Montana Inter-Facility Transport Protocols for Critical Care Endorsed EMT-Paramedics

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Instructions for Utilization:

Critical Care Endorsed EMT-Paramedics may utilize these protocols during a critical care transport while under the oversight of the service medical director.

The service medical director may adopt all or part of the protocols. The service medical director may make minor protocol changes, but substantial changes or new protocol requests must be submitted to the Board of Medical Examiners for review and approval.

The service medical director is responsible for deciding when a *Critical Care Endorsed EMT-Paramedic* may begin performing inter-facility transports and for the maintenance of the service inter-facility transport capability to include training, transport reviews and other quality improvement activities.

The statewide prehospital protocols should be utilized during inter-facility transport as the situation warrants (such as in the event of a respiratory/cardiac arrest, allergic reaction, shock, etc). The Critical Care Transport protocols are in addition to the normally expected care identified in the Board approved statewide pre-hospital protocols.

Medication Maintenance*

1. Maintain oxygen flow rate for an oxygen saturation of greater than or equal to 92%.
2. Attach cardiac monitor.
3. Assess and record vital signs, to include temperature, prior to transfer and every 5 to 10 minutes enroute.
4. Reassess patient frequently during transport and document findings.
5. Collect all transfer documentation: transfer sheet, EKG's, lab, other pertinent information.
6. Contact the online medical director (medical control), document indication and order for drug during transport.
7. Document dose and route at beginning of transport and patient response.
8. For the transport medication, be familiar with the signs, symptoms and treatment of any major adverse drug reactions.

*Continue administration of medications initiated in the emergency department such as antibiotics, steroids, ACLS drugs, vitamins, non-OB magnesium, fractionated heparin, etc. via subcutaneous, intramuscular, intraosseous , and/or intravenous (peripheral or central) routes.

Packed Red Blood Cells

1. Maintain oxygen flow rate for an oxygen saturation of greater than or equal to 92%.
2. Attach cardiac monitor.
3. Assess and record vital signs, to include temperature, prior to transfer and every 5 to 10 minutes enroute.
4. Reassess patient frequently during transport and document findings.
5. Collect all transfer documentation: transfer sheet, EKG's, lab, other pertinent information.
6. Contact the online medical director (medical control), document order, indication, and rate of administration for packed red blood cells.
7. Document the unit blood bank number of all units to be transferred with the patient.
8. Instruct patient to report onset of any unusual symptoms that might indicate a transfusion reaction:

chills	dizziness	back pain
restlessness	nausea	chest pain
headache	anxiety	dyspnea

9. Watch for signs of a transfusion reaction:

temperature elevation		rash
facial flushing	cyanosis	sweating
bradycardia	tachycardia	hypotension
distended neck veins		

10. If a transfusion reaction is suspected:
    a. Discontinue the transfusion, save the remaining blood, bag and tubing.
    b. Maintain IV with normal saline
    c. Notify online medical director
    d. Draw a blue top tube from a site other than the transfusion site
    e. Treat hypotension with normal saline infusion

Heparin

1. Maintain oxygen flow rate for an oxygen saturation of greater than or equal to 92%.
2. Attach cardiac monitor.
3. Assess and record vital signs, to include temperature, prior to transfer and every 5 to 10 minutes enroute.
4. Reassess patient frequently during transport and document findings.
5. Collect all transfer documentation: transfer sheet, EKG's, lab, other pertinent information.
6. Contact the online medical director (medical control), document indication and order for drug during transport.
7. Document drip rate at beginning of transport and patient response.
8. Drip rate change during transport:
    a. If patient develops an unexplained decrease in blood pressure, discontinue drip and contact the online medical director (medical control).
    b. If patient develops unexplained neurological symptoms such as headache, numbness, weakness, seizure, etc., discontinue drip and contact the online medical director (medical control).

Magnesium Sulfate (10 grams/100ml NS)

1. Maintain oxygen flow rate for an oxygen saturation of greater than or equal to 92%.
2. Attach cardiac monitor.
3. Assess and record maternal vital signs, to include temperature, patellar reflex and fetal heart rate prior to transfer and every 5 to 10 minutes enroute.
4. Reassess patient frequently during transport and document findings.
5. Collect all transfer documentation: transfer sheet, EKG's, lab, other pertinent information.
6. Contact the online medical director (medical control), document indication and order for drug during transport.
7. Transport patient on their left side.
8. Indwelling urinary catheter should be in place for patients with Pregnancy Induced Hypertension (PIH), this is optional for non-PIH patients.
9. Document urine output during transport.
10. Document pump drip rate at the beginning of transport and patient's response.
11. Drip rate changes during transport:
    a. If patient experiences a decreasing respiratory rate or other evidence of respiratory difficulty, discontinue drip, prepare to manage airway, consider calcium gluconate or calcium chloride, contact the online medical director (medical control).
    b. Decrease the drip rate by half and contact the online medical director (medical control) for any of the following:
        i. Decrease in systolic pressure of 20mm from baseline
        ii. Decrease in diastolic pressure of 10mm from baseline
        iii. Decrease in patella reflex.
        iv. Change in mental status

Mechanical Ventilation

1. Maintain oxygen flow rate for an oxygen saturation of greater than or equal to 92%.
2. Attach cardiac monitor, end-tidal CO2 monitor.
3. Assess and record vital signs, to include temperature, prior to transfer and every 5 to 10 minutes enroute.
4. Reassess patient frequently during transport and document findings.
5. Collect all transfer documentation: transfer sheet, EKG's, lab, other pertinent information.
6. Contact the online medical director (medical control), document indication and order for the mechanical ventilation during transport.
7. Document ventilator settings and patient response.
8. Document correct tracheal tube placement and secure appropriately
9. Obtain arterial blood gas prior to transport.
10. Maintain chemical paralysis if utilized pre-transport.
    a. Monitor for motor activity.
    b. Norcuron (Vecuronium) 0.1-0.15 milligram per kilogram slow IV push; duration of action is 20-30 minutes.
    c. Alternative paralytics include atracurium (Tracrium) and rocuronium (Zemuron).
11. Maintain adequate sedation
    a. Inadequate sedation may present as an unexplained increase in heart rate or blood pressure; the non-paralysed patient may also demonstrate agitation, anxiety and/or restlessness.
    b. Midazolam (Versed) 0.035 milligram per kilogram IV over 2-3 minutes.
12. Maintain adequate analgesia
    a. Fentanyl (Sublimase) 1.0-3.0 micrograms per kilogram slow IV push; duration of action 30-60 minutes.

Nitroglycerine (50mg/250ml D5: 200 mcg/ml)

1. Maintain oxygen flow rate for an oxygen saturation of greater than or equal to 92%.
2. Attach cardiac monitor.
3. Assess and record vital signs, to include temperature, prior to transfer and every 5 to 10 minutes enroute.
4. Reassess patient frequently during transport and document findings.
5. Collect all transfer documentation: transfer sheet, EKG's, lab, other pertinent information.
6. Contact the online medical director (medical control), document indication and order for drug during transport.
7. Document drip rate at the beginning of transport and patient's response.
8. Drip rate changes during transport:
    a. If chest pain present, increase the nitroglycerine drip 5 mcg/min (1.5 ml/hr) or 3.3 mcg/min (1.0 ml/hr) depending on your pump, every five minutes until the chest pain resolves or systolic blood pressure drops below 100. If more than an additional 10 mcg/min required, contact the online medical director (medical control).
    b. If systolic blood pressure drops below 100, decrease the nitroglycerine by 5 mcg/min (1.5 ml/hr) or 3.3 mcg/min (1.0 ml/hr) depending on your pump and contact the online medical director (medical control).
    c. If systolic blood pressure drops below 90, stop the nitroglycerine drip, place patient in trendelenberg, consider a fluid bolus and contact the online medical director (medical control).

Potassium (K)

1. Maintain oxygen flow rate for an oxygen saturation of greater than or equal to 92%.
2. Attach cardiac monitor.
3. Assess and record vital signs, to include temperature, prior to transfer and every 5 to 10 minutes enroute.
4. Reassess patient frequently during transport and document findings.
5. Collect all transfer documentation: transfer sheet, EKG's, lab, other pertinent information.
6. Contact the online medical director (medical control), document indication and order for drug during transport.
7. Document drip rate at beginning of transport and patient response.
8. Concentration of potassium not to exceed 40 milliequivalents per 1000ml fluid.
9. Potassium must be administered via a pump at a rate not to exceed 250 ml per hour.

Thoracostomy Tube Monitoring

1. Maintain oxygen flow rate for an oxygen saturation of greater than or equal to 92%.
2. Attach cardiac monitor.
3. Assess and record vital signs, to include temperature, prior to transfer and every 5 to 10 minutes enroute.
4. Reassess patient frequently during transport and document findings.
5. Collect all transfer documentation: transfer sheet, EKG's, lab, other pertinent information.
6. Contact the online medical director (medical control), document indication and order for the thoracostomy tube during transport.
7. Document order to maintain tube to gravity or to mechanical suction (specify amount of suction to be maintained during transport) and patient response.
8. If possible elevate head of gurney to 45 degrees.
9. Tape all tube connections securely.
10. In the event of an air leak, recheck all connections.
11. Do not pull on the tube.
12. Secure the collection chamber to the side of the gurney (do not tip over)
13. Keep the collection chamber below the level of the chest.
14. Avoid clamping or kinking of the tube and avoid dependent loops of fluid filled tubing.
15. If chest tube is partially pulled out:
    a. Do not push tube back into chest.
    b. Secure the tube in place.
16. If chest tube is pulled out, place occlusive dressing over the insertion site.
17. If patient becomes dyspneic:
    a. Assess breath sounds.
    b. Needle thoracostomy may need to be performed.