist device.
- Patients with an intra-aortic balloon pump.
- Any patients with a pulmonary artery catheter.

NOTE: Central lines may be transported by ALS IFT

- Any patient with an intracranial device requiring active monitoring.

NOTE: Except for chronic use devices, such as ventriculoperitoneal shunts, etc.

- Any pathology associated with the potential for imminent upper airway collapse and / or obstruction (including but not limited to airway burns, toxic inhalation, epiglottitis, retropharyngeal abscess, etc.). If any concerns whether patient falls into this category, contact **MEDICAL CONTROL**.

NOTE: If any concerns about whether patient falls into this category, contact **MEDICAL CONTROL**.

- Any patient being artificially ventilated for ARDS or Acute Lung Injury.

Part 2 – General Protocols for ALS Interfacility Transfer Care

- Vital signs should be obtained and documented every ten (10) minutes, unless otherwise required by protocol.
 - If clinically indicated, patients will have continuous monitoring of electrocardiogram (ECG) and / or pulse oximetry (SpO2).
 - **All** artificially ventilated patients (and all other patients where it is clinically indicated) will have continuous monitoring of waveform capnography, if available. NOTE: All ALS services – Intermediate and Paramedic -- must be equipped with capnography by January 1, 2013.
- The recommended route for medication infusions in the ALS IFT setting is the peripheral intravenous (IV) line. Intraosseous (IO) lines may also be used.
 - Medications may also be administered through any central venous catheter
 - Paramedics may administer medication boluses, infusions and fluids through administration sets connected by the sending facility to subcutaneous devices (e.g., Port-a-Cath)
- Patients who are being transferred ALS between facilities should have peripheral intravenous (IV) access, if possible.
 - Paramedics should attempt to establish IV access if no attempts have been made at the sending facility. Paramedics are authorized to establish IO access if warranted by the patient's condition.
- All monitoring and therapy will be continued until care is transferred to the receiving medical staff.
- Paramedics may not accept any medications from the sending facility for the purposes of bolus administration during transport.
- Any patient who qualifies for spinal immobilization per pre-hospital statewide treatment protocols who has not been cleared by CT scan or appropriate physician assessment must be fully immobilized for transport.
 - If any confusion arises regarding the need for spinal immobilization **MEDICAL CONTROL** will be contacted and the **MEDICAL CONTROL** physician and the **SENDING PHYSICIAN** should be in direct communication.
- Paramedics must be familiar with the treatments and interventions instituted at sending facility.
- Patient care documentation should include, at a minimum:
 - Patient's diagnosis / reason for transfer

- Brief history of present illness / injury
 - Brief overview of interventions performed by sending facility
 - Pertinent physical examination findings and recent vital signs
 - Current medications and IV infusions
 - Presence of or need for additional medical personnel
- ❑ For all patients being transferred to an emergency department, who are critically ill, unstable, or have a change in clinical status en route, EMTs should notify receiving emergency department via CMED prior to arrival. If local CMED is unavailable, entry notes should be made by telephone (on a recorded line, if possible).
- ❑ Paramedics will contact on-line **MEDICAL CONTROL** for:
- Any intervention(s) that exceed the standing order scope of practice as defined by the current version of the Massachusetts Pre-Hospital Statewide Treatment Protocols for an EMT-Paramedic.
 - Any patient that is unstable or is likely to become unstable.
 - When there is any concern regarding the safety of the patient being transferred.
 - Any significant patient care related questions or issues prior to transfer or en route.
- ❑ The **MEDICAL CONTROL** physician and **SENDING PHYSICIAN** should be in direct communication if there are any **concerning** issues prior to patient transport.
- ❑ On occasion good medical practice and the needs of patient care may require deviations from these protocols, as no protocol can anticipate every clinical situation. In those circumstances, EMS personnel deviating from the protocols shall only take such actions as allowed by their training **and** only in conjunction with their **ON-LINE MEDICAL CONTROL PHYSICIAN**.

PART 3.1 – AORTIC DISSECTION

- It is recommended that central access and / or two large bore IV lines are in place prior to transport.
- Care during transport:
 - Administer high-flow supplemental oxygen
 - Continuous cardiac monitoring
 - Heart rate, blood pressure, neurologic evaluations documented every 5 – 10 minutes
 - Target heart rate = 60 – 80 bpm
 - Target systolic blood pressure = 90 – 100 mm Hg
 - Continually assess mentation.
 - If patient is outside of these parameters, contact **MEDICAL CONTROL**.
- If not approved by on-line **MEDICAL CONTROL** prior to transport, you must contact **MEDICAL CONTROL** to adjust all medication infusions:
 - Adjust antihypertensive medications initiated at sending facility (until systolic blood pressure is less than 100 mm Hg and/or MAP is less than 60 mm Hg):
 - If **Labetalol** infusion has been initiated by sending facility, **increase by 2 mg / minute every 10 minutes** (to a maximum of 8 mg/minute)
 - If **Esmolol** infusion has been initiated by sending facility, **increase by 50 mcg / kg / minute every 4 minutes** (to a maximum of 300 mcg / kg / minute)
 - If **Nitroprusside** infusion has been initiated by sending facility, **increase by 0.5 mcg / kg / minute every 5 minutes** (to a maximum of 4 mcg / kg / minute)
 - Discontinue drip and contact medical control for instructions if:
 - Systolic blood pressure < 90 mm Hg, or;
 - Heart rate < 60 bpm
 - If no medication infusion has been initiated to control blood pressure and / or heart rate, **MEDICAL CONTROL** may order the administration of metoprolol 5 mg IV every 5 minutes to a maximum of 15 mg.

PART 3.2 – BLOOD TRANSFUSION REACTION

Symptoms of a Transfusion Reaction during Infusion of Packed RBCs (PRBCs)

Acute Hemolytic Reaction

Fever, hypotension, flushing, wheezing, dark and / or red colored urine, oozing from IV sites, joint pain, back pain, chest tightness

Nonhemolytic Febrile Reaction

Fever, chills, rigors, vomiting, hypotension

Allergic Reaction

Urticaria, hives (usually without fever or hypotension)

Anaphylactic Reaction

Dyspnea, wheezing, anxiety, hypotension, bronchospasm, abdominal cramps, vomiting, diarrhea

Volume Overload

Dyspnea, hypoxia, rales, tachycardia, jugular vein distention

Transfusion-Related Acute Lung Injury (“TRALI”)

Dyspnea, hypoxia, rales (usually without fever or signs of pulmonary edema)

- STOP** the infusion if any of the above symptoms are discovered!
- Start infusion of normal saline
- Contact **MEDICAL CONTROL**
- Treat hypotension and anaphylactic reaction with standing orders (established pre-hospital protocols)
- If minor allergic reaction (urticaria / wheezing) administer Benadryl, 50 mg IV
- If SpO2 is below 90% or patient experiences wheezing / rales, administer high-flow supplemental oxygen
- If SpO2 is below 90% and accompanied by rales, administer Lasix, 40 mg IV

PART 3.3 – CEREBROVASCULAR ACCIDENT, POST TPA

- ❑ Seizures (either generalized motor or nonconvulsive) should be quickly controlled.
 - After assessing airway, breathing, and applying high-flow oxygen:
 - Lorazepam, 2 mg IV every 2 minutes up to 0.1 mg / kg, **or**
 - Diazepam, 5 – 10 mg IV / IO
 - **MEDICAL CONTROL** can authorize administration of Midazolam for seizure activity
- ❑ For an ischemic CVA, if a tPA (tissue plasminogen activator) infusion will be continued during the transport, follow these guidelines:
 - Sending facility staff should withdraw excess tPA from the bottle, so that the bottle will be empty once the full dose has infused.

Example: 100 mg bottle of tPA contains 100 mL of fluid when reconstituted; if the total dose being administered is 70 mg, then the facility should remove 30 mL of fluid from the bottle before departure.
 - When the pump alarm indicates that the bottle is empty, you should take the following steps to ensure that the drug contained within the administration tubing is administered to the patient:
 - Remove the IV tubing from the tPA bottle and spike a bag of 0.9% NS and restart the infusion; the pump will stop infusing when the preset volume has been administered.
- ❑ If systolic blood pressure is found to be greater than 180 mm Hg or diastolic blood pressure is found to be greater than 105 mm Hg consult **MEDICAL CONTROL**, then:
 - Adjust antihypertensive medications initiated at sending facility:
 - If [Labetalol](#) has been initiated by sending facility;
 - ✓ **Increase by 2 mg/minute every 10 minutes** (to a maximum of 8 mg/minute) until systolic blood pressure is less than 180 mm Hg and/or diastolic blood pressure is less than 105 mm Hg
 - ✓ Discontinue drip and contact medical control for instructions if the reduction in MAP is greater than 30% of initial BP or SBP < 140 mm Hg, DBP < 80, or heart rate < 60 bpm
 - If [Nicardipine](#) has been initiated by sending facility;
 - ✓ **Increase by 2.5 mg / hour every 5 minutes** (to a maximum of 15 mg / hour) until systolic blood pressure is less than 180 mm Hg and/or diastolic blood pressure is less than 105 mm Hg

- ✓ Discontinue drip and contact medical control for instructions if the reduction in MAP is greater than 30% of initial BP or SBP < 140 mm Hg, DBP < 80, or heart rate < 60 bpm
- For any acute worsening of neurologic condition (e.g., acutely worsening neurological deficits, development of severe headache, acute hypertension, vomiting, etc.):
 - If patient is receiving tPA, discontinue the infusion.
 - Contact **MEDICAL CONTROL** for further instructions.
 - Contact receiving hospital emergency department with an update on patient's condition and an estimated time of arrival.

PART 3.4 – POST-ARREST INDUCED HYPOTHERMIA (PAIH)

- If post-arrest induced hypothermia (PAIH) therapy in progress at the time of IFT ALS arrival, it should be continued during the transport.
- Pre-transport temperature should be documented, and temperature should be monitored with vital signs every five minutes.
- The temperature target for post-arrest induced hypothermia (PAIH) is 32° C – 34° C (89° F – 93° F).
- If pre-transport or inter-transport temperature is less than or equal to 34° C:
 - Maintain temperature with cold packs placed in the groin, axillae, and on the chest and sides of neck.
 - Discontinue any cold saline infusion.
- If pre-transport or inter-transport temperature is greater than 34° C:
 - Continue cooling with cold packs placed in the groin, axillae, and on the chest and sides of neck.
 - Continue or initiate cold saline infusion, initially chilled and maintained at approximately 4° C, at 30 mL / kg over 30 minutes.
- Core temperature should be monitored if possible for transport times longer than 20 minutes.
- Patients should be handled gently (due to risk of arrhythmias).
- ALS IFT crews will not discontinue PAIH unless ordered to do so by **MEDICAL CONTROL**.
- If patient temperature is less than 31° C, contact **MEDICAL CONTROL** and utilize any external warming devices (blankets, etc.) to actively rewarm patient until the temperature is greater than 31° C.
 - If ordered by **MEDICAL CONTROL** and available, consider infusion of 250 mL IV boluses of warmed normal saline solution, until the temperature is greater than 31° C.
- If hemodynamically significant dysrhythmias or bradycardia of any type develop, or if the patient develops significant bleeding, PAIH should be stopped, **MEDICAL CONTROL** contacted, and active rewarming pursued.

PART 3.5 – PREGNANCY RELATED

- Patients who are in labor with concern for imminent delivery must be accompanied by sending facility staff.
- In high-risk situations, a physician / registered nurse will accompany the patient for transport.
- If any confusion arises regarding the need for additional OB staff **MEDICAL CONTROL** will be contacted and the **MEDICAL CONTROL** physician and **SENDING PHYSICIAN** should be in direct communication.
- In addition to the documentation standards listed in the General ALS IFT Care Guidelines, when transporting an obstetrical patient, the following should be documented:
 - The presence of a fetal heart rate before and after transfer
 - Estimated date of confinement, maternal history of any complications
 - Condition of membranes, dilation
 - Gravida / Para
 - Timing and nature of contractions
 - Fetal Position
- Patients should be transported in a left-lateral position or sitting upright, if possible.
- Document that the fetal heart rate was evaluated prior to transport and upon arrival.
- If patient should develop eclamptic seizures:
 - After assessing airway, breathing, and applying high-flow oxygen:
 - Lorazepam, 2 mg IV every 2 minutes up to 0.1 mg/kg, **or** Diazepam, 5 – 10 mg IV
 - **MEDICAL CONTROL** can authorize administration of Midazolam and administration of magnesium sulfate (4 g over 3 minutes) for seizures.
- MEDICAL CONTROL** can authorize administration of Midazolam and administration of magnesium sulfate (1 - 4 g over 3 minutes) for seizure activity.

PART 3.6 – ST-SEGMENT ELEVATION MYOCARDIAL INFARCTION (STEMI)

- Paramedics should be familiar with the care and treatment the patient has received.
- Consider discontinuing or avoiding all medication infusions (except for basic IV fluids) to expedite transfer.
- Receiving facility should be contacted to ensure rapid transfer to cardiac cath lab.
- Patients should receive appropriate supplemental oxygen therapy (minimum of 4 L/min via nasal cannula)
- All other interventions per state-wide treatment protocol, if not already administered:
 - Aspirin, 325 mg PO
- If patient continues to experience chest discomfort:
 - Nitroglycerine (if systolic blood pressure is greater than 100 mm Hg), 0.4 mg SL tablet or spray; may be repeated in 5 minute intervals for a total of three (3) doses
 - Morphine, 2 – 4 mg slow IV push; **or**,
 - Fentanyl, 1 mcg / kg slow IV push, to a maximum of 150 mcg

PART 4.1 – GENERAL GUIDELINES FOR MEDICATION ADMINISTRATION

- ❑ The transport paramedic must be familiar or become familiar through consultation (i.e., with a drug reference or discussion with hospital staff) on the following attributes of each drug the patient has received prior to and will receive during transport:
 - The type and name of medication being administered.
 - The indication and contraindications for administration of the medication.
 - The correct dose, rate, and mixture of medication.
 - Any titration indications or instructions.
 - Any specific medical control instructions.
 - Any patient-specific information
 - Any adverse effects of the medication being administered.
 - The seven rights of medication administration should always be considered, even when transporting patients between facilities.
 - ✓ Right patient, drug, dose, route, time, outcome, documentation

- ❑ Paramedics may not accept any medications from the sending facility for the purposes of bolus administration during transport.

PART 4.2 – APPROVED MEDICATIONS AND MEDICATION CLASSES

Any of the following medications or medication classes, not currently part of the EMT Paramedic Statewide Treatment Protocols, may be maintained if initiated at the sending facility, and can only be titrated through specific IFT protocols **and** by on-line **MEDICAL CONTROL**.

- Aminophylline
- Analgesics
- Anticonvulsants
- Antidysrhythmics
- Antihypertensive agents
- Anti-infectives (e.g., antibiotics, anti-sepsis)
- Benzodiazepines
- Blood products
- Chemotherapeutic agents
- Electrolyte infusions
 - ✓ Potassium, limited to 10 mEq / hour
 - ✓ Magnesium, maintenance infusion limited to 2 g / hour
- Glycoprotein IIb / IIIa inhibitors
- Heparin
- Insulin infusions
- Intravenous steroids
- Mannitol infusions
- Octreotide
- Paralytics
- Parenteral nutrition
- Sedatives
- Standard IV infusion fluids (including 10% Dextrose)
- Thrombolytic agents
- Vasodilators (including all forms of Nitroglycerin)
- Vasopressors

PART 4.3 – MEDICATIONS REQUIRING THE USE OF AN IV PUMP

The following medications / types of medications must be administered by IV pump:

- Anticoagulant
- Anticonvulsants
- Antidysrhythmics
- Antihypertensives
- Electrolyte Solutions
- Insulin
- Paralytics
- Sedatives
- Thrombolytics
- TPN
- Vasodilators
- Vasopressors

PART 4.4 – BLOOD AND / OR BLOOD PRODUCT ADMINISTRATION

- Heating devices, automatic and rapid infusers are prohibited for ALS IFT use.
- Infusion / bloodbank documentation should be transported with the patient.
- Paramedics will not initiate a blood product infusion.
- At least one additional IV line should be in place.
- Paramedic will not administer any medications through an IV line which is being used to infuse blood or a blood product.
- Ensure the blood and / or blood products are infusing at the prescribed rate.
- Monitor and record the patient's vital signs every 5 – 10 minutes.
- If any signs and symptoms of transfusion reaction, proceed immediately to the TRANSFUSION REACTION PROTOCOL (Part 3.2)**
- Blood products should be infusing for at least 20 minutes prior to departure, to reduce the risk of transfusion reaction.**
 - ✓ The only exception to this is for administration of fresh frozen plasma (FFP) for patients suffering life-threatening intracranial bleeding
- When the transfusion has finished:
 - ✓ Record transfusion end-time and post-infusion vital signs.
 - ✓ Disconnect infusion set tubing from primary line.
 - ✓ Flush primary line with normal saline only.
 - ✓ Place any used supplies into a clean biohazard marked container or bag.
 - ✓ Deliver all empty transfusion bags and tubing to the receiving facility with the patient.

PART 5.1 – MECHANICAL VENTILATION

- All artificially ventilated patients must be transferred on a ventilator.
- All ventilators must be able to meet the demands of the patient's condition, taking into consideration all settings and features described or stipulated by the sending facility and / or physician.
- Ventilators may not be full control mode only and must be capable of meeting the patient's ventilatory needs.
- Unless the transfer is time sensitive in nature (e.g., STEMI, aortic dissection, acute CVA, unstable trauma, etc.), the following requirements apply to ventilator use and / or adjustment:
 - Patients must be observed, by the sending facility, for a minimum of 20 minutes after any adjustment in ventilator settings.
 - Patients should be on the transport ventilator for 20 minutes prior to departure.
- On-line **MEDICAL CONTROL** is required for any instance when adjustment of the ventilator settings is needed.

PART 5.2 – INTRAVENOUS PUMPS

Paramedics who operate at the ALS IFT level are expected to have a thorough understanding of the functions and operations of the infusion pump they will utilize (whether property of the ambulance service or sending facility).

Paramedics are expected to not only control the basic functions of the pump, but also be able to dynamically troubleshoot pump issues. Prior to transport, paramedics must be proficient at the following:

- How to turn the pump on and off.
- How to load and safely eject the administration set into pump.
- The importance of having spare tubing.
- How to suspend pump operation.
- How to adjust the infusion rate, if necessary.
- How to clear air bubbles from the tubing.
- How to troubleshoot problems (e.g., occlusion alarms).
- How the specific service addresses low battery or power issues.

It is strongly recommended that paramedics be trained and practiced on the infusion pump they will be using in the field.

PART 5.3 – PLEURAL CHEST TUBE MONITORING

- Obtain and document the indication for placement of the pleural chest tube.
- Ensure that the chest tube is secured to the patient, and that the drainage system remains in an upright position and below the level of the patient's chest at all times.
- Regularly evaluate lung sounds and vital signs.
 - Signs and symptoms of a tension pneumothorax include: Dyspnea, tachypnea, decreased / absent lung sounds on affected side, hypotension, tachycardia, jugular venous distention, tracheal deviation (late sign)
- Tubes and connections should be evaluated following any movement of the patient to ensure leak-proof operation and chest tube patency.
- Check the following initially and after moving the patient:
 - Ensure the dressing remains dry and occlusive.
 - Ensure there are no kinks or dependent loops (e.g., a loop or turn in the tubing that forces the drainage to move against gravity to reach the collection chamber) in the tubing.
 - Amount of water in the water seal chamber; if the water level appears low ask a staff member if it requires refilling prior to departure.
- Monitor the following items after routine assessment of patient's vital signs:
 - Drainage (document the appearance and amount of fluid, at the start and at the conclusion of transport)
 - Bubbling in the water seal chamber
 - Gentle rise and fall of the water level, which corresponds with the patient's respirations is called "tidalling" and indicates that the system is functioning properly.
- Troubleshooting / problems
 - ✓ **Abnormal bubbling in the water seal chamber**

- Remember, gentle rise and fall of the water level, which corresponds with the patient's respirations is called "tidalling" and indicates that the system is functioning properly.
 - Continuous air bubbling confirms a constant air leak from a tube connection or from the patient's chest (e.g., unresolved pneumothorax).
 - Intermittent bubbling confirms an intermittent air leak from the patient's chest.
 - No air bubbling confirms no air leak from the patient's chest and no air leak from a tube connection.
- ✓ **If the entire chest tube is removed from the chest:** Cover with a three-sided dressing and contact **MEDICAL CONTROL**.
- ✓ **If the chest drainage system tips over and spills:** Contact **MEDICAL CONTROL**; you may be instructed to clamp tube.
- ✓ **If the chest drainage system is crushed or broken open, or the chest drain becomes detached from the chest tube:** Contact **MEDICAL CONTROL** immediately, do not reconnect; you may be instructed to place the end of the chest tube in a bottle of sterile water to create a seal.