



**Citizen CPR
Foundation, Inc.**
*Working to strengthen the
Chain of Survival*

American Heart
Association



Learn and Live

Currents

in Emergency Cardiovascular Care

Volume 20 Number 3 Fall 2009

Science

Guide to the Guidelines, Chapter 3

Approaching the Finish Line

by Leon Chameides, MD

This is the third and final article describing the complex process that leads to the development of the American Heart Association (AHA) Guidelines for Cardiopulmonary Resuscitation (CPR) and Emergency Cardiovascular Care (ECC). Previous articles have emphasized the increasing international cooperation over the last decade in this process and the methods used to minimize and manage conflict of interest issues. This issue's article will deal with the scientific rigor of developing the resuscitation guidelines and with guidelines in first aid.

The Science of Resuscitation

From the 1970s to 2000, AHA Guidelines recommendations were made by consensus of a panel of experts. Increasing reliance on evidence-based medicine demanded that the guidelines too should be based on more objective and more rigorous scientific criteria.

In preparation for the 2005 Guidelines, ILCOR (International Liaison Committee on Resuscitation) established six task forces: basic life support, advanced life support, acute coronary syndromes, pediatric life support, neonatal life support, and an education, implementation,

and teams task force. In addition, the AHA established two task forces (stroke and first aid) for which the international community had no counterparts because they have a different organizational structure for their emergency services. Each ILCOR task force identified questions that required scientific answers and experts (inasmuch as possible, one person from the United States and one international expert was invited to perform the evidence evaluation for each question). These experts had to agree to voluntarily participate in a process that would occupy them for many hours. For each question, the experts were asked to complete seven tasks.

- Search the world literature.
- Identify, review, and list every relevant article.
- Classify each article as to whether it supported, refuted, or was neutral on the question.
- Describe the quality of the study and state the strength of the level of evidence of each paper on the basis of predetermined criteria. The levels of evidence ranged from Level 1 (the strongest evidence)—randomized clinical trials or meta-analyses of multiple clinical

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trials with substantial effects—to Level 8 (the weakest)—rational conjecture (common sense); common practices accepted previous to evidence-based guidelines.

- Submit the literature review and summary to an evidence evaluation expert.
- Summarize the approved literature summary and present it to the ILCOR task force.
- Write Consensus on Science and Treatment Recommendation statements for each question.

To ensure completeness of the search and uniformity of the process, two worksheet experts reviewed each worksheet. Each worksheet was presented to the task forces; task force members then discussed and debated the science to make sure that the scientific summary was accurate and complete and that the treatment recommendations reflected the scientific evidence.

In 2005, 281 experts completed 403 worksheets on 276 topics. The worksheets were posted on the Internet with invitations for comments from a wider scientific and clinical community. Those comments were considered by the task forces in the final wording of the 2005 consensus document. The more controversial topics were chosen

for presentation and further discussion at the Consensus Conference in February 2005. All the information was edited by a number of editor/writers under the supervision of two senior science editors and published simultaneously as supplements to *Circulation* (Vol 112, No. 22, November 29, 2005) and *Resuscitation* (Vol 67, Supplement 1, December 2005). Each organization (the AHA, the European Resuscitation Council, etc) then formulated its own CPR and ECC guidelines based on this Consensus on Science With Treatment Recommendations document. Council-specific guidelines may differ slightly because they must consider varying conditions and systems, whereas there should be a consensus on the science on which they are based.

The 2010 process is similar to the one just described with some changes in the worksheet template and the definition of levels of evidence.

First Aid

The first evidence-based guidelines in first aid were developed by the AHA in 2000. By 2005 the American Red Cross (ARC) and AHA agreed to co-develop the first aid guidelines and, to be as inclusive as possible, formed a National First Aid Science Advisory Board. Members of this board identified questions and developed

the worksheets. In 2005 this National Advisory Board, in addition to the AHA and the ARC, consisted of representatives of many other invited organizations, shown in the Table.

For the 2010 process members of the advisory board have identified 98 questions for which worksheets are being developed. The remainder of the process, including presentation of results, development of a Consensus on Science and Treatment Recommendations document, and publication of guidelines, is the same for first aid as that described above for the other task forces.

This 3-part series has described the process that ultimately leads to recommendations contained in the guidelines, emphasizing the efforts to ensure that the recommendations are consistent with the most recent scientific advances and that the process is one of integrity and transparency.

Leon Chameides has served the AHA in many volunteer and compensated positions. He was the first chair of the Pediatric Resuscitation Task Force and has also served several terms as a volunteer for the Pediatric Resuscitation Subcommittee and the First Aid Subcommittee. In 2005 Chameides was an editor of the AHA Guidelines. He mentors new science volunteers on the evidence evaluation process.

Currents

in Emergency Cardiovascular Care

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First Aid Guidelines International Advisory Board

2005 Members

American Academy of Orthopedic Surgeons	Australian Resuscitation Council
American Academy of Pediatrics	Canadian Red Cross
American Association of Poison Control Centers	International Association of Fire Chiefs
American Burn Association	International Association of Fire Fighters
American College of Emergency Physicians	Medic First Aid International
American College of Occupational and Environmental Medicine	Military Training Network
American College of Surgeons	National Association of EMS Educators
American Pediatric Surgical Association	National Association of EMS Physicians
American Safety and Health Institute	National Association of EMTs
US Army Medical Command	National Safety Council
	Occupational Safety and Health Administration
	Save a Life Foundation

2010 Additions

Norwegian Red Cross	St. John Ambulance of Great Britain
Canadian Red Cross	National Ambulance Service OMSZ of Hungary
International Federation of Red Cross & Red Crescent Societies	Red Cross Society of China
European Reference Centre for First Aid Education	Resuscitation Council of Asia
Fundacion Cardiologica Argentina	Grenada Red Cross
	Austrian Red Cross

ILCOR Names Five Resuscitation “Giants” for 2010



The 2010 International CPR and ECC Consensus Conference will honor one woman and four men who have advanced the field of resuscitation. These leaders have designed and conducted resuscitation research, edited resuscitation guidelines, chaired local and national resuscitation organizations, chaired expert resuscitation panels, debated and developed resuscitation consensus, and served as eloquent representatives to the public on complex resuscitation issues.

Lance Becker, MD



As a medical student 30 years ago I was usually the person who performed chest compressions on patients who had suffered a sudden cardiac arrest. It was a difficult task, with poor odds for success—but failure meant death. When our therapies were unsuccessful, we would look at the clock and solemnly say, “Time of death 8:42” as we pronounced the patient dead.

The first time I was involved with this, I said, “Is that really it—the end? What point did we pass that told us the patient was dead? Do we just stop?” I kept wondering what happened at 8:42 that was not true at 8:40 or that might not have been true at 8:45? After a lot of these experiences, it occurred to me that “time of death” is an

unsettlingly flexible notion. While one physician might call the moment of death at 8:42, another one would do it at 8:45. Still another might do it at 8:47, and somebody else would continue the same resuscitation efforts until 9:00. There didn’t seem to be any particular rhyme or reason to what happened when.

It was my first insight into the mysteries of death and the possibilities for restoring life. Today, scientists and doctors are standing on the brink of a new understanding of death—and as a result, a better understanding of life and how to restore life. If the true moment of death is uncertain, this has vast ramifications for all of medicine—it means new definitions for when a patient should be declared dead and when their organs may be used for transplant into a sick patient waiting for their own second chance at life. It will also force us to confront new ethical dilemmas about how to use limited high-technology resources and will add new dimensions to decisions about when to discontinue our efforts. But this new understanding will also allow us to save the lives of many people who will otherwise die—and that is a powerful, humbling charge.

Lance Becker has made major contributions to the science of CPR. He has held many leadership roles on committees that have advanced cardiac arrest guidelines and research. He played a major role in co-chairing and creating the American Heart Association (AHA) Resuscitation Science Symposium (ReSS), now in its 7th year. Becker received the 2008 AHA Award of Meritorious Achievement for his role in ReSS, which is held as an annual preconference of the AHA Scientific Sessions. He chaired the AHA Council on Cardiopulmonary, Perioperative, and Critical Care and in 2008 gave the prestigious Dickinson Richards lecture at the AHA Scientific Sessions. Becker received the AHA Chairman’s Award in 2008 for excellence in volunteer service.

Becker was a Professor of Medicine in the Section of Emergency Medicine at the University of Chicago. He is board certified in Internal Medicine, Emergency Medicine, and Critical Care Medicine, and has published hundreds of papers and abstracts in the field of resuscitation science. His research is highly “translational,” which reflects integrating the frontiers of basic science into clinical and bioengineering sciences to create new treatments for real-world use on patients. His many studies include identifying race and disparities as important factors in survival rates from cardiac arrest, calling for a “reappraisal” of ventilation during CPR, describing new cellular pathways of free radicals and mitochondria physiology important to resuscitation, highlighting the importance of quality of CPR measurements, and suggesting a “three-phase” approach to cardiac arrest treatment.

Becker is now Professor of Emergency Medicine at the University of Pennsylvania School of Medicine, and directs Penn’s new Center for Resuscitation Science. The Center includes three full-time basic science laboratories, along with clinical and administrative cores; it focuses on cellular research to aid in developing techniques to treat cardiac arrest. Becker’s current research interests include integrated cardiac arrest and resuscitation studies, therapies to combat reperfusion injury, the notion that intracellular mitochondrial dysfunction may control cell death, and using cardiopulmonary bypass with controlled reperfusion to extend neurologically favorable survival from arrest.

In recognition of his many scientific contributions and international leadership, Becker was also recently elected to membership in the Institute of Medicine, one of the highest honors in biomedicine in the United States.

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ILCOR Names Five Resuscitation “Giants” for 2010

(Continued)



Robert A. Berg, MD



I have been fortunate to work with distinguished CPR leaders and investigators in Arizona and throughout the United States. Since 1997 I have had the unexpected opportunity to work with colleagues in Brazil and Japan on various life support programs. These talented international colleagues were kind enough to include me in multiple exciting investigations, such as the only randomized controlled trial of any intervention for pediatric in-hospital cardiac arrest, and in large-scale epidemiological studies suggesting that hands-only bystander CPR is as effective as chest compressions plus rescue breathing, and the first study showing that pre-arrest myocardial function is an important determinant of post-resuscitation outcome. It has been an honor and pleasure to be part of these collaborative efforts.

Robert A. Berg is the Russell Raphaely Endowed Chair of Critical Care and Chief of Critical Care Medicine at the Children’s Hospital of Philadelphia. Berg has been a clinical and laboratory investigator with a 20-year history of funded research in cardiac arrest and CPR. He has focused on many preclinical, translational issues including CPR hemodynamics, chest compression-only CPR, use of pharmacologic agents during CPR and after resuscitation, and the benefit of immediate pre-shock and immediate post-shock chest

compressions, postarrest myocardial dysfunction, VF waveform analyses, and defibrillation in adult, pediatric, and neonatal swine models. He has investigated CPR quality in piglet models and adult swine models as well as in pediatric and adult victims of cardiac arrest.

Berg’s laboratory funding has included American Heart Association (AHA) grants and R01 funding from the National Heart, Lung and Blood Institute (NHLBI). He is a co-investigator in the multicenter Canadian-American Pediatric Cardiac Arrest Study Group funded by the Eunice Kennedy Shriver National Institute of Child Health and Human Development to perform interventional studies in pediatric advanced life support. He is the AHA liaison investigator to the multicenter NHLBI-funded Resuscitation Outcomes Consortium, which is investigating many aspects of out-of-hospital cardiac arrest and therapy. In addition, Berg is vice chair of the Scientific Advisory Board, member of the AHA National Registry of Cardiopulmonary Resuscitation, and chairs its Research Working Group.

Berg is the senior author of the only randomized, controlled trial of any intervention for pediatric in-hospital cardiac arrests, of the largest published series of in-hospital pediatric cardiac arrest, and of the largest series of pediatric ventricular fibrillation. He has published more than 150 peer-reviewed articles on cardiac arrest, CPR, and defibrillation, numerous abstracts, and more than 25 book chapters. He has received numerous national and international honors, including the 2006 recipient of the AHA Resuscitation Science Symposium’s Lifetime Achievement Award as a Cardiac Resuscitation Scientist. He is the only pediatrician recipient of that award.

Berg has mentored many medical students, post-graduate trainees, and young faculty members in both the CPR laboratory setting and in the clinical research arena. Berg is a past chair of the AHA Pediatric Resuscitation Committee and currently

chairs its Basic Life Support Committee. He was a major participant in developing AHA and International Liaison Committee on Resuscitation (ILCOR) scientific statements in 2000 and 2005. He was a leader in developing the pediatric and neonatal sections of AHA guidelines on emergency cardiovascular care and CPR in 2000 and 2005, as well as the AHA Pediatric Advanced Life Support courses in 2001 and 2006.

Leo Bossaert, MD



I had the privilege of making the journey of my professional career in the company of three remarkable personalities and to learn from them. The first was Arsene Mullie: this wise and gentle man was the driving force behind the Belgian CPCR study group. Under his guidance this consortium of enthusiastic resuscitators organized the Belgian cardiac arrest registry: the Utstein avant-la-lettre. My second private giant was Stig Holmberg: we shared the passion of high-quality CPR education. The many animated discussions in his home in Goeteborg, Sweden, and in his summer house were crucial for me in preparing and analyzing the national CPR campaign “3 Minutes for a Life” and to guide me in my later scientific activities. My third private giant is Douglas Chamberlain: in the hot summer of 1988, in a hamburger tent in Vienna, Douglas and I and a few friends took the initiative to bring together all major scientific groups in Europe with interest in resuscitation

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medicine, which led to the foundation of the European Resuscitation Council. Douglas taught me the essentials of diplomacy, tactics, and strategy to organize this European solidarity. He was and still is a dear friend and my personal mentor.

Dr Leo Bossaert, professor of medicine, University of Antwerp, is mentor and colleague, and a superb cardiologist and resuscitation scientist. He is expertly trained and board certified in cardiology. Bossaert is a bright, talented, empathetic, and hard-working physician with a brilliant academic career and has chaired the major European and international resuscitation science collaborations. He currently serves as the executive director of the European Resuscitation Council (ERC), one of the founding member councils of the International Liaison Committee on Resuscitation (ILCOR). He has contributed and served as an editor for all of the major CPR and resuscitation guidelines in Europe and international statements of consensus in Europe and North America.

Considered one of the fathers of resuscitation science in Europe, Bossaert has helped save the lives and ease the suffering of critically ill and dying patients worldwide. By combining the science of resuscitation with education/implementation science, he introduced practices that have become the standard for resuscitation medicine worldwide.

Bossaert clearly demonstrates evidence of leadership in and contributions to cardiopulmonary and critical care medicine through practice, research, education, and care of patients. He has conducted and published groundbreaking research for decades, and has published more than 300 manuscripts and book chapters in resuscitation science. He continues to conduct, present, and publish high-impact cardiopulmonary and critical care research, provides outstanding mentorship, and is universally recognized for his leadership roles in public health organizations.

Bossaert served on the editorial boards of the 2000 International Guidelines for CPR and ECC and the 2005 ILCOR International Consensus on Science With Treatment Recommendations publication. Whenever the issue of CPR is discussed at the local, regional, national, or international level, Bossaert's name is at the forefront.

Mary Fran Hazinski, RN, MSN



Although I was too young to realize it, at the age of 8 I was the beneficiary of published resuscitation science. About 20 months after Kouwenhoven, Jude, and Knickerbocker published their series describing successful closed-chest cardiac massage, the technique was used to resuscitate my 4-year-old brother, who suffered cardiac arrest during induction of anesthesia in the operating suite at St. Mary's Hospital in Rochester, Minnesota. He was saved by a team who recognized his arrest and was prepared to act quickly, applying the best and most recent published science.

I have been privileged to be mentored by, work with, and learn from many of the previously honored resuscitation Giants and many giants who have yet to receive awards. I am humbled and inspired by the dedicated staff, scientists, and volunteers in the American Heart Association (AHA) and in the international resuscitation community who work so hard to save lives.

Mary Fran Hazinski graduated from Vanderbilt University School of Nursing in 1974, received her masters of science degree in 1975, and soon became a well-recognized teacher and expert in pediatric critical care. She worked as a clinical nurse specialist and teacher for the next 15 years, specializing in pediatric cardiovascular care. In the next 10 years she focused on pediatric injury prevention, conducting community research to reduce pediatric traffic-related injuries and deaths. Her Children's Traffic Safety Program was awarded more than \$2 million in federal grants. Hazinski was elected as the founding vice president of the Society of Pediatric Nurses in 1990. She has been a member of the Board of Directors of the Citizen CPR Foundation since 1994 and is its vice president. Hazinski is the public member of the Board of Directors of the American Board of Pediatrics and is currently a professor at the Vanderbilt University School of Nursing.

Hazinski has dedicated her career to the cause of resuscitation. She joined the AHA as a volunteer member of the Pediatric Resuscitation Subcommittee in 1988 and co-chaired that subcommittee from 1992 to 1994. She was vice-chair and then co-chair of the AHA Emergency Cardiovascular Care (ECC) Committee from 1997 to 1999. Her editing skills were recognized by the AHA, and in 1999 she was appointed senior science editor for ECC—a position that she still holds. She published the largest study of the accuracy of AEDs in interpreting pediatric rhythms in 2003, a study that contributed to the ILCOR recommendation for use of AEDs in children that same year.

Hazinski has been a major contributor to the AHA Guidelines for CPR and ECC and the ILCOR Consensus on Science for CPR and ECC since 1992. She co-edited *Guidelines 2000 for CPR and ECC: International Consensus on Science*, co-edited the *ILCOR 2005 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care With Treatment Recommendations (CoSTR)*. She was the editor of *Guidelines 2005*

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ILCOR Names Five Resuscitation “Giants” for 2010

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for *Cardiopulmonary Resuscitation and Emergency Cardiovascular Care: International Consensus on Science*, a document that was accessed online more than 2.4 million times in the first 16 months after release, making it the most accessed guidelines or scientific statement in AHA history. Hazinski is an active member of the ILCOR Steering Committee for the 2010 CoSTR Conference and she will co-edit the 2010 CoSTR statement and the 2010 AHA Guidelines for CPR and ECC.

Hazinski has edited numerous resuscitation course manuals and handbooks and edited two award-winning textbooks on pediatric critical care nursing. She has published more than 80 peer-reviewed publications and edited or written more than 50 books and chapters. Hazinski has also been a leading contributor to five different Utstein consensus projects and has been on the editorial board of several leading journals.

As an expert in pediatric care and resuscitation and a highly skilled and committed editor, Hazinski has made significant and long-lasting contributions to many ILCOR and AHA ECC programs over the past 2 decades. Her leadership and dedication have had a profound and permanent impact on the international resuscitation community.

David Zideman, LVO, QHP(C), BSc, MBBS, FRCA, FIMC



In 1979, during my Fellowship at the Hospital for Sick Children in Toronto, Canada, I was trained in basic and advanced life support. On my return I visited Peter Baskett and Douglas Chamberlain to discuss resuscitation practice in the United Kingdom. None of us realized the adventure we were embarking on; within 3 months the organization that became known as the Resuscitation Council (UK) was established. A decade later the European Resuscitation Council followed and ILCOR evolved soon after. I have been privileged to be associated with the development of these national and international organizations and honored to be part of the team advancing resuscitation practice.

David Zideman has been a consultant anesthetist at the Hammersmith Hospital, London, since 1980 and an honorary senior lecturer at the University of London since 1981. He was Chief of Service for anesthesia from 1995 until 2008. He has made, and continues to make, significant contributions to cardiopulmonary resuscitation throughout his career. David's contributions to resuscitation and emergency care are well recognized at the highest level in the United Kingdom. His services to the Royal Family, as a Queen's Honorary Physician, have been recognized by his recent highly prestigious award in the Queen's Birthday Honours list as Lieutenant in the Royal Victorian Order (LVO).

David Zideman was a founding member of the Resuscitation Council (United Kingdom) and was honorary secretary from 1981 to 1989. He was honorary secretary of the European Resuscitation Council (ERC) from 1997 to 2002 and chair of the ERC from 2003 to 2008. David has been a member of the International Liaison Committee on Resuscitation (ILCOR) since 1994 and has been treasurer from 2002.

He co-chaired the ILCOR Paediatric Task Force from 1998 to 2005 and is currently co-chair of the 2010 CoSTR Conference.

David has chaired the British Association for Immediate Care (BASICS) since 2003. This organization plays a fundamental role in the provision of prehospital resuscitation and trauma care in the UK. Throughout his career, David has made considerable contributions as a volunteer in the St. John Ambulance Service within the UK and is currently the District Medical Officer for London. He was recently appointed to the demanding and exciting role of Clinical Lead—Emergency Medical Care for the 2012 London Olympic and Paralympic Games.

Despite these prominent administrative roles, David still has a major clinical commitment in the challenging specialty of pediatric surgery and adult cardiac surgery at the Hammersmith Hospital, London. As a volunteer, he regularly undertakes prehospital medical shifts for London BASICS and the London Helicopter Emergency Medical Service (HEMS).

As well as being an excellent lecturer in great demand all over the world, David has published more than 100 scientific papers and book chapters, mostly in the field of resuscitation and prehospital care. He has been on the editorial board of the journal *Resuscitation* for many years.

David has played a leading role in the writing of the consensus on science for pediatric resuscitation and has been a major contributor to pediatric resuscitation guidelines for the ERC for several years. He has been a member of the Scientific and Organising Committee for all ERC Congresses since 1996, was conference co-chair and co-chair of the Scientific Committee for the 2006 and 2008 ERC Congresses, and is conference co-chair for the 2010 ERC Congress.

The Citizen CPR Foundation—an Enhanced Mission

by Tom Aufderheide, MD

Background

The Citizen CPR Foundation was founded in 1987 as a nonprofit organization to serve as a home and planning host for a biennial conference on CPR. Since its inception, the mission of the Foundation has been “to strengthen the Chain of Survival.” The Foundation has four primary co-sponsors: the American Heart Association, the American Red Cross, the Heart and Stroke Foundation of Canada, and industry partners. The primary “products” of the Foundation are its biennial conference, now called the “Emergency Cardiovascular Care Update” (ECCU), and the quarterly newsletter published by the American Heart Association, *Currents in Emergency Cardiovascular Care*.

Enhanced Mission

In March 2009 the Board of Directors of the CCPRF gathered in Chicago, Illinois, to evaluate the core mission and develop a new strategic plan for the Foundation. The Board sought to enhance the organization’s ability to meet the needs of ECC and citizen CPR and to promote the Chain of Survival.

This exciting strategic planning session began with identification of three core values for the Citizen CPR Foundation.

- CPR saves lives.
- Collaboration among citizens, communities, and organizations is key to survival from sudden death.
- Action based on best practices in science, education, and implementation improves outcomes.

From these three values the Board created an enhanced mission statement: The mission of the Citizen CPR Foundation is to save lives from sudden death by stimulating citizen and community action.

In support of the enhanced mission, the CCPRF identified three key strategic



Tom Aufderheide, MD.

directions for the Foundation for 2009 through 2015.

1. Expand and foster partnerships through creating a Community Response Alliance. This Alliance will build on existing partnerships and form new ones with organizations having shared mission and values.
2. Transform knowledge into coordinated action through unique methods of knowledge dissemination and the ECCU conference.
3. Increase lay rescuer learning and action using new ways to reach bystanders, simplifying bystander action, and promoting enthusiasm for learning CPR.

The CCPRF and ECCU will continue to promote best practices in science as well as innovative, effective methods for CPR/AED education. The CCPRF is equally excited to expand its mission to promote transformation of these best practices into action throughout our communities. Accordingly ECCU will identify aspects of each link in the Chain of Survival that define its quality, suggest how communities can strengthen each link, and show how communities can forge a strong relationship between links. This will provide a consistently efficient, timely, and coordinated sequence of interventions for patients with cardiac arrest by optimizing

local leadership and community stakeholder collaboration.

ECCU Conference

Since its inception in 1987, a major activity of the CCPRF is the organization of the ECCU every 2 years. The conference presents the latest science supporting the CPR guidelines and provides an inspirational forum for CPR instructors to share their experiences, insights, and vision. ECCU is the only event of its kind that brings together highly motivated CPR instructors, nurses, physicians, researchers, EMTs, paramedics, and others involved in the instruction and practice of resuscitation as well as experts in research and program administration. The conference provides a dynamic and unique opportunity for resuscitation professionals, educators, and community champions to learn and connect with the entire spectrum of the ECC profession in one place.

ECCU is often held in coordination with the release of new CPR and ECC guidelines and treatment recommendations from the American Heart Association and the Heart and Stroke Foundation of Canada, and the release of the Consensus on Science from the International Liaison Committee on Resuscitation. The release of the 2010 guidelines is scheduled for October 18, 2010, and ECCU is planned for December 8 to 11, 2010, in San Diego, California. (See related ad on Page 8.)

CCPRF looks forward to this challenge, and to seeing you, the thought leaders in community CPR, at ECCU 2010!

Tom Aufderheide, MD, is president of the Citizen CPR Foundation.



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DECEMBER 8-11, 2010
SAN DIEGO, CALIFORNIA

THE NEW 2010 AHA GUIDELINES

HOW WILL THEY IMPACT YOU? BE THE FIRST TO LEARN FROM THE EXPERTS.

ECCU 2010 will occur just weeks after the release of the new 2010 AHA Guidelines on CPR and ECC. How will the new guidelines impact instruction? What are the best practices in training and community programs? What will the science tell us about ways to improve survival? For three decades ECCU has been the one place where the wide spectrum of resuscitation professionals—instructors, practitioners and researchers—come together for learning, inspiration and networking. Join us for an incredible experience in one of the most beautiful cities in the world.



*Forecast for San Diego in December:
Pacific breezes with a high of 66°,
low of 50° and plenty of sunshine.*

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Science Summary

Recent Studies in Cardiovascular Care

Public Access Defibrillation— More Than a Box on a Wall

The Johnson County (Iowa) Early Defibrillation Task Force did a compliance survey to examine how well the 33 educational, community, and business sites that had instituted AED programs were performing appropriate follow-up in training and maintenance. The Task Force created a 25-point scoring system that examined such items as percentage of employees trained in CPR and use of an AED, efforts by the site to inform people of the presence of the AED, frequency of maintenance checks, accessibility of the AED, and informing local EMS systems of an AED onsite.

Results were disappointing; sites had an overall mean score of 14.3 out of 25 possible points. Follow-up site visits determined that AEDs were not easily accessible or clearly identified; at several sites the devices had dead batteries and expired AED pads. Fewer than half the sites had any budget at all for maintenance such as supplies and training; more than half of those with a budget slated \$100 or less for annual maintenance. The study authors point out that, because much of Johnston County is rural with an average county-wide response interval of 15 minutes, a well-maintained AED program can make a lifesaving difference. They recommend institution of better methods for ensuring ongoing training and maintenance.

Haskell SE, Post M, Cram P, Atkins DL. Community public access sites: Compliance with American Heart Association recommendations. *Resuscitation*. 2009;80:854-858.

Can CPR Anytime® Be Effective for Hospital Employees?

Learning CPR with a personal manikin and 24-minute video instruction has advantages beyond speed and flexibility, because it has been shown to be equally

effective to instructor-led classes for lay people. Could that translate to training hospital employees? At Stavanger Hospital in Norway, 5118 employees answer “yes.”

In 2006 the Board of Directors at Stavanger Hospital wanted all hospital employees to be proficient providers of BLS and wanted to determine if they could be proficient if the means of training was a personal manikin with video instruction. The study aimed to assess whether this training concept could improve hospital employees’ self-reported confidence and practical basic BLS skills.

Employees could take the course in a mass meeting room with the video played each hour by a coach, they could practice with their own manikin and DVD in their hospital department, or they could take the kit home to train. Study results showed that the CPR Anytime® training method can improve BLS performance for up to 6 months for both professional healthcare providers and employees with minimal or no patient contact. Cost of the training included the cost of the kits plus the cost of 11 employees working a total of 370 hours organizing and running this campaign. The organizers worked 4 minutes per employee trained; each employee spent 30 minutes in training. The researchers deem this a simple and less time-consuming method than instructor-led courses in preparing hospital employees in the basic handling of cardiac arrest.

Bjørshol CA, Lindner TW, Søreide E, Moen L, Sunde Kjetil. Hospital employees improve basic life support skills and confidence with a personal resuscitation manikin and a 24-min video instruction. *Resuscitation*. 2009;80:898-902.

Rolling Your Way: Refreshing CPR Skills Just-in-Time and Just-in-Place

Even well-trained healthcare professionals have been shown to deliver inconsistent CPR. This is especially frustrating given

the evidence that resuscitation outcome is improved when professionals deliver high-quality CPR, including adequate chest compression rate and depth, controlled ventilation, and limited CPR-free intervals. Typical instructor-led renewal courses tend to focus on cognitive rather than psychomotor skills.

Researchers at The Children’s Hospital of Philadelphia devised a training cart that they brought to an area outside an at-risk pediatric patient’s room. This cart included a manikin connected to a commercial monitor/defibrillator system with a chest-compression sensor and real-time audiovisual corrective and directive feedback. The device enabled all healthcare professionals responsible for that patient’s care to refresh their skills “on location.” The sessions lasted less than 5 minutes. When audiovisual feedback was used, providers who completed many refresher training sessions each month were noted to achieve optimal chest compressions significantly faster than providers completing fewer than 2 refresher training sessions per month. Healthcare providers delivering chest compressions during actual resuscitations rated the training effective.

Niles D, Sutton RM, Donoghue A, Kalsi MS, Roberts K, Boyle L, Nishisaki A, Arbogast KB, Helfaer M, Nadkarni V. “Rolling Refreshers”: A novel approach to maintain CPR psychomotor skill competence. *Resuscitation*. 2009;80:909-912.

New Emergency Dispatch Protocol Increases Incidence of Bystander CPR

In the chaos of an emergency, most bystanders are unable to determine the difference between normal breathing and agonal gasps and are therefore reluctant to begin CPR for suspected cardiac arrest. The emergency medical dispatch system in Dallas, Texas, serving a daytime population of up to 2 million

(Continued on page 10)

Science Summary

Recent Studies in Cardiovascular Care

people, devised a way to help lay people differentiate between normal breathing (no CPR required) and agonal gasps with need for CPR. If a caller could not determine if the breathing was normal, the dispatcher relieved the rescuer of that responsibility and simply asked the caller to state “now” each time the patient took a breath. If more than 10 seconds elapsed between breaths or gasps, the dispatcher provided CPR instructions. Bystanders started CPR significantly more frequently after the new protocol was instituted (60.9% before vs 71.5% afterward, $p=0.006$).

The study showed that introduction of this new 911 dispatcher assessment protocol to assess for the presence of agonal respirations can significantly increase the

detection of cardiac arrest over the telephone.

Roppolo LP, Westfall A, Pepe PE, Nobel L, Cowan J, Kay JJ, Idris AH. Dispatcher assessments for agonal breathing improve detection of cardiac arrest. *Resuscitation*. 2009;80:769-772.

Examining Cost Effectiveness of Therapeutic Hypothermia

Cooling unconscious cardiac arrest survivors can increase survival and improve outcomes; however, the use of therapeutic hypothermia remains relatively limited, possibly due to the additional cost of the treatment. Researchers used a complex mathematical model to measure quality-adjusted survival after cardiac arrest, cost of hypothermia treatment,

cost of posthospital discharge care, and incremental cost-effectiveness ratios.

They found that the incremental cost-effectiveness ratio of therapeutic hypothermia was \$47 168 per quality-adjusted life year (QALY). This cost can be compared, for example, to kidney dialysis at \$55 000/QALY. These findings will guide clinicians, hospital administrators, and other decision makers responsible for making informed choices about healthcare resource use.

Merchant RM, Becker LB, Abella BS, Asch DA, Groeneveld PW. Cost-effectiveness of therapeutic hypothermia after cardiac arrest. *Circ Cardiovasc Qual Outcomes*. Published online at <http://circoutcomes.ahajournals.org> August 4, 2009.

Two New Studies From the National Registry of CPR

Blood Glucose Concentrations and Cardiac Arrest Outcomes

Is there an association between post-arrest blood glucose concentrations and cardiac arrest outcomes in patients with and without a history of preexisting diabetes? Researchers reviewed the records of 17 800 adult patients with in-hospital cardiac arrests from the database of the National Registry of Cardiopulmonary Resuscitation. Hyperglycemia is common in both diabetic and non-diabetic patients following in-hospital cardiac arrest, but patients with diabetes had maximum glucose values higher than those without. Survival to hospital discharge was higher for non-diabetic patients. The study recommends additional research to identify optimal glucose management during the immediate post-cardiac arrest period.

Beiser DG, Carr GE, Edelson DP, Peberdy MA, Vanden Hoek TL. Derangements in blood glucose following initial resuscitation

from in-hospital cardiac arrest: A report from the National Registry of Cardiopulmonary Resuscitation. *Resuscitation*. 2009; 80:624-630.

Could Vasopressin Be Used Instead of Epinephrine in Pediatric Cardiac Arrest?

Vasoactive medications are recommended for treatment of pediatric cardiac arrest to increase aortic diastolic pressure and improve coronary perfusion pressure. This increases the likelihood of return of spontaneous circulation (ROSC). Currently only epinephrine is recommended for vasopressor use in pediatric cardiac arrest. In adult cardiac arrest vasopressin is an alternative vasoconstrictor. This study attempted to determine if use of vasopressin would improve ROSC in pediatric cardiac arrest.

Of the 1293 consecutive pediatric patients with pulseless cardiac arrest in the registry, only 5% (64) of the children received

vasopressin. This group had prolonged in-hospital cardiac arrests (37 vs 24 minutes), suggesting that vasopressin was used with the sicker children. The authors speculate that the lower rate of ROSC among those treated with vasopressin vs those not treated with vasopressin (34% vs 55%) may simply be that the vasopressin group was sicker. Nevertheless, this study did not demonstrate any benefit from vasopressin during pediatric CPR.

Duncan JM, Meaney P, Simpson P, Berg RA, Nadkarni V, Schexnayder S. Vasopressin for in-hospital pediatric cardiac arrest: Results from the American Heart Association National Registry of Cardiopulmonary Resuscitation. *Pediatr Crit Care Med*. 2009;10:191-195.

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“What Would Shelly Do?”

The Legacy of Sheldon Jacobson, 1938 to 2009

In honor of the 50th anniversary of the development of CPR, here is a glimpse by his former students of a doctor who played a large role in the development of emergency medical services.

by JP Martin

New York City's municipal ambulance service began in 1869 with horse-drawn wagons and “ambulance surgeons” (actually interns) providing medical care. Doctors were removed from ambulance duties during World War II and were replaced by orderlies, nurse's aides, and later ambulance technicians. As late as 1970, there was no standard of care or training—each hospital established its own policies and procedures for its ambulance crews.

Thus was the state of affairs when, in 1973, Sheldon Jacobson, MD, director of emergency medicine at Jacobi Hospital in the Bronx, was asked by the administration of New York City's Emergency Medical Service (then a part of the Health and Hospitals Corporation, which ran the city's municipal hospital system) to start a paramedic training program. NYC EMS had obtained a Federal Department of Transportation grant to set up the program based on the spike in traumatic injuries that befell the Bronx in the late 1960s and early 70s. When classes began in early 1974, there was no formal curriculum, no textbook, and no established skill sets for the paramedic students. Dr. Jacobson decided what would be taught and how, and remained the medical director for the first five paramedic classes.

In addition, Shelly established the Medical Advisory Committee, made up of the emergency medicine directors from several NYC hospitals, to establish a common set of advanced life support protocols for all paramedics operating

in New York City, so that all would be working under the same guidelines.

I was fortunate enough to have been a member of Shelly Jacobson's last paramedic class, Jacobi 5, which graduated in February of 1979. I don't recall him ever lecturing from notes, but then he didn't need them; he knew everything.

One of Jacobson's key themes was: “take a tip from the jockey.” This had nothing to do with playing the horses but everything to do with listening to the patient...the one who was riding the horse, or in this case, experiencing the acute medical condition. While vital signs, EKGs, medications, and past histories were important, Shelly stressed that dialogue with the patient was the most effective way to determine the acute complaint.

Shelly extended that individual, caring approach to his paramedic students. The paramedics, in turn, extended the tenets of academic medicine to their BLS brethren and effectively lifted NYC's EMS system up by its bootstraps. We owe all this (and much more) to Sheldon Jacobson.

Following graduation, Jacobson provided continuing medical education on payday every 2 weeks when he (and later one of his attending physicians) would perform case reviews starting with paramedics reading their call reports then providing follow-up on our patients. Not unlike grand rounds for residents, this confirmation (or correction) of our presumptive diagnoses closed the educational loop for us young

paramedics, giving us the reinforcement (positive and negative) that is missing from many systems today.

Shelly was a true inspiration to hundreds of paramedics, nurses, and physician assistants. Words cannot describe the depth of his medical knowledge, the breadth of his compassion, or the richness of his sense of humor. While some practitioners may save hundreds of lives in the course of their practice, Shelly probably saved thousands by giving his insight into patient/provider communication. All who knew him will miss him greatly.

JP Martin is EMS division chief (retired) and former chief of EMS Training, FDNY.

Another Perspective From “Jacobi Class 2”

by Mark Peck

In 1973, the New York City Emergency Medical Service, like most of the ambulance services around the country, provided little more than basic first aid and a fast ride for the critically injured patient. Our ambulances were affectionately known as “Bread Boxes” because they were built on the step van chassis favored by the bread and bakery delivery services. Our arsenal of medical equipment consisted of splints, bandages, an obstetrics kit, a foam-filled

(Continued on page 13)

Another Perspective From “Jacobi Class 2”, continued

bag-valve-mask, a useless foot-operated suction pump, a RevivaLife resuscitator incapable of free-flow oxygen, stair chair, and a scoop stretcher. As explained to me during my first days on the job: “Kid, Dead is Dead. You only do CPR if they drop in front of you, and it don’t work anyway. But no one is ever listed as ‘Died in Transit’ on the call report.”

The TV show *Emergency!* went on the air in January 1972, depicting a totally new concept—nonphysician paramedics trained to interpret EKGs, start IVs, and administer fluids and medications, to control the airway, and defibrillate at the scene of the emergency. The hospital could come to the patient 20 to 30 minutes faster than ever before. The nation was fascinated with the show and real-life pilot programs were starting in many major US cities. Until this time there had been limited successes with physicians responding to the scene in Belfast, Ireland, the Heartmobile in Columbus, Ohio, and a Mobile Coronary Care Unit out of St. Vincent’s Hospital in New York City.

The world of EMS in New York City changed radically because of Sheldon Jacobson, MD. Then chief of emergency services at Jacobi Hospital in the Bronx, he recognized that both emergency department physicians and emergency medical technicians needed better training to have any meaningful impact on patient outcomes. He formed the Institute of Emergency Medicine at Albert Einstein College of Medicine where the first Emergency Medicine Residency Program in NYC was conducted. The first class of paramedics—Jacobi 1—hit the streets in July 1974 with two medic units out of Jacobi Hospital.

The program was judged a success, but funding for the next class and expansion would not come until June 1977. It was clear from the outset that there was a very close relationship between Jacobson

and the Jacobi 1 medics. He took a very hands-on approach to our class, as he had done with the first, delivering many of the major lectures himself. I often wondered how he could give an entire day’s presentation without any notes or aids. He surrounded us with expert lecturers—nurses, physicians, respiratory therapists—and many of the class 1 paramedics filled in the gaps and made the material relevant for the prehospital environment. There were no paramedic textbooks in print, but he managed to obtain prepublication photocopied manuscripts of the first textbook written by Dr. Nancy Caroline.

But it was the values he taught us that have served me best for more than 30 years. We were to be trained to be thinking practitioners—we must understand the mechanism of the disease process to make correct decisions. We were NOT going to be trained like the paramedics in Los Angeles, California, routinely asking for direction and permission over the radio. We would operate primarily under standing orders; we were ultimately responsible for any treatment decisions or drugs administered, not the physician on the radio. We had a responsibility to continue our education and to pass our knowledge and experience on to others. At our graduation he asked that we take the Oath of Geneva, affirming our responsibility to practice our profession with honor, to make the patient our first consideration, to respect our teachers, treat our patients without prejudice, and respect life.

Dr. J served as the first chair of the Regional Medical Advisory Committee, bringing together the directors of the major EDs around the city that would serve as our base station medical control directors. They developed the first regional protocols and the first testing and certification processes for paramedics and medical control physicians. He had

his greatest influence in firmly establishing that it would be the MAC physicians making the major medical decisions in the system, not the bureaucrats.

Dr. Jacobson left us for a position as ED director at the University of Pennsylvania in 1979 but continued to maintain close relationships with many of the Jacobi medics for the next 30 years. Many of those medics went on to become influential emergency physicians and the next generation of leaders in EMS.

I sat this week watching one of his last lectures on medical errors that is preserved on the internet. [<http://www.med.miami.edu/grandrounds/player.asp?id=256>] It is typical Dr. J, a lecture causing us to recognize our human weaknesses so we can overcome them in the quest for treating our patients more effectively, delivered with ease, understanding, and a sense of humor. Despite the accompanying PowerPoint display, I remain certain he still didn’t need to refer to it.

Among his lifetime of contributions to emergency medicine—teacher, professor, chief of service, author, lecturer and mentor—it is as Father of the New York City Paramedic Program that all the Jacobi medics will remember him. As to that dismal advice about resuscitation given me in my rookie years, thousands of New Yorkers who have been resuscitated by New York City paramedics have Sheldon Jacobson to thank for teaching that, sometimes, you can postpone the inevitable.

Mark Peck, Jacobi 2, was a senior paramedic with the FDNY EMS.

(Continued on page 14)

Briefer glimpses:

Shelly was one of those teachers who motivated his students. His approach to emergency cardiac care was ahead of its time. He held BLS and ACLS courses in 1974 and organized one of the earliest first responder programs. In 1974 Shelly taught the police how to perform first aid and CPR in the Bronx. He developed care protocols for acute myocardial infarction patients: focusing on stabilizing vital signs and treating cardiac dysrhythmias rather than racing to the hospital using lights and sirens. Out-of-hospital resuscitation became the norm as paramedics were trained to intubate, defibrillate, and administer medication. His motto was “BLS before ALS,” and he insisted that his paramedics “see one, do one, and teach one.” He operated the Institute of Emergency Medicine to teach EMT and

paramedic classes. He also developed emergency medicine clerkships for medical students when the field of emergency medicine was in its infancy. Shelly’s can-do attitude will be missed. His self-effacing approach always kept the focus on the patients and not on his accomplishments. He encouraged me and several of the early paramedics to pursue medicine and nursing as a career.

Kevin Brown, MD.

Shelly Jacobson was a real pioneer in emergency medicine, helping define the field at a time when many obstacles had to be overcome. He created New York City’s first emergency medicine residency and NYC’s first paramedic program. He was a pioneer in a literal sense for me,

breaking the trail I followed. He taught the first 4 classes of that paramedic program, then handed the program off to me. I taught the next 10 classes. He inspired me to go on to Boston University to chair the Department of Emergency Medicine and then become medical director of Boston EMS, Fire and Police.

Peter Moyer, MD.

Shelly taught us in the medic program that we had a responsibility to advocate for our patients and instilled a sense of compassion and integrity that has stuck with me throughout 3 decades as a practicing field medic.

Bob Elling, Jacobi 3, is an EMT-P and member of the AHA National Faculty.

Saving a Galaxy



Sheldon Jacobson, MD. He saved the lives of those he treated, and he burnished the lives of those he taught.

Jacobson performed a miracle in 1974. He took a group of ambulance drivers and attendants and turned them into a new group of medical professionals who provided emergency medical care at the scenes of emergencies. Perhaps the best indicator of Jacobson’s success is what these men became after their paramedic careers. Five became physicians, some of them still leading emergency departments in the New York area. Three became physician assistants. One became the chief of the NYC EMS. One became the chief of EMS in St. Louis. One became a respected homicide detective. And one (me) joined the NYS Health Department’s EMS, later becoming the statewide EMS examination coordinator.

Shelley Jacobson took these 19 young men from a simple existence and turned them into highly respected professionals who compounded his ability to save lives. I am forever in his debt for what he did with this group. Hardly a day went by in my career with NYS Department of Health without me thinking, “What would Shelly do?”

As a familiar saying goes, “Whoever saves one life, saves the world.” When the efforts of Shelly are considered, both his own and the efforts of those he trained, I’m sure he has saved a galaxy.

Thomas Dean worked with the NYS Health Department’s EMS and was the statewide EMS examination coordinator.

CPR & AED Awareness Week Logs More Than 350 000 Trained in the United States

The American Heart Association applauds all the instructors, training centers, and members of the public for participating in the 2009 CPR & AED National Awareness Week effort. Logs showed more than 357 801 people trained through the end of June 2009. The training counter will reopen in March 2010. Some states deserve mention for high numbers trained.

- **Alabama: 22 383**
- **Pennsylvania: 15 513**
- **Texas: 22 566**
- **California: 37 967**
- **New York: 22 709**

CPR & AED Awareness Week 2009 put further proof to the old truism: everything in Texas IS bigger. One training center in a single zip code in Texas (77340—Huntsville) was instrumental in helping train more people in CPR (7021) than the totals in 32 **states** during this CPR training campaign. Congratulations to Debi Eaves, EMT-P, CP-ASEL, the University of Texas Medical Branch (ECC Regional Faculty) Correctional Managed Care, and Texas Department of Criminal Justice ECC training staff.

Awareness in California and Florida

Los Altos High School in Los Altos, California, has been providing an American Heart Association Heartsaver® CPR in Schools® Course for 17 years. In honor of CPR Awareness Week, Susanne Dean at Cardiacare changed the days of the training to coincide with the event. In 4 days, 386 10th- and 11th-grade science students were trained. (See photo for smiling members of the Cardiacare and Los Altos training team.)

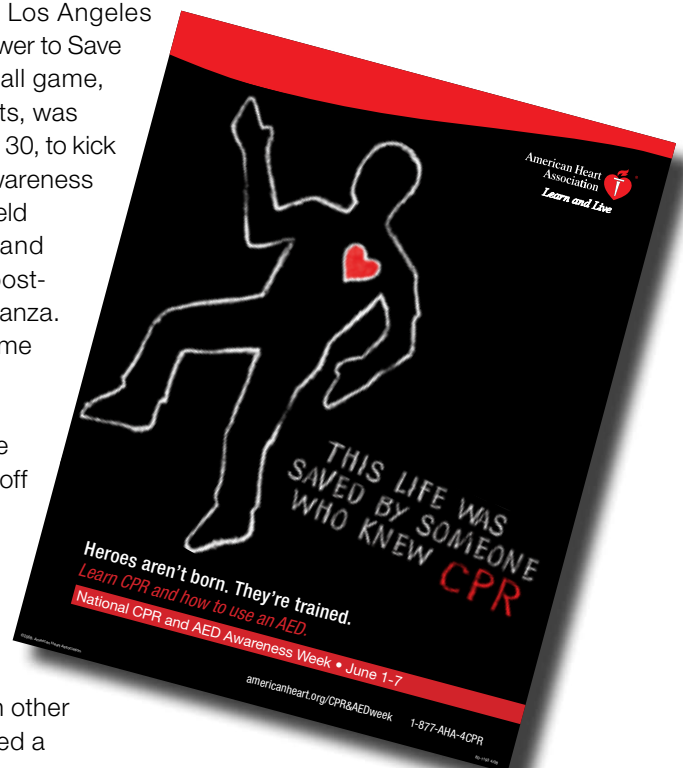


CPR in Schools team from Los Altos High School. Left to right, Karen Wentworth, TNAM; Teresa Ferris, science teacher; Daniel Dean, instructor; Cheli McReynolds, principal; Tammy Perrin, instructor; Heriberto Caro, instructor; Susanne Dean, TCC; Lynne London, instructor, and Leo Juarez, instructor.

LifeTech, Inc. of San Bernardino, California, took training out to the ball game. The CPR training services company teamed up with the Inland Empire 66ers, the Class “A” partner of the Los Angeles Dodgers, to sponsor “Power to Save a Life Night.” The baseball game, against the Modesto Nuts, was played on Saturday, May 30, to kick off the upcoming CPR Awareness Week and featured on-field events promoting CPR and AED awareness and a post-game fireworks extravaganza. Ticket stubs from the game entitled the holders to participate in a free noncertified CPR course during June or take 10% off the cost of a certified course.

Memorial Hospital Training Center in Jacksonville, Florida, in a collaborative effort with other training centers, produced a

“Spread the Word” flyer for their CPR Day of mass training in which more than 1000 people learned CPR.



AHA Instructor Hall of Fame Welcomes Its First Winner

The 2009 first inductee to the AHA Instructor Hall of Fame is Wanda Goranson of Des Moines, Iowa.

She's already received a letter of congratulations on her AHA achievement from Yasuo Takegoshi of Fukuiken Saiseikai Hospital in Japan, telling her how, as a result of her work a year ago there, the hospital has trained 50% of its staff in resuscitation courses, including 70% of physicians and nurses. Takegoshi also said: "We have seen a great change in the attitude of our medical staff, and we are convinced that we are saving more lives."

Besides Japan, Goranson might be anywhere else in the world doing CPR training. Closer to home, she's likely at the Iowa State Fair handing out CPR kits. At the Iowa Emergency Cardiac Care Conference, this year's Hall of Fame winner served as both planner and presenter. Goranson also speaks at schools, scout meetings, and churches and collects supplies to send to the armed forces in Iraq. She's

at home at Iowa Health, teaching classes with professionalism, passion, clinical competence, and skill. She is an ACLS national faculty member for Iowa, a regional faculty position for BLS, and a PALS instructor.

Sincerest thanks to the following nine finalists (in alphabetical order) for all their efforts on behalf of the American Heart Association.

- Glen Davis, Training USA/West Alabama EMS, Northport, Alabama
- Susan Gibbs, Indian Hills Community College, Ottumwa, Iowa
- Johnathan Greene, Lakeway Regional Hospital, Morristown, Tennessee
- Nancy Popejoy, Perry Memorial Hospital, Princeton, Illinois
- Kris Smith, Bryan LGH Medical Center, Lincoln, Nebraska
- David Thomas, Marion County Public Schools, Ocala, Florida

- Freda Thompson, Western Baptist Hospital, Paducah, Kentucky
- Judith Vierke, Edward Hospital, Naperville, Illinois
- Fran Wojculewicz, Glendale Community College, Glendale, Arizona



Hall of Fame 2009 Winner Wanda Goranson with Dr. Yasuo Takegoshi of Fukuiken Saiseikai Hospital in Japan.

Gratitude in His Inbox

Many years ago, Alson Inaba, MD, began offering "Stayin' Alive" as a training tip to help rescuers deliver good compressions at the correct rate. On June 26, 2009, Inaba found the following message in his email:

Dr Al,

I need to put you at the top of my list of heroes that saved my life. I do not know how or why I was lucky enough to be saved by CPR, but thank you for coming up with "Stayin' Alive." Because of you Tom Elowson saw the CPR segment on the Today Show using "Stayin' Alive" to carry the compression beat. Because Tom is a former musician, the segment grabbed his attention, and he remembered the song when he performed CPR on me. Tom has since told me he had never taken a CPR class but because of the show and your use of the song, he felt confident he could jump in and help save my life....

Once again, thank you for being a part of the chain that saved my life.

Tom Maimone

(Two more training tips from Inaba are on Page 25.)

When the Green Bay Packers Played for Mini Anne

This community-wide lifesaving effort began with red caps. Two years ago fans of the Green Bay Packers worldwide purchased the caps in support of their football team and to benefit heart research, education, and other support programs. The Packers of Green Bay, Wisconsin, is

Association, returned as a 1-year grant to the Marshfield Clinic/Ministry Health Care Heart Team.

Playing for the Heart Team

For 90 years (as long as the Green Bay Packers have existed), the Marshfield

spread the word of CPR Anytime® across central and northern Wisconsin with the purchase of 2600 kits.

Team staff members have led training initiatives at schools and with community groups and large employers. Some examples: They provided an overview and take-home kits to participants of the “Girls on the Run” program, an international nonprofit organization that teaches girls to have self-respect and a healthy lifestyle. Health classes at Lakeland Union High School received kits as well, as did attendees at the Park Falls Mens Expo, Crandon Clinic community chat, Rhinelander health expo, and patients and family members at health centers. The Infant CPR Anytime® kit was used to assist with prenatal programs at hospitals.

Hard Work Became Fun

Jack W. Kruit, manager of the cardiovascular service line at Marshfield Clinic, was thrilled with the grant but was worried about the challenge of distributing so many kits in so little time. He asked the AHA, “Isn’t that a lot to expect of someone to dispense fairly? Can I get that accomplished in a year?” The AHA wanted to ensure that the kits were distributed to the public and used for CPR training. Kruit accepted the challenge. “Ministry and Marshfield have a lot of dedicated staff who took this very seriously,” he said. “What I thought was going to be hard work...became fun! We so enjoyed seeing the eyes of people light up when they realize they are getting lifesaving skills—and for free! We relished the interest and excitement of the healthcare workers involved, knowing that the program will save lives and that together we are making a difference.”



Mini Anne, safely helmeted, rides to a training session in style with Mary Ruth Rodel, Marshfield Clinic BLS instructor.

the only professional team owned by its community, and the team organization has a long history of community involvement. Five full-time employees and two part-time employees organize charitable activities instigated by the players, coaches, and staff. The funds raised by the red cap sales, allocated from American Family Insurance to the American Heart

Clinic/Ministry Health Care Heart Team has delivered a high level of care to the Wisconsin region. The team is made up of primary physicians, cardiologists, cardiovascular surgeons, researchers, and other physicians and staff at 41 hospitals and clinics. They treat patients with complex heart disease and conduct research into leading-edge heart care treatments. With the AHA grant, the team

CPR Anytime® Helps Nationally Ranked Children’s Hospital Set a New Standard

Before CPR Anytime® entered the picture, discharge day for a high-risk infant or a child recovering from surgery at Lucile Packard Children’s Hospital in Palo Alto, California, could be overwhelming. Parents left the hospital with their infant or child and instruction lists, medications, equipment, and an understandable level of confusion and apprehension. In a well-meaning effort to give the parents skills and confidence to help their child in an emergency, the hospital showed old CPR training videos 10 minutes before the parents were about to leave. It is probably safe to assume that CPR directions became part of the parents’ information overload.

Lynda Knight, RN, and her team had a better idea: send the parents home with a CPR Anytime kit. When, said Knight, “they can finally take a breath,” the family can open the kit and train themselves at their own rate in a relatively stress-free environment. And, after training, they could gather other family members, friends, and caregivers to use the kit while they viewed the video again.

Even at Lucile Packard Children’s Hospital, ranked fifth in the United States in neonatal care by *US News & World Report*, the idea of using the CPR Anytime kits wasn’t an easy sell. “I received some resistance from the cardiologists,” said Knight. “They

thought the training would instill fear in the families.” Her strong enthusiasm for the training system—“I love the kit; it’s phenomenal; THE way to teach laypeople!”—came through in her presentation to the physicians. She was even able to win hospital support to pay for the first round of kits. These first kits were designated for parents of children with complicated surgical repairs or procedures, solid organ transplants, oxygen-, bi-level positive airway pressure-, or tracheostomy-dependency, seizure disorders, or children discharged with an apnea monitor.

For their study, Knight’s team followed up with the English- or Spanish-speaking caregivers of 63 small patients, who had viewed the CPR Anytime DVD and practiced on the manikin before they left the hospital with the kit. Parents reported high confidence in their CPR knowledge at 1 month, 3 months, 6 months, and a year, with apparent retention of CPR skills. The parents shared their kits with an average of 1.8 additional people by 1 month, and 2.5 additional people by 3 months. No statistically significant associations were found between subjects’ age, education, or prior CPR training. Lucile Packard now provides CPR training to parents of more than 2500 high-risk patients each year.

Those statistics represent grateful families. “I never thought I could learn CPR,” said one parent. “I didn’t think I was smart enough. But I learned it from the kit.”



Joan, mother of a 2-month-old infant in the pediatric intensive care unit for heart surgery (on the right), receives some personal instruction from Vickie Arnold, respiratory care therapist at Lucile Packard (on left), and Lynda Knight, RN (center), principal author of the study. Joan said: “I feel so much better and more relaxed now taking my baby home and knowing CPR.”

Knight’s successful effort is getting attention: “This project is a good example of resuscitation education that capitalizes on the ‘teachable moment,’” said Vinay Nadkarni, MD, director of the Center for Simulation, Advanced Education, and Innovation at the University of Pennsylvania School of Medicine. “The kits allow training at the moment when parents of infants who are at risk are most receptive to learning and practice.” Nadkarni classifies this as “just-in-time, just-in-place” learning. (See another example in Science Summary in “Rolling Your Way” on Page 9.)

Knight is clinical life support and resuscitation educator at the Center for Nursing Excellence at Lucile Packard and AHA National PALS faculty of the northwest region of California. She hopes that this use of CPR Anytime “will standardize and set precedence in providing the lifesaving skills of CPR to our parents of high-risk infants and children. I dream that all children’s hospitals will follow.” To help maintain funds to supply the kits free to parents of high-risk patients, the hospital will feature the kits for sale in the gift shop available to all families and friends.



Kim, mother of an 8-year-old at Lucile Packard for a heart transplant, is coached by Stephanie Wintch, RN. “I am not letting anyone watch my son,” said Kim, “until they watch this DVD!”

Angels With a Boston Accent (and CPR Training)



Olivia Quigley performs CPR on her doll during a CPR Training for Olivia's Angels class on June 29, 2009, at Garfield Community Magnet School in Revere, Massachusetts. Next to her is Kathleen Carabine, one of the teachers who saved her life. Photo courtesy of the American Heart Association.



Olivia Quigley, 6-year-old cardiac arrest survivor, is flanked by the members of Boston EMS who helped save her: EMTs Michael Steiner and Philip Kennard and Paramedics Dennis Mitchell and Steven McHugh. Photo courtesy of the American Heart Association.

Squealing strawberry blonde 6-year-olds aren't on anyone's list of high-risk candidates for cardiac arrest. But try telling that to the people in the gym at East Boston Central Catholic School on February 13 when first-grader Olivia Quigley suddenly collapsed. Teacher Robert Casaletto rushed to the girl's side, only to feel her pulse fade away.

Using their CPR training for the first time, Casaletto and kindergarten teacher Kathleen Carabine began CPR on the girl's tiny frame. Doctors and emergency workers later would credit their actions as saving Olivia's life. Boston EMS arrived shortly and shocked the girl with a defibrillator. Olivia's heartbeat returned. She spent 8 days in intensive care at

Massachusetts General, and 2 ½ weeks in critical care. Then she was moved to Franciscan Hospital for Children in Brighton. She recently took a CPR training class with one of the teachers who saved her life.

Boston EMS Establishes "AED Alert"

AED Alert is a new tool put into place by Boston EMS to enable Boston EMS call takers to identify the locations of hundreds of AED units all over the city. When Boston EMT telecommunicators enter an EMS call at an address with an AED, an urgent message appears advising that there is an AED on site. The caller is then instructed where to retrieve the unit and how to apply it to the patient. The database is very specific and can identify multiple locations within a single building.

The AED Alert, developed over a 2-year period, was a collaborative effort involving all bureaus at Boston EMS. The AED database lists approximately 600 AEDs throughout the city—most are in public buildings, athletic clubs, and large office towers. Boston EMS will help an organization choose an AED and train its staff. Learn more at www.cityofboston.gov/ems.

Embracing CPR Training in Rural Pennsylvania to Increase Cardiac Arrest Survival

by Kathryn DiPuppo Tucker

Living in the rural region of northwestern Pennsylvania, one can enjoy the natural beauty of the rolling hills, a lack of traffic congestion, and very little pollution. All of these positive attributes, however, come with a downside. In medical emergencies, ambulance response times can range from 7 to 25 minutes.

Although efforts have been made to improve EMS response with systems like enhanced 911, emergency medical dispatching, and renaming of rural routes, there is still a dire need to educate residents in what to do until help arrives. When a medical emergency occurs in these rural communities, knowing CPR may mean the difference between life and death.

With a regional bystander CPR rate of only 22%, the Northwest District of the Pennsylvania Department of Health has launched an initiative to improve CPR rates. Gary Jamison, chronic disease nurse consultant, is spearheading an effort to train nearly 50% of the residents in his 12-county region in CPR with the help of the American Heart Association (AHA) CPR Anytime® program. This is part of a larger statewide CPR Anytime program funded through the Pennsylvania Department of Health, Preventive Health, and Health Services Block Grant program from the Centers for Disease Control and Prevention.

Jamison and his colleagues at the Pennsylvania Department of Health have been working closely with partners at the AHA, the University of Pittsburgh Medical Center–Horizon Campus (UPMC Horizon), the Penn State University Extension Office, and local service organizations to launch the program. Reynolds School District in Mercer County was the first district to pilot the program, training more than 150 7th- and



Mercer County students learn to save lives with CPR Anytime. Photo by Mike Roknick, *Sharon Herald*.

8th-grade students with CPR Anytime in April. More than 400 additional students were trained in neighboring Warren and Elk counties in the Spring. Through the support of Al Boland, director of prehospital care and community initiatives, UPMC Horizon will be training as many as 1500 new parents with Infant CPR Anytime kits and plans to offer CPR Anytime kits to family members of cardiac patients. Under the guidance of Andrew Tommelleo, PhD, a school superintendent, 100 nursing students have used this program to educate the public in nearby Lawrence County. They emphasized the importance of providing bystander CPR until EMS arrives and how it will increase a sudden cardiac arrest victim's chance of survival.

Long-range Planning

In Mercer County, with a population of 120 000 people, volunteers hope to teach 50 000 people in the next 3 to 5 years with CPR Anytime kits. “By reaching out to families it is hoped that bystander CPR rates will increase and in turn survival rates will increase,” said Jamison. “In training the children, we give them a gift that will last a lifetime.”

The large Amish population in this region presents a unique CPR training challenge. This group traditionally shuns modern technology, and they have a very poor survival rate after cardiac arrest. Jamison has approached community leaders and talked to them about the importance of learning CPR. By reaching key community leaders and using the CPR Anytime program, he has succeeded in helping many members of this Amish community to embrace this concept. The program is already credited with saving an infant in early 2009.

Word is spreading, and dozens of school districts and community groups have approached the Department of Health to learn how they can implement the program. CPR Anytime is offered throughout the entire state of Pennsylvania through the Department of Health Division of Health Risk Reduction. Jamison's program has become a model, and districts throughout the Commonwealth are beginning to have a significant impact by educating their communities with the CPR Anytime program.

Kathryn DiPuppo Tucker is an AHA ECC community strategies manager. For more information, write Tucker at Kathryn.dipuppo@heart.org.

Pittsburgh High School Students Take the Lead to Help Save Lives

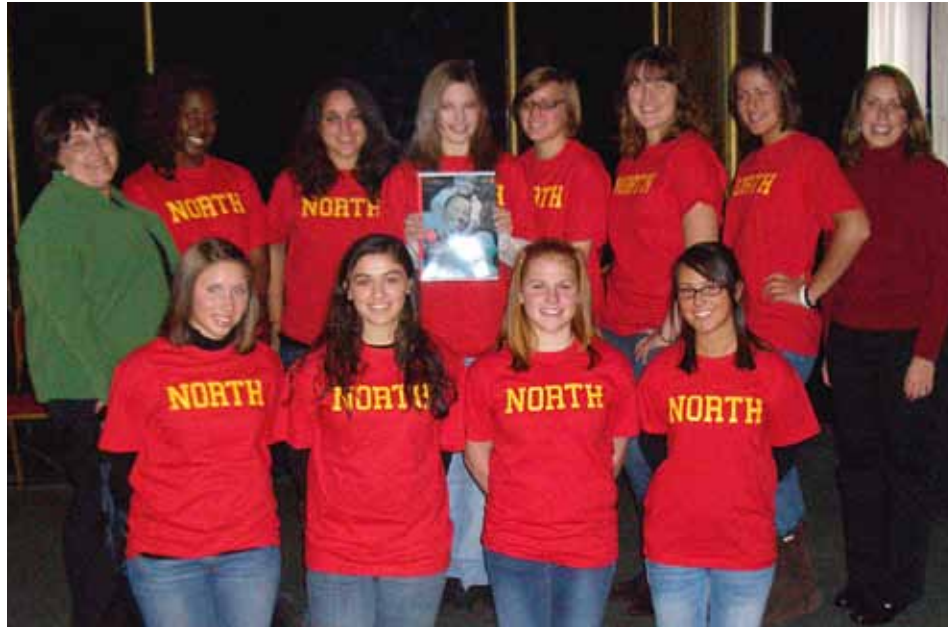
by Kathryn DiPuppo Tucker and Karen Colbert

It is a life-saving lesson. In Pittsburgh, Pennsylvania, 93% of out-of-hospital sudden cardiac arrest victims do not survive. That is why 65 high school students from the North Catholic Leadership Team in Pittsburgh are taking this matter into their own hands—literally. They are using CPR Anytime® to provide CPR training to as many people in Pittsburgh as possible, with a lofty goal of training 20 000 Pittsburghers by 2011. Since March 2009 more than 8100 people have learned how to save a life, thanks to the Team’s “Heart Ready Schools Program.”

To accomplish this monumental task these dedicated young leaders taught CPR to 500 10th-grade students in 10 schools throughout the Diocese of Pittsburgh using the American Heart Association (AHA) Family & Friends® CPR Anytime program. Because the kits are designed to be shared, each student received a homework assignment to train a minimum of 10 additional people with the kits. Students at each of three high schools, North Catholic, Bishop Canevin, and Seton La-Salle, trained more than 2000 additional people.

“The North Catholic Leadership Team was appalled by the local and national statistics regarding the low number of CPR providers in our large cities. It was important to them that more people learned CPR,” said Pamela Connolly, North Catholic biology teacher, mentor of the North Catholic Leadership Team, and long-time AHA volunteer and advocate. “I am very proud of these young men and women.” Connolly has been working with one of us (KDT) and CPR Anytime Team Member Letitia Osborne since 2007 to develop and launch this program.

“I was surprised to learn that only 4 out of 10 people in Pittsburgh would know how to perform CPR if they came across a victim on the street. In Houston



Senior women from the North Catholic Leadership Team are flanked by Pam Connolly, teacher and mentor, on the left, and Kathryn DiPuppo Tucker, ECC community strategies manager.

and Seattle, 8 out of 10 people know how to perform CPR,” said Shayla Mitrik, one of three North Catholic Leadership Team presidents.

The “Heart Ready Schools Program” was made possible by the generosity of the Snee-Reinhardt Foundation and the Medtronic Foundation, which provided grants for the launch of this 3-year program with the help of Phyllis Kokkila, AHA donor relations director in Pittsburgh.

The North Catholic Leadership Team is a peer health education student group that has been making a difference in the Pittsburgh community since 1991. These students are all certified AHA Heartsaver instructors. This unique group is committed to increasing the number of CPR providers in the Pittsburgh area and plans to share the results of this program with the 500 school districts throughout Pennsylvania to promote CPR education in schools.

“Kids learn best from other kids,” Connolly said. “This model works very well with CPR Anytime, and these students feel very confident in the skills that they have learned through this program.” Feedback from the program’s launch has been very positive. Parents, teachers, and principals have written to congratulate the students. Everyone involved is pleased with the potential outcome of this project, which will resume this Fall.

Kathryn DiPuppo Tucker is an AHA ECC community strategies manager. Karen Colbert is regional director of communications for the AHA in western Pennsylvania. For more information, write Tucker at Kathryn.dipuppo@heart.org.

Chain of Survival Links Hold Tight for STEMI Patient

by Laurie Young, MPH, CPH, and Bryan Keane



John Catuira and Maria Galarza were returning from their weekly laundry trip on May 10, 2009, when 39-year-old Catuira suddenly indicated that he was experiencing chest pain that would not go away. Galarza immediately dialed 911 and told the operator what was happening. The operator dispatched paramedics to the scene immediately. Before the paramedics reached the couple, first responders from a nearby fire department arrived and did an initial assessment of Catuira.

The paramedics arrived on scene moments later and quickly acquired a 12-lead ECG and administered nitroglycerin. The first ECG did not indicate a heart attack; however, the chest pain remained. Paramedics obtained a second ECG that indicated the patient was having one of the deadliest types of heart attacks, an ST-segment elevation myocardial infarction (STEMI). Copies of both prehospital ECGs

were transmitted directly to the emergency department of the receiving hospital. The ED physician immediately activated the cardiac team to alert them that a STEMI patient was en route to their facility.

When Catuira arrived at Montefiore Medical Center the cardiac team was ready for him. They brought him directly to the cardiac catheterization lab where they performed percutaneous coronary intervention, or balloon angioplasty, to remove the blockage in his artery. About an hour later a physician came to tell Galarza that her husband was recovering and being moved to the cardiac unit.

Because of the quick action of Galarza, the Fire Department of New York, and the hospital staff, Catuira is alive and well today.

“The first to respond to my wife’s 911 call were the firefighters from the firehouse only a block from our home,” said Catuira. “And

luckily, Montefiore was mere minutes from our home. The ER staff was ready when I arrived and worked quickly and efficiently. I had a heart attack, but it could have been more traumatic than it was. The experience has reminded me how much we rely on the expertise, the professionalism, and the kindness of others.”

Follow-up appointments with a cardiologist led to the discovery that Catuira has a genetic predisposition to plaque build-up, which was a likely contributor to his event. To reduce his risk of a future event he closely monitors his blood glucose levels and has made some lifestyle changes including the elimination of red meat and soda from his diet.

Laurie Young, MPH, CPH, is director of State Health Alliances for New York for the American Heart Association. Bryan D. Keane is director of communications in New York City for the American Heart Association.

International Training

Building an EMS System in the Mountains of Bhutan

In the United States, emergency medical response is measured in minutes, and the fewer minutes needed, the better. But what if travel time to the hospital was measured in *days*?

Until recently, the concept of prehospital emergency care was unheard of in Bhutan, where injured people are transported to hospitals by passersby or, at best, a driver with no medical training dispatched from a hospital. Bhutan is primarily a Buddhist country landlocked between India and China. It was a monarchy for centuries and just this March had its first democratic elections. The country is looking to acquire its first fully equipped ambulance by year end, so medical and political leadership will be building an emergency medical system from Step One.

Step One was begun in April when 6 students—2 physicians, 3 registered nurses, and 1 health sciences instructor—traveled from Bhutan to Sleepy Hollow, New York. They spent an intense month at the Frank and Lisina Hoch Center for Emergency Education at Phelps Memorial Hospital there, an American Heart Association training center. The six pioneers completed training programs in first response prehospital emergency medicine, ACLS, PALS, and prehospital trauma life support. They received additional in-hospital training at Hartford Hospital and Brigham and Women’s Hospital in Boston, Massachusetts.

Bhutan is famously known for measuring not its gross national product but rather its gross national

happiness. Six Bhutan medical professionals are ready to increase it.



Health workers from Bhutan in the Himalayas receive hands-on training on EMS techniques during classes conducted at the Emergency Training Center at Phelps Memorial Hospital in Sleepy Hollow, New York. Left to right, Sonam Penjore, Kunzang Dorji, Kunzang Chhodon, Anne Castioni, Dr. Chojay Wangmo, Dr. Gosar Pemba, Namgay Dem. Photo by Nancy Gold, Phelps Memorial Hospital.

AHA Online: The Solution to Many Training Challenges

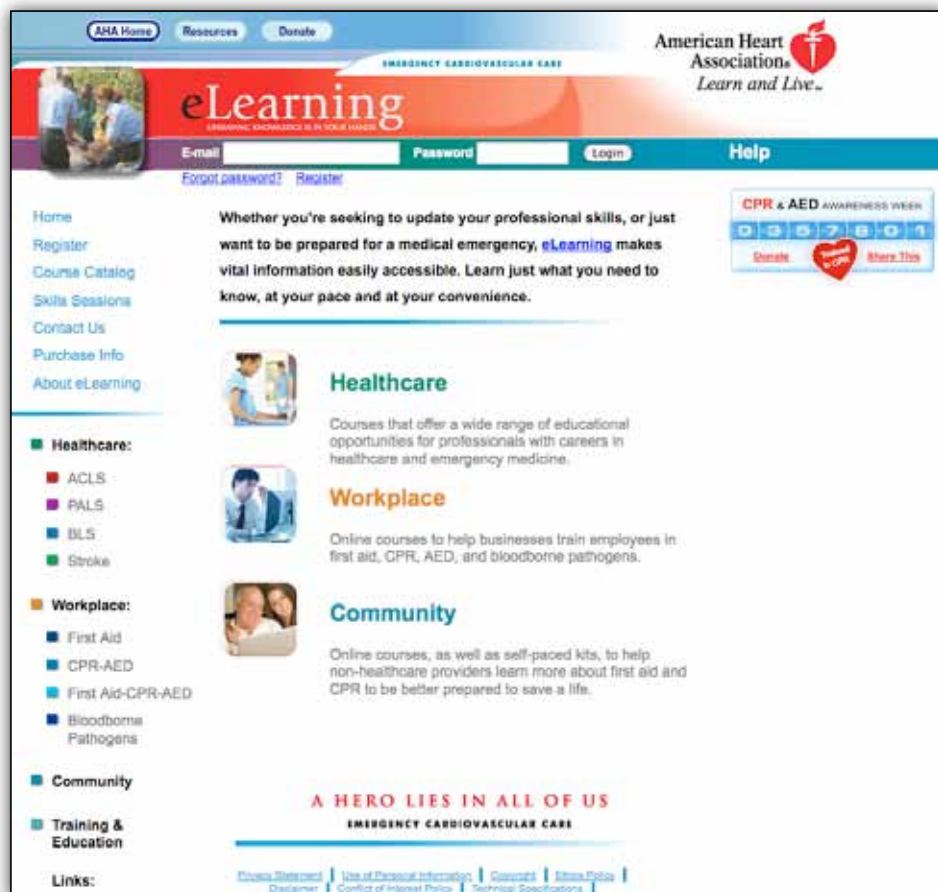
American Heart Association (AHA) training courses are a click away

- for hospitals whose professionals work long or odd hours
- for corporations whose workers are spread across the United States
- for hospitals and businesses looking to cut down on travel and training costs,
- for young employees more accustomed to a computer monitor than a lecture hall
- for people of any age who want flexibility and self-pacing in their healthcare education

Online courses available for healthcare professionals include HeartCode™ ACLS Part 1, HeartCode™ BLS Part 1, BLS for Healthcare Providers Online Part 1, Acute Stroke Online, Stroke Hospital-based Care Online, Stroke Prehospital Care Online, and Learn:™ Rapid STEMI ID.

Online courses available for workplace learners include Heartsaver® First Aid Online Part 1, Heartsaver® CPR & AED Online Part 1, Heartsaver® First Aid Online With CPR & AED Part 1, and Heartsaver® Bloodborne Pathogens Online.

Research shows that resuscitation skills learned online are comparable to skills learned via classroom instruction as long as they are coupled with a hands-on practice and testing session. Therefore, not everything can be completed online—lifesaving is, after all, a hands-on process! Skills practice and testing sessions are necessary for course completion, but the AHA has created a new training position, the Heartsaver® Skills Evaluator, to make that a smoother process too. Go to www.OnlineAHA.org or get in touch with your AHA account manager for a plan to solve your training challenges.



AHA First Aid & CPR: “There’s an App for That!”



The American Heart Association (AHA) Pocket First Aid & CPR application includes the most up-to-date emergency information. Review first aid and CPR procedures anywhere and anytime. The application includes illustrations, videos, storage of information on your iPhone (retrievable even when you’re out of cellphone range), updates of recent information, and AHA guidelines. Useful for everyone from the search and rescue professional to the layperson storing important medical emergency information. Available at <http://www.jive.me/pocketaid/>.

Successful AHA/OSHA Alliance Continues

If there's strength in numbers, there is likely to be serious strength in expert numbers. Combining the scientific prowess of the American Heart Association (AHA) with the powerful breadth of the US Department of Labor Occupational Safety & Health Administration (OSHA) in promoting workplace safety is a natural. OSHA promotes safety, enforces standards, provides training, outreach, and education. The Alliance enabled the Department of Labor to become an AHA training center, providing first aid and CPR/AED courses to companies across the country. Through the Alliance, OSHA and the AHA combine their collective expertise to advance a culture of awareness, prevention, and action. Each organization shares best practices and technical knowledge to reduce death and disability from heart disease and stroke. Both address workplace employee wellness programs, including bloodborne pathogens and emergency response, by preparing materials and participating in workshops, seminars, and lectures.

Recent projects included joint participation in 2008 Drug-Free Work Week educating employers, employees, and the public about the importance of being drug-free as an essential component of a safe and healthy workplace. The Alliance took an active part in the 2009 North American Occupational Safety and Health Week, "Safety Means Always Coming Home," sponsored annually by the American



2009 NAOSH Week Alliance Program participants meeting on May 4, 2009, at the Department of Labor. Left to right are Eric Allgaier, chair, National Telecommunications Safety Panel; David Hicks, manager, Technical Initiatives, American Industrial Hygiene Association; Michaela Rydstrom, assistant, Environmental Health and Safety, Brick Industry Association; Marilyn Cole, consultant, American Pipeline Contractors Association; Gwen Butler, ground safety manager, United Airlines (Airline Group); Marianne Psipsikas, health and safety analyst, Jet Blue Airlines (Airline Group); Mike Hodes, senior safety analyst, American Airlines (Airline Group); Luke George, manager, Government Affairs, National Safety Council; Karen Orso, director, National Accounts and Commercial Markets, American Heart Association; and Gus Anibarro, education director, Laser Institute of America.

Society of Safety Engineers and the Canadian Society of Safety Engineering. During that week, Karen Orso, director, AHA ECC Commercial Markets, spoke at the event kickoff, presenting hands-only CPR demonstrations with the CPR Anytime® kit and using young people from the audience to demonstrate its ease of use.

AHA training centers across the country can become involved in regional or state alliances with OSHA. Benefits include opportunities to contact representatives of companies that need workplace training, to expand outreach for cause initiatives, and to expand the reach of your speakers bureau. To find an OSHA contact, go to http://www.osha.gov/dcsp/alliances/regional/regional_alliance_contacts.html.



Sandra Khan, RN, safety and occupational health specialist, US Department of Labor, OSHA alliance coordinator, with Karen Orso, director, ECC Commercial Markets, at the NAOSH Week panel.

Dr. Al's Simplified Pediatric Vital Signs and Age-Weight Formulas

by Alson S. Inaba, MD, FAAP



Alson S. Inaba, MD, FAAP.

During every case scenario in a Pediatric Advanced Life Support (PALS) Course and in actual pediatric resuscitations, healthcare providers must be able to quickly and accurately evaluate the child's vital signs. To do so, the team must be familiar with normal pediatric vital signs. Numerous tables of normal pediatric vital signs can be found in various textbooks including the American Heart Association *Pediatric Advanced Life Support Provider Manual* (pages 9 and 17). The common problem with many of these tables is that there are too many numbers to

memorize (different age groups, ranges of heart rates, and ranges of respiratory rates). Over the past 20 years I have been teaching my "Simplified Pediatric Vital Signs" method at PALS courses, and the students have a very easy time remembering these sets of normal values.

I have divided the pediatric population into one of four simple age groups:

- **Newborn to 1 year**
- **1 to 4 years**
- **4 to 12 years**
- **>12 years**

The average **heart rate** for the first age group (newborn to 1-year-old) is 140. Then for each subsequent age group simply subtract 20. The **respiratory rate** for the first group starts at 40. If you forget this, simply write down the heart rate for the first group (ie, 140), then cover up the first digit and you are left with 40. Instead of subtracting 20 for each subsequent age group,

subtract 10 until you get to the 4th group for which you subtract only 5 (See Table 1).

Now for pediatric weights. The doses of all the resuscitation medications used in PALS are based on the child's weight (mg/kg dosing). Ideally you should use the child's actual measured weight or a length-based tape to estimate the child's weight. What can you do if the child is too unstable to weigh and you don't have the child's actual weight or a length-based tape to estimate it? Many years ago I came up with a very simple method of estimating a child's weight based on the child's age. My formula starts at 1 year of age, and the target ages are all of the odd-numbered ages up to 17 years old (ie, 1, 3, 5, 7, 9, 11, 13, 15, 17) (See Table 2). A 1-year-old infant is about 10 kg; for each target age simply add 5 kg to the weight until you reach 35 kg for an 11-year-old. To account for the growth spurt of adolescence, after age 11 years increase the weight by 10 kg for each subsequent target age.

TABLE 1. Dr. Al's Simplified Pediatric Vital Signs		
Age Group	Heart Rate	Respiratory Rate
Newborn to 1 year	140	40
1 year to 4 years	120	30
4 years to 12 years	100	20
>12 years	80	15

TABLE 2. Dr. Al's Age-Weight Estimation Formula	
Age	Weight (kg)
Newborn	3-3.5
1 year	10
3 years	15
5 years	20
7 years	25
9 years	30
11 years	35
13 years	45
15 years	55
17 years	65

ECC Class Connector™: A New Tool for Finding Classes

The American Heart Association (AHA) CPR and ECC training programs are in high demand. The No. 2 reason callers contact the AHA National Service Center is to find out where to take CPR courses. The ECC/CPR page is among the three most frequently visited areas on americanheart.org. To help customers quickly and conveniently locate AHA CPR and ECC classes, in April 2009 the AHA Emergency Cardiovascular Care Programs launched a new and improved class finder, called the ECC Class Connector™.

With the ECC Class Connector, AHA customers can not only find training

centers near them, but they can also search for and enroll in scheduled classes posted by AHA instructors and training centers. Customers can also communicate directly with instructors about course materials needed, payment options, and more. This new tool creates a seamless process for customers by eliminating the need for them to call around to locate a class.

The ECC Class Connector puts the ECC Training Network of 280 000 instructors in the driver's seat by giving them control of the information that is posted about their training centers and classes. Training centers and instructors can post information about

classes and make changes to their training center profiles in real time on the Internet, without having to wait for the changes to be posted by the ECC Customer Support Center.

Go to <http://www.americanheart.org/eccclassconnector> today to see how it works.



Visit AHA ECC Programs at These Events

September 21–24, 2009

American Society for Industrial Security
Anaheim, CA
<http://www.asisonline.org/education/programs/anaheim/default.htm>

September 24–26, 2009

IV International Congress of the Polish Resuscitation Council
Krakow, Poland
http://www.prc.krakow.pl/kon09/index_en.html

October 2–3, 2009

European Resuscitation Council Congress
Cologne, Germany
<http://congress.erc.edu/>

October 4–6, 2009

International Association of Chiefs of Police
Denver, CO
<http://www.theiacpconference.org>

October 5–7, 2009

American College of Emergency Physicians
Boston, MA
<http://www.acep.org/cme.aspx?id=45289>

October 8–10, 2009

Emergency Nurses Association
Baltimore, MD
www.ena.org

October 14–16, 2009

National Recreation and Park Association
Salt Lake City, UT
<http://www.nrpa.org/Content/asp?id=416>

October 17–19, 2009

American Academy of Pediatrics
Washington, DC
<http://www.aapexperience.org/>

October 26–28, 2009

National Safety Council
Orlando, FL
www.nsc.org

October 28–30, 2009

EMS Expo
Atlanta, GA
<http://www.publicsafetyevents.com/ems/index.po>

November 14–18, 2009

AHA Sessions
Orlando, FL
scientificsessions.americanheart.org

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- 80-1473 Learn:™ Rapid STEMI ID

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**AHA Training Center
Information:**
1-888-CPR-LINE

International Training Inquiry:
+1-214-706-1232

ECC Course Matrix:
<http://www.heart.org/presenter.jhtml?identifier=3041868>

ECC Class Connector:
<http://www.americanheart.org/eccclassconnector>

ECC Field Support Center:
1-888-426-6825

Public CPR Inquiry:
1-877-AHA-4CPR

Public AHA Inquiry:
1-800-AHA-USA1

Public Stroke Inquiry:
1-888-4-STROKE

AHA ECC Home Page:
americanheart.org/cpr

AHA Instructor Network:
ahaistructornetwork.org

Online Course Information:
www.onlineaha.org