



# YOLO COUNTY EMS AGENCY

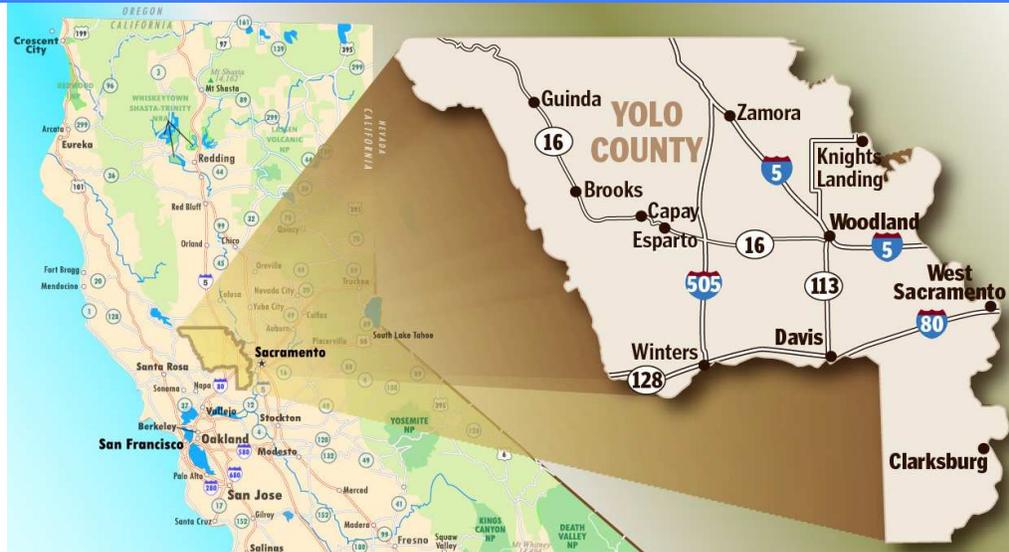
## Policy and Protocol Update

Issue I

September 2018

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## Treatment Protocols Reformatted

Over the last year YEMSA has been working on reformatting the treatment protocols. Many of these changes have been based on feedback and requests from you, the EMS professionals. Our goals with these changes are to remove areas of confusion, decrease the need for navigating multiple protocols, provide clarification with language changes, and ultimately make them more user friendly.

The most significant change you will notice is the incorporation of pediatric, adult, and BLS. This change gives providers guidelines that follows the natural progression from BLS to ALS. The new format also includes color coding to better help the provider quickly find the information relevant to their skill level. For example, the BLS section is color coded with an orange header and the ALS section is color coded with a green header. Adult treatment is now on the left side of the protocol and pediatric is on the right side of the protocol. Pediatric treatment is color coded in light purple. For protocols where adult and pediatric have the same treatment the body of the protocol will be white with both the pediatric and adult headers above.

The new format also includes a "Direction" section that provides guidelines about destination requirements, specialty hospitals, required actions, and when to contact the base hospital physician, receiving hospital physician, or trauma hospital physician.

All the treatment protocols have been organized into two alphabetized sections; Protocols and Procedures. You will also find that some of the policies, which had treatment criteria, have been reformatted into a protocol or have been combined with a current protocol. This limits the need to navigate multiple policies and protocols for the same patient.

Specialty Center Catchment Maps and Charts have been moved to a new section called Quick References. Additional references will be added to this section in the future. Some of the treatment protocols have been updated to reflect current research and best practice guidelines. These changes will be discussed in more detail in the articles to follow. Finally, a small amount of policies and protocols were found to be out dated or no longer relevant and therefore removed.

We ask that you take time to review each protocol and its new location. Although we will cover the most significant changes in this newsletter there are small changes that will not be covered.

We would like to thank everyone that provided suggestions and feedback. These changes would not have been possible without you. Please continue to share your suggestions, thoughts and concerns. Our goal is to have a clinically superior, efficient, and innovative system which can only be accomplished through collaboration!



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### High Performance CPR (HP CPR)

The new Medical Cardiac Arrest Protocol was created based on the HP CPR model. HP CPR consists of quality chest compressions with minimal interruptions and early defibrillation as part of a well-organized team response to a cardiac arrest. This is also known as the Pit Crew CPR Model. In EMS systems where high performance CPR has been implemented significant increases in cardiac arrest survival rates have been documented.

High quality compressions lead to better organ perfusion and ultimately resuscitation. The downward motion of compression provides perfusion to vital organs including the brain while the upward decompression (chest recoil) provides perfusion to the heart. Greater depth of compression increases the likelihood of a successful defibrillation while quality CPR decreases the amount of time required for epinephrine to reach peak concentrations in circulating blood. Perishock pauses kept to < 5 seconds greatly increase the chance of survival.

The new protocol is just the first step in improving cardiac arrest care in Yolo County. YEMSA will continue to provide education and guidelines for High Performance CPR. If you are interested in more information, YEMSA recently released a case review all about high performance CPR. It can be found on the YEMSA website under "online training opportunities".

#### Principals of HP CPR

- Ensuring optimal rate between 100-120
- Ensuring adequate depth of > 2 inches
- Allowing for full chest recoil (decompression)
- Providing proper volume of air (300-400 ml)
- Asynchronous ventilations every 10th compression on the upstroke of the compression
- Shocking on a 2 minute cycle
- Minimizing perishock pause to < 5 seconds
- Rotating compressors during the perishock pause or every 2 minutes

### Chest Pain and STEMIs

Chest pain is one of the most common calls EMS providers respond to each year. Early recognition of Acute Coronary Syndrome by EMS can have a significant impact on patient survival.

The current Acute Coronary Syndrome Protocol has been renamed to Chest Pain/Discomfort with Cardiac Etiology and has been updated and combined with the STEMI policy. The purpose of this change is to better clarify the goals of treatment for patients experiencing acute coronary syndrome and to quickly give providers guidelines on when and when not to provide a medication. The 12-Lead ECG policy has also been updated for ease of use and has been moved to the new procedure section.



#### The Science

The most important medication for patients experiencing chest pain suggestive of ischemia is Aspirin. Aspirin inhibits platelet aggregation which slows the formation of blood clots and is shown to decrease mortality. Aspirin should be given to all patients even if they have already taken their own. The only contraindication is a history of anaphylaxis to Aspirin. Nitroglycerin and Fentanyl are used in the prehospital setting to treat pain associated with myocardial ischemia. Nitroglycerin does not reduce myocardial infarction but may temporarily reduce chest pain due to arterial dilation. Patients who are positive for STEMI often do not have pain relief with Nitroglycerin. It is recommended to move onto Fentanyl for pain management if the patient does not report relief after the first dose of Nitroglycerin. The prehospital treatment goals for acute coronary syndrome are early Aspirin, pain and anxiety reduction, and transport to a STEMI Center.



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"The capacity to learn is a gift;  
the ability to learn is a skill; the  
willingness to learn is a choice."  
Brian Herbert

## Code 3 Transports

Code 3 transport has been a significant part of patient care in EMS. As the EMS profession grows, the opportunity for increased research is allowing for evidence based modifications to the standard of care. Spinal motion restriction and the use of backboards is a great example of this. Recent research has shown that transporting patients to the hospital using lights and sirens does not reduce mortality and greatly risks the safety of both the patient and EMS crew. The potential negative impact due to the stress and increased safety risks of transporting Code 3 far out weigh any benefit of a 2-3 minute decrease in transport time and greatly increases the risk to you and the patient.

It has been standard practice that when a patient meets a certain criteria, such as STEMI, Stroke, or Trauma, they are automatically transported Code 3. Much of this is based on the hospitals triage system and reliance on transport code for determining acuity. One way to navigate away from this is to omit the transport code during the radio report. It will however being very important that you give a clear radio report especially when transporting a patient meeting criteria. The goal with patients meeting criteria is early recognition, notification, stabilization, and safe transport to an appropriate receiving center.

It is YEMSA's recommendation that Code 3 transport only be considered for truly unstable patients or when traffic greatly increases transport time. Once clear of the traffic it would be appropriate to reduce to Code 2 and continue transport. Code of transport should be based on a solid clinical assessment and paramedic judgement.

## Tranexamic Acid (TXA)

Tranexamic Acid has been approved as a local scope in California. The new protocol will reflect the guidelines set by the state. The indications for TXA are trauma patients with signs and symptoms of hemorrhagic shock meeting all of the following criteria:

- Blunt or penetrating trauma to the chest, abdomen, or pelvis
- Transport time > 30 minutes from a trauma center
- Within 3 hours of injury
- SBP < 90



You will no longer need to fill out the trauma study form but the green wrist band will still be required. This is a safety measure to ensure the hospital knows the patient received TXA so they are able to give the appropriate second dose.

Remember that the use of TXA is for hemorrhagic shock and has the most benefit for patients with extended transport times. There is an increased risk of mortality for a small number of patients experiencing coagulation dysfunction. Therefore, patients within close proximity to a trauma center should have a coagulation finger stick at the trauma center prior to TXA administration.

There is a TXA training that can be found on the YEMSA website under "online training opportunities". It is also a great refresher for hemorrhagic shock.



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### Stroke Patient Care

Stroke research is advancing at an incredible rate. Treatment options are expanding and specialty comprehensive stroke centers are becoming more common. YEMSA has made changes to the Stroke Protocol in accordance with this new research. In the past “Stroke Alerts” were called by EMS if the patient was within 6 hours of onset of symptoms. Due to the new advances in treatment “Stroke Alerts” can now be called up to 24 hours after onset of symptoms or last known well time. One of the main reasons for this change is an increased understanding of wake up strokes. It is now believed that people who report waking up with stroke like symptoms were awoken by those symptoms. This allows for more treatment options for these patients who previously were considered outside of the treatment time window.

We have also added the Los Angeles Motor Scale (LAMS) chart to the protocol. A LAMS Score of  $\geq 4$  indicates a high likelihood of a large vessel occlusion. Although this does not change your treatment it will provide data on the possible need for these patients to be transported directly to a comprehensive stroke center.

Los Angeles Motor Scale (LAMS)		
Face	0	Both sides move normally
	1	One side is weak or flaccid
Arm	0	Both sides move normally
	1	One side is weak
	2	One side is flaccid/doesn't move
Grip	0	Both sides move normally
	1	One side is weak
	2	One side is flaccid/doesn't move
Total	0-5	

### Fluid Therapy

IV fluid therapy has a very important place in the prehospital setting. It is however important to understand it's mechanism and how it impacts patient physiology.

Research is clear that excessive prehospital IV fluid administration is associated with increased mortality in trauma patients. This is due to the negative effect it has on the patients ability to clot or receive blood products. The definitive treatment for trauma patients is blood and blood products. Current literature recommends titrating fluid therapy for trauma patients to a SBP of 90mmHg.

There are many medical conditions that benefit from early prehospital IV fluid therapy. The key is that you titrate fluid based on the patients condition and vital signs. Patients with significant hypotension should be treated with IV fluids. However it is important to do a thorough assessment and have a working differential diagnosis in order to simultaneously treat underlying causes.

The updated YEMSA protocols have streamlined fluid therapy to better reflect these goals. Assessment is the key when deciding when and how much fluid to give.

### Future System Goals

We are proud of our EMS system and all the amazing clinicians that care for patients everyday. One of the ways YEMSA can support the system is by staying up to date on current research and implementing it into our polices and protocols. Continuing education is key in all medical fields and is the mechanism in which clinicians stay current within the ever evolving science of medicine. Some goals for the future are:

- Create an educational resource for providers
- Create a CPR tool Kit that supports HP CPR
- Work with all EMS stakeholders to continue to develop a cohesive, efficient, and clinically superior EMS system
- Provide unique educational opportunities

**Thank you for your dedication and hard work to making Yolo County EMS great!**

**“ Education is our passport to the future; for tomorrow belongs to those who prepare for it today”**