Performance Improvement & OMD Committee

Fourth Quarter Report FY2020
April-June 2020

Membership:

The PI Committees shall be comprised of a representative/or their designee from:

- Each jurisdiction (5):
  - Accredited education program: Jason Ferguson/Lisa Aiken
  - Air Medical: Robbie Conner
  - Amherst County: Jarred Scott
  - Appomattox County: Susan Walton
  - Bedford County/Bedford City: Janet Blankenship
  - Campbell County: Michelle Turner or designee
  - Commercial Transport Agency: Jeff Tanner (Centra Transport) & Tom Walton (DRT)
  - Hospital Representative: Dr. Tom Forsberg, Co-Director for LGH Trauma Services; Kelly Brown, Centra R.N., Centra Trauma Services; Vacant, ED Representative
  - Lynchburg City: Ricky Bomar, Robert Lipscomb or designee
  - Regional Operational Medical Direction Committee: Dr. Wendy Wilcoxson, Dr. Kayla Long
  - *Every EMS provider in the BREMS region is invited to attend and encouraged to speak and ask questions.

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On-Going Projects within CQI:

- Continued work on new protocol parameters/benchmarks for the region
- As recommended by the BREMS OMD group based on CQI results and data gathered from the region:
- Continued work on adding medications to drug box for those that have been on back order.
- Introduction of the Handtevy Pediatric System to the BREMS Region
- Introduction of Ultrasound to the region
- Continued review of trauma specific items as outlined by the committee with Trauma Services
- Continued planning with Kelly Brown, Trauma Services – Centra Health
    - Provider recognition on outstanding performance related to trauma
- Continued work with our Provider Workgroup; sub-group of the OMD Committee
    - Current work on protocol outline & updates
- Continued work on Regional Benchmark numbers/goals & percentages

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Quarterly CTS for BREMS:

- The June CTS for BREMS was cancelled due to state restrictions on gatherings.

Other:

- Continue assistance with training logistics with Sean Regan, Training Coordinator.

- Continue assistance with Protocol changes and development

- Continue work with the OMD Committee and sub-group Provider Workgroup

- Continue work with CQI working with Dr. Wilcoxson on regional performance and benchmarks.

June CQI & OMD Meeting Minutes & Report

Typically, every quarter we have our quarterly CQI & OMD meetings, in compliance with contractual agreements with the State OEMS. However, secondary to the COVID-19 pandemic, we elected to have these meetings with staff under the advisement of Regional OMD, Dr. Wendy Wilcoxson. In lieu of that, attached in this report are the documents we work to continue to develop for the BREMS CQI Program.

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The attached documents are draft form, incomplete and have not been approved by CQI and OMD committees. They are for the purposes of displaying ongoing CQI work within BREMS and not for use otherwise.

General:

Behavioral/Patient Restraint

1. Include documentation of continuous pulse oximetry or capnography
2. Document any de-escalation techniques used, or document why this was not possible

Epistaxis

1. Document any current anticoagulant use.
2.

Fever

1. Consideration given to any underlying cause for the fever, and any infectious exposure
2.

LVAD

1. Documentation of contact with the Coordinator and their guidance, preferably on scene.

Pain Control

1. Document pre and post pain assessment and mental status
2. Note any clinical findings that limited ability to provide pain control
3. Include documentation of pulse oximetry and blood pressure measurements

Adult Airway to include airway, failed airway and obstructed airway

1. In perfusing patients, document pulse oximetry, heart rate, and wave-form ETCO2 during intubation attempts. In perfusing patients, ideally a continuous recording strip is documented.
2. Document number of attempts at ETI and/or alternative/ rescue airway placement.
3. Document confirmation of tube placement with ausculation, end tidal capnography and ultrasound as available.

Pediatric Airway to include airway, failed airway and obstructed airway

1. In perfusing patients, document pulse oximetry, heart rate, and wave-form ETCO2 during intubation attempts. In perfusing patients, ideally a continuous recording strip is documented.
2. Document number of attempts at ETI and/or alternative/ rescue airway placement.
3. Document confirmation of tube placement with ausculation, end tidal capnography and ultrasound as available.

Cardiac Arrest

1. Documentation of code summary from monitor /ECG rhythm strips.
2. Documentation of confirmation of advanced airway placement including documentation of gastric sounds, breath sounds and use of confirmatory device (include print out of ETCO2 monitor if possible)
3. EMS agency should document patient outcome and QI indicators for cardiac arrest, including ROSC during EMS care, ROSC on arrival to ED, admitted to hospital, discharged from hospital alive, and neurologic function on discharge. Participating in and registering each cardiac arrest patient in CARES can be used to benchmark agency performance.

Post Resuscitation

1. Review record for frequent documentation of vital signs (at least every 5 minutes for 15 minutes after cardiac arrest or for the entire time on vaspressor infusions).
2. Document neurological assessment before ED turnover, as well as any substantial change during care.

Exposure:

Heat Exposure –

1. Fluid administration
2. Monitor & document GCS for heat stroke vs. heat exhaustion

Hypothermia –

1. Monitor for lethal arrhythmias
2. Environmental considerations documented: i.e. Time of onset, submersion for greater than 30 mins, frozen body tissue,

Injury:

Bites & Envenomation –

1. Review for documentation of orders received from Poison Control Centers or Medical Control

Bleeding/Hemorrhage Control –

1. Review tourniquet use
2. Documentation of reason for any on scene time interval over 10 minutes.
3. (These more so relate to a multi-systems trauma protocol) Percentage of calls, without entrapment, with on scene time interval < 10 minutes. Consider benchmark for on scene time for non-entrapped patients < 10 minutes and < 20 minutes for entrapped trauma patients and Category 2 trauma patients.
4. Documentation of applicable trauma triage criteria.
5. Appropriate destination
6. Appropriate utilization of air medical transport

Burns –

1. Review all burn calls for protocol compliance
2. Compliance with trauma triage and burn center destination protocols.
3. Evaluate on scene times for non-entrapped burn victims. Victims that meet criteria for high concentration of oxygen should be transported rapidly. Possible benchmark for on scene time for unentrapped victims = 10 minutes.
4. Review all burn calls for frequency of administration of or documentation of offering pain medication.

Diving –

1. Ensure that ETCO2 & pulse oximetry were closely monitored
2. Spinal Immobilization consideration was documented

Drowning/Near Drowning –

1. Record down time (if known)
2. Proper resuscitation of all cold water drowning patients < than 1 hour? (Unsure of the standard here)
3. ABC Sequence utilized versus CAB to include the use of CPAP/BiPap?

Electrical –

1. Transport Category I and II trauma patients within 10 minutes of EMS patient contact unless delayed because patients exceed medical resources available
2.

Eye –

1. Transport Category I and II trauma patients within 10 minutes of EMS patient contact unless delayed because patients exceed medical resources available
2.

Head –

1. Patients who do not follow commands (motor GCS ≤5) or those with total GCS < 13 should be transported to a trauma center when possible.
2.

Hemostatic Agent –

1. Review all cases where tourniquets or hemostatic agents are applied to patient to assure that patient met protocol indications.
2.

Impaled Object –

1. Document rationale for any removal of an impaled object

Multi-system –

1. (These more so relate to a multi-systems trauma protocol) Percentage of calls, without entrapment, with on scene time interval < 10 minutes. Consider benchmark for on scene time for non-entrapped patients < 10 minutes and < 20 minutes for entrapped trauma patients and Category 2 trauma patients.
2. Documentation of applicable trauma triage criteria.
3. Appropriate destination
4. Appropriate utilization of air medical transport

Musculoskeletal Trauma – (We don't have this but it would be a good idea to possibly consider grouping these individual injury protocols into this?)

1. Pain medication given or documentation of pain medication being offered for suspected isolated extremity fractures.
2. Traction splinting used for isolated femur fractures without hypotension in all cases.
3. Vital signs and oxygen saturation documented before and after any administration of narcotic.
4. Severity of pain documented for all painful conditions, and documented before and after analgesic medications/ interventions.

5. Agency medical director and QI committee review of each case of sub-dissociative dose of ketamine for pain. Review for pre- and post-administration pain severity, appropriate indication, appropriate dosage, monitoring of VS and continuous pulse oximetry. Agencies must submit quarterly report of ketamine uses to EMS regional QI committee. Regional QI committee must report quarterly regional summary of use and protocol compliance to BEMS quarterly

Sexual Assault –

<u>Medical:</u>
Abdominal Pain –

Allergic Reaction/Anaphylaxis –
1. Review for documentation of level of consciousness, airway patency, and pulse oximetry reading.
2. Review every case of EMT administered or assisted EPINEPHrine auto-injector use for documentation of symptoms defined in protocol.
3. Review every case of EMT administered or assisted EPINEPHrine auto-injector for the appropriate contact with medical command as required by the protocol.
4. Consider benchmark of on scene time < 10 minutes.

Altered Mental Status –
1. Review for proper use of naloxone and glucose and documentation of neurologic assessment/ response to treatment.
2.

Bradycardia –
1. Review all cases of cardiac arrest witnessed by (in presence of) EMS providers for compliance with this protocol to prevent patient deterioration.
2. Ensure that specific treatments also follow other appropriate protocols, e.g. Airway Management, Shock, Tachycardia, Bradycardia, etc.

Chest Pain (Cardiac in Nature) –
1. All patients should either receive aspirin or the PPCR should include documentation of why aspirin was contraindicated.
2. Review for immediate 12-lead placement at patient side.
3. Review for appropriate transmission of 12-lead ECG.
4. Review for appropriate diversion to facility capable of PCI and/or for appropriate notification of receiving facility when STEMI is identified.
5. Cardiac rhythm monitored and 12-lead ECGs done (when available) and rhythm strips/12-lead ECGs documented with graphs included in PPCR.
6. **Possible benchmark for on scene time of ≤ 15 minutes. (?)**
7. Vital signs documented after each use of vasoactive medication (e.g. nitroglycerin or narcotic analgesics)

STEMI –

1. Review all administrations of NTG
2. Review for serial 12-leads

Tachycardia –

1. Review for correct documentation of rhythm and for inclusion of rhythm strip in PPCR.
2. Review for documentation of vital signs and rhythm after each medication or cardioversion.

Diabetic Hyperglycemia –

1. Review BGL monitoring
2. Review administration of fluids if BGL exceeds what is considered normal for the patient, or the patient exhibits s/s consistent with hyperglycemia to include AMS, hypoxia, erratic respiratory pattern (Kussmauls type), extreme thirst, urination, or hunger.

Diabetic Hypoglycemia –

1. Review BGL monitoring
2. Review administration of glucose pertinent to trained level of care and what BGL level is considered normal for the patient, particularly if the patient exhibits s/s consistent with hypoglycemia, to include: AMS, unusually irritable or irrational, shaking extremities, clammy, cool and/or diaphoretic skin condition.

Hypertension –

Hypotension –

N/V/D –

1. Review for contact with Medical Command before giving ondansetron to patients who are <10 y/o.

OD/Poisoning/Toxic Ingestion –

1. Review for documentation of orders received from Poison Control Centers or Medical Command
2.

CHF/Pulmonary Edema –

1. Outcomes follow-up to determine percentage of patients treated with this protocol that ultimately had hospital diagnoses of non-CHF conditions (e.g. pneumonia).
2. Blood pressure documented after each dose of vasoactive medication (e.g. nitroglycerin)

Asthma/COPD/Reactive Airway –

1. Review for documentation of lung sounds, pulse oximetry, repeat assessments/ pulse oximetry readings, and response to treatment.

2. Review cases of nebulized EPINEPHrine use for appropriate differentiation between croup and lower respiratory bronchospasm.

Seizure –

1. Review for documentation of blood glucose if patient does not have a history of seizure disorder.
2. Review for documentation of vital signs and Pulse Oximetry after administration of benzodiazepine.
3. Review for documentation of description of any witnessed seizure activity.

Sepsis –

Stroke/TIA –

1. Review on scene time for all cases of suspected stroke with time of symptom onset less than 3 hours from time of EMS arrival. Consider benchmark of on scene time ≤10 minutes.
2. Review documentation for CPSS criteria, time of symptom onset, glucose determination, and appropriate communication with medical command and receiving facility to maximize prearrival warning to receiving facility and most appropriate receiving facility.

<u>OB/GYN:</u>

Childbirth/Labor & Delivery –

Eclampsia –

1. Review any administration of Magnesium Sulfate related to the diagnosis of eclampsia.
2.

Data Points

Behavioral/Patient Restraint:

- **O_2 saturation must remain at 94% or higher (100% measure)**
- **Ideal CO_2 should read 35-45 mmHg (100% measure)**
- **No prone positional technique is acceptable ever (100% measure)**
- **No use of physical force that would create airway constriction or compromise in any way (100% measure)**

Epistaxsis:

Fever:

- **Fever >101F should receive acetaminophen per protocol (95% measure)**
- **Fever >101F with the presence of poor perfusion, poor skin turgor, further signs of dehydration and/or hypovolemia should receive 20ml/kg of fluid (NSF or LR) barring the patient has clear bi-lateral lung sounds (95% measure)**

LVAD:

Pain Control:

- **When pain medication is administered, a pre & post pain scale must be documented (100% measure)**
- **O_2 saturation must remain at 94% or higher (100% measure)**
- **Ideally, SBP should maintain 80 mmHg or higher (95% measure) (Leave room for non-ideal situations and/or permissive hypotension?)**
- **Proper protocol dosing and route will be observed (100% measure)**

Adult Airway:

- **O_2 saturation must remain at 94% or higher (100% measure)**
- **Ideal CO_2 should read 35-45 mmHg for the exception of cardiac arrest; consider & document causes for variant readings (100% measure)**
- **Pre-oxygenation utilized (95% measure)**
- **Bougie use 100%??**
- **No more than 3 attempts by a single ALS provider**
- **Proper and adequate oxygenation between attempts**
- **If after 3 unsuccessful attempts, a secondary alternate airway should be considered (100%)**

Cardiac Arrest:

- **Chest compressions must be initiated within <5 minutes of arrival to patient upon confirmation of cardiac arrest**
- **Initial rhythm should be recognized and recorded within <5 minutes of arrival to patient**
- **BLS airway management to be recorded within the first 10 minutes of the confirmation of cardiac arrest**
- **Proper access recorded per protocol**
- **Proper pharmaceutical dosing and administration per protocol (100%)**

ROSC:

- **ROSC rhythm should be immediately recorded (100% measure)**
- **Vital signs recordings at minimum every 5 minutes (100% measure)**
- **Neurological assessment and reassessment recorded post ROSC and prior to ED arrival (100% measure)**
-

Heat Exposure:

- **In the presence of poor perfusion, poor skin turgor, further signs of dehydration and/or hypovolemia, patient should receive 20ml/kg of fluid (NSF or LR) barring the patient has clear bi-lateral lung sounds (95% measure)**
- **Vital signs recordings at minimum every 5 minutes (100% measure)**
- **GCS monitoring every 5 minutes to determine heat exhaustion vs heat stroke (95% measure)**

Hypothermia:

- **Continuous EKG monitoring for lethal arrhythmias**

Injury:

- **Bites & Envenomation –**
    - **Recording site/location of injury**
    - **Record size/changes to site of injury**
- **Bleeding/Hemorrhage Control –**
    - **Record location/site of injury**
    - **Record exact time of tourniquet placement**
    - **Scene time 10 minutes or less unless entrapment is a factor**
    - **Vital signs recordings at minimum every 5 minutes (100% measure)**
    - **Destination data point? (Not sure if this applies since we have so few to choose from here)**

- **Burns –**
  - **Record Rule of Nines/% surface area burned (100% measure)**
  - **In the presence of poor perfusion, poor skin turgor, further signs of dehydration and/or hypovolemia, patient should receive 20ml/kg of fluid (NSF or LR) barring the patient has clear bi-lateral lung sounds (95% measure)**
  - **Proper access recorded per protocol**
  - **Proper pharmaceutical dosing for pain and administration per protocol (100%)**
  - **Vital signs recordings at minimum every 5 minutes (100% measure)**
  - **Destination review?**

- **Dive Injuries –**
  - **O2 saturation must remain at 94% or higher (100% measure)**
  - **Ideal CO2 should read 35-45 mmHg (100% measure)**
  - **Spinal Immobilization intervention logged**

- **Drowning**
  - **Record down time (95% measure)**
  - **Record cold water vs warm water incident**
  - **Review of airway/breathing/circulation interventions vs C/A/B as in a traditional cardiac arrest.**
  - **Record the use of BiPap/CPAP**

- **Electrical –**

- **Eye –**

- **Head –**
  - **Record GCS every 5 minutes**
- **Hemostatic Agents –**

- **Impaled Object –**

- **Multi-system Trauma –**

- **Musculoskeletal Trauma –**

- **Sexual Assault –**

Medical:

- **Abdominal pain:**
  - **Record location of pain**
  - **Vital signs recordings at minimum every 5 minutes (100% measure)**
  - **When pain medication is administered, a pre & post pain scale must be documented (100% measure)**
  - **O2 saturation must remain at 94% or higher (100% measure)**
  - **Ideally, SBP should maintain 80 mmHg or higher (95% measure) (Leave room for non-ideal situations and/or permissive hypotension?)**
  - **Proper protocol dosing and route will be observed (100% measure)**

- **Allergic Reaction/Anaphylaxis:**
  - **Record what exposure the patient had**
  - **Vital signs recordings at minimum every 5 minutes (100% measure)**
  - **O2 saturation must remain at 94% or higher (100% measure)**
  - **Ideally, SBP should maintain 80 mmHg or higher (95% measure) (Leave room for non-ideal situations and/or permissive hypotension?)**
  - **Proper protocol dosing of Epinephrine and route will be observed (100% measure)**
  - **Scene time 10 minutes or less (95% measure)**

- **Altered Mental Status:**
  - **GCS monitoring every 5 minutes for critical; 10 minutes for non-critical (95% measure)**
  - **Proper dosing of naloxone per protocol (or)**
  - **Proper dosing of dextrose per protocol (or)**
  - **Proper dosing of other medication in line with Primary and/or secondary impression of the patient per protocol**

- **Bradycardia:**
  - **EKG within 5 minutes of arriving to patient**
  - **Vital signs recordings at minimum every 5 minutes (100% measure)**
  - **Proper doing of NSF/LR if indicated per protocol (or)**
  - **Proper dosing of atropine if indicated per protocol (or)**
  - **Proper dosing of epinephrine if indicated per protocol (or)**
  - **Proper utilization of transcutaneous pacing if indicated per protocol**
  - **Record of post EKG after successful intervention (or)**
  - **Record of witnessed arrest by EMS secondary to deteriorating refractory bradycardia**

- **Chest Pain (Cardiac in nature):**
  - **Initial 12-lead EKG upon patient arrival <5 minutes**
  - **Immediate transmission of EKG to receiving PCI facility or closest facility <5 minutes after obtaining initial EKG (how should we word this?)**
  - **Vital signs recordings at minimum every 5 minutes (100% measure)**
  - **Proper dosing of ASA per protocol**
  - **Proper dosing of nitroglycerine if indicated as per protocol**
  - **Repeat EKG every 10 minutes at minimum**
  - **Scene time of < 15 minuets**

- **STEMI:**
  - **Initial 12-lead EKG and serial EKGs**
  - **Use of nitroglycerine**

- **Tachycardia:**
  - **EKG within 5 minutes of arriving to patient**
  - **Vital signs recordings at minimum every 5 minutes (100% measure)**
  - **Proper use of vasovagal maneuvers**
  - **Proper dosing of adenosine if indicated per protocol**
  - **Proper utilization of synchronized cardioversion if indicated per protocol**
  - **Repeat EKG every 10 minutes at minimum**
  - **Scene time of < 15 minuets**

- **Diabetic Hyperglycemia:**
  - **Record initial GCS**
  - **Record initial BGL**
  - **Proper dosing of NSF/LR if indicated per protocol. Patient should receive 20-30ml/kg of fluid (NSF or LR) barring the patient has clear bi-lateral lung sounds (95% measure)**

- **Diabetic Hypoglycemia:**
  - **Record initial GCS**
  - **Record initial BGL**
  - **In the presence of poor perfusion, poor skin turgor, further signs of dehydration and/or hypovolemia, patient should receive 20ml/kg of fluid (NSF or LR) barring the patient has clear bi-lateral lung sounds (95% measure)**
  - **Proper dosing of dextrose if indicated per protocol**

- **Hypertension:**
- **Hypotension:**
- **N/V/D:**
- **OD/Toxicity/Poisoning:**
- **CHF/Pulmonary Edema:**
- **Asthma/COPD/Reactive Airway:**
- **Seizure:**
- **Sepsis:**
- **CVA/TIA:**

OB/GYN:

- **Childbirth/Labor & Delivery:**
- **Eclampsia:**

FY2020 Q4 Field Coordinator Other Activities:

- April 6 – BREMS Public Safety Conf Call
- April 8 - BREMS Public Safety Conf Call
- April 10 - BREMS Public Safety Conf Call
- April 13 - BREMS Public Safety Conf Call
- April 15 - BREMS Public Safety Conf Call
- April 17 - BREMS Public Safety Conf Call
- April 20 - BREMS Public Safety Conf Call
- April 24 - BREMS Public Safety Conf Call
- April 29 - BREMS Public Safety Conf Call
- May 6 - BREMS Public Safety Conf Call
- May 13 - BREMS Public Safety Conf Call
- May 18 – Staff Conf Call
- May 20 - BREMS Public Safety Conf Call
- May 21 – Meeting with Dr. Wilcoxson
- June 8 – Staff Conf Call
- June 11 – Richmond for OEMS Vehicle Pickup with MK
- June 17 – Meeting for Regional Awards Ceremony Prep
- June 18 – Regional Awards Live via Facebook
- June 25 – Staff meeting for CQI and OMD Committees with Dr. Wilcoxson