



PROTOCOL

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SFPA: Who's who

SFPA to do study of CPR skills training

In partnership with the San Jose Fire Department EMS Division, the SFPA is studying the effect of real time feedback during CPR training on several factors, including skills retention and Return of Spontaneous Circulation (ROSC) rates in cardiac arrest. "We are very excited to collaborate with the SJFD in creating a large, well-monitored population of CPR providers to conduct the study," states Art Hsieh, CEO and one of the principle researchers. Using several SMARTman training manikins, the study will establish a baseline performance rate of all SJFD members who do not opt out of the study, then track their performance over a 6 month period. Variables such as the number of cardiac arrests a member had performed prior to the study, number of years of BLS certification, and specific training interventions will be compared against retention rate. It is anticipated that results from the study will be published in a peer-review journal. SFPA member Ben Tanner, RN and SFPA Medical Director Preston Maxim, MD, UCSF Department of Emergency Medicine and attending physician at San Francisco General Hospital are involved, along with David Huseman, Mike Van Elgort, Antoinette Igno and Jose Chavez, members of the San Jose Fire Department EMS Division.

C-spine reconsidered

Wednesday June 3, 6-8 pm

In our next lecture, Ben Schifrin, MD, FACEP, will teach us about spinal injury assessment and management. Dr. Schifrin practices emergency medicine and is Quality Management Director at Doctor's Medical Center in Modesto. He has too many instructor and provider certifications to list here! Dr. Schifrin's experience includes running EMS agencies, paramedic programs, WEMT programs, and SAR teams. Before going to medical school, he was a paramedic on a mountain rescue team, and he still maintains his national registry paramedic and EMT certifications. To register for this unique lecture, go to the SFPA web site:

<http://www.sfparamedics.org/pages/classes/lecture.php>.

Heart Safe initiative

San Jose Fire Captain Jose Chavez hopes to give more residents a better chance for survival through the Heart Safe City Initiative, approved by the San Jose city council in June 2008. Chavez was appointed as Manager of the program in January and is working in conjunction with the American Heart Association, American Red Cross and Health Trust. Captain Chavez hopes to equip every school, community center, senior center and public building with AEDs and provide CPR and AED training to the staff.

EMS news

Infectious Stethoscopes

A recent study in the current issue of *Prehospital Emergency Care* found that ambulance crews' stethoscopes "are not always cleaned as often as they should be, and as a result they may be exposing some patients to drug-resistant bacteria." Researchers tested 50 stethoscopes "used by emergency medical services workers in New Jersey," and found 16 had MRSA, "which an alcohol swab is usually enough to kill."

Defibrillator Recall

FDA and Welch Allen notified healthcare professionals and consumers of a nationwide Class I recall of 14,054 AED 10 and MRL JumpStart external defibrillators manufactured between October 3, 2002 and January 25, 2007. These devices may experience low energy shock, unexpected device shutdown, and/or susceptibility to electromagnetic noise interference, which may prevent defibrillation of a patient in cardiac arrest and could lead to death. Class I recalls involve situations with a reasonable probability that use of the product will cause serious injury or death. Read the MedWatch safety summary, including a link to the Recall Notice, at: <http://www.fda.gov/medwatch/safety/2009/safety09.htm#AED10>

Healthcare reform summit

Last week, AHA's President, Dr. Timothy Gardner, attended the White House Summit on Healthcare Reform. The AHA was proud to be one of the leaders involved in the discussion. Your stories and messages to lawmakers can help make healthcare reform a priority this year. To learn more, see Dr. Gardner's comments at:

http://t.democracydirect.com/?ti_dn__=cf0a132d-e800-48d8-8db9-b6eac20c3da1&__u_idz=0561d556-7640-4733-9e8a-8361bf3ac1bb&__turl=http://yourethecure.blogspot.com/

UCSF grant for new medical center

UCSF received \$125 million for a new Medical Center. Slated to open in 2014, the 289-bed UCSF Medical Center at Mission Bay will help the university realize its vision of an integrated campus where clinicians, scientists, and industry professionals can interact and collaborate. Go to:

<http://foundationcenter.org/pnd/news/story.jhtml?id=245800040>

AHA CPR & AED Awareness Week

Train 1 Million in 1 Week – Start Planning Now! The 2009 National CPR AED Awareness Week kicks off June 1st, and it's never too early to start planning. The AHA has set an aggressive goal of training ONE MILLION people during the week of June 1-7. They need your help to meet this goal! Here are some easy ways you can get involved:

- Hold a community training event in celebration of the week.
- Encourage your Instructor colleagues to conduct trainings or join together with them for a "mass" training.
- Advocate for CPR training – find your community's CPR champions through the local fire station or within your city's government.
- Message to others about the importance of CPR training – share CPR save stories from your Training Center.
- Upload training numbers from all of your classes – ACLS, BLS, PALS – into our interactive training map and see how your training efforts add up.

To support your efforts, the AHA will be launching a website containing information and resources. The site will feature the interactive map where you can enter training numbers and see real-time how we're progressing in meeting the goal. To help you spread the word, there will be e-Cards, banners for your Facebook page, and much more! Plus, as part of the 2009 week, the AHA will introduce the American Heart Association Instructor Hall of Fame! Do you know an AHA Instructor who has a special passion for saving lives, someone who has made an impact in his community through training? You can nominate that person to be inducted into the AHA Instructor Hall of Fame. The full website will launch in April. Until then, the AHA has posted information at americanheart.org/CPR that will help you get started. You will also find the nomination form for the Instructor Hall of Fame at this site. Stay tuned for updates, and happy planning!

Downloads

OSHA *Pandemic Influenza Preparedness and Response Guidance for Healthcare Workers and Healthcare Employers*. http://www.osha.gov/Publications/OSHA_pandemic_health.pdf
Action Guide for Emergency Management at Institutions of Higher Education, US Dept. of Education. 2009. <http://www.ed.gov/admins/lead/safety/emergencyplan/remactionguide.pdf>

California court limits protections of Good Samaritan law

Bob Taggart

The California Supreme Court has ruled that California's Good Samaritan Law doesn't protect as many Good Samaritans as was widely believed. In a 4 to 3 decision, the court determined that Good Samaritan protection from civil lawsuits extends only to one who renders emergency *medical* care at the scene of an accident.

The ruling arose from a lawsuit (Van Horn vs. Watson) in which it was claimed that the plaintiff was seriously injured when she was removed from an automobile which had crashed into a power pole by the cross-defendant, Torti, who witnessed the crash. Torti contended that she was protected by the Good Samaritan law in that she had provided "emergency care at the scene of an emergency".

The California law is contained in Health and Safety Code section 1799.102, and provides that "No person who in good faith, and not for compensation, renders emergency care at the scene of an emergency shall be liable for any civil damages resulting from any act or omission..."

The majority held that an analysis of the statute and the surrounding legislative history showed that the intent of the legislation was to protect only those providing emergency *medical* care at the scene of a *medical* emergency.

The court pointed out that H&S Code section 1799.107 provides a qualified immunity from liability to emergency rescue personnel who render medical and/or non-medical care. Justice Marvin Baxter, in his dissenting opinion, stated that the majority opinion "imposes an arbitrary and unreasonable limitation of the protection this statute affords to Good Samaritans."

He provided the following illustrations: "...a passerby who, at the risk of his or her own life, saves someone about to perish in a burning building can be sued for incidental injury caused in the rescue, but would be immune for harming the victim during the administration of cardiopulmonary resuscitation out on the sidewalk... One who dives into swirling waters to retrieve a drowning swimmer can be sued for incidental injury he or she causes while bringing the victim to shore, but is immune for harm he or she produces while thereafter trying to revive the victim."

Although this ruling affirms Good Samaritan protection to those rendering first aid or performing CPR, AED or other medical assistance, there is concern that it could discourage persons from coming

to the aid of another for fear of being sued for their efforts.

California State Senator John Benoit of Riverside has introduced SB 39, The Good Samaritan Protection Act, which would amend the current statute to define emergency care as "medical or non-medical." Benoit, who spent 31 years in law enforcement, personally recalled "many of these Good Samaritans whose urgency has made the difference where every second counts... If not corrected, I fear this ruling will cost lives." Senator Benoit has asked that those interested in supporting this legislation contact his Capitol office at (916) 651-4037, or fax your letter of support to (916) 327-2187.

10 reasons to support the SFPA!

- Improve the delivery of EMS in the Bay Area.
- Positively impact cardiac arrest survival rates.
- Invest in promoting quality education.
- Good value - donations go directly to the specified fund.
- Your gifts are tax-deductible.
- Provide students state-of-the-art equipment and superior instruction.
- Strengthen the Chain of Survival.
- Support a great organization.
- Enrich the learning experience.
- Enhance skills retention and critical thinking.
- Prepare students for real world emergency situations.
- Hal needs a mate: Help us get Noelle (child birthing simulation manikin).

OK, so there are more than 10 good reasons!

We have raised funds for the purchase of 3 advanced simulation manikins, but need Noelle and neonate! Gifts of all size are sincerely appreciated.

You can easily give through our website:

www.sfparamedics.org.

Or contact Theresa Farina at 415-543-1161 x 306!

Orthopedic emergencies in urban and remote situations

Summary of a lecture by Joseph Serra, MD

Steve Donelan

On Wednesday March 11, Dr. Joseph Serra demystified orthopedic emergencies for an audience that filled every available chair in the SFPA. His main theme was that Paramedics and EMTs should be trained and legally allowed to reduce dislocations and align fractures because the techniques are easy to learn, and early reduction or alignment improves patient outcome, as well as alleviating pain and making transport much simpler. Every year he goes to Malawi to help train physician's assistants with just two years of college to do orthopedic procedures that in this country are only done by orthopedists and ER doctors – at least in urban settings. He and other wilderness medicine experts have been training lay people for many years to do these procedures in remote settings where medical care is not accessible. So he believes that EMS professionals would certainly be capable of doing more for patients with orthopedic injuries, if only the law allowed them.

Two myths that Dr. Serra debunked are that you should splint fractures as they lie, and that trying to reduce a dislocation can harm the patient. It is often very difficult to stabilize an angulated fracture or dislocated joint for transport. Moreover, undue delaying of fracture alignment or dislocation reduction can harm the patient by impairing circulation or nerve function during transport or while the patient is parked in a crowded hospital corridor awaiting treatment. And when muscles begin to spasm, reduction of a dislocation will be much harder. So in a wilderness or remote situation, with family or friends, you may choose to reduce a dislocation, especially if not doing it would make evacuation difficult or impossible. Even an open fracture should be realigned in a wilderness situation, after cleaning the open wound by forceful irrigation, because bone will do much better inside the soft tissues than exposed to air where it will dry out.

One of the most commonly dislocated joints is the shoulder, because of its shallow socket that allows a wide range of movement. Usually there is no associated fracture, or at most a small bone chip whose position will be improved by reduction. As with other dislocations, the patient will be unwilling to move the joint much, if at all, and unable to bring the arm across the chest. Almost all shoulder dislocations are anterior, and you will be able to see and feel the deformity where the knob of the humerus is displaced. There are



several methods for reducing shoulder dislocations, most of which work by putting traction on the arm so that the knob of the humerus clears the rim of the socket, then walking it back in with some gentle rotation. The photo shows Dr. Serra's favorite method, using two cravats or other bands of cloth to apply traction and counter traction. Another method, sitting and planting a foot in the supine patient's armpit, is often misunderstood – it works by using the foot as a fulcrum to lever the humerus back into its socket, not by just pulling on the arm. A more passive method is to have the patient lie prone on a table or ledge with the arm dangling, and secure a pack weighted with about 15 pounds to the arm. In 10 or 15 minutes, the muscles will relax against the pull of gravity and the weight will pull the knob of the humerus home.

An elbow can be dislocated by falling on the outstretched arm, a fairly common accident for children. The ulnar knob will be visibly displaced. This dislocation is not easy to reduce, but with the elbow flexed, you may be able to walk the olecranon back into its joint. In a remote situation, if the distal pulses are impaired, it is important to try. Similarly (but much more easily), you can reduce a finger dislocation by flexing the wrist and fingers (so that the flexor tendons are not working against you) and then, while applying gentle traction, nudge the displaced proximal knob of the digit back in joint. Then you can



protect the injured joint by buddy taping the affected finger to the adjacent finger.

When adults dislocate the hip, it is usually posteriorly, with the leg internally rotated. While there may be a small fracture of the acetabulum, the dislocation should still be reduced to restore distal circulation. With the patient supine, and an assistant pressing down on the patient's pelvic bones for counter traction, straddle the leg and interlock your fingers behind the knee. Slowly lift the knee until you are sitting on the ankle. Then brace your wrists on your thighs and apply leverage to lift the femoral knob into its socket by sitting down on the patient's ankle. Children however, may dislocate the hip anteriorly by a direct impact, for example by falling off a horse or out of a tree. To reduce an anterior hip dislocation, apply traction and externally rotate the leg while it is slightly abducted.

Since the knee is so strongly held by ligaments, a force that dislocates the joint often causes a fracture as well. In this case, you will need to splint the leg, but if the tibia is displaced, you should realign it distal to the femur to improve circulation. But if the patella slips out of place (almost always laterally), you can reduce it by straightening the leg while gently nudging it back in position. Ankle dislocations, even if there is an associated fracture, can be reduced by lifting the foot by the toes, so that the weight of the leg (with the hand

under the heel to guide it) pulls the ankle back in place. After reducing such a dislocation, you will usually see an immediate improvement in distal circulation and skin temperature.

While dislocated joints usually cannot be moved much (if at all) by the patient, complete fractures are mobile, crepitant, and swollen, with possible hemarthrosis. And even a crack that does not separate the bone can be identified by point tenderness. You should always test distal nerve functions and circulation before and after splinting a fracture, and (in a remote situation) apply gentle inline traction to try and restore impaired or absent functions. For a humerus fracture, you should do three additional tests of the ulnar, median, and radial nerves: Have the patient fan the fingers (ulnar nerve); touch the base of the little finger with the tip of the thumb (median nerve); and extend the fingers and wrist (which tests the radial nerve, most often injured). Document the results of the tests, because by the time an orthopedist sees the patient, nerve function may be temporarily impaired by swelling (but not need surgery).

For a clavicle fracture, apply a figure eight bandage to hold the shoulders back (or a backpack with the straps tightened) so that the lateral end of the fractured clavicle cannot pierce the lung or a blood vessel. For a fracture of both bones in the forearm (fairly common in children) use gentle traction to mold the bones back in splinting position if they are angulated. For a midshaft femur fracture however (fairly common in skiing and some other outdoor sports), a traction splint is essential because it will stretch the thigh muscles and tamponade the blood vessels to reduce bleeding, which even in a closed femur fracture can easily be enough to cause shock.

Any of these techniques may be needed for survival or successful evacuation in a remote or wilderness situation, and you may choose to use them to help a friend or family member. But EMS professionals could easily learn how to reduce dislocations and align fractures. If their scope of practice is legally expanded so that they can perform these procedures on the job, it will decrease the workload in over-burdened emergency departments and significantly improve patient care.

Photos of Dr. Serra reducing dislocations courtesy of the late Mark Stinson, M.D., from *Wilderness Emergency Care* by Steve Donelan (the textbook used in the SFPA WFR & WEMT Upgrade course where Dr. Serra is a guest instructor on orthopedics).

Teaching and learning emergency medical care

Summary of a lecture by Frank Poliafico, R.N.

Steve Donelan



On January 27, Frank Poliafico shared insights with SFPA instructors from his 42 years of experience as an EMS practitioner, director, and educator. His career began in the days when the EMS motto was “You call, we haul, that’s all,” and hearses did double duty as ambulances. Things began to

change with the National Highway Safety Act of 1973 and the NAS White Paper, supported by autopsy studies of premature death; and the research of resuscitation pioneers like Dr. Peter Safar (whom Frank knew). But putting medics who could make a difference on the street required commitment, planning, cooperation of different agencies, good management, and (above all) education and training. Most of these first medics were volunteers and their motto was “See one, do one, teach one.” Their mission was (and is) life support (not diagnosis): stabilize the patient, don’t let things get worse, and prevent complications.

Education and training are still the most important parts of EMS, but you need to look at the context and relevance of any training. Who are you teaching, what kind of emergencies might they face, and in what situations? One of the many groups that Frank has taught, for example, is ship’s captains, whose needs and resources will be considerably different from those of an urban EMT. Even in an urban environment, the needs of different groups will differ. Are they frequent responders, such as EMTs or paramedics? Or infrequent responders, such as family, co-workers, bystanders, or most health care workers? This will make a difference in their motivations, and therefore in their response to what you teach and (even more important) how you teach it. Content without context equals chaos.

So how can we motivate our students? First, positive reinforcement works – giving students clear learning goals relevant to their situation and helping them to reach those goals, so that they have a sense of accomplishment. This means using teaching methods that enable students to learn and demonstrate the skills they will need to take care of patients. Negative reinforcement does not work. Second, content must be

relevant and useful. How much of your curriculum will actually change patient outcome? For example, how many people have ever actually used the rule of 9’s, which seems to be in every EMT and paramedic textbook? Information that is not relevant to the story – that will not help your students assess and deal with a patient’s problems – just causes confusion. On the other hand, a much-neglected part of EMS training is the hand-off, when EMTs or paramedics transfer care of a patient. What information do they need to pass on, and how can they do so effectively? Nurses and physicians, for their part, need to learn to listen, because the medics who stabilized and transported the patient may have information that should be acted on immediately. Also, the accident scene (and questions prompted by it) may have provided relevant information to the medics that a hospital exam could fail to elicit.

Third, we need to create a learning environment that is engaging and entertaining. This helps students develop by stimulating endorphin production, triggering an increase of acetylcholine, which improves synaptic connections. So students are more likely to remember details from events they enjoyed, and block out unpleasant memories. We also need to train our students to focus and plan, in scenarios and clinical rotations, which will help them control their emotions. When people succumb to stress, it makes them clumsy, and they forget things.

Chain of survival is a phrase repeated endlessly in EMS, but as educators we need to begin with the chain of human resources: Instructor to first care provider to first responder to EMT. In other words, the complete chain of survival starts in the classroom, with the instructor. And as instructors, we need to breathe life into our subjects, so that our students will be stimulated and motivated to learn and keep on learning. Remember the saying: The truly educated never graduate. So continuing education means mentoring and being mentored. Practice (without ongoing analysis, feedback, and mentoring) does not make perfect; it just makes errors permanent. Amateurs work to get it right; professionals work to never get it wrong.

Flawless technique alone, however, is not enough in EMS. Your patients will not care how much you know until they know how much you care. So as educators, how do we train our students to make that happen? In education courses, we talk about the cognitive domain, the psychological domain, and finally the affective domain. The affective domain involves attitude and behavior. In scenarios and clinical rotations, students should learn how their attitude affects how they care for the patient, and how well cared for the patient feels.

We also talk about the use of all the senses (tell, show, do, review) to reinforce retention of skills, and keeping students in an active learning mode. But let's not forget some fundamental principles of EMS teaching. First, if you can't do it, you can't teach it. Second, great curriculum without effective methodology is a waste of time; and great methodology without great curriculum is just showmanship – students may be entertained, but what will they learn that will help them do good patient care? Finally, remember who you are teaching (what their needs are) and make it relevant to them.

A good example of how not to do it is the introduction of AED's to the public. While anyone can use them, almost no bystanders or pre-EMS responders do. Schools have them, but they're usually not maintained. In Ohio, for instance, 80% of the AED's in schools had dead batteries. And in most schools, nobody is trained to use them, and there is no oversight. As Frank has said to AED manufacturers, "You're selling carburetors to the Amish." AED sales need to include AED training that is relevant and realistic for those who will have them.

A simple model for skills training is demonstration X 3:

- Demonstration by the instructor as the instructor describes it;
- Demonstration by the student as the instructor describes it;
- Demonstration by the student as the student describes it.

Ultimately, students learn by doing, but perfect practice makes perfect. Students learn best by direct, purposeful experiences (as in clinical rotations). Second best are contrived experiences (as in role-playing scenarios). But we can only improve their skills by giving them good feedback and analysis, and encouraging them to provide better patient care.

Paramedics in Seizure Study

By Hadley Leggett

As reported in the Mercury News, 17 research centers in the U.S. (including U.C. San Francisco and Stanford University) will be studying the best way to give anti-seizure medications. Patients being transported to hospitals in Santa Clara, San Mateo and San Francisco counties will be subject to the new study. Paramedics will enroll seizure victims in the new study automatically, unless they're wearing a red "opt-out" bracelet.

Most seizures stop on their own before paramedics arrive. But seizures that last more than a few minutes can damage muscle, heart and brain cells and they can even lead to death. Stopping seizures as quickly as possible is critical, but no one has tested the best way to give anti-seizure medications in an emergency.

For the study, researchers will compare two methods of giving anti-seizure medications: the traditional way, by placing an intravenous line and by a pre-loaded syringe to administer a shot in the muscle. Patients in areas covered by the study will get both an IV and an intramuscular shot, but only one will contain an anti-seizure drug: either lorazepam in the IV or midazolam in the shot. The red-and-white rubber bracelets read "RAMPART Declined." For more information or to opt-out, call Stephanie Casal at 650-721-2645 (Stanford) or Michele Meeker at 415-206-3220 (UCSF).

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