

Therapeutic Cooling



Schenectady High School physics teacher Bernie Phillips is alive today thanks to the quick actions of his wife, paramedics, and a team of specialists at Albany Med. When Agnes Phillips could not wake her husband in the early morning hours of Jan. 3, she called 911 and began chest compressions. Colonie and Latham paramedics were at the family's Latham home in minutes and took over, establishing an airway as they rushed Phillips to Albany Med, where attending emergency physician Michael Dailey, MD, diagnosed him with cardiac arrest and recognized him as a candidate for a therapy that had just recently been put into place at the Medical Center—therapeutic cooling.

Studies have shown that therapeutic cooling can significantly reduce the amount of neurological damage that can result from traumatic conditions such as cardiac arrest, stroke and brain injury. A team of doctors, nurses and other medical professionals sprung into action using the therapeutic cooling therapy protocols that had carefully been established over the past year. Using hydrogen cooling pads, Phillips' body temperature was lowered to a mild hypothermic state—91 degrees Fahrenheit—for 24 hours.

Gary Bernardini, MD, PhD, professor and director of stroke and neurocritical care and Edith M. Hellman and Hellman Family Chair in Stroke Medicine, would soon have the thrill of his career. "When I first saw Mr. Phillips, after the cardiac arrest, his pupils were non-responsive. This usually indicates significant brain damage with anticipated poor outcome," he says, adding that Phillips' risk of dying or suffering long-term brain injury was great.

"But when I saw him on Jan. 5 and he was able to follow commands, for a rare instance in my career I was speechless." Three days after his admission and after his cooling and

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UPDATE ON EZ-IO™

WEIGHT AND BLOOD SUGAR CONTROL FOR EMTS

NEED TO RECERTIFY? TRY ACLS ANYWHERE!

UPCOMING EVENTS

DID YOU KNOW?

Join Us For EMS Night

Wednesday May 13, 2009
6:30 PM - 9:00 PM

At the Desmond Hotel and Conference Center Albany Medical Center invites you to an evening of EMS recognition. It's a night where we can honor and thank you for the hard work you do all year. Dinner will be provided.

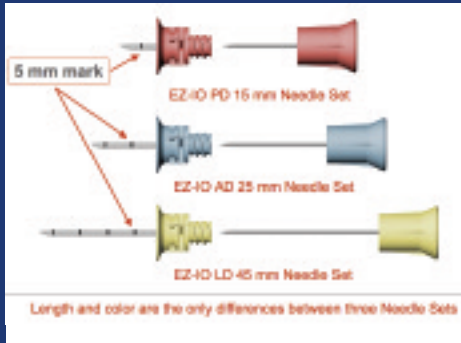


Keynote Speaker

Jennifer Russell, BS, EMT-P
Near Misses, Mistakes, and Mishaps: Delivering Quality Care on Every Call

Space is limited.
RSVP by Wednesday, May 6th.
Please call (518) 262-8559.

Update on EZ-IO™



When a patient goes into cardiac arrest, time is of the essence. Often the veins collapse, making the insertion of an intravenous line very difficult.

EZ-IO™, from VidaCare™, provides vascular access via the intraosseous space in the long bones—typically in about 10 seconds. EZ-IO is a hand-held battery powered drill that spins a special double-bevel needle into the bone. The G3, a new and improved version of the EZ-IO driver, is smaller and lighter than the previous model, fitting into the palm of the hand. The lithium battery is designed to provide 10 years of shelf life and a minimum of 750 insertions. In addition, a new low-battery indicator lights up to show that the driver is nearing the end of its useful life.

The proximal humerus and the proximal tibia have been approved as insertion sites for EZ-IO in this REMO region. Because the United States has a growing population of obese patients who have more tissue over insertion sites, VidaCare has introduced a new 45mm LD needle in addition to the existing 25mm adult (AD) and 15mm pediatric (PD) needles.

Recently in its Advanced Cardiac Life Support guidelines, the American Heart Association recommended intraosseous (IO) access as the first alternative for difficult vascular access in cardiac arrest patients.

Therapeutic Cooling continued

re-warming process was completed, Phillips, a former cross country runner and avid cyclist, awoke with no recollection of the experience. But, doctors knew things were going well for their patient when he easily read a “get well” card from his students, which substituted physics equations for the letters.

Phillips got progressively better, had an ICD (implantable cardioverter defibrillator) installed, and was able to leave the hospital on January 15. He is expected to make a full recovery.

Therapeutic cooling works, according to Bernardini, because much of the damage done to the brain is not the result of an injury or condition itself, but it is from what occurs when a patient is resuscitated—when oxygen-rich blood flows back into the cells, setting off a series of chemical reactions.

“These chemical reactions cause the production of free radicals and release of other substances which cause swelling and inflammation in the brain, and reduce oxygen delivery to brain cells, leading to cell death,” Bernardini explains. “Hypothermia arrests the production of free radicals, slows the injurious process and allows the brain to recover. When the body’s temperature is reduced, vessels constrict and cell metabolism is reduced. Since the body requires less oxygen, the harmful chemical activity is reduced.”

Most people (95 percent) who suffer cardiac arrest do not survive, according to Robert Millar, MD, the cardiologist who first attended to Phillips, and those who do survive have often suffered significant brain damage. “That’s why therapeutic cooling is so exciting.

“For therapeutic cooling to even have a chance to work, patients need to make it to the hospital alive.”

We have the chance to save lives and prevent devastating brain damage.” However, Millar is quick to point out that everyone should learn CPR and learn how to use the AEDs, automated external defibrillators, now located in public places. “For therapeutic cooling to even have a chance to work, patients need to make it to the hospital alive,” he said.

“I’ve never shaken so many hands, and everyone keeps telling me how lucky I am to be alive,” Phillips said. “I feel like the town mayor.” However, to Phillips’s thinking, luck did not play a role. Instead, he credited the skilled team of professionals who took care of him and the technology available at Albany Med for his swift recovery.

Need to recertify? Try ACLS Anywhere!

Is your certification for Advanced Cardiac Life Support (ACLS) about to expire, but you can’t get to a course? Or, perhaps you missed a class at your agency? No problem! You can take the training when you need it through ACLS Anywhere.

“ACLS Anywhere is the American Heart Association’s self-directed ACLS e-learning program,” says Tim Mirabile, Executive Director of Regional Emergency Medical Organization (REMO). “It offers the same credentials as a traditional course, but is extremely convenient. You purchase it when you want, and take it when you need it.”

ACLS Anywhere provides the complete ACLS curriculum on a disk, including 10 interactive patient case scenarios and the ACLS written exam. All that is required of an ACLS Anywhere user is to pop the disk into a computer, follow the format, go through the training, and take the on-line examination.

Upon successful completion of the exam, users print out the certificate of completion, and bring it to REMO. REMO will then arrange for your practical skills test.

The cost of ACLS Anywhere is around \$170, including the skills exam. To obtain a copy or to schedule a skills exam, call REMO at 464-5097.

Blood Pressure Troubles

Noise, clothing, and environment are frequently cited as challenging EMS provider ability to accurately measure blood pressure (BP). A review of the most likely sources of error in blood pressure measurement and some tips for obtaining blood pressures in tough conditions can help improve this skill.

Incorrect cuff size produces the most common error measuring blood pressure. Too large of a BP cuff will give falsely low readings, and an overly small cuff will provide readings that are falsely high. A practical way to properly size a BP cuff is to pick one that covers two-thirds of the distance between your patient's elbow and shoulder. Carrying at least three cuff sizes (large adult, regular adult, and pediatric) will cover virtually 95% of the population. Multiple smaller sizes are necessary if you frequently treat pediatric patients.

“Incorrect cuff size produces the most common error measuring blood pressure.”

The second most common error in BP measurement is incorrect limb position. To accurately assess blood flow in an extremity, influences of gravity must be eliminated. This is accomplished by keeping the arm (or leg) to which you apply the cuff at mid-heart level. An extremity positioned above heart level will provide a falsely low BP while falsely high readings will result from limbs located below heart level. Seated or supine patients pose little difficulty as long as the extremity in which the pressure is taken remains at the patient's side. Side-lying or other oddly positioned patients pose problems for accurate pressure measurement. Correct assessment of BP in side-lying patient requires holding the BP cuff extremity at mid-heart level while taking the pressure.

In some situations, BP measurement is simply not possible. We can roughly estimate systolic BP (SBP) by assessing pulses in a patient. Presence of a radial pulse typically requires an SBP of at least 80 mmHg. A femoral pulse requires an SBP of at least 70, and a palpable carotid pulse needs an SBP over 60.

Noise can also interfere with BP measurement. Many ALS units carry Doppler devices that use ultrasound to measure blood flow. Doppler units amplify sound and are useful in high noise environments. You might also try obtaining a SBP by palpating a distal pulse while deflating the blood pressure cuff. Palpated SBP are generally accurate to within 10 to 20 mmHg of an auscultated reading.

Clothing, patient access, and cuff size are obstacles that frequently interfere with conventional BP measurement. When a cuff is too small or clothing interferes with access to a proximal extremity, consider using alternate sites such as the lower arm while auscultating or palpating a radial pulse. The thigh or lower leg can also be used in conjunction with a pulse point distal to the cuff.

Electronic blood pressure units, also called Non Invasive Blood Pressure (NIBP) machines, sense air pressure changes in the cuff caused by blood flowing through the BP cuff extremity. Sensors measure Mean Arterial Pressure (MAP) and pulse rate. Software in the machine uses these two values to calculate the systolic and diastolic BP. To ensure accuracy when using electronic units, it is important to confirm the displayed pulse with an actual palpated patient pulse. Differences of more than 10 % will seriously alter the unit's calculations and cause the machine to display incorrect systolic and diastolic values. When using electronic devices (which are more accurate than auscultation), the measured MAP should carry more weight than the calculated systolic or diastolic values.

Mike McEvoy, Ph.D., REMT-P, RN, CCRN
EMS Coordinator for Saratoga County and the EMS editor for the Fire Engineering magazine.

Weight and Blood Sugar Control for EMTs

Do yourself a favor: look at your middle. If you see a waistline that measures at the bellybutton 40" or more (if you're a man) or 35" or more (for a woman), you have a problem: you are at greater risk for diabetes and heart disease. Further, if you work nights one week and days another, shift work carries with it a tendency towards becoming overweight. That's the bad news.

The good news, according to Dr. Jennifer Lindstrom, a clinical nutritionist and associate professor at Albany Medical Center, is that both your weight and blood sugar can be controlled with straightforward steps.

First the weight:

- Try to have regular meals and think twice before grabbing a donut or candy bar that will spike your blood sugar and leave you hungry soon. (If you need a snack to tide you over, a handful of peanuts or other nuts are a much better choice.)
- Make sure you get enough protein. It keeps you fuller longer, produces fewer spikes in blood sugar, and lessens the urge to snack.
- Remember that daily caloric balance is the key. If you burn more calories than you take in, you'll lose weight. So control portion size.
- Commit to getting your "Vitamin E" – exercise. It burns calories and benefits the body in many ways.

"Ten minutes of exercise three times a day is just as good as 30 minutes of exercise once a day," Lindstrom says. She adds, "You don't have to be an athlete. If you walk a mile, you burn as many calories as running a mile."

To get started on controlling blood sugar:

- Check with your doctor to see if you should check your blood sugar and how often.
- Record your blood sugar results, medicines, and daily activity in a journal. This will help you track changes.
- Eat the same number of calories each day, choosing from a variety of foods that are low in fat, salt and sugar, and high in fiber.
- Get physical by beginning an exercise program.

Upcoming Events

For information on our upcoming events, please visit www.amc.edu/ems or call (518) 262-8559.

May 12 | 7pm
Firefighter Rehab
Mike McEvoy,
RN, EMT-P

May 12 | 8pm
Childbirth & Complications
Justin Pattee, MD

May 13 | 6pm
EMS Night: Near Misses, Mistakes and Mishaps
at the Desmond Hotel and Conference Center
Jennifer Russell, BS,
EMT-P

June 9 | 8pm
Trauma in Pregnancy
Alison Sweet, MD

June 17 | 7pm
Autism Awareness

All lectures will take place in Albany Medical College's MS-169 unless otherwise stated. Lectures will be available for viewing through the Adirondack Area Network (www.aanet.org/ems/ems1.html), which permits live, two-way video conferencing between Albany Med and one of several area teleconference sites around the region. Webcast with online chat capabilities will also be broadcast live. All conferences are archived online at AAN with links to a post-conference test site. An 80% correct score will then create a certificate of completion for your records.

For more information on these or other events, call (518) 262-8559.

Did You Know?

- Vital Signs 2009 will take place in Rochester Oct. 15-18. For more information on the EMS conference, visit <http://www.vitalsignsconference.com>
- A new CDC Trauma Triage Protocol was released in January. Visit www.cdc.gov/fieldtriage to order free copies, posters, and pocket cards with the new guidelines. you can also obtain two hours of CECBEMS approved continuing education credit for completing a self study program.
- Learn what happened in February when the National Transportation Safety Board held several days of hearings on air safety in Washington, DC. www.nts.gov/events/Hearing-HEMS/default.htm



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