Yolo County Health and Human Services

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DATE: July 8, 2021

TO: Yolo County Providers and Agencies
FROM: Yolo County EMS Agency

SUBJECT: August 1, 2021 EMS Protocol and Policy Revisions

MEMORANDUM

On August 1, 2021 several updated protocols will go into effect for all Yolo County Providers. The Protocol App and Website will be updated to reflect all updates. It is the responsibility of each agency to ensure that their personnel receive this information.

Attached to this memo are the draft protocols and policy that go into effect on August 1, 2021; highlights include:

1. **Medical Cardiac Arrest**: Change prioritizes IV access over IO and the addition of Considerations for Pregnancy with ≥ 20 weeks gestation.

2. **Chest Pain Discomfort with Cardiac Etiology**: Removal of Nitroglycerine (NTG).

3. **Pain Management**: Addition of Ketamine IV/IO infusion.

4. **Symptomatic Bradycardia**: Change from 0.5 mg to 1 mg Atropine IV/IO and removal of Epinephrine.

5. **Spinal Motion Restriction (SMR):** Change from previous title **Spinal Injury Assessment**. Clarifies alert and cooperative patients may be allowed to self-limit motion with or without a c-collar. If backboard is used for extrication, backboard is to be removed once on the gurney for self-limited motion restriction. No further utilization of full spinal motion restriction with backboard and head-bed.

6. **Post Resuscitation Care:** Change from 0.5 mg to 1 mg Atropine IV/IO and provides operational technique for Epinephrine to ensure clear dosage.

7. **Shock:** Change provides operational technique for Epinephrine to ensure clear dosage.

8. **Policy: Focusing on Children Under Stress (FOCUS) Guideline:** Provides support to children exposed to violence or trauma through improved communication and collaboration between first responders, schools, and community resources.

9. **Policy: Refusal Form/Release of Responsibility Form:** This form has been revised and includes a Termination of Paramedic/Patient Relationship Check List and replaces all past forms. Providers may contact YEMSA at 530-666-8665 to pick up the triplicate forms.

Please review the additions and changes thoroughly. If you have any questions, please contact Kristin Weivoda at (530) 666-8671 or kristin.weivoda@yolocounty.org

MEDICAL CARDIAC ARREST

Adult	Pediatric

BLS

Provide High Performance CPR (See HP-CPR quick reference guide):

- **Continuous** chest compressions at a rate of 100 - 120 per minute, allow for full chest recoil
- Avoid interruptions, do not interrupt CPR to administer medications or perform any procedures
- If available use metronome to ensure proper rate
- Apply AED
- Follow AED command prompts, shock if indicated
- Place 1 OPA and bilateral NPAs
- BVM 1 breath every 10th compression on the up stroke
- Reassess pulse every 2 minutes during compressor switch - not to exceed 10 seconds

Compression depth 2” - 2.4”	Compression depth of at least 1/3 the diameter of the chest size

ALS

Cardiac Monitor, Defib Pads, Waveform $EtCO_2$, Metronome, **IV Vascular Access when possible, humoral IO is preferred over tibia IO if IV attempt(s) unsuccessful or not feasible**, NG/OG Tube

Ventricular Fibrillation (VF)
Pulseless Ventricular Tachycardia (VT)

- Shock on a 2-minute cycle
- Pre-charge the monitor at 1:45
- Minimize perishock pause to less than 5 seconds
- Change out compressor during perishock pause

Defibrillate per manufactures recommended energy dose • Repeat every 2 minutes **Epinephrine (1:10,000) 1 mg** IV/IO • Repeat every 3 - 5 minutes **Amiodarone 300 mg** SIVP/IO – first dose (flush tubing with **NS 20 mL**) <u>In 3 - 5 minutes</u> **Amiodarone 150 mg** SIVP/IO – second dose (flush tubing with **NS 20 mL**) • No repeat	Defibrillate at **2 J/kg** • Additional shocks every 2 minutes at **4 J/kg** **Epinephrine (1:10,000) 0.01 mg/kg** IV/IO • Repeat every 3 - 5 minutes **Amiodarone 5 mg/kg** SIVP/IO • Max single dose 300 mg • May repeat x 1 in 3 - 5 minutes

Adult	Pediatric
ALS *cont.*	
Asystole **Pulseless Electrical Activity (PEA)**	
Address reversible causes based on applicable protocols Hypoglycemia Hypoxia Hypo/Hyperkalemia Hypovolemia Hydrogen Ion (acidosis) Hypothermia Tension Pneumothorax Tamponade (cardiac) Trauma Toxins Thrombosis	
Epinephrine (1:10,000) 1 mg IV/IO • Repeat every 3 - 5 minutes	**Epinephrine (1:10,000) 0.01 mg/kg** IV/IO • Repeat every 3 - 5 minutes
CONSIDERATION IN PREGNANCY ≥ 20 WEEKS GESTATION	
• **Place patient 25° left lateral on backboard for CPR** • IV/IO should be above the diaphragm • Pregnant patients are more prone to hypoxia so oxygenation and airway management should be prioritized • Consider early Advance Airway i-gel® or ET Intubation • Do not interrupt CPR to perform procedures • **Prepare for early transport after 4 minutes of CPR**	
Direction	
• A BLS airway is the preferred method of airway management during cardiac arrest • Termination of Resuscitation (TOR) if there is no response to resuscitation efforts after a minimum of 20 minutes – See Termination of Resuscitation (TOR) protocol • If ROSC is achieved – See Post Resuscitation Care Protocol • Transmit Code Report via Physio Control Monitor – required for all cardiac arrests	

CHEST DISCOMFORT OR SYMPTOMS CONSISTENT WITH CARDIAC ETIOLOGY

Adult

BLS

Assess vital signs
O_2, titrate SpO_2 to $\geq$ 94%

ALS

Cardiac Monitor, 12-Lead ECG, Waveform $EtCO_2$, Vascular Access

For patients meeting STEMI criteria transmit the 12-Lead ECG and contact the STEMI Receiving Center with a **"STEMI Alert"** (preferably from the scene)

Aspirin 325 mg chewable PO
Aspirin should be administered to all patients **UNLESS there is a history of anaphylaxis even if the patient has already taken Aspirin*

Chest Discomfort - SBP > 100

Fentanyl 50 mcg SIVP
- May repeat every 5 minutes
- Max Dose 200 mcg

SBP < 100

Fluid Bolus NS 250 mL IV
- May repeat as needed

Consider

- **For patients meeting STEMI Criteria consider placing D-fib pads.**
- Pain reduction is the goal for patients experiencing cardiac related chest discomfort.
- Female, geriatric, and diabetic patients often have atypical pain/discomfort, have a high index of suspicion for these patients and perform early 12-Lead ECG.
- Serial 12-Lead ECG's are encouraged.

Direction

- If there is any concern about the destination decision, transmit the 12-Lead ECG to the Base Hospital Physician for a destination decision.

PAIN MANAGEMENT

Adult	Pediatric

BLS

Mild Pain

Assess Vital Signs
O_2, titrate SpO_2 to $\geq$ 94%
Provide calming measures
Treat underlying cause for pain:
reposition, bandage, splint, elevation, traction, compression, and/or cold pack

ALS

Moderate to Severe Pain

Cardiac Monitor, Consider Vascular Access

Acetaminophen 15 mg/kg IV Infusion
- Administer over 15-minutes
- Total max dose 1,000 mg
- No repeat

Ketorolac (Toradol) 15 mg SIVP/IM
- No repeat

Ketamine (Ketalar) 0.5 mg/kg IN (50 mg/ml)
- ½ dose per nare
- Single max dose is 50 mg
- May repeat once 15-minutes

Or

Ketamine (Ketalar) 0.3mg/kg in 100 mL NS IV/IO Infusion
- Administer over 10-minutes
- Total max dose 30 mg
- May repeat x 1 after 15 minutes

* Ketamine may be administered in addition to Acetaminophen and Ketorolac for **severe pain**

Acetaminophen 15 mg/kg IV Infusion
- Use a length based pediatric resuscitation tape to determine weight for dosing
- Administer over 15-minutes
- Total max dose 1,000 mg
- No repeat

Patients < 4 years – Base Physician contact required for Fentanyl

Fentanyl 1 mcg/kg SIVP/IM
- IV - May repeat every 5-minutes
- IM - May repeat every 10-minutes
- Single max dose 50 mcg
- Total max dose 200 mcg

Or

Fentanyl 1 mcg/kg IN
- ½ dose per nare
- May repeat every 10-minutes
- Single max dose 50 mcg
- Total max dose 200 mcg

Contraindications

Acetaminophen

- Liver Disease or complications (e.g. Transplant)

Ketorolac (Toradol)

- Renal Disease/Insufficiency/Transplant
- Multi-system Trauma
- Coagulopathy Disorder
- Active Bleeding
- Patients < 15 or > 65 years
- History of Asthma
- Pregnancy
- Current Steroid use

Ketamine (Ketalar)

- RR $\leq$ 12
- SBP $\leq$ 100
- GCS < 15

Fentanyl

- SBP < normal range for age
- GCS < 15

Direction

- Contact Receiving ED Physician for additional pain management

SYMPTOMATIC BRADYCARDIA

Adult	Pediatric

Signs & Symptoms

- Hypotension
- Acute altered mental status
- Chest pain
- Seizures
- Syncope/near syncope
- Shortness of breath
- Pallor or cyanosis

BLS

Assess vital signs
O_2, titrate SpO_2 to $\geq$ 94%
Assist ventilations as needed

ALS

Cardiac Monitor, 12-Lead ECG, Waveform $EtCO_2$, Vascular Access

HR < 50

Atropine 1 mg IV/IO
- May repeat every 3 - 5 minutes
- Max total dose 3 mg

and/or

Transcutaneous Pacing

SBP < 90

Fluid Bolus NS 250 mL IV/IO
- May repeat as needed

If no response and patient is on Beta Blockers

Glucagon 1 mg IV/IO
- Given over 1 minute
- No repeat

Or

Glucagon 1 mg IM/IN
- No repeat

HR < 60

**Assure adequate oxygenation and ventilation*

If HR remains < 60 despite oxygenation and ventilation

CPR (for patients without signs of puberty)

Epinephrine (1:10,000) 0.01 mg/kg IV/IO
- May repeat every 3 - 5 minutes

Increased vagal tone

Atropine 0.02 mg/kg IV/IO
- Minimum dose 0.1 mg
- Max single dose 0.5 mg
- Total max dose 3 mg

Consider
• H's and T's • Consider sedation with pacing • **The majority of pediatric bradycardia is due to respiratory problems**
Direction
• Transmit ECG to Receiving ED • Contact Receiving ED Physician for additional treatment

SPINAL MOTION RESTRICTION (SMR)

Adult | **Pediatric**

Indication

Patients with a mechanism of injury that has the potential to cause a spinal injury and who have 1 or more of the following may benefit from SMR:

- Neurological deficit
- Spinal pain or tenderness
- Unable to successfully complete a Motor/Sensory exam
- Altered mental status or evidence of intoxication
- A distracting painful injury (e.g. long bone extremity fracture)
- Complains of pain when patient tries to flex, extend, or rotate neck

Victims of penetrating trauma (stabbing/gunshot wounds) to the head, neck, and/or torso **do not require** SMR.

BLS

Perform a Spinal Assessment & Motor Sensory Exam to include:

- With the patient's spine supported to limit movement, begin palpation at the base of the skull at the midline of the spine
  - Palpate the vertebrae individually from the base of the skull to the bottom of the sacrum
- Assess for pain with movement of the neck (cervical flexion, extension, and rotation)
- Any abnormal neurological function in extremities (check all extremities):
  - Extend both wrists, open the hands and touch each finger to the thumb
  - Flex each foot down and up
  - Check for abnormal or absent sensation to any extremity.

If patient requires SMR:

- Apply rigid cervical collar
  - Alert and cooperative patients may be allowed to self-limit motion if appropriate, with or without a collar
- Self-extrication by patient is allowable if patient is capable
  - Allow ambulatory patients to sit on stretcher and then lie flat if possible or in position of comfort
- If extricated on a backboard, position backboard on stretcher then remove backboard by using a log roll or lift and slide technique
- Pediatric Patients in Car Seats:
  - Children restrained in a car seat with a high back may be immobilized and extricated in the car seat
  - If the decision is made to apply SMR to a patient in a car seat, ensure that a proper assessment of the patient's posterior is performed

BLS *cont.*

- Helmet Removal:
  - Any type of helmet that requires manipulation of the head and neck to remove it from a trauma patient should be left in place. The airway may be managed through the mask/screen but should be removed if the airway cannot be managed and with the mask/screen in place. Be sure to pad around the helmet, neck, and shoulders to fill any gaps and maintain inline spinal motion restriction

POST RESUSCITATION CARE

Adult	Pediatric

BLS

Assess vital signs
O_2, titrate SpO_2 to $\geq$ 94%
Assist ventilations as needed
Avoid hyperventilation
Temperature

BLS Local Scope

Blood Glucose Check

ALS

Cardiac Monitor, Waveform $EtCO_2$, Vascular Access
12-Lead ECG (required on all ROSC patients)

BP < 90 & HR > 50 BPM

Fluid Bolus NS 250 mL IV/IO
- May repeat as needed

BP < 90 & HR < 60 BPM

Atropine 1 mg IV/IO
- May repeat every 3 - 5 minutes
- Max dose 3 mg

If no response, consider

Epinephrine 0.5 mL (5 mcg) SIVP
- Eject 1 mL from a 10 mL pre-load syringe
- Draw up **1 mL epinephrine 1:10:000** concentration and gently mix
- Administer 0.5 mL every 3 minutes
- Titrate to SBP >90

Transcutaneous Pacing

VF/VT ROSC

**Only give Amiodarone if not previously administered during initial resuscitation*

Amiodarone Drip 150 mg in D5W 100 mL IV/IO
(100 gtts/min with 10 gtts/mL set)
- Give over 10 minutes
- No repeat

Signs of hypoperfusion

Fluid Bolus NS 20 mL/kg IV/IO
- Titrate to age appropriate SBP

** Sustain normothermia*

Direction

- Transport to a STEMI Receiving Center
- Transmit 12-Lead ECG to Receiving ED
- Consider sedation if the patient is combative
- Contact Receiving ED Physician for additional treatment

SHOCK

Adult	Pediatric

Compensated Shock

- Tachycardia
- Cool Extremities
- Capillary refill time > 2 seconds
- Weak peripheral pulses compared to central pulses
- **Normal BP**

Decompensated Shock

- Hypotension and/or bradycardia (late finding in pediatric patients)
- Decreased mental status
- Decreased urine output
- Tachypnea
- Non-detectable distal pulses with weak central pulses
- Pale/cool/diaphoretic skin signs

BLS

Assess vital signs
O_2, titrate SpO_2 to $\geq$ 94%
Temperature

ALS

Cardiac Monitor, 12-Lead ECG, Waveform $EtCO_2$, Vascular Access

SBP < 90

Fluid Bolus NS 250 mL IV/IO
- May repeat as needed

SBP < 90 and Pulse < 60

If patient continues to have signs and symptoms of shock after fluid dose; consider

Epinephrine 0.5 mL (5 mcg) SIVP
- Eject 1 mL from a 10 mL pre-load syringe
- Draw up **1 mL epinephrine 1:10:000** concentration and gently mix
- Administer 0.5 mL every 3 minutes
- Titrate to SBP >90

Establish second large bore IV, if possible

Fluid Bolus NS 20 mL/kg IV/IO
- Titrate to age appropriate SBP

Consider

Shock in children may be subtle and difficult to recognize; tachycardia may be the only sign

Direction

- Contact Receiving ED Physician for additional treatment

FOCUSING ON CHILDREN UNDER STRESS (FOCUS) GUIDELINE

PURPOSE

FOCUS supports children exposed to violence and trauma through improved communication and collaboration between first responders (law enforcement, firefighters, emergency medical responders, etc.), schools, and community resources. Our Focusing On Children Under Stress (FOCUS) Program is designed to decrease the effects of a child's exposure to violence and trauma. FOCUS will help children achieve academically at their highest levels despite any traumatic circumstance(s) they may have endured.

POLICY

When a first responder encounters a child that may have been exposed to a traumatic event, that child's information is included in a FOCUS Notification through the FOCUS App. That information is sent directly to the school district and school of attendance.

A "FOCUS Notification" alerts the school that this child may have been exposed to a traumatic incident (i.e., domestic violence, child abuse, death in the family, witness to a crime, loss of home due to a house fire, etc.). That student may exhibit or develop academic/behavioral problems. No specific details about the incident are given, just a straightforward request: To focus on the child and handle them with care.

GUIDELINES

I. While on duty, if you encounter children who may have either been involved in or witness a traumatic event, create a FOCUS notification.
   - A A traumatic incident is not explicitly defined or limited and should be interpreted loosely and in favor of creating a notification. A traumatic incident is any situation where a child might be exposed to a stressful event.

II. Obtain the following information:
   - A Name, DOB, and school/preschool of the child

III. Create the notification by:
   - A Filling out the form and email to FOCUS@ycoe.org;
   - B Login on a desktop https://focus.yolocounty.org;
   - C Create a shortcut for your apple or android device.
     - i. Login credentials will be provided per jurisdiction/agency.

IV. If applicable, mandated reporting to CPS

Note: If you are questioning if the event had a traumatic effect on the child, always use the FOCUS App to submit a Notification.

REFUSAL FORM/RELEASE OF RESPONSIBILITY

Date: Unit #: Incident #:

❑ Section I - Released at Scene (RAS) – BLS/ALS

I understand that any evaluation and/or emergency treatment I have received by EMS personnel has been on an emergency basis only and is not intended to be a substitute for a complete medical assessment and/or care. The decision not to accept further medical care and/or transportation to a hospital emergency room has been made by me alone with the understanding that I may have medical complications unknown or unforeseen at this time. I understand that if I change my mind or conditions become worse and I decide to accept treatment/transportation by the Emergency Medical Services System, I can call back and they will respond. In addition, I acknowledge that I was provided with, or a reasonable attempt was made to provide me with, a copy of the Notice of Privacy Practices and my rights in accordance with the Health Insurance Portability and Accountability Act of 1996, also known as HIPAA.

❑ Section II - Refusal of Care/Treatment/Transportation Against Medical Advice (AMA) - ALS

I refuse medical treatment and/or transportation against the medical advice of Paramedic: _____. I acknowledge that I have been informed of and understand the risks and consequences involved in refusal, to include but not limited to the following: _____

Knowing this information, I hereby release the EMS personnel present and their ambulance company as well as any base hospital involved in this incident from any and all responsibilities or any ill effects which may result from my decision. I also understand that if I change my mind or my condition becomes worse and I decide to accept treatment or transportation by the Emergency Medical Services System, I can call back and they will respond. In addition, I acknowledge that I was provided with, or a reasonable attempt was made to provide me with, a copy of the Notice of Privacy Practices and my rights in accordance with the Health Insurance Portability and Accountability Act of 1996, also known as HIPAA.

Patient Name (Print):	Patient Signature:
Phone Number:	
Parent/Guardian Signature:	Relationship:
Comments:	
Paramedic/EMT Signature:	Witness Signature:

Termination of Paramedic/Patient Relationship Check List

Prior to the termination of the Paramedic/Patient relationship, all the following will be evaluated. All areas identified on this checklist must be specifically documented on the Patient Care Report (PCR).

⇩ **Provider Initials:**	
1.	Physical Examination performed, including a full set of vital signs.
2.	History of event and prior medical history, including medications obtained.
3.	Patient or decision-maker determined to be legally capable of refusing medical treatment or transportation. If minor or incompetent adult, assure that a legal guardian or person with durable power of attorney for healthcare is identified.
4.	Risks of refusal of medical treatment and transportation explained.
5.	Benefits of medical treatment and transportation explained.
6.	Patient clearly offered medical treatment and transportation.
7.	Refusal of Care Form prepared, explained, signed, and witnessed.
8.	Patient confirmed to have a meaningful understanding of the risks and benefits involved in this healthcare decision.
9.	Patient advised to seek medical attention for complaint(s).
10.	Patient advised to call 911 for medical assistance if condition continues or worsens.
11.	Base consultation was obtained if the patient had an ALS suspected medical illness or chief complaint