# CCT Guidelines

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➢ Utilize Appropriate BSI / Universal Precautions
➢ Obtain Transfer Information from Sending Facility
  • Bedside report information from sending facility
  • Review appropriate clinical and diagnostic data
    o (i.e. vital signs, EKG, labs)
  • Review and confirm all interventions intended to be continued during transport
    o (i.e. medications, procedures, interventions)
  • Review ventilator settings if possible

****NOTE – in the event a patient has a life sustaining medication, device, or other complication that is not directly addressed and approved by state guidelines or is not on state approved CCT Medication/Procedure List, the sending physician must provide an in-service and the crew must verbalize understanding of the medication / procedure, and that they are comfortable transporting the patient ***

The transport medication / procedure should be documented with signatures from both the transferring physician and the crew and then attached to the patient’s chart.

➢ In the event there is any change in initial transporting diagnosis, consider diverting from original destination to appropriate alternate destination (i.e. ER from direct admit, stable to unstable, non-STEMI to STEMI).

****NOTE – if the CCT crew needs medical direction, contact receiving physician, sending physician, agency CCT medical direction, and/or MCP****

➢ Contact Medical Command or MCP:
  • Any class 0 (Zero) transports
  • CCT Intercepts – if unable to arrange CCT transport initially, contact Medical Command to arrange CCT intercept between sending and receiving facility.
  • Significant patient deterioration that causes the patient to become hemodynamically unstable despite ongoing intervention
**SHOCK**

### HYPOVOLICM
- **Hemorrhagic**
  - 20 ml/kg 0.9% NaCl
  - TXA bolus in acute hemorrhage (may be given before or at the same time as blood [just not in the same line])
  - Albumin 25% (if available)
  - Repeat 0.9% NaCl bolus up to 40 ml/kg

### CARDIOGENIC
- 250 ml 0.9% NaCl Bolus
- Inotropic Medications: Dobutamine 2-20 mcg/kg/min or Dopamine 5-20 mcg/kg/min consider for bradycardia only or Mithrine 50mcg/kg then .375-.75 mcg/min or Digoxin 125-200 mcg

### OBSTRUCTIVE
- **Traumatic**
  - Decompress
  - Reassess for recurrence of Tension Pneumothorax

- **Medical**
  - Heparin 50 ui/kg bolus followed by 12ui/kg/hr gtt

- **Pulmonary Embolus**

### DISTRIBUTIVE
- **Septic**
  - Follow Septic Shock Guidelines 1609

- **Anaphylactic**
  - Follow Anaphylactic Shock Guidelines 1501

### NEUROGENIC
- Full Spinal Immobilization (even if cleared by radiograph at sending facility)
- 20 ml/kg 0.9% NaCl

### OTHERS
- 2 units PRBC (O-) Per protocol 1903
- Plasma/platelet replacement in mass transfusion

### CONSIDER
- Permissive Hypotension parameters after physician consult

### NEUROGENIC
- Vasopressor: Neosynephrine 50 mcg bolus then 100-300 mcg/min OR Norepinephrine 0.5-30 mcg/min OR Epinephrine 1-4 mcg/min

**Perform Pericardiocentesis if Beck’s Triad is present (Hypotension, JVD, and Muffled Heart Tones).***

***If you are approved by your agency to perform the skill***

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2018 Edition

West Virginia Office of Emergency Medical Services – CCT Guidelines
CRITICAL CARE TRANSPORT
GUIDELINES

ACUTE MYOCARDIAL INFARCTION

AMI
CCT

Universal Patient Care

Pain Management

Fentanyl
1 mcg/kg IV, may repeat q 5 min for max of 3 mcg/kg

Management

ASA 324 mg PO/NG or 325mg PR

Plavix 300mg (unless contraindicated) per contact cardiologist/receiving physician

Anticoagulant Infusion

Heparin Bolus 80 u/kg (Per physician order) Max Dose 5,000 units

Heparin gtt 12u/kg/hr

Continue if initiated or suggest if none:
- Angiomax
- Integrilin
- Reapro
- Aggrestat
- TPA
- Lovenox

Give IV Fluid
Bolus 20 mL/kg
(monitor for pulmonary edema)

NTG gtt PRN for CP after initiation of IV fluids

Continue to MI Guideline

No

Yes

Inferior wall MI with positive right sided EKG

Give IV Fluid
Bolus 20 mL/kg
(monitor for pulmonary edema)

NTG gtt PRN for CP after initiation of IV fluids

May require additional 250 mL boluses to maintain systolic BP > 90 mmHg

2018 Edition

West Virginia Office of Emergency Medical Services – CCT Guidelines
HYPERTENSIVE EMERGENCIES

CHF (see 1303 for additional treatment)

- NTG
  - 400mcg SL q 5 min X 3
  - or
  - NTG infusion
    - 50-200mcg/min
    - or

- Enalapril
  - 2.5mg-5mg IVP
  - or

- Hydralazine
  - 5mg slow IVP q 15 min
  - or

- Furosemide
  - 40-80 mg IVP

ACS/MI

- Metoprolol
  - 5 mg IVP q 5 min max 15mg
  - or

- Labetalol
  - 10mg over 2min may repeat x1
  - or

- Esmolol
  - 500mcg/kg bolus over 1-3 min then
    - gtt@ 50-150 mcg/kg/min
  - or

Dissecting Aneurysm

- Esmolol
  - 500mcg/kg bolus over 1-3 min then
    - gtt@ 50-150 mcg/kg/min
  - or

Cerebral Insult

- Cardene
  - 5mg/hr titrate up by 2.5 mg/hr q 5 min max of 15mg/hr
  - or

- Subarachnoid Hemorrhage

- Labetalol
  - 10mg over 2min may repeat x1
  - or

Toxicology

- Cocaine/Meth

- Lorazepam
  - 5mg IVP q 15 min max 8 mg
  - or

- Midazolam
  - 5mg IVP q 15 max 15 mg

and/or

- Labetalol
  - 10mg over 2min may repeat x1 (DO Not substitute with any other beta blocker)

- ETOH/Benzos

- Lorazepam
  - 5mg IVP q 15 min max 8 mg
ADULT TACHYCARDIA

***Consider other possible causes***

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<th>No</th>
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<td>Is QRS Narrow or wide</td>
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Immediate Synchronized Cardioversion

Consider sedation/pain management if hemodynamics permit

Fentanyl 1 mcg/kg iv and/or Ketamine 0.1-0.3 mg/kg IV

Supraventricular Tachycardia

Valsalva/Vagal Maneuvers

Adenosine 6 mg
- If no conversion 12 mg IVP
- If no conversion, consider Diltiazem 0.25mg/kg slow IVP repeated in 15 min at 0.35 mg/kg slow IVP if allergy or refractory to above:
  - Metoprolol 5 mg IVP
  - Lidocaine 0.5 to 0.75mg/kg every 5-10 min with maximum total dose of 3 mg/kg
  - If allergy or refractory to above treatment, consider Procainamide (see medication reference for dose)

In cases of Torsades:
Administer Magnesium Sulfate 1 gram in 10ml NS over 5-20 min

Wide Complex Tachycardia

If monomorphic and regular:
- Adenosine 6 mg
- If no conversion 12 mg IVP

Consider antiarrhythmic:
- Amiodarone - 150mg IV over 10min. Repeat 150 mg if Ventricular Tachycardia recurs
  - OR -
- Diltiazem up to 0.25mg/kg slow IVP repeated in 15 min at 0.35 mg/kg slow IVP
- Diltiazem gtt 5-15 mg/hr (if refractory hypotension - Calcium Gluconate 1 gm slow IVP)
  - OR -
  - If refractory to Diltiazem then Metoprolol 5 mg
Perform Initial Treatment / Universal Patient Care Protocol

Assess respiratory status: S/S CHF present?

Mild to Moderate

Follow ALS Protocol

Airway/Breathing

Administer Albuterol 2.5 mg combined with Atrovent 0.5 mg (duo-neb) for wheezing or ETCO2 consistent with bronchospasm repeat PRN

Initiate CPAP protocol 7301

If pt will not tolerate CPAP/BIPAP, consider DAI

Circulation

Treatment may vary based upon:
- Acute vs. Chronic
- LV Dysfunction
- Flash Pulmonary Edema
- etc.

Inotrope Agents: (continue or initiate per physician order)
Dopamine 5-20 mcg/kg/min
Digoxin 125 mcg
Dobutamine 2-20 mcg/kg/min

preload Reduction:
NTG 1.5-50 mcg/min
Furosemide 40-80 mg IV bolus
Bumetanide 0.5mg IV

Afterload Reduction:
NTG infusion 50-200 mcg/min
Captopril 25mg PO
Hydralazine 10 mg IV
ANAPHYLAXIS

**Epi 1:1,000 IM**
Adult 0.3 mg (preferably in the thigh)

**Administer 500 - 1000ml IV NS**

If airway constriction post Epi, consider early airway management

**Antihistamine**
Diphenhydramine 50 mg IM or slow IVP

**Bronchodilators**
Duo-neb or Albuterol

Racepinephrine for stridor only

**Corticosteroids**
- Solu-medrol 125 mg IV or Solu-cortef 100 mg IV
- Decadron 10 mg IV

**H2 Antagonists**
- Famotidine 20 mg or Ranitidine 75 mg or Cimetidine 300 mg

Refractory to treatment and/or hemodynamic instability develops

Patient on beta blockers
- **Yes**
  - **Glucagon 1 mg IV q 5mins up to max of 5 mg**
- **No**
  - **Epi 1:10,000 0.5 mg slow IVP may repeat X 1 after 5 minutes (then consider an epinephrine drip)**

**NOTE:**
If profound acidosis verified by blood gas: Consider NaHCO3 1 meq/kg IV bolus for acidosis secondary to persistent hypotension
**Airway**

*Mandatory ETCO2 usage (airway adapter or NC adaptor)*
- Yes: Patent
- No: CCT
  - No burns or respiratory compromise noted
  - Oxygen to maintain SpO2 94-99%
  - Severe Inhalation injury or potential for impending airway compromise
  - Consider early DAI
  - Patent

**Pain Management**
- Fentanyl 1 mcg/kg may repeat up to 3 mcg/kg
- Morphine 2 mg IV/IM/IO q 5 min to a max dose of 10 mg and/or
- Ketamine 0.2 mg/kg with a max single dose of 20 mg
- Antiemetic
  - Ondansetron 4 mg IV OR Compazine 5mg SIVP

**Temperature Management**
- Maintain a warm ambient temperature (73 to 78 degrees F 23 to 25.5 degrees C)
- Keep patient warm and dry
- Utilize temperature probe for continuous patient temperature monitoring target temp 37°C (98.6°F)

**Fluid Management**
- Isotonic crystalloid (Lactated Ringers is preferred) Consider using warmed fluids
- Follow receiving facility or MCP orders. If patient is on Plasmalyte or blood products, may continue for transport.
- Lactate Ringers 2-4 mL Ringers Lactate x weight in kg x % TBSA= mLs in first 24 hours. Give half of this total in the first 8 hours post burn. BURN PEARL: Adults use 2 mL; Pediatrics use 3 mL; Electrical injuries use 4 mL.
- If patient is hemodynamically unstable - treat per shock guidelines
- Foley Insertion Required - if genital involvement consider suprapubic catheter to be inserted by sending facility
- Urine output goal for adults is 1 mL/kg/hr

---

**Escharotomy (CCT ONLY)**

- Chest
  - Unable to ventilate due to circumferential burns to the chest
    - Yes: Perform Escharotomy
    - No: Refer to Vent Management Guideline

- Extremity
  - Extremity Vascular Compromise confirmed by Doppler Assessment
    - Yes: Perform Escharotomy
    - No: Continue to monitor enroute

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West Virginia Office of Emergency Medical Services – CCT Guidelines

2018 Edition
Seizure (prolonged or recurrent not related to eclampsia)

**Airway, Oxygenation, Ventilation Management**
- Oxygen, suction
- Consider Nasopharyngeal airway
- Consider Sidestream ETCO2 (continuous monitoring)

**Med Management**
- Lorazepam 4mg IV/IN may repeat q 10 min X 1
- OR
- Midazolam 5 mg IV/IO/IN may repeat q 15 min for a max dose of 15 mg

If refractory to above

**Procedures**
- Fingerstick glucose
- <60 mg/dl give D50 per ALS protocol

**Dilantin**
- 15 mg/kg by slow IV infusion not to exceed 50 mg/min

OR

(If pt not on Dilantin)
- Fosphenytoin 15 PE/kg up to 150 PE/kg (max dose 1000 PE/kg)

If recurrent after Fosphenytoin consider phenobarbital 10 mg/kg slow IV max 50 g/min ETCO2 is mandatory if phenobarbital is used be prepared for respiratory depression/arrest
Complete Initial evaluation. Ensure labs are <30 mins old or repeat labs and request staff call results to transport crew. Check capillary glucose and serum/urine ketones to confirm hyperglycemia and ketonemia/ketonuria. Start IV fluids: 1.0 L of 0.9% NaCl per hour. Monitor ETCO2 on all patients and repeat glucose checks every 30 mins. If transport time is >2 hours, consider aeromedical transport.

**IV Fluids**
- Determine Hydration status (serum osmolality can refer to determine hydration status) serum osmolality = 2 x Na+ + Glucose/28 + BUN/2.8
- Moderate Dehydration
- Severe Hypovolemia
- Cardiogenic Shock
- Evaluate corrected serum Na+: Current sodium + (((Serum Glucose - 100)/100) x 1.6) = Corrected Sodium
- Administer 0.9% NaCl 20 ml/kg then reassess

**Insulin**
- Insulin Infusion (in the absence of initial bolus) 0.14 u/kg/hr
- If initial bolus then 0.1 u/kg/hr infusion
- If serum K+ is < 3.3 mEq/L, hold insulin and give 20-30 mEq K+/h until K+ > 3.3 mEq/L
- If serum K+ is > 5.3 mEq/L, do not give K+ but check serum K+ every 2 hours
- When FBS reaches 250 mg/dL, reduce insulin infusion to 0.05 u/kg/hr. Keep serum glucose between 150 and 200 mg/dL until resolution of DKA

**Potassium**
- If serum K+ is < 3.3 mEq/L, hold insulin and give 20-30 mEq K+/h until K+ > 3.3 mEq/L
- If serum K+ is > 5.3 mEq/L, give 20-30 mEq K+ in each liter of fluid to keep serum K+ between 4.5 mEq/L

**NaHCO3 infusion**
- If the patient has a pH < 6.9 and the patient is not on or has not received NaHCO3, please consult Transferring, Receiving or MCP regarding the use of NaHCO3 advising them of the current K+ level

**ETCO2**
- If pH is intubated reference preintubation CO2 (although arterial is preferred, venous may be used) and adjust RR and/or tidal volume level for patients with underlying metabolic acidosis (lactic acidosis, DKA, Post cardiac arrest, Salicylate poisoning, Tricyclic antidepressant OD) maintain a target ETCO2 close to pre-intubation PaCO2 level unless acidosis resolves.
Prior to transport, obtain orders from receiving/sending for typical anticipated complications

### Pre Term Labor
- Supportive Care
- Verify and record fetal heart tones q15 mins via doppler, if obtainable
- Frequent assessments of labor pattern, intensity, duration, and frequency
- Request transferring staff to assess cervical status prior to departure to rule out imminent delivery
- Assess for vaginal discharge
- Consider 500-1000ml NS fluid bolus if suspected dehydration or UTI with maintenance infusion of 125ml/hr
- Consider Mag Sulfate and/or Terbutaline per order of receiving/sending physician
- Consider pain management: Fentanyl 0.5 mcg/kg and/or Ketamine 0.5 mcg/kg or Stadol 1 mg q 3-4 hrs
- Monitor for Mag toxicity, if present administer Calcium Gluconate 1gm until CNS depression is reversed

### Premature Rupture Of Membrane (PROM)
- Supportive Care
- If preterm or history of group B strep, notify receiving facility if antibiotics have not been administered prior to transporting
- Verify and record FHT q15 mins via doppler, if obtainable
- Frequent assessments of labor pattern, intensity, duration, and frequency
- 500-1000ml NS fluid bolus with maintenance gtt of 125ml/hr
- Consider Mag Sulfate and/or Terbutaline per order of receiving/sending physician
- Consider pain management: Fentanyl 0.5 mcg/kg and/or Ketamine 0.5 mcg/kg or Stadol 1 mg q 3-4 hrs
- Monitor for Mag toxicity, if present administer Calcium Gluconate 1gm until CNS depression is reversed

### Pre-eclampsia
- Supportive Care
- If preterm or history of group B strep, notify receiving facility if antibiotics have not been administered prior to transporting
- Verify and record FHT q15 mins via doppler, if obtainable
- Frequent assessments of labor pattern, intensity, duration, and frequency
- Assess for LOC, visual disturbances, NV, headache, pupillary response, pulmonary edema, recent urinary output
- Mag Sulfate 4 gm bolus not to exceed 1gm/min with maintenance gtt at 2 gm/hr. If seizures occur or are continuous consider additional 2 gm bolus not to exceed 1gm/min and increase gtt to 3 gm/hr
- Protect from excessive stimuli
- If systolic > 160 and/or diastolic > 110 then consider Mag Sulfate bolus 4 gm over 30 min followed by 2gm/hr and/or Hydralazine 5 mg IVP q 15 min and/or Labetolol 10 mg IVP to maintain diastolic 90-100
- Monitor for Mag toxicity, if present administer Calcium Gluconate 1gm until CNS depression is reversed

### Eclampsia/Seizures
- Supportive Care
- If preterm or history of group B strep, notify receiving facility if antibiotics have not been administered prior to transporting
- Verify and record FHT q15 mins via doppler, if obtainable
- Frequent assessments of labor pattern, intensity, duration, and frequency
- Monitor VS and deep tendon reflexes q 15min along with ECG
- Transport Left Lateral Side
- Protect from excessive stimuli
- If systolic > 160 and/or diastolic > 110 then consider Mag Sulfate bolus 4 gm over 30 min followed by 2gm/hr and/or Hydralazine 5 mg IVP q 15 min and/or Labetolol 10 mg IVP to maintain diastolic 90-100
- Monitor for Mag toxicity, if present administer Calcium Gluconate 1gm until CNS depression is reversed

### Emergent Delivery Enroute
- Follow OB/GYN Protocol 4608
- Post Emergent Delivery
- If postpartum hemorrhage occurs, perform external fundal massage
- Assess uterine tone
- Develop treatment plan and consider the following drugs (if available):
  - Oxytocin
  - Methergine
  - Hemabate
- If severe bleeding continues, consider initiation of hemorrhagic shock guideline
- Protect and maintain airway. Consider DAI if continued seizing, hypoxic, or risk of aspiration

***For cases of delivery - refer to care of the newborn guideline***
SIRS Criteria:
- Temperature < 96.8 or > 100.4 (<36 or > 38.0 C)
- Respiratory Rate > 20
- Heart Rate > 90
- WBC < 4,000 or > 12,000
- Bands > 10%
- Glucose > 120 mg/dL (in a non-diabetic pt).

Sepsis:
A known or suspected infection with 2 out of the 5 SIRS criteria.

Severe Sepsis:
A known or suspected infection that is affecting distant organs.
- Lactic acid 2.0 to 3.9 administer fluids
- CV= SPB < 90 mmHg OR MAP < 65 mmHg AFTER ADEQUATE IVF resuscitation
- Metabolic = Direct Bilirubin > 2
- Hepatic = doubling of liver enzymes
- Renal = Creatinine > 2 or doubles from baseline
- Hematologic = Platelets < 100,000
- CNS = Significant mental changes

Septic Shock:
A lactic acid of 4.0 or greater with a known or suspected infection OR the patient is hypotensive after ADEQUATE IVF boluses.

West Virginia Office of Emergency Medical Services – CCT Guidelines
**SEPSIS**

Determine sepsis/severe sepsis/septic shock based on treatment provided and patient presentation. Verify how much IVF intake the patient has had in the last 4 hours. Find out what the patient's original MAP/BP was. How much urine output has the pt had (minus what pt had out at initial insertion of catheter)

- Monitor urine output and record every 1 hour. Attempt to maintain urine output at 1 mL/kg/hr.
- IVF boluses may be repeated after reaching the recommended 30-40 mL/kg as long as the boluses are effective as evidenced by: decreased HR, increased BP and/or MAP, increased urine output, improved LOC—without development of Rales/Crackles or other contraindicated side effects of too much volume resuscitation. 30mL/kg of IVF should be achieved within 3 hours.

May consider adding a Vasopressin drip (Only to be used as a secondary adjunct therapy and never as a first line pressor) at 0.04 units/min if perfusion is not adequate.

If patient is refractory to Levophed begin Epinephrine drip at 2 mcg/min and titrate up to 10 mcg/min

- May substitute peak airway pressure if plateau pressure is unavailable. Peak airway pressure should not exceed 40 cmH2O. If it does then change to pressure control ventilation.
- If the patient does not respond to fluid boluses (Patient should have a minimum of 30 mL/kg on board), continue fluids and begin Levophed drip at 5 mcg/min and titrate up to 30 mcg/min in 2.5 mcg/min increments.

Consider monitoring CVP and attempt to maintain between 8-12. If the patient is intubated then maintain CVP around 12 to account for PEEP.

- Monitor lactic acid every 1 hour if available to trend progress and response to treatment/therapy. Maintain urine output of 1ml/kg/hr.

May add Dobutamine drip to begin at 5 mcg/kg/min up to 20 mcg/kg/min for patients with cardiogenic shock.

Consider RBC transfusion if hematocrit is < 9.0. Transfuse RBC's if hematocrit is < 7.0 g/dl in adults.

If patient is intubated and has sepsis induced ARDS maintain TV at 6 cc/kg IDEAL BODY WEIGHT to reduce the risk of barotrauma. Plateau pressures in patients with ARDS should be less than or equal to 30 cm H2O. (PEEP should be applied to avoid alveolar collapse. Elevate HOB 15-30 degrees if patient tolerates with hemodynamics)

- If patient is intubated and has sepsis induced ARDS maintain TV at 6 cc/kg IDEAL BODY WEIGHT to reduce the risk of barotrauma.
- Plateau pressures in patients with ARDS should be less than or equal to 30 cm H2O.
- (PEEP should be applied to avoid alveolar collapse. Elevate HOB 15-30 degrees if patient tolerates with hemodynamics)

Consider Insulin sliding scale subcutaneously for glucose greater than 180 g/dl and monitor closely for hypoglycemia.

- Perform glucose checks at least every 1 hour.

Consider stress ulcer prophylaxis with H2 blocker (Pepcid, Zantac...)

**Monitor urine output and record every 1 hour. Attempt to maintain urine output at 1 mL/kg/hr**

**IVF boluses may be repeated after reaching the recommended 30-40 mL/kg as long as the boluses are effective as evidenced by: decreased HR, increased BP and/or MAP, increased urine output, improved LOC—without development of Rales/Crackles or other contraindicated side effects of too much volume resuscitation. 30mL/kg of IVF should be achieved within 3 hours.**

***May substitute peak airway pressure if plateau pressure is unavailable. Peak airway pressure should not exceed 40 cmH2O if it does then change to pressure control ventilation.***
Is hemolysis present on labs

Yes

Request repeat Basic Metabolic Panel

If patient shows signs of hyperkalemia on ECG then proceed to treatment

If repeat K+ is greater than or equal to 7.0 proceed with Hyperkalemia lowering treatment

No

Serum K+ 5.5-6.9 with ECG changes consistent with hyperkalemia or rapidly increasing K+ levels or any serum K+ 7.0 or greater ****NOTE: Crush injuries and compartment syndrome are at high risk for rapid progression of K+

Continuos 12 lead ECG monitoring if available. If not, 12 lead ECG q 15 mins

1 gm Calcium Gluconate or Calcium Chloride IVP (Avoid if digitalis toxicity is present)

25 gm D50W IVP (Do not administer if FSBS is >300 mg/dl)

10 units Humilin R IV bolus repeat fingerstick glucose every 30 mins

NaHCO3 1 meq IVP with max dose 100 meq

Consider administration of 10-20mg Albuterol nebulized for prompt decrease in serum K+ level
**ADVANCED AIRWAY MANAGEMENT - DAI**

- **REQUIRED INTUBATION**
  - Preoxygenate with 100% O2 via passive oxygenation **DO NOT BAG VENTILATE UNLESS NECESSARY**

- **PREMEDICATION:** (If suspected increased ICP)
  - Lidocaine 1-1.5 mg/kg
  - 3 min prior to intubation

- **SEDATION:**
  - Lorazepam 1-2 mg IVP OR
  - Midazolam 2-5mg IVP (max dose 0.1 mg/kg)
  - Diazepam 5mg IVP

- **PAIN MANAGEMENT**
  - Fentanyl 1-3 mcg/kg IVP OR
  - MSO4 2-4 mg IVP OR
  - Ketamine 0.5 - 1 mg/kg

- **INDUCTION**
  - Etomidate 0.3-0.6 mg/kg IVP OR
  - Ketamine 1-2 mg/kg IVP

- **NEUROMUSCULAR BLOCKADE**
  - Succinylcholine 1.5-2.0 mg/kg IVP OR
  - Rocuronium 1 mg/kg IVP OR
  - Vecuronium 0.1mg/kg IVP

- **CONTINUED SEDATION AND PAIN MANAGEMENT**
  - Midazolam 0.1 mg/kg IVP OR
  - Lorazepam 1-2 mg IVP AND
  - Fentanyl 1-3 mcg/kg IVP (consider infusion)

- **CRASH AIRWAY**
  - Preoxygenate with 100% O2 via passive oxygenation **DO NOT BAG VENTILATE UNLESS NECESSARY**

- **INDUCTION**
  - Ketamine 1-2 mg/kg IVP

- **SPO2 > 94%**
  - No
  - Still Need Intubated?
    - No
    - Yes
      - BVM with PEEP 5-15 mmHg

- **Halt Intubation**
  - Intubate
    - Confirm Placement with ETCO2

- **PEDiatric**
  - Preoxygenate with 100% O2 via passive oxygenation **DO NOT BAG VENTILATE UNLESS NECESSARY**

- **PREMEDICATION:**
  - Lidocaine (for suspected increased ICP) 1-1.5 mg/kg 3 min prior to intubation
  - Atropine 0.02 mg/kg (min dose 0.1mg max dose 1 mg) as indicated

- **PAIN MANAGEMENT**
  - Fentanyl 1-3 mcg/kg IVP (use lower dosing on hemodynamically unstable patients)

- **INDUCTION**
  - Etomidate 0.3-0.6 mg/kg IVP OR
  - Ketamine 1-2 mg/kg IVP

- **NEUROMUSCULAR BLOCKADE**
  - Succinylcholine 1.5-2.0 mg/kg IVP OR
  - Rocuronium 1 mg/kg IVP OR
  - Vecuronium 0.1 mg/kg

- **CONTINUED SEDATION AND PAIN MANAGEMENT**
  - Midazolam 0.1 mg/kg IVP (max 2 mg single doses) Consider Infusion OR
  - Lorazepam 0.1 mg/kg IVP (max single dose 2 mg each) Consider infusion AND
  - Fentanyl 1 mcg/kg IVP may repeat up to 3 mcg/kg (consider infusion)
CRITICAL CARE TRANSPORT
GUIDELINES

BLOOD PRODUCT ADMINISTRATION

Determine need for blood product administration

Obtain baseline VS including temp, pulse, resp, BP

Consider TXA administration if indicated

Emergency PRBC Transfusion needed

*** Identify time that blood was removed from cooler, blood must be completely infused within four hours of removal***

CCT Agency carrying PRBC

**If available**
Obtain patient information: Name, DOB, Blood Type, Previous Blood Transfusions or Transfusion reactions

CCT Class 1 team must verify: Unit type as O Negative, PRBC not expired, no visible contamination, Unit temp not out of range (1-6 degrees Celsius). Unit number crosscheck if applicable

Place PRBC on fluid warming device

Initiate 1 unit PRBC. Evaluate patient response and continue to transfuse additional units if needed. Typical volume 2-4 units

Obtain VS including temp and ETCO2 q 15 mins

IFT, supplied by sending facility

** Co-Verify With transferring RN or CCT Partner**
Pt Information: Name, DOB, Blood Type, Previous Blood Transfusions or Transfusion reactions

** Co-Verify With transferring RN or CCT Partner**
Sending physician order for type of blood product and dose to be transfused

** Co-Verify With transferring RN or CCT Partner**
Patient identification and all blood product compatibility crosschecks are completed by sending hospital personnel for each unit to be transfused

Continue transfusion as ordered by sending physician, receiving physician or MCP

Obtain VS including temp and ETCO2 q 15 mins enroute

If additional units are needed during transport, CCT crew must recheck pt identification and blood product information before initiation of additional units.

Upon arrival at receiving facility leave one blood slip with pt chart, and one blood slip with receiving blood bank

**** If signs of transfusion reaction develop, stop transfusion immediately and treat per Anaphylactic guideline****
All blood products and tubing must be taken to the receiving blood bank upon arrival.

2018 Edition

West Virginia Office of Emergency Medical Services – CCT Guidelines
Initial Treatment/Universal Protocol

Suspected multi-system trauma and/or head injury

Yes
Follow Universal Patient Care
Consider DAI

No
Perceived potential for injury to patient and crew
4 or 5 point soft restraints
Perfusion checks each extremity q 15 mins

Combative patient
Midazolam
Adult 5 mg IV/IN/IM
Reassess in 5 mins, if patient remains agitated
Haldol 5 mg IM OR
Ketamine 2 mg/kg IV/IO or 5mg/kg IM
Repeat as needed to max doses