Alameda County EMS Sepsis Program

By Fred Claridge, Prehospital Care Coordinator

On December 1st the Alameda County EMS system will implement a sepsis identification and alert program. The program is designed to help paramedics identify potential sepsis patients more easily and to alert the receiving hospital that a potential sepsis patient is enroute. Ideally, this will lead to more aggressive assessment for sepsis and the initiation of Early Goal Directed Therapy (EGDT) in the ED. All of the hospitals in Alameda County have or will have internal sepsis programs.

Over the past several years, the medical community has begun to pay more attention to sepsis patients. Sepsis is the 10th leading cause of death according to the CDC. There are approximately 750,000 cases of severe sepsis in the U.S. annually. That compares to 700,000 CVAs and 900,000 AMIs. The mortality rate - 20-50% - is higher than AMI, CVA, and trauma. Once a patient reaches the septic shock phase of the pathological process, the mortality rate can be as high as 50-80%. A delay of even a couple of hours in starting antibiotic therapy can significantly increase mortality rates.

Sepsis is a significant and common medical condition. It deserves the same kind of attention our system pays to STEMI, CVA, and trauma patients. Prehospital care providers probably see more of these patients than they realize. Patients often present as “sick” or febrile and may have a documented or suspected infection. These are the patients this new program seeks to address.

Sepsis starts out as an infection – an inflammatory response to microorganisms. It can then progress to Systemic Inflammatory Response Syndrome or SIRS. This syndrome can include fever, tachycardia, and tachypnea. True sepsis exists when a patient has a known or suspected history of infection and two or more of the SIRS criteria. (The screening tool to be used in our system is based on that definition.) Severe sepsis is sepsis plus one or more organ failures. Septic shock occurs when a patient has severe sepsis along with hypotension or other perfusion abnormalities despite fluid resuscitation. As noted, the mortality rate is very high once a patient reaches this level.

Sepsis patients can be any age and there are a number of co-morbidities that are associated with sepsis. The list includes: cancer, AIDS, alcoholism, and diabetes. Physical conditions such as malnutrition, hypothermia, or recent surgery/invasive procedures can also play a part.

The idea behind EGDT is early recognition of these patients, serum lactate measurements as an important marker, aggressive fluid therapy, vasopressors and inotropes as needed, and antibiotics. Early recognition byprehospital care personnel and alerting of the receiving hospital can start the “clock” earlier for potential sepsis patients. Paramedics should aggressively treat any symptoms, such as hypotension, per current protocols. Consider Dopamine with refractory hypotension. You can also contact the base hospital for advice.

A study will be done once the program has been implemented to determine if the EMS sepsis program makes a difference in patient outcomes. Historical control data will be compared to prospective data generated by the new program. The bottom line for field personnel is you will have a tool that makes it easier to identify potential sepsis patients and a process for alerting the receiving hospital. Provider agencies have begun training on this new program and receiving hospitals will be oriented prior to program implementation.

We will be one of the relatively few systems in the country with such a program. Data gained during the study period may guide future enhancements. The overall premise is a simple one but this program could prove to be very beneficial to this group of patients.
I’m tired of hearing, “We can’t share that information—they aren’t sworn.”

Intelligence related information sharing has been identified as a major problem in effective terrorism and crime prevention, preparedness and response. The 9/11 Commission recommended that, “Information procedures should provide incentives for sharing, to restore a better balance between security and shared knowledge.” Information sharing has improved within the law enforcement community in the years following 9/11. There has been a shift from the old adage, “need to know”, to one of “need to share.” The problem is that there is still a distrust of the non-sworn community from those that are sworn. This has to change if we want to effectively prepare for and respond to any kind of significant emergency situation whether it is man made or naturally occurring.

For one to have a U.S. Government Secret or Top Secret clearance requires a significant background check, many interviews, records verification and months of detailed investigation. That makes sense to me. What is less clear is what being “sworn” mean. According to one source, the definition or sworn is, “Bound or empowered by an oath.” Are some oaths more meaningful or real than another? Does being sworn imply a detailed background check? The answer is sometimes yes, sometimes no.

I have often heard the statement, “We can’t share that information with them because they are not sworn.” This statement comes from both law enforcement officers and fire fighters regarding the sharing of “sensitive” information to members of the medical and health community. For some reason I only hear this statement from those that are “sworn.” I can only conclude that statement is made so one can clearly delineate those that are trustworthy of receiving sensitive information from those that are not. What other meaning could it be? It is as if taking an oath automatically prevents a sworn individual from breaking the law, leaking sensitive information, violating some code of ethics, or some other act that would be deemed in violation of the oath they took.

Read any newspaper on any given day and you’ll see this is a ridiculous assumption. There are plenty of sworn people who are busted for serious offences such as child pornography, extortion, rape and more. Lesser offences include theft, embezzlement, running gambling or prostitution rings, selling drugs; you name it, it goes on.

And as far as leaking sensitive information, we all know that anywhere up and down the chain, this goes on. Don’t get me wrong. I am a strong law enforcement supporter. I use to be a cop and I have been a federal law enforcement contractor for over 20 years. I hold all of the emergency response community in high regard with the premise that an individual is deemed trustworthy until proven otherwise. Even if an individual violates that trust that does not mean that the entire discipline he or she represents is suspect.

I don’t like the arbitrary line of sworn vs. not; and I have to admit that those kind of statements such as, "They aren’t sworn" get under my skin. Doctors, nurses, pre-hospital care providers, public health officials, most emergency operations center personnel are not sworn in the same way that cops and firefighter are. Does that make them less trustworthy? No. Trust can and should be built through relationships, usually developed over years and through positive interactions. Trust is something that one earns and fosters, and respects. Working in discipline specific "silos" inhibits the development of trust. The entire emergency response community needs to be more thoroughly integrated and unified. While some might argue these “silos” are actually “cylinders of excellence”, I disagree. Isolation and turf protection lead to distrust, and even disdain for those not part of that group. It also sets up a “we are better than they are” mentality. Clearly, this is not helpful in a significant emergency situation that requires coordination and cooperation.

There are solutions. Joint training, drills, exercises and unified planning for real events is critical for success. Large full scale exercises such as Urban Shield (www.urbanshield.org) support the concept of respect, team work and multi-discipline coordination. The Alameda County Sheriff’s Department embraces the concept of fire, EMS and law enforcement as an interdependent triad; much like a three legged stool, where all pieces need to be fully engaged and integrated that will lead to success. By the way, I have never heard, “They are not sworn,” from an Alameda County Sheriff’s Department member.

In conclusion, it is high time that this arbitrary line of sworn vs. non-sworn be replaced by cooperation, coordination, respect and a commitment to share appropriate information with the appropriate individuals and disciplines. The shift to “need to share” will lead to better planning and response for all of the emergency response disciplines.
Cardio-Pulmonary Resuscitation Turns 50

Editors Note: This is an excerpt of a multi-page article on the history of CPR. To read the entire article go to http://en.wikipedia.org/wiki/History_of_CPR.

Cardiopulmonary resuscitation is an important life saving first aid skill, practiced throughout the world. It is the only known effective method of keeping someone who has suffered cardiac arrest alive long enough for definitive treatment to be delivered (usually defibrillation and intravenous cardiac drugs). In 1954, James Elam was the first to demonstrate experimentally that cardiopulmonary resuscitation (CPR) was a sound technique, and together with Dr. Peter Safar he demonstrated its superiority to previous methods. Peter Safar wrote the book ABC of Resuscitation in 1957. In the U.S., it was first promoted as a technique for the public to learn in the 1970s.

It was well into the 20th century before Elam and Safar discovered and published the truly effective method known as CPR. Safar conducted research on existing basic life support procedures including controlling a person’s breathing airway by tilting back the head with an open mouth; and using mouth-to-mouth breathing. He combined these with a procedure known as closed-chest cardiac massage to become the basic life support method of CPR.

Throughout his life Safar was hesitant to take credit for “inventing” CPR. The way he saw it, he merely brought to light effective procedures that humans had already discovered, putting them together into what he called “the ABCs”— maintaining a patient’s Airway, Breathing and Circulation. He worked hard to popularize the procedure around the world and collaborated with Norwegian toy maker Asmund Laerdal to create “Resusci Anne,” the CPR training mannequin. Safar also created the first guidelines for community-wide emergency medical services, or EMS.

**Modern Resuscitation**

Scientists and doctors started to try and address the problem from many different sides including developing new medications, devising new surgical techniques and identifying risk factors. Doctors Elam, Safar and Archer S. Gordon set to educating the world about rescue breathing, preventive measures and trying to discover a way to treat acute cardiac arrest.

Prior to the 1950s, the accepted method of resuscitation was the chest-pressure and arm-lift technique that was shown to be ineffective by Safar and Elam. In 1954, Elam was the first to prove experimentally that exhaled air ventilation was a sound technique.

In New York, then State Health Commissioner, Herman Hillibo was impressed with the technique. He commissioned Elam to write the instructional booklet titled “Rescue Breathing,” which was distributed nationally in 1959. The success of the booklet spurred Elam to produce films demonstrating this new life-saving technique.

The decade of the 1960s started with the development of CPR and rescue breathing. By the end of the decade, paramedic programs were operating in Miami, Seattle, Portland, Columbus, and Los Angeles. A common denominator to all the cities was a physician who saw the problem of out-of-hospital cardiac deaths, decided not to accept the irreversibility of death, and started doing something about it.

**Recent Developments in CPR**

By the early 1970s CPR, defibrillation, and a rapid means to provide prehospital care were all in place. The structure to resuscitate sudden death victims had been built and was proving successful.

In 1980 the first program to train EMTs to perform defibrillation began in King County, Washington. The idea for an automated defibrillator was first conceived by Dr. Arch Diack, a surgeon in Portland, Oregon. By the late 1980s, however, other manufacturers entered the field leading to the automated external defibrillators (AEDs) we have today. From EMT defibrillation with AEDs, there was a natural and logical progression to first responder defibrillation (AEDs used by police or security personnel), next widespread Public Access Defibrillation (AEDs used by lay persons in public locations such as airports, schools, exercise facilities, etc) and finally home AEDs.

In 1981 a program to provide telephone instructions in CPR began in King County, Washington. This program used emergency dispatchers to give directions to fire department EMT personnel — and is now standard care for dispatcher centers.

**2010 Guidelines for CPR**

The 2010 American Heart Association Guidelines for CPR are changing the way we do CPR. The changes are based on an international evidence process that studied resuscitation science. The changes again emphasize high-quality CPR to improve outcomes. The A-B-Cs will change to C-A-Bs, with the focus on chest compressions first. These changes will be rolled out in 2011.
2011 Policy Updates

This year we are adding the use of two important adjuncts to the treatment of patients suffering from severe blood loss. First, we are introducing the use of the Combat Application Tourniquet (or C.A.T. for short) for controlling severe bleeding from extremity injuries. This device has been used with great success on the battlefields of Iraq and Afghanistan, and their benefits to prehospital medicine has gained rapid acceptance. Tourniquets are approved for use by both BLS and ALS providers.

Next we are introducing the use of the hemostatic agent, QuickClot® Combat Gauze™ for use on patients with uncontrollable bleeding in areas where a tourniquet is not useful. Combat Gauze is also useful in situations where a tourniquet alone is not sufficient. Hemostatic agents are only approved for use by ALS personnel.

**UPDATED POLICIES BY SECTION**

**GENERAL TAB**

*Assault | Abuse (page 3)*

ValleyCare is no longer a destination for adult victims of sexual assault.

*Infection Control (page 17)*

Added P-100 respirators to comply with OSHA guideline changes.

*Trauma Patient Criteria (page 24)*

Adopted CDC updated guidelines.

**ADULT TAB**

*Asystole (page 31), PEA (page 42) and VF/VT (page 52)*

The note made last year regarding the use of supraglottic airways has been modified. The new language emphasizes the strong consideration of a supraglottic airway only after 2 minutes of continuous chest compressions with BVM support AND an endotracheal tube is not immediately obtainable (i.e.-patients with a Cormack-Lehane of 3 or 4).

*Respiratory Distress (page 43)*

Added CPAP.

**PEDIATRIC TAB**

*Airway Obstruction (page 54)*

Very minor change that adds the word “suspected” before epiglottitis in the information section at the top of the policy.

*Pain Management (page 60)*

Removed base contact requirement for prehospital time <10 mins.

**OPERATIONS TAB**

*Equipment and Supply Specifications (pages 92-93)*

Changes to Equipment and Supply Specifications to include C.A.T. tourniquet (mandatory) and Combat Gauze (optional).

**PROCEDURES TAB**

*Advanced Airway Management (page 116)*

See note above regarding supraglottic airways (adult tab).

*Continuous Positive Airway Pressure - CPAP (pages 123-124)*

In an effort to extend the usefulness of CPAP to more patients, we are modifying this policy to allow clinicians to treat respiratory distress patients of multiple etiologies (not just pulmonary edema). We do caution that blood pressure always be monitored while administering CPAP as this treatment is known to lower BP. We have also taken out the step-by-step instructions, leaving it to each agency to train their personnel on the particular device used within the organization.

*EKG 12-Lead (page 125)*

Changed terminology from Cardiac Receiving Center to STEMI Receiving Center.

*Hemorrhage Control (page 127)*

Policy for use of tourniquets and hemostatic agents.

Interim Medical Director - Dr. Joe Barger, the EMS Medical Director for Contra Costa County, has agreed to assume the role of Interim Medical Director in Alameda County until a permanent medical director is hired. Dr. Barger is well acquainted with Alameda County, having worked closely with Dr. Pointer (retired) on the bi-county Trauma Audit Committee (TAC) and the Emergency Medical Directors Association of California (EMDAC). He will be in the office one day a week, on a variable schedule. He can be reached at joe.barger@acgov.org or 510-618-2042. Dr. Garrick remains our Assistant EMS Medical Director and will continue to have a role in TAC, Stroke Centers, Cardiac Receiving Centers and research.