Tier I (Expanded Scope) Providers may transport patients under the following situations. Any situation above the level of the Expanded Scope level requires a critical care transport team or the appropriate hospital staff to accompany the patient.

Expanded Scope Paramedics may transport the following medications:

- Heparin Sodium
- Nitroglycerin
- Dopamine
- IV Fluids with Potassium Chloride (KCl) Added
- Amiodarone
- Cardizem
- Antibiotics
- tPA
- Levophed
- Protonix
- Narcan
- Dobutamine
- N-Acetylcysteine
- Blood Products
- Multivitamin Banana Bag
- Octreotide

Expanded Scope Paramedics may also transport patients who have chest tubes or are on a ventilator as long as the patient has been on the particular therapy greater than 24 hours.

Only providers who have completed additional system training are authorized to perform these protocols. The protocol is only designed for patients who are being transferred from one medical facility to another. A medical command physician must be contacted prior to the EMS crew taking transfer of care of the patient if any of the following conditions apply:

- Patient in hypotensive at the time of transfer.
- An acute deterioration or change in the patient's status is noted.
- Medications ordered are outside of the concentrations or infusion rates that are permitted by the current prehospital treatment protocols.
- The prehospital provider has any concern that the provider's experience or abilities, or the available equipment may not meet the patient's anticipated needs during the transport

Heparin Sodium

CLASS:
Anticoagulant

ACTION:
Functions as an anticoagulant by accelerating neutralization of activated clotting factors, hence inhibiting the clotting of blood and the formation of fibrin clots.

INDICATIONS:
- Concurrent usage with administration of TPA in the acute MI patient.
- Treatment of pulmonary embolism and atrial fibrilliation with embolization.
- Treatment of peripheral arterial embolism.
- Treatment of venous thrombi and its extension.
- Prevention of re-thrombosis or re-occlusion during MI after thrombolytic therapy.

CONTRAINDICATIONS:
Absolute:
- Severe thrombocytopenia
- Uncontrolled active bleeding (except when known to be from DIC [disseminated intravascular coagulation])
- Sensitivity to Heparin

Relative:
- Any disease where risk of hemorrhage may be increased.
- Aneurysm
- Severe hypertension
- Diverticulitis or ulcerative colitis
- Severe hepatic disease or renal disease
- Sub-acute bacterial endocarditis
- Following major surgery or lumbar puncture (spinal tap)

COMPLICATIONS/ADVERSE REACTIONS:
- Local site irritation
- Hypersensitivity
- Anaphylactic reaction
- Adrenal hemorrhage

PRECAUTIONS:
Use with caution in the following patients:

- Pregnant patients
- Alcoholics (due to decreased hepatic function).
- Elderly (due to decreased hepatic & renal function and increased injury capability.
- Avoid IM injections or other procedures that may cause bleeding.

- Move patients gently to avoid bruising or bleeding.

SIDE EFFECTS:
- Fever
- Bruising
- Oozing of blood

EQUIPMENT:
- Infusion Pump

HOW SUPPLIED:
- 25,000 units in 500 mL 0.45% NS (50u/mL)
- 25,000 units in 500mL D5W (50u/mL)
- 25 ,000 units in 250mL D5W (100u/mL)
- 1,000 units in 500mL NS (2u/mL)

DOSE:
- 5,000 units (loading dose)
- Maintenance infusion is based on PTT results but is usually around 1,000 units/hr (dose will be determined by transferring facility)

STANDING ORDERS:
1. Routine ALS Care
2. Verify initial dose and infusion rate as well as total time at the transferring facility prior to departure.
3. Verify lab values (platelet count, coagulation studies) prior to departure (if available).
4. Monitor patient closely en route.
5. If uncontrolled bleeding or allergic reaction develops, immediately discontinue the infusion, provide necessary treatment and contact Medical Control.
6. Any change in rate/dosage of Heparin during interfacility transfer requires Medical Control order.
7. If perceived life threatening reaction, infusion may be stopped while contacting Medical Control.

Nitroglycerin Infusion

CLASS:

Nitrate

ACTION:

- Vasodilator and vascular smooth muscle relaxant.
- Reduces myocardial oxygen consumption, preload & afterload.
- Metabolized by the liver.
- Excreted in urine.
- Half-life of 1-4 minutes.
- IV onset of action -immediate; duration -variable

INDICATIONS:

- Unstable angina pectoris if hemodynamically stable.
- Congestive heart failure (CHF) in settings of acute MI that are hemodynamically stable.
- Hypertensive emergencies

CONTRAINDICATIONS:

- Sensitivity to nitrates
- Increased ICP (e.g. head trauma, hemorrhagic stroke or other cerebral hemorrhage)
- Uncorrected hypovolemia
- Use of erectile dysfunction medication in the past 48 hours

COMPLICATIONS/ADVERSE REACTIONS/SIDE EFFECTS:

- Hypotension, especially postural (from vasodilation)
- Dizziness/syncope (from hypotension)
- Pallor/sweating (from hypotension)
- Temporary pulsating headache (from vasodilation)
- Nausea/vomiting
- Tachycardia (in response to hypotension)
- Paradoxical bradycardia (rare)
- Rash or anaphylaxis

PRECAUTIONS:

Use with caution in the following patients:

- Pregnant or lactating patients
- Hepatic or renal disease
- Pericarditis
- Postural hypotension

EQUIPMENT:

- Infusion Pump

HOW SUPPLIED:

- 25mg in 250mL D5W
- 50mg in 250mL D5W

Note: Nitroglycerin infusions MUST be in a glass bottle with polyethylene tubing.

DOSE:

- 5-50mcg/minute

STANDING ORDERS:

1. Routine ALS Care
2. Verify concentration, dose, infusion rate, total time, and vital sign parameters at the transferring facility prior to departure.
3. Nitroglycerin infusion should have its own IV site. No IV push drugs can be administered through this line. If absolutely necessary, NTG is compatible with Heparin (and Lidocaine).
4. Monitor patient closely en route and repeat vital signs every 15 minutes.
5. Titrate NTG drip to effect (patient's pain relief) by increasing in 10mcg increments every 3-5 minutes until a response is noted.
6. Be alert for developing hypotension. Titrate down in 10mcg increments for hypotension. Monitor vital signs every 3-5 minutes after an increase or decrease in dose.
7. Notify Medical Control in the following circumstances
    - Chest pain re-occurs en route
    - Vital signs deviate from the predetermined parameters set forth by the transferring hospital
        - Any titration of the NTG drip (up or down)
8. Maximum infusion of NTG not to exceed 50mcg/minute
9. If perceived life threatening reaction, infusion may be stopped while contacting Medical Control.

Dopamine Infusion

CLASS:
Sympathomimetic

ACTION:
Alpha-and beta-adrenergic agonist, resulting in increased cardiac contractility and myocardial workload as well as peripheral vasoconstriction (both venous & arterial).

INDICATIONS:
- Correction of hemodynamic imbalance in hypoperfusion syndromes other than volume deficit.
- Cardiac dysfunction due to AMI.
- Cardiac dysfunction due to CHF.
- Poor perfusion due to sepsis.
- Neurologically induced vasodilation (neurogenic shock)
- Renal failure

CONTRAINDICATIONS:
- Uncontrolled tachycardia
- Ventricular irritability
- Hypertension
- Hypoperfusion from volume deficit.

COMPLICATIONS/ADVERSE REACTIONS/SIDE EFFECTS:
- Tachycardia
- Hypertension
- Ventricular irritability
- Angina
- Anxiety
- Decreased peripheral perfusion
- Tissue necrosis with infiltration of IV line

PRECAUTIONS:
Use with caution in the following patients:
- Children
- Patients with occlusive vascular disease (or other types of peripheral vascular insufficiency).

EQUIPMENT:
- Infusion Pump

HOW SUPPLIED:

- 400mg in 250mL D5W
- 800mg in 250 mL D5W

DOSE:

- Dopaminergic (renal) dose: 2-5mcg/kg/min
- Beta agonist (cardiac) dose: 5-15mcg/kg/min
- Alpha agonist (vasopressor) dose: >15mcg/kg/min

STANDING ORDERS:

1. Routine ALS Care
2. Verify patient's weight (in kilograms)
3. Verify concentration, dose, infusion rate, total time, and vital sign parameters at the transferring facility prior to departure.
4. Incompatible with sodium bicarbonate. No IV push drugs can be administered through this line. Monitor patient closely for rhythm changes en route and repeat vital signs every 15 minutes.
5. Monitor urine output (should be at least 25mL/hr).
6. Notify Medical Control if complications arise.
7. Maximum infusion of Dopamine not to exceed 50mcg/kg/minute.
8. If perceived life threatening reaction, infusion may be stopped while contacting Medical Control.

IV Fluids with Potassium Chloride (KCl) Added

CLASS:
Electrolyte

ACTION:
Participates in several physiological processes in the body including the transmission of nerve impulses, the maintenance of normal renal function & intracellular tonicity and the contraction of skeletal, cardiac & smooth muscle.

INDICATION:
- Hypokalemia

CONTRAINDICATION:
- Hyperkalemia

COMPLICATIONS/ADVERSE REACTIONS:
- Burning along the vein of infusion
- Local site irritation
- Lower extremity weakness

PRECAUTIONS:
- Alkalosis/acidosis (serum potassium levels may not represent total body potassium)
- Acidosis (risk of hyperkalemia)
- Burn patients (risk of hyperkalemia due to extensive tissue breakdown)
- Concomitant use of ACE inhibitors (inhibits aldosterone production resulting in potassium retention)
- Concomitant use of potassium-sparing diuretics (risk of hyperkalemia)
- Acute dehydration (risk of hyperkalemia)
- Chronic renal failure (risk of hyperkalemia)
- Patients taking Digoxin or suspected of having Digoxin toxicity.

SIDE EFFECTS:
- Abdominal pain
- Nausea/vomiting
- EKG changes associated with hyperkalemia:
    - Tall, tented (peaked) T waves
    - Depressed ST segments
    - Prolonged PR intervals
    - Flattened P waves
    - Prolonged QRS & QT intervals
    - Heart block
    - Bigeminy
    - V-fib/cardiac arrest

EQUIPMENT:

- Infusion Pump

HOW SUPPLIED:

- Potassium chloride (KCl) should be diluted in a 500 mL bag of Normal Saline (NS).
- KCI concentrations may not exceed 40 mEq in 500 mL NS.

DOSE:

- Maximum dose of 10 mEq/hr
- KCI infusion must be initiated at the transferring hospital and can be run through either a central or peripheral line.

STANDING ORDERS:

1. Routine ALS Care
2. Verify concentration, dose, infusion rate, total time, and vital sign parameters at the transferring facility prior to departure.
3. Verify lab values (serum electrolytes, BUN & creatinine) prior to departure (if available).
4. Incompatible with Phenergan (promethazine), Sodium Bicarbonate, Sodium Nitroprusside and Atropine.
5. Assess IV insertion site for any redness, swelling or tenderness. If any of these are present, stop the infusion, discontinue IV. Establish a new IV site and restart infusion. Notify the receiving hospital of the area of the previous IV site and reason for discontinuing the original IV.
6. Monitor patient closely en route. If signs & symptoms of hyperkalemia occur, stop the infusion and contact **Medical Control**.
7. Monitor urinary output (long-distance transports) and contact **Medical Control** if urinary output is < 30mLlhr for two (2) consecutive hours.
8. Any change in rate/dosage of KCI during Interfacility transfer requires **Medical Control Order**.

Amiodarone IV Infusion

CLASS:
Class III antiarrythmic

ACTION:
Prolongs the duration of action potential and effective refractory period. Noncompetitive alpha and Beta adrenergic inhibition. It increases the PR and QT intervals and decreases sinus rate. Also effective for atrial arrhythmias in patients with impaired left ventricular function when digoxin has proven ineffective.

INDICATION:
- Treatment and prophylaxis of frequently recurring ventricular fibrillation and hemodynamically unstable ventricular tachycardia.

CONTRAINDICATION:
- Known hypersensitivity.
- Cardiogenic shock.
- Marked Sinus Bradycardia and 2nd and 3rd degree heart block without functioning pacemaker.
- Severe liver disease.
- Hypotension.

COMPLICATIONS/ADVERSE REACTIONS:

Cardiovascular
- Vasodilation and hypotension
- Torsades de Pointes
- Sinus arrest
- Bradycardia
- CHF
- Prolonged QT interval
- Negative inotropic effects

Pulmonary
- Pulmonary toxicity
- Progressive dyspnea
- Fatigue
- Cough
- Pleuritic pain
- Fever
- Pulmonary edema

PRECAUTIONS:

- Use with caution in renal failure patients.
- Incompatible with Heparin Sodium

EQUIPMENT:

- Infusion pump

HOW SUPPLIED:

- 150mg/3 mL
- 150mg/ 100 mL D5W
- 360 mg/l00 mL D5W

DOSE:

- Loading dose of 150 mg or 300 mg infusion to be completed at transferring facility.
- Slow infusion of 360 mg over 6 hours at 1 mg/min.
- Maintenance infusion of 540 mg over 18 hours at 0.5 mg/min.

STANDING ORDERS:

1. Routine ALS Care.
2. Verify concentration, dose, infusion rate, total time, and vital sign parameters at the transferring facility prior to departure.
3. Verify Potassium, Magnesium and liver function labs, if available.
4. Monitor patient closely en route.
5. Notify Medical Control if heart rate less than 60 or systolic BP less than 90.
6. Consider IV bolus if hypotension occurs.
7. Any change in rate/dosage of Amiodarone during interfacility transfer requires **Medical Control Order.**
8. If perceived life threatening reaction, infusion may be stopped while contacting Medical Control.

Cardizem IV Infusion

CLASS:
Calcium Channel Blocker

ACTION:
Inhibits calcium ion influx across the cell membrane in cardiac and vascular smooth muscle. Produces relaxation of coronary vascular smooth muscle and dilates coronary arteries. Slows SA/AV node conduction and dilates peripheral arteries.

INDICATION:
- Atrial fibrillation with rapid ventricular response
- Atrial Flutter
- PSVT
- Chronic unstable angina pectoris

CONTRAINDICATION:
- 2nd or 3rd degree heart bock
- Cardiogenic shock
- Sick Sinus Syndrome
- Hypotension of 90mmHg Systolic
- Wolff-Parkinson-White Syndrome

COMPLICATIONS/ADVERSE REACTIONS/SIDE EFFECTS:

Cardiovascular
- Hypotension
- CHF
- Ventricular or atrial arrhythmias
- Chest pain
- Junctional or AV dissociation
- Facial Flushing

Central Nervous System
- Dizziness
- Parasthesias
- Headache
- Weakness
- Visual disturbance

Dermatologic
- Injection site reaction (itching, burning)
- Sweating

Gastrointestinal
- Constipation
- Nausea
- Vomiting
- Dry Mouth

EQUIPMENT:
- Infusion pump

HOW SUPPLIED:
- 25mg/5 mL
- 100mg/100mL NS
- 100mg/100mL D5W

DOSE:
- 0.25mg/kg IVP over 2 minutes with second dose (if no response after fifteen minutes) of 0.35 mg/kg over 2 minutes to be given at transferring facility.
- 5-15 mg/hr (dose will be determined by transferring facility)

STANDING ORDERS:
1. Routine ALS Care.
2. Verify concentration, dose, infusion rate, total time, and vital sign parameters at the transferring facility prior to departure.
3. Monitor patient closely en route.
4. Notify Medical Control if heart rate greater than 150 or persistently less than 80 or systolic BP less than 90.
5. Consider IV bolus if hypotension occurs.
6. Any change in rate/dosage of Cardizem during interfacility transfer requires **Medical Control Order.**
7. If perceived life threatening reaction, infusion may be stopped while contacting Medical Control.

Antibiotic Infusions

CLASS:
Antibiotic

ACTION:
Treatment for known infection. Prophylactic measure for patient who may undergo surgical procedure or who has had recent exposure that indicates likelihood of resulting infection.

INDICATION:
- Pre-existing diagnosed infection or suspected infection.
- Exposure that creates likelihood of resulting infection.

CONTRAINDICATION:
- Known allergy to the medication

COMPLICATIONS/ADVERSE REACTIONS/SIDE EFFECTS:
- Allergic reactions
- Ototoxicity
- Nephrotoxicity (aminoglycocides)
- Localized reaction to infusion: redness/ burning at site of infusion

PRECAUTIONS:
- Speed of infusion

HOW SUPPLIED:
- Varies by antibiotic

DOSE:
- Dependent on the specific antibiotic.

STANDING ORDERS:
1. Routine ALS Care.
2. Antibiotics need to be started 15 minutes or more before the start of the transport.
3. Verify concentration, dose, infusion rate, total time, and vital sign parameters at the transferring facility prior to departure.
4. Monitor patient closely en route.
5. Notify Medical Control if signs and symptoms of shock or allergic reaction.
6. Follow Anaphylaxis Protocol if needed for signs of allergic reaction and! or shock.
7. If infusion is completed during transport, antibiotics should be discontinued and line kept open by infusing 0.9% Normal Saline at TKO rate.
8. Consider IV bolus if hypotension occurs.
9. Any change in rate/dosage of antibiotics during Interfacility transfer requires **Medical Control Order.**

10. If perceived life threatening reaction, infusion may be stopped while contacting Medical Control.

tPA Infusions Activase®, alteplase

CLASS:
Thrombolytic

ACTION:
Dissolve clot in treatment of ischemic stroke.

INDICATION:
- Ischemic stroke diagnosed by CT.

CONTRAINDICATION:
- Nasogastric Tube
- Evidence/suspicion of cerebral hemorrhage
- Intracranial or intraspinal surgery, serious head trauma or previous stroke within last 3 months
- History of intracranial hemorrhage.
- Uncontrolled hypertension (> 185mmHg Systolic, > 110 mmHg Diastolic)
- Seizure at the onset of stroke.
- Active internal bleeding.
- Intracranial neoplasm, arteriovenous malformation, or aneurysm.
- History of Pradaxa use.
- Known bleeding diathesis including but not limited to:
    - Current use of oral anticoagulants or an International Normalized Ratio (JNR) >1.7 or a prothrombin time (PT) > 15 seconds
    - Administration of heparin or Low Molecular Weight Heparin (Lovenox) within 48 hours preceding the onset of stroke and have an elevated partial thromoplastin time (aPTT) at presentation.
    - Platelet count <100,000mm3

COMPLICATIONS/ADVERSE REACTIONS/SIDE EFFECTS:
- Bleeding
- Reperfusion arrhythmias
- Elevated temperature
- Hypotension
- Anaphylactic Reaction

PRECAUTIONS:
- Do not take blood pressure in the arm tPA is infusing in.

EQUIPMENT:
- Infusion Pump

HOW SUPPLIED:

- 100mg/100mL bedside premix for infusion

DOSE:

- Weight based loading dose of 10% of total infusion given over 1 minute to be completed at transferring facility.
- Infusion of 0.9mg/kg to be infused over 60 minutes.

STANDING ORDERS:

1. Routine ALS Care.
2. Verify concentration, dose, infusion rate, total time, and vital sign parameters at the transferring facility prior to departure.
3. Monitor patient closely en route for signs of hypertension and bleeding.
4. If infusion is completed during transport, tPA should be discontinued and line kept open by infusing .9% Normal Saline at TKO rate.
5. Consider IV bolus if hypotension occurs.
6. Any change in rate/dosage of tPA during Interfacility transfer requires **Medical Control Order**.
7. If perceived life threatening reaction, infusion may be stopped while contacting Medical Control.

Levophed

CLASS:
Sympathomimetic

ADDITIONAL NAMES:
Norepinepherine

ACTION:
Alpha adrenergic and some Beta adrenergic agonist to cause peripheral vasoconstriction, increase blood pressure and increase heart rate to lesser degree.

INDICATION:
- Neurogenic shock
- Septic shock
- Hypotension refractory to other sympathomimetics

CONTRAINDICATION:
- Hypotension from hypovolemia

COMPLICATIONS/ADVERSE REACTIONS/SIDE EFFECTS:
- Headache
- Anxiety
- Palpitations
- Hypertension

PRECAUTIONS:
- Alkaline solutions can deactivate.
- Requires constant monitoring of blood pressure.
- Extravasation can cause tissue necrosis.

EQUIPMENT:
- Infusion pump

HOW SUPPLIED:
- 4 mg/ 250 mL (typical)
- 8 mg/ 250 mL (double strength)

DOSE:
- 0.5-30 mcg/ minute. Typical starting dose 0.5-1 mcg/min. Max 20-30 mcg/min.
- 4 mg should be placed in 250 mL of D5W, giving a concentration of 15 mcg/mL.

STANDING ORDERS:
1. Routine ALS Care.

2. Verify concentration, dose, infusion rate, total time, and vital sign parameters at the transferring facility prior to departure.
3. Monitor patient closely en route.
4. Notify Medical Control if heart rate greater than 150 or persistently less than 80 or systolic BP less than 90.
5. Consider IV bolus if hypotension occurs.
6. Any change in rate/dosage of Levophed during interfacility transfer requires **Medical Control Order.**
7. If perceived life threatening reaction, infusion may be stopped while contacting Medical Control.

Protonix

CLASS:
Proton Pump Inhibitor

ADDITIONAL NAMES:
Pantoprazole

ACTION:
Decreases secretion of gastric acid and chronic reflux

INDICATION:
- Patients with Upper GI Bleed

CONTRAINDICATION:
- Allergy to drug or drug class

COMPLICATIONS/ADVERSE REACTIONS:
- Jaundice
- GI upset
- CNS symptoms in elderly

PRECAUTIONS:
- Hypersensitivity to Proton Pump Inhibitor drug class.

SIDE EFFECTS:
- Anaphylaxis
- Rash

EQUIPMENT:
- Infusion Pump

HOW SUPPLIED:
- 40 mg/50 mL
- 80 mg/100 mL

DOSE:
- Bolus of 80 mg over 5 minutes given prior to infusion.
- IV Infusion of 8 mg/hour.

STANDING ORDERS:

1. Routine ALS Care.
2. Verify concentration, dose, infusion rate, total time, and vital sign parameters at the transferring facility prior to departure.
3. Monitor patient closely en route.
4. Notify Medical Control if heart rate greater than 150 or persistently less than 80 or B/P less than 90.
5. Consider IV bolus if hypotension occurs.
6. Any change in rate/dosage of Protonix during Interfacility transfer requires **Medical Control Order.**
7. If perceived life threatening reaction, infusion may be stopped while contacting Medical Control.

Narcan

CLASS:
Narcotic Antagonist

ADDITIONAL NAMES:
Naloxone

ACTION:
Reverses the effects of narcotics.

INDICATION:
Narcotic overdoses
- Codeine
- Demerol
- Dilaudid
- Fentanyl
- Heroin
- Lortab
- Methadone
- Morphine
- Paregoric
- Percodan
- Tylox
- Vicodin

Non-Narcotic overdoses from
- Darvon
- Nubain
- Stadol
- Talwin
- Alcohol
- To rule out possible overdose of unknown origin.

CONTRAINDICATION:
- None

COMPLICATIONS/ADVERSE REACTIONS/SIDE EFFECTS:
- Use with caution for patients with long term drug use and/ or prescription opiod use.
- Allergic reaction
- Anaphylaxis

PRECAUTIONS:
- Be alert for patient reaction to medication.

EQUIPMENT:
- Infusion Pump

HOW SUPPLIED:
- 2mg/500mL
- 4mg/250mL

DOSE:
- Typical infusion of 0.5mg/hour.

STANDING ORDERS:
1. Routine ALS Care
2. Verify concentration, dose, infusion rate, total time, and vital sign parameters at the transferring facility prior to departure.
3. Monitor patient closely en route.
4. Notify Medical Control if heart rate greater than 150 or persistently less than 80 or systolic BP less than 90.
5. Consider IV bolus if hypotension occurs.
6. Any change in rate/dosage of Narcan during Interfacility transfer requires **Medical Control Order.**
7. If perceived life threatening reaction, infusion may be stopped while contacting Medical Control.

Dobutamine

CLASS:
- Sympathomimetic

ADDITIONAL NAMES:
- Dobutex

ACTION:
- Increases cardiac contractility.
- Some chronotropic activity.

INDICATION:
1. Short term management of CHF
2. Decreased cardiac output
3. Cardiogenic shock

CONTRAINDICATION:
- Should only be used on patients with adequate heart rate
- Tachydysrhythmias
- Hypertrophic subaortic stenosis

COMPLICATIONS/ADVERSE REACTIONS/SIDE EFFECTS:
1. Infusion site reaction
2. Increased heart rate
3. Palpitations
4. Dyspnea
5. Hypokalemia

PRECAUTIONS:
1. Ventricular irritability
2. Use with caution in myocardial infarction
3. Can be deactivated by alkaline solutions

EQUIPMENT:
- Infusion Pump

HOW SUPPLIED:
- 250 mg/250 mL

DOSE:
- 2.5-20 mcg/kg/min
- Reduce does by 5mcg/kg/min in the event of tachydysrhythmias

STANDING ORDERS:

1. Routine ALS Care.
2. Verify concentration, dose, infusion rate, total time, and vital sign parameters at the transferring facility prior to departure.
3. Monitor patient closely en route.
4. Notify Medical Control if heart rate greater than 150 or persistently less than 80 or systolic BP less than 90.
5. Consider IV bolus if hypotension occurs.
6. Any change in rate/dosage of Dobutamine during Interfacility transfer requires **Medical Control Order.**
7. If perceived life threatening reaction, infusion may be stopped while contacting Medical Control.

N-Acetlycysteine

CLASS:
- Antidote

ADDITIONAL NAMES:
- NAC
- Acetadote
- Acetylcysteine 20%

ACTION:
Protects the liver by maintaining or restoring glutathione levels or by acting as an alternate substrate for conjunction with, and therefore detoxification of, the acetaminophen reactive metabolite.

INDICATION:
- Acetaminophen toxicity
- Acute liver failure

CONTRAINDICATION:
- Sensitivity to acetylcysteine

COMPLICATIONS/ADVERSE REACTIONS:
- Anaphylaxis
- Bronchospasm
- Rash
- Nausea
- Vomiting

PRECAUTIONS:
- Use with caution in asthma patients

SIDE EFFECTS:
- Tachycardia
- Hypotension
- Vomiting

EQUIPMENT:
- Infusion Pump

HOW SUPPLIED:

- 30 mL vials
- Given as infusion in D5W

DOSE:

- Loading dose: 150 mg/kg in 200 mL over 60 minutes (200 mL/hr).
- Maintenance doses: 50 mg/kg in 500 mL over 4 hours (125 mL/hr), followed by 100mg/kg in 1,000 mL over 16 hours (62.5 mL/hr).

STANDING ORDERS:

1. Routine ALS Care.
2. Verify concentration, dose, infusion rate, total time, and vital sign parameters at the transferring facility prior to departure.
3. Monitor patient closely en route.
4. Notify Medical Control if heart rate greater than 150 or persistently less than 80 or systolic BP less than 90.
5. Consider IV bolus if hypotension occurs.
6. Any change in rate/dosage of N-Acetylcysteine during Interfacility transfer requires **Medical Control Order.**
7. If perceived life threatening reaction, infusion may be stopped while contacting Medical Control.

Blood Products

CLASS:
- Blood Components

ADDITIONAL NAMES:
- FFP
- PRBCs

ACTION:
- Replace cells (fresh frozen plasma or packed red blood cells) needed by the body.

INDICATION:
- Hemorrhagic shock
- Anticoagulant reversal
- Symptomatic anemia

CONTRAINDICATION:
- Patient refusal

COMPLICATIONS/ADVERSE REACTIONS/SIDE EFFECTS:
- Transfusion reaction. Severe reactions will usually manifest during initial 50cc or less of infusion.
- ABO incompatibility
- Transfusion reaction

PRECAUTIONS:
- Too fast of infusion can produce volume overloaded state.

EQUIPMENT:
- Infusion Pump

HOW SUPPLIED:
- 250-300 mL per unit infusion

DOSE:
- 1 unit
- Rate based on situation

STANDING ORDERS:

1. Blood infusions must be started at least 15 minutes before the transport AND at least 50 CC must be infused before the transport can begin.
2. Routine ALS Care.
3. Verify concentration, dose, infusion rate, total time, and vital sign parameters at the transferring facility prior to departure.
4. Monitor patient closely en route.
5. Temperature must be taken every 15 minutes.
6. Notify Medical Control if heart rate greater than 150 or persistently less than 80 or systolic BP less than 90.
7. Consider IV bolus if hypotension occurs.
8. Any change in rate/dosage of blood products during Interfacility transfer requires **Medical Control Order.**
9. If perceived life threatening reaction, infusion may be stopped while contacting Medical Control.
10. Tubing must be changed every 2 units or after every 4 hours of use. Tubing must be discarded immediately following completion of transfusion.
11. If signs of transfusion reaction, infusion should be stopped and tubing should be removed. Tubing and remaining blood should be transported to destination facility for evaluation. Signs of a transfusion reaction include:
    a. Temperature
    b. Hypertension/Hypotension
    c. Dyspnea
    d. Rash
    e. Itching
    f. Hives

    Treat symptoms based on appropriate protocol.

Thoracostomy Patient Transport

Criteria:

A. Chest tube must be in place > 24 hours prior to transport.
B. Must be either 8 years of age or older or 45 kg or more.
C. Patient transfer must be from licensed facility to another licensed facility.

Exclusion Criteria:

A. Heimlich valve

Procedure:

1. Verify chest tube is securely attached to patient's chest prior to any patient movement by:
    a. Confirming sutures to the skin are intact.
    b. Occlusive dressings attached to thoracostomy site, or secure taping of the chest tube to the chest skin.
    c. Inspect tube for any possible occlusions.
2. Verify the device the tube is connected to for drainage.
3. For a patient on a Pleur-evac
    a. Suction will be maintained during transport as it was at the facility.
    b. Note fluid and blood levels in the drainage and water seal compartments.
    c. Pleur-evac must be maintained at a level lower than the point of insertion on the patient.
4. Chest tubes should be inspected every 15 minutes during transport to insure proper working condition.
5. Consult current patient orders for best patient positioning.
6. If the chest tube is not functioning and a tension pneumothorax is suspected, perform a needle decompression.

Ventilator Transport

Criteria:

A. Advanced airway in place > 24 hours prior via endotracheal intubation or established tracheostomy.
B. Must be either greater than 8 years old or greater than 45 kg.
C. Patient transfer must be from licensed facility to licensed facility.

Exclusion Criteria:

A. Any acute airway case
B. Clinical signs of pneumothorax
C. Compromised cardiopulmonary status.

Procedure:

1. Verify endotracheal tube placement.
2. Attach ventilator to gas source.
3. Set breaths per minute: Range (8-26 BPM). Adjust to achieve optimum total cycle time and maintain desired minute ventilation while maintaining plateau pressure ≤ 30 cm H2O and delta P ≤20 cm H2O
4. Set tidal volume (Vt): 8 mL/kg of ideal body weight, while maintaining above plateau pressures and delta.
5. Set I:E ratio: The I:E ratio should be optimized along with total cycle time to provide optimum mean airway pressure, lung filling, and minimizing air-trapping.
6. Verify ventilator is delivering oxygen adequately.
7. Attach ventilator tubing to patient.
8. Verify patient ventilator status:
    a. Rise and fall of chest.
    b. Equal breath sounds.
    c. Capnography waveform
    d. Pulse oximetry
    e. Updated vital signs
9. Ventilator flow sheets must be completed and attached to medical record.
10. A bag valve mask must be maintained with the patient at all times.