Tucson Medical Center

Base Hospital

Interfacility Transport Agents Protocols

1. **EMS Interfacility Transport Table 5.3**
2. **Protocol Transport Agents Interfacility**
3. **Heparin Work Sheet for Interfacility**

Tucson Medical Center **Base Hospital**

INTERFACILITY TRANSPORT DRUG LIST
Table 5.3

KEY:
IP = Agent shall be administered by infusion pump
SVN = Agent shall be administered by small volume nebulizer
A=Approved agency for transport **ONLY**

AGENT	EMT	PARAMEDIC	No Titration	Rate change w/ medical direction only
Amiodarone **IP**		X	X	
Antibiotics		X	X	
Blood		X	X	
Corticosteroids **IP**		X	X	
Dextrose Drip **IP** (Per hypoglycemia skills)		X		X
Diltiazem **IP**		X	X	
Dopamine HCl **IP**				X
Electrolytes/Crystalloids (Commercial Preparations) **IP**	X	X		X
Epinephrine **IP**		X	X	
Fentanyl **IP**		X	X	
Furosemide (Lasix) **IP A**			X	
H2 Blockers		X	X	
Heparin Na **IP**		X	X	
Insulin **IP A**		X	X	
Integrelin **IP**		X	X	
Levophed **IP A**		X		X
Lidocaine **IP**		X	X	
Magnesium Sulfate **IP**		X		X
Midazolam **IP A**		X		X
Morphine **IP**		X		X
MVI **IP**		X		X
Nitroglycerin IV Solution **IP**		X		X
Pantoprazole		X	X	
Pitocin **IP A**		X		X
Phenobarbital Na **IP**		X	X	
Phenytoin Na **IP**		X	X	
Potassium Salts **IP**		X		X
Procainamide HCl **IP**		X	X	
Propofol **IP A**		X	X	
Racemic Epinephrine **SVN**		X		
Total Parenteral Nutrition, with or without lipids **IP A**		X	X	

Tucson Medical Center Base Hospital

Administer and Monitor Transport Agents Protocol During Interfacility Transport

Protocol

To ensure the patient will receive the most appropriate care possible for their condition with transporting agents per Tucson Medical Center Base Hospital and ADHS rules and regulations.

Requirement

1. Paramedics with specific training and certification to administer and monitor transport agents during interfacility transport per TMC Policy- Table 5.3.
2. Tucson Medical Center (TMC) Base Hospital approves the paramedic who is working for an agency that has administrative medical direction with TMC is approved to transport the agents listed in TMC Table 5.3 with training.
3. Paramedics will follow all policies, protocols and guidelines for interfacility transports.

Guidelines

1. Verify concentration, dosage and vital sign (VS) parameters on all medications. Referring physician must specify the infusion rate within the orders. In addition, verify with receiving Medical Direction (Base Hospital transporting to) or Administrative Medical Direction (TMC Base Hospital).
2. Verify medication is in the correct concentration and on infusion pump as listed above.
   - Right patient, medication, dose, route, time, reason, documentation.
3. Document dose and route of administration at the beginning and end of transport and patient response.
4. Be familiar with the signs, symptoms and treatment of any major adverse drug reactions of medications being used during transport.
5. Infusion rates must remain constant during transport with no regulations of rates being performed by the paramedic, except for discontinuations of the infusion, or as noted in the specific drug profile.
6. All drips will be labeled with concentration in IV bag.
7. Agents (medications) will not be started by a paramedic during transport.
8. Must be familiar with the IV pump for administration.
9. **Do not administer any other drug except the drug that is infusing into existing line. If no another line initiated, start 2nd IV line.**
10. Patients shall be placed on **cardiac monitors** for duration of transport.
11. A non-invasive blood pressure monitor device that will record and print out routine blood pressure reading every fifteen (15) minutes will be utilized. Monitor all other vital signs pertinent to patient's condition with documentation.
12. Reassess patient frequently during transport documenting findings.
13. Contact receiving Medical Direction Authority and/or Administrative Base Hospital Medical Direction contact **criteria during transport:**
    - If pump failure occurs and cannot be corrected, the paramedic is to notify the receiving medical direction authority and/or administrative medical direction authority for direction

Documentation

All Interfacility transports involving IV drips will have documentation, be it electronic or hand written, that will detail the patient's chief complaint, reason for the transfer, historical data related to the current problem, pertinent past medical history, medication list, allergy list, and a timed, chronologic description of patient care, medications, vital signs, and changes in patient status with corresponding response of the paramedic to the changes.

Transport Checklist

1. Check the IV site and document findings.
   - Location, patency and redness etc.
2. Verify that IV fluids and medications running into the same site are compatible. Best practice start 2nd IV line.
3. Verify that there are adequate mediations for length of transport.
4. Follow all other guidelines listed in protocol.
5. Beware why a medication is being given.
6. Physicians orders have to be written with:
   - Name, dose, route of administration, rate of administration

Intravenous Infusion of Amiodarone

1. Must be transported with IV Pump.
2. The following parameters shall apply to all patients with pre-existing Amiodarone infusions.
    - **No titration** of medication will be made during interfacility transport even with orders
    - Must be on cardiac monitor. Monitor VS at least every 15 minutes during interfacility transport and more frequently based on patients condition
3. Amiodarone infusion must be initiated at the transferring hospital.
4. Indications:
    - Management/prophylaxis of life threatening ventricular arrhythmias
    - Control hemodynamically stable V-tach when cardioversion is unsuccessful, Rate control of A-fib/aflutter
5. Dosage:
    - Loading doses to be given at the transferring hospital
    - Maintenance infusion post resuscitation/conversion:
        - 1mg/min IV infusion for 6 hours, then up to 0.5 mg/min for up to 18 hours, maximum daily dose is 2.2 gm
7. Precautions/Comments:
    - Contraindications:
        - Bradycardia, second or third degree block without a pacemaker present, cardiogenic shock, hypotension, pulmonary congestion
    - Adverse reactions:
        - Bradycardia, hypotension, torsades de pointes, N/V, fever, dizziness, abnormal salivation

Intravenous Infusion of Antibiotics

1. The following parameters shall apply to all patients with pre-existing Antibiotic infusions:
    - Monitor for signs and symptoms of an allergic response. If any symptoms are noted, stop infusion and **initiate Dyspnea: Allergic Reaction SO** if reaction is anaphylactic. Notify Medical Direction if this is initiated
    - Allergy/hypersensitivity reactions commonly occur from start to 1 hour after administration of the first dose
2. Indications:
    - Used to treat infectious diseases
3. Dosage:
    - If possible, it is advisable to monitor the patient in the facility for a period of 15 minutes prior to start of transport
    - Infuse IV antibiotics over 30-60 minutes. Aminoglycosides over 60 minutes unless otherwise specified on the referring physician orders, along with receiving Medical Direction Authority
    - Can be set up as a “piggyback” (concurrent administration) or administered on a separate channel
    - If IV antibiotics have finished infusing enroute, and is running on a saline lock, flush or keep line open with NS/LR TKO
4. Precautions/Comments:
    - Complications:
        - Allergic reactions: rash, swelling, nausea, vomiting, diarrhea, chills, fever, laryngeal edema, anaphylaxis. Leukopenia. Ototoxicity, nephrotoxicity (aminoglycosides)
    - Only antibiotics prepared in final dilution by the referring facility should be monitored

Intravenous Infusion of Blood/Blood Products

1. The following parameters shall apply to all patients with blood/blood product infusions:
    - Blood will be infusing a minimum of 30 minutes prior to transport
    - Identify the patient and the blood by checking the patients ID band against the blood/blood product label and the blood/blood product order for the patients name, blood type, unit identifying number and expiration date.
    - Infusion will be through filtered infusion tubing compatible with the mechanical infusion device used
    - The assessment of VS including TEMPERATURE every 30 minutes while blood is infusing and again when transfusion is completed. Vitals must be document.
2. Only infuse with normal saline via blood tubing. Not compatible with any other medications or solutions.
3. Dosage:
    - Adult 1-2 units over 2-4 hours.
    - Pediatric 5-15 mL/kg
    - Paramedics cannot start another unit during transport
4. Precautions and Comments:
    - Instruct patient to report onset of any unusual symptoms that might indicate a transfusion reaction:
        - Chills, dizziness, restlessness, nausea, headache, anxiety
    - Watch for signs of a transfusion reaction:
        - Temperature elevation, rash, cyanosis, facial flushing, sweating, tachycardia, bradycardia, hypotension, distended neck veins
5. If a transfusion reaction is suspected:
    - **Stop transfusion immediately, <u>do not clear tubing</u>, change tubing. Maintain IV with normal saline**
    - **Initiate Dyspnea: Allergic Reaction SO.**
    - Save the remaining blood, bag and tubing
    - Notify receiving Medical Direction Authority about reaction. If inpatient, inquire if the patient should be taken to the emergency department. If unstable, divert to closest facility
    - Treat hypotension with normal saline infusion
    - Monitor and treat other symptoms as needed
6. Documentation will include but not limited to:
    - Type and volume of blood product infused
    - Patient response
    - Any interventions initiated for transfusion reaction
    - Time started and finished, or transferred to receiving unit

Intravenous Infusion of Corticosteroids

1. Must be transported with IV Pump.
2. **No titration** of medication will be made during interfacility transport even with orders
3. Medications:
   - Methylprednisolone
   - Dexamethasone
4. Indications:
   - Acute exacerbation of emphysema, chronic bronchitis or asthma
   - Anaphylaxis
   - Burns
   - Cerebral edema (non-traumatic)
5. Dosage:
   - Adult
     - Methylprednisone: Solumedrol, Depomedrol, Medrol- 125 mg slow IV push
     - Dexamethasone: Decadron 8-24mg slow IVP
6. Precautions/Comments
   - Adverse reactions
     - Hypertension, seizures, hyperglycemia

Intravenous Infusion of Dextrose

1. Must be transported with IV Pump
2. The following parameters shall apply to all patients with pre-existing Dextrose infusions.
   - Must be on cardiac monitor. Monitor VS at least every 30 minutes during interfacility transport and more frequently based on patients' condition
   - Check Blood Glucose prior to leaving emergency department and every (1) hour enroute.
   - If BS falls below 70 follow Hypoglycemia AO. Contact Medical Direction if no improvement.

Intravenous Infusion of Diltiazem

1. Must be transported with IV Pump.
2. The following parameters shall apply to all patients with pre-existing Diltiazem infusions:
   - **No titration** of medication will be made during interfacility transport even with order
   - Monitor vital signs: B/P, HR every 15 minutes with continuous EKG monitoring.
   - Notify receiving Medical Direction Authority if:
     - Heart rate < 110/> 150
     - Systolic BP < 90 or any AV Blocks.
3. Indications:
   - Rapid ventricular rates associated with atrial fibrillation and atrial flutter and for PSVT refractory to adenosine
4. Dosage:
   - IV bolus will be given by referring facility.
   - Maintenance infusion 5.0-15 mg/hr.
   - Standard dilute 100mg (20mg) in NS 80 mL (1mg/mL)
5. Precautions and Comments:
   - Complications\Adverse Reactions:
     - CNS dizziness, paresthesias, headache, weakness, visual disturbance
     - CV: hypotension, facial flushing, junctional or AV dissociation, chest pain, congestive heart failure, ventricular or atrial arrhythmias, edema
     - Dermatologic: injection site reaction (itching, burning), sweating
     - GI: constipation, nausea, vomiting, dry mouth
     - Contraindicated with Acute MI, Cardiogenic shock, Ventricular tachycardia (VT) or wide complex tachycardia of unknown origin, Beta Blocker use

Intravenous Infusion of Dopamine

1. Must be transported with IV Pump.
2. The following parameters shall apply to all patients with pre-existing Dopamine infusions:
   - **May titrate** medication will be made during interfacility transport with Physician order
   - Monitor vital signs: BP, HR every 15 minutes with continuous EKG monitoring.
3. Indications:
   - Symptomatic bradycardia with hypotension
   - Hypotension without hypovolemia
4. Verify concentration and infusion rate prior to leaving referring facility, how supplied:
   - 400 mg in 250 mL D5W yielding a 1600mcg/mL concentration
   - 800 mg in 250 mL D5W yielding a 3200 mcg/mL
   - Maximum infusion is not to exceed 20 mcg/kg/min
   - Dose:
     - Dopaminergic (renal) 2-5 mcg/kg/min
     - Beta agonist (cardiac) 5-15 mcg/kg/min
     - Alpha agonist (vasopressor) ≥ 15 mcg/kg/min
5. Drug interactions:
   - Incompatible in alkaline solutions (sodium bicarbonate)
   - Beta blocker may antagonize effects of dopamine
6. Precautions and Comments:
   - Uncontrolled tachycardia, hypertension, ventricular irritability, angina, anxiety, decreased peripheral perfusion
   - Low doses may cause decrease blood pressure from peripheral dilation
   - Duration of action effects cease almost immediately with stopping drip

Intravenous Infusion of Epinephrine

1. Must be transported with IV Pump.
2. The following parameters shall apply to all patients with pre-existing Epinephrine infusions:
    - **No titration** of medication will be made during interfacility transport even with order
    - Monitor vital signs: BP, HR every 15 minutes with continuous EKG monitoring.
3. Indications:
    - Cardiac arrest
    - Severe bronchospasm, Asthma
    - Bradycardia
    - Hypotension (only unresponsive to other therapy
    - Croup
4. Dosage:
    - Continuous infusion:
    - 1 mg added to 500 mL of NS administered at 1 mcg/min (dose rage 2-10 mcg/min)
    - 5. Precautions and Comments:
        - Usually drips are to be started at 1 mcg/min, and titrated up, at five minute intervals, if needed, to a maximum of 4mcg/min for effect. Peds dosing 0.5-1mcg/kg/min
        - Side effects include precipitation of V- tach and V- fib, coronary ischemia, and significant hypertension
        - Any patient demonstrating increased ventricular ectopy, bursts of V-tach, or V-Fib is to have the drip immediately stopped. Notify receiving Medical Direction Authority
        - Epinephrine is sensitive to light and air; protection from light is recommended
        - Oxidation turns drug pink, then a brown color; solutions should not be used if they are discolored or contain a precipitate

Intravenous Infusion of Fentanyl

1. Must be transported with IV Pump.
2. The following parameters shall apply to all patients with pre-existing Fentanyl drips:
   - **No titration** of medication will be made during interfacility transport even with order
   - Monitor vital signs: BP, HR every 15 minutes with continuous EKG monitoring
   - CNS, respiratory and to a certain extent CV can be reversed by Naloxone. **Use ALS Stabilization AO** for this use
3. Indications:
   - Analgesic
   - Sedation post intubation
4. Dosage:
   - Fentanyl solution for continuous infusion is available as pre-mixed 100 mL bags at concentrations of 10 and 50 mcg/ml.
   - Usually initial dose begins at dose of 25 mcg/hr (1mcg/kg/hr)
   - **DO NOT** exceed 50 mcg in an hour
5. Patients should be regularly monitored for adequate pain relief. Use pain scale before, during and at transfer of patient.
6. Precautions and Comments:
   - Be prepared for airway management
   - Fentanyl should be used with extreme caution in patients with pulmonary disease or in patients with other respiratory insufficiency or hypoxia
   - Adverse Reactions
     - Brady-dysrhythmias, hypotension, respiratory depression, excess sedation, seizures, dizziness, diaphoresis, N/V
     - CNS: CNS depression (dizziness/confusion/sedation), seizures
     - Cardiovascular: bradycardia, vasodilation, edema
     - Respiratory: respiratory depression/dyspnea/apnea
     - Gastrointestinal: constipation, nausea, vomiting

Intravenous Infusion of Eptifibatide (Integrelin)

1. Must be transported with IV Pump.
2. The following parameters shall apply to all patients with pre-existing Glycoprotein Inhibitor infusions:
   - **No titration** of medication will be made during interfacility transport even with order
   - Monitor vital signs: B/P, HR every 15 minutes with continuous EKG monitoring
   - Monitor for signs and symptoms of bleeding
3. Indications:
   - Treatment of acute coronary syndrome, for pts. To be managed medically or those going to the cath lab
4. Dosage:
   - Infusion 2.0 mcg/kg/min
   - In patients with creatinine clearance ≤ 50 mL/min, dose is reduced to 1.0 mcg/kg/min
5. Precautions/Comments:
   - Document of calculation of the ordered infusion rate based on recent patient weight (in kilograms). This is essential to decrease the incidence of major and minor bleeding episodes.
   - Minimizing vascular and other trauma is important in managing platelet aggregation inhibitors. Due to risk procedures to be avoid if possible:
     - Venous punctures, IM injections, etc.
6. Document the following lab values (if available).
   - Blood Urea Nitrogen (BUN)
   - Creatine
   - Hemoglobin
   - Hematocrit
   - Platelet Count
   - Coagulation Studies

Intravenous Infusion of H2 Blockers

Zantac, (ranitidine), Pepcid, (famotidine), Tagamet (cinetodine)

1. Must be transported with IV Pump.
2. The following parameters shall apply to all patients with pre-existing H2 Blocker drips:
   - **No Titration** of medication
   - Infusion rate must remain constant during transport with no regulation of rates being performed by the paramedic, except for the discontinuation of the infusion
3. Indications:
   - Treatment of intractable ulceration or hypersecretory conditions
   - Prevention of upper GI Bleeding
4. Usual dosages:
   - Zantac: 50 mg in 50-100 mL NS to be run 15- 30 minutes
   - Pepcid: 20 mg in 50-100 mL NS infuse over 15-30 minutes
   - Tagamet: 300 mg bolus
5. Precautions and Comments:
   - Complications: Bradycardia with rapid administration
   - Adverse Reactions: Malaise, vertigo, reversible confusion, tachycardia, bradycardia, constipation, nausea, vomiting, rash, muscle cramping

Intravenous Infusion of Heparin

1. Must be transported with IV Pump.
2. The following parameters shall apply to all patients with pre-existing Heparin infusions:
   - Use **Heparin work sheet** and attach with PCR/ePCR
   - Document of calculation of the ordered infusion rate based on recent patient weight (in kilograms)
   - **No titration** of medication will be made during interfacility transport even with orders
3. Indications:
   - Situations where a hypo-coaguable state is required (i.e. post MI, CVA, pulmonary embolism)
4. Dosage:
   - Medication concentration will not exceed 100units/ml of IV fluid (25,000 units/250ml or 50,000 units/500 ml)
   - Maximum hourly dose will **NOT** exceed 1,300 units/hr
   - If patient is on higher hourly dose, contact with the receiving base hospital medical direction and/or administrative base hospital medical direction **prior** to leaving the facility with the following:
     - Current dose patient is receiving
     - If pt. received higher bolus than the maximum, notify base hospital for direction with drip amount
     - If pt. is receiving higher drip rate than the maximum, notify receiving Medical Direction Authority and/or Administrative Medical Direction Authority for direction with drip amount.
     - Use of heparin worksheet attaching to PCR
5. Document the following lab values if available:
   - PT, PTT,INR
6. Precautions and Comments:
   - Skin necrosis can develop at site of injection
   - Monitor for bleeding, bruising, fever, rash, urticaria

Intravenous Infusion of Insulin

1. Must be on IV Pump.
2. The following parameters shall apply to all patients with pre-existing Insulin drips:
    - Verify concentration and infusion rate prior to leaving transferring facility and with receiving facility
    - **Check FSGB prior** to report to Medical Direction Authority and **recheck hourly**, more frequently if patient becomes symptomatic
    - If drip has only been less than 1 hour, monitor 30 minutes for the first hour after drip initiation
    - **No titration** of medication will be made during interfacility transport even with orders
3. Indications:
    - Insulin dependent diabetes mellitus
    - Diabetic Ketoacidosis
4. Dosage
    - Adult: 0.1 unit/kg/hr as continuous infusion
    - Pediatrics: based on patient's size
5. If hypoglycemia occurs **STOP** the infusion and contact Medical Direction Authority.
    - If FSBG falls below 200, contact Medical Direction Authority for orders to continue or discontinue drip (**NO titrations** of infusion even with orders)
    - Be prepared to treat hypoglycemia with D10 if necessary and per Medical Direction Authority
6. Precautions and Comments:
    - Usage: Insulin is a naturally-occurring hormone in the body that causes the uptake of glucose by the cells, decreases blood glucose, and promotes glucose storage. Used in the treatment of Type 1 diabetes, Type 2 diabetes that cannot be controlled by diet or oral agents, and several diabetic ketoacidosis
    - Incompatibilities/drug interactions
        - Potency may be reduced 20-80% by the plastic or glass container or tubing before reaching the patient
        - Beta-blockers may block the s/s of hypoglycemia and delay recovery from hypoglycemia

Intravenous Infusion of Lasix (Furosemide)

1. Must be on IV Pump.
2. The following parameters shall apply to all patients with pre-existing Lasix drips:
    - **No titration** of medication will be made during interfacility transport even with orders
    - Assess serum potassium levels prior to leaving facility. Normal values are serum 3.5-5.0.
3. Common dosage
    - 250 mg of Lasix in 250 cc of NS yielding 1 mg/ml.
    - Maintenance dose: 0.1-0.4 mg/kg/hr not to exceed 4 mg/min.
4. Receiving Medical Direction Authority and/or Administrative Medical Direction Authority contact **criteria during transport:**
    - Notify if B/P drops below 15% of initial baseline
    - Notify any new onset or increase of ventricular ectopy or tachycardia or signs and symptoms of adverse reaction as list below
    - If pump failure occurs and cannot be corrected, the paramedic is to discontinue the heparin infusion and notify the receiving Medical Direction Authority and/or Administrative Medical Direction Authority
5. Precautions and Comments:
    - Complications: Digitalis toxicity, hypokalemia, ventricular ectopy, ototoxicity, electrolye imbalance, potassium and magnesium
    - Adverse Reaction: Hypotension, vertigo, tinnitus, hearing loss, rash, weakness, muscle spasm, photosensitivity, ventricular ectopy

Intravenous Infusion of Levophed (norepinephrine bitartrate)

1. Must be on IV Pump.
2. The following parameters shall apply to all patients with pre-existing Levophed drip:
   - Monitor for tachycardia and hypotension
   - Check BP every 2 minutes until desired MAP or Systolic BP is reached (MAP 55-65 or Systolic 80-100 mmhg) and then every 5-15 minutes thereafter
   - **NEVER** leave patient unattended during infusion
   - **No titration** of medication will be made during interfacility transport even with orders
3. Indications:
   - Blood pressure support with hypotension
   - Treatment of shock
4. Dosage:
   - Adult: 0.5-1 mcg/min initial dose with a usual rage of 2-30 mcg/minute
   - Pediatric patient should be transported with RN/MD. Dosing 0.1 mcg/kg/min up to a max of 1 mcg/kg/minute based on BP management
5. Precautions/Comments
   - Adverse Reactions
     - Dizziness, weakness, headache, mood changed, bradycardia, tachycardia, chest pain, shortness of breath and diaphoresis
     - Contraindications for hypotension secondary to hypovolemia prior to fluid replacement. Profound hypoxia or hypercarbia could cause V-Tach

Intravenous Infusion of Lidocaine

1. Must be on IV Pump for Interfacility transports.
2. The following parameters shall apply to all patients with pre-existing Lidocaine drip:
   - Monitor for hypotension, may cause SA nodal depression or conduction problems
   - Paramedic **may titrate** with physician's orders only. Verify with medical direction authority prior to leaving facility
3. Indications for suppress ectopy, frequent PVCs
4. Dosage for maintenance infusion:
   - 2-4 mg/kg
   - Dose should be decreased for patients with hepatic failure, renal disease, poor perfusion or greater than 70 years of age
5. Discontinue lidocaine if:
   - Confusion or agitation, tinnitus, dizziness, tremors, seizures
6. Precaution/Comments:
   - Use caution in patients with conduction disturbances (second or third degree blocks)

Intravenous Infusion of Midazolam

1. Must be transported with IV Pump.
2. The following parameters shall apply to all patients with pre-existing Midazolam:
    - Regulation of the infusion rate will occur within the parameters as defined by the referring physician and receiving Medical Direction Authority, but **may be titrated** to the individuals response during transport
3. Indications:
    - Anti-convulsion
    - Sedation
4. Receiving Medical Direction Authority or Administrative Medical Direction Authority contact **criteria during transport:**
    - In cases of severe respiratory depression, partial airway obstruction (especially when combined with narcotics), hypertension, hypotension, and excessive sedation the medication infusion will be discontinued and notify the receiving Medical Direction Authority and/or Administrative Medical Direction Authority
5. Precautions and Comments:
    - Dosage reductions are recommended for patients in CHF, septic shock, renal and/or hepatic dysfunction, low serum albumin, pulmonary insufficiency, COPD, or elderly patients
    - Reduce dose by 30% in patients pre-medicated with narcotics and/or CNS depressants

Intravenous Infusion of Magnesium Sulfate

1. Must be transported with IV Pump.
2. The following parameters shall apply to all patients with pre-existing Magnesium Sulfate:
    - Consider transporting patient on their left side
    - Assess and record maternal vital signs, patellar reflex and fetal heart rate prior to transport
    - **No titration** of medication during interfacility transport with physician orders
    - Monitor vital signs every 15 minutes while drug is infusing. Monitor for weakness in extremities (by movement). Watch for signs of respiratory depression and second and third degree heart block
    - Stop infusion if respiratory rate drops below 12bpm
    - Patients should be on oxygen therapy
    - Early indicators of toxicity include: profound thirst, feeling of warmth, sedation, confusion, muscle weakness
3. Indications:
    - Pre-term labor
    - PIH
4. Dosage:
    - Diluted in 4 gm in 100 mL NS with maintenance infusion 1-4 gm/hr
5. Contact receiving Medical Direction Authority for **criteria during transport:**
    - If patient experiences a decreasing respiratory rate or other evidence of respiratory difficulty, discontinue drip, prepare to manage airway, consider calcium gluconate contact the online medical direction authority
    - Decrease the drip rate by half and notify medical direction authority for any of the following:
        - Decrease in systolic pressure of 20mm from baseline
        - Decrease in diastolic pressure of 10mm from baseline
        - Decrease in patella reflex.
        - Change in mental status

Intravenous Infusion of Morphine Sulfate

1. Must be transported with IV Pump.
2. Monitor vital signs every 5 minutes.
3. The following parameters shall apply to all patients with pre-existing Morphine Sulfate drips:
    - Regulation of the infusion rate will occur within the parameters as defined by the referring physician and receiving Medical Direction Authority, but **may be titrated** to the individuals response during transport
    - Monitor pain scale with documentation before during and after transfer of care
4. Indications:
    - Analgesia
    - Pulmonary edema
5. Dosage:
    - 0.8- 10 mg/hr IV infusion is typical, please verify dosing prior to transportation
6. Receiving Medical Direction contact **criteria during transport:**
    - In cases of severe respiratory depression, sedation, confusion, hypotension, bradycardia, nausea and vomiting, the medication infusion will be discontinued and Naloxone, if indicated, may be administered as directed by your Administrative Medical Direction Authority per your unconscious/unresponsive orders. Notify the receiving Medical Direction Authority and/or Administrative Medical Direction Authority

Intravenous Infusion of Multi-Vitamin IV Additive (MVI)

1. Must be transported with IV Pump.
2. The following parameters shall apply to all patients with pre-existing MVI drips:
    - MVI dose must be diluted in a solution of 500-1000 mL of either LR, NR or D5½
    - Know compatibility before administering any IV medications through the IV infusion
    - Access IV insertion site for any redness, swelling or tenderness. If this occurs, STOP infusion and discontinue
3. Precautions/Comments
    - Fainting and dizziness with undiluted drug administration

Intravenous Infusion of Nitroglycerin

1. Must be transported with IV Pump.
2. The following parameters shall apply to all patients with pre-existing Nitroglycerine drip.
   - Regulation of the infusion rate will occur within the parameters as defined by the referring physician and receiving Medical Direction Authority and/or Administrative Medical Direction Authority, but **may be titrated** to the individuals response during transport
   - Patients with hypotension should be administered with caution
   - Brady-dysrhythmias and hypotension usually respond to Trendelenburg position
   - Document drip rate at the beginning of transport and patient's response
3. Indications:
   - Angina
   - MI
   - Congestive heart failure
4. Dosage
   - Usual mixture: Nitroglycerine (50mg/250ml in DW5: 200 mcg/ml)
   - Start at low range 5 mcg/min
   - Increase in increments of 5 mcg/min every 5 minutes
5. Precautions/comments:
   - Hypotension, bradycardia, reflex tachycardia, headache
6. Receiving Medical Direction Authority and/or Administrative Medical Direction Authority contact **criteria during transport:**
   - If systolic blood pressure drops below 100, decrease the nitroglycerine by 5 mcg/min or 3.3 mcg/min and if systolic blood pressure doesn't increase call receiving Medical Direction Authority for direction

Intravenous Infusion of Pantoprazole (Protonix)

1. Must be transported with IV Pump.
2. The following parameters shall apply to all patients with pre-existing Pantoprazole infusions.
    . **No Titration** of medication
    a. Infusion rate must remain constant during transport with no regulation of rates being performed by the paramedic, except for the discontinuation of the infusion
3. Indications:
    - GI bleeding, esophageal varices, bleeding ulcer, stress ulcer prophylaxis
4. Dosage:
    - Continuous infusion: 8 mg/hour IV
    - Usual Infusion 80 mg in 100 ml (concentration: 0.8 mg/ml) of D5W or NS
5. Precautions/Comments:
    - Adverse reactions:
        - Headache, dizziness, vertigo, urticaria, allergic reaction, diarrhea, facial edema

Intravenous Infusion of Pitocin (Oxytocin)

1. Must be transported with IV Pump.
2. The following parameters shall apply to all patients with pre-existing Pitocin infusions.
    - **No Titration** of medication will be made during interfacility transport even with orders
    - Must be on cardiac monitor. Monitor VS at least every 15 minutes during interfacility transport and more frequently based on patients condition
    - **If not started**, consult with referring physician and/or medical direction authority
3. Indications:
    - Postpartum hemorrhage
4. Dosage:
    - Initial infusion: 20-40 units in 1000 ml of normal saline, infuse 1000 ml over 10 minutes
    - Maintenance infusion: 10-40 units/hour
5. Precautions/Comments:
    - Adverse reactions:
        - Nausea, bradycardia, allergic reactions

Intravenous Infusion of Phenobarbital

- Must be transported with IV Pump.
- The following parameters shall apply to all patients with pre-existing Phenobarbital infusions:
    - Monitor for respiratory depression
    - **No** titration of medication will be made during interfacility transport even with orders
    - Monitor vital signs every 15-30 minutes during transport or more frequently based on patient condition
- Indications for use:
    - For treatment of seizures
- Dosage
    - Adult: 100-300 mg IV
    - Pediatric 10-20 mg/kg initially followed by 1-6 mg/kg/day
- Status Epilepticus
    - Adult 10-20 mg/kg
    - Pediatric 15-20 mg/kg
- Precautions/Comments:
    - Allergic reaction can cause **ANGIOEDEMA**
    - Pre-existing CNS depression
    - Uncontrolled severe pain
    - Adverse Reactions:
        - ✓ Respiratory depression, Broncho spasm, hypotension, N/V, drowsiness, lethargy

Intravenous Infusion of Phenytoin

1. Must be transported with IV Pump.
2. The following parameters shall apply to all patients with pre-existing Phenytoin infusions:
    - Institute seizure precautions
    - **No** titration of medication will be made during interfacility transport even with orders
3. Indications:
    - Treatment of seizures
4. Dosage:
    - Adult 15-20 mg/kg. Rate should not exceed 25-50 mg/kg
    - Pediatric 15-20 mg/kg; rate 1-3 mg/kg/min
5. Precautions/Comments
    - Hypotension, ataxia N/V
    - If given with dopamine may cause additive hypotension

Intravenous Infusion of Potassium Chloride

1. Must be transported with IV Pump.
2. The following parameters shall apply to all patients with pre-existing potassium chloride infusions:
    - No potassium will be initiated in the field
    - Medication concentration will not exceed 40 mEq/liter of IV fluid
    - Concentrations that exceed 20 mEq will be on **infusion pump**
    - All IV bags will be labeled with the amount of drug within the IV bag
3. Indications:
    - Potassium depletion
    - Treatment of certain arrhythmias due to cardiac glycoside toxicity
4. Complications:
    - Local irritation, burning along the vein of infusion, nausea, vomiting, abdominal pain, weakness in legs
    - In high concentrations: flushing, agitation, hypotension, diaphoresis and, peripheral vascular collapse
    - EKG changes associated with potassium intoxication:
        - Tall tented T waves
        - Depressed S-T segments
        - Prolonged P-R interval, loss of P-wave
        - Heart block, v-fib, cardiac arrest
    - If above s/s occur, stop infusion and call Medical Direction Authority to notify
    - Adverse Reactions:
        - Too rapid of IV infusion of an IV solution containing potassium

Intravenous Infusion of Procainamide

1. Must be transported with IV Pump.
2. The following parameters shall apply to all patients with pre-existing Procainamide infusions:
   - Patient should remain as close to supine as is tolerable due to hypotension
   - Monitor VS every 15 minutes during interfacility transport and more frequently based on patients condition
   - Stop infusion if QRS complex widens by ≥ 50%, PR becomes prolonged, blood pressure drops below 90mmHg or toxic side effects and contact Medical Direction Authority
   - **No titration** during transportation
3. Indications:
   - Treatment of atrial and ventricular arrhythmias
   - Maintenance of sinus rhythm after conversion from atrial fibrillation or atrial flutter
4. Dosage:
   - Adult: loading infusion of 500-600 mg over 25-30 minutes followed by maintenance infusion of 2-6 mg/min
   - Pediatrics: 20-80 mcg/kg/min
5. Precautions/Comments:
   - Adverse reactions:
     - Confusion, seizures, dizziness, hypotension, ventricular arrhythmia, asystole, heart block
   - Use caution with:
     - MI, CHF
     - Reduce dose and frequency with geriatric patients

Intravenous Infusion of Propofol

1. Must be transported with IV Pump.
2. The following parameters shall apply to all patients with pre-existing potassium chloride infusions:
   - **No titration** during interfacility transport
   - Monitor VS every 15 minutes during transport or more frequently based on patient status
   - Assess level of sedation throughout transport
3. Indications:
   - Sedation of intubated, and/or mechanically ventilated patients
4. Dosage:
   - Adult 5 mcg/kg/min increases in 5 mcg/kg/min increments until sedation achieved prior to transport. Usual range is 5-50 mcg/kg/min
   - Pediatrics only recommended for procedural sedation not transfers
5. Precautions/Comments
   - Short-acting hypnotic
   - Adverse reactions:
     - Bradycardia, hypotension, apnea, dizziness, headache, cough, hypertension, flushing, involuntary muscle movements, fever

SVN Administration of Racemic Epinephrine (Vaponefrin, Micronefrin)

1. The following parameters shall apply to all patients with pre-existing Racemic Epinephrine SVN:
   - Currently Racemic Epinephrine is approved for **Interfacility use only**. It is intended that the patient finish the SVN treatment initiated by the sending facility during transport, without a provider initiating subsequent doses
2. Indications:
   - Bronchial Asthma, Bronchiolitis, Chronic Bronchitis, Chronic Obstructive Lung Disease, Croup, Laryngeal Edema
3. Dosing:
   - Inhalation only (small-volume nebulizer):
     Pediatric Dosage: 0.25-0.75 ml of a 2.25% solution in 2.0 ml normal saline**.**
     - <20 kg (child under 6 months):Dilute 0.25ml (of 2.25% solution) in 2.5ml saline and administer via SVN
     - 20 – 40 kg (child):Dilute 0.5ml (of 2.25% solution) in 2.5 ml saline and administer via SVN
     - >40 kg (adolescent):Dilute 0.75ml (of 2.25% solution) in 2.5 ml saline and administer via SVN
4. Precautions/ Comments
   - Allergy to any of the ingredients [may contain sulfite(s)], Epiglottitis, Hypertension, Underlying Cardiovascular Disease/Insufficiency
   - The use of Racemic Epinephrine will mainly be seen in the pediatric patient population, most commonly for the treatment of Croup
   - Monitor vital signs closely
   - Do not use concurrently with other bronchodilators
   - After dilution, the solution should be used within 30 minutes. Do not use solution if discolored or if it contains a precipitate
   - After inhalations, the sputum may be pink in color due to a chemical reaction between the mucous secretions and Racemic Epinephrine solution
   - Excessive use may cause Bronchospasm
   - Adverse Reactions:
     - Angina, Anxiety, Dysrhythmias, Fear, Headache, Lightheadedness, Nausea, Palpitations, Restlessness, Sleeplessness, Weakness
5. In common practice 1:1000 Epinephrine is substituted when the Racemic Epi solution is unavailable:
   - Pediatric dosing: <4 years of age = mix 2.5ml of 1:1000 Epi with 3ml saline and administer via SVN.
   - >4 years of age = mix 5ml of 1:1000 Epi with 3ml of saline and administer via SVN.
   - Adult dosing: mix 5ml of 1:1000 Epi with 3ml saline and administer via SVN
   - **If needed**, get order prior to leaving for use of this if patient is still having issues

Administration of Total Parenteral Nutrition, with or without lipids (TPN)

1. Must be transported with IV Pump.
2. The following parameters shall apply to all patients with pre-existing TPN:
   - Verify solution formula and rate
   - TPN is considered incompatible with all other medications and IV solutions. **Nothing is to be added to the bag or IV tubing**
   - Monitor for s/s of hyper/hypoglycemia. Obtain Blood Glucose as needed and document what the last reading was before to transportation
   - This should be going through a port/central line. If leaking or cracked, clamp off port and notify Medical Direction Authority
3. Indications:
   - Provides long term nutrition
4. Precautions and Comments:
   - Hyperglycemia, hyperosmolar syndrome, electrolyte disturbance

Tucson Medical Center Base Hospital

Heparin Worksheet

Patient's name: _____

Agency Incident Number: _____

1. **Patient's weight**: _____kg

2. **Time of Transport-Current IV drip rate at**: _____

   Heparin drip concentration: Units/ml _____
   Heparin drip ordered dose: Units/kg/hr _____
   Time drip started: _____
   Heparin drip dosage with pump setting units/hr: _____
   Patency of IV confirmed: _____YES_____NO
   Drip IV site/location: _____

3. **Lab Values (If available; do not delay transportation for lab results):**

   Last recorded values:
   Date: _____
   TIME: _____
   PT: _____
   PTT: _____
   INR: _____

4. **Reviewed** with sending RN with print name and signature:

   _____

5. **Medical Direction Authority** called prior to leaving with approval of dosing: _____YES _____NO

6. **Paramedic transporting:** _____