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Fighting Heart Disease and Stroke

# Currents

in Emergency Cardiovascular Care



**Starting Early  
Saving Lives**



**Researching the  
Recovery Position**



**Sneaking a  
Preview of  
ECCU 2002**



An Official Publication of  
the American Heart Association  
and the Citizen CPR Foundation

Editor: Kathleen Jun

# Currents

*in Emergency Cardiovascular Care*

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## Never Too Young to Learn

# This Heartsaver CPR in Schools Program Exceeds Expectations

*The adults in the Mississippi classroom were pleasant but a bit skeptical toward the group of teens: “You’re mighty young to be taking this class, aren’t you?” Then they learned that the eighth-graders were the **Instructors**.*

Sgt. Gary Davis was assigned as a liaison in Olde Towne Middle School in Ridgeland, Mississippi, to present a positive view of the police force to the students. That was why Police Chief Charles Newell and Principal Ken Acton created the in-school position and selected him to fill it. But Sgt. Davis had much more in mind.

“EMS has always been my love,” says Davis, who is also a paramedic. “I wanted to do more for the kids than just be a friendly presence in the school. I decided that I would teach these kids how to perform CPR. Then I thought, no, that’s not enough. I’m going to teach them to be CPR *instructors*.”

### Getting Started

The Ridgeland community of 25,000 offered money for the pilot program. A group called “Students Erasing Crime” raised money for manikins. The school band donated funds for course books. The PTA buys shirts and lunches for the students who qualify for the program. Says Sgt. Davis: “These students aren’t selected by me or their parents or the head of the PTA. They self-select. And it’s not easy: I had 65 who signed up in the last group; 40 made it to the first level of commitment; 10 showed up for the pre-test; 6 actually graduated. I expect 100% as their score on the tests and in skills—and they deliver. That’s more than the AHA requires, but I must ensure that they are prepared beyond question. We get a lot of skepticism until people see them in action—and then they’re in awe. ‘How did you do it?’ they ask me. I didn’t do it. They wanted to.”

### Positive Response

Ken Acton, retired principal of Olde Towne, says: “This program has been great for our kids and great for our community. Parents and kids have responded very positively.”

Davis’ first graduates in February 2000 were Archana Ravikumar, Kimberly Dickard, Erica Ochar, Mallori Rushing, Teri Crawford, and Mary Landen-Downs. Instructor Archana Ravikumar, now 15, says: “The hardest part was getting other people to accept us at our young age. But if you put your heart into it, you can get anything accomplished.”

### Chain of Survival Award

Sgt. Gary Davis and the Olde Towne Middle School CPR in Schools Program were recipients of the 2001 Chain of Survival Award, presented to the individual or group that has gone above and beyond the call of duty in promoting the Chain of Survival in the community. Although pleased at the recognition, Instructor Kimberly Dickard, 15, says: “This has affected my life far beyond any awards.”

Sgt. Davis’ “battalion” teaches CPR to their peers and teachers in the Ridgeland school system and the neighboring middle school. They also teach paramedics and nursing students in the community college. In addition to having trained more than 1000 people, they’ve had three documented saves. The weekend after the first training session, a student came to the aid of a man who had shot a nail through his leg. A student choking on food had the obstruction released by a teacher who had been trained by one of Sgt. Davis’ students. One of the 8th-grade learners saved his own brother when the little boy was knocked over while holding a marble in his mouth.

Given their documented success, these well-trained teens are winning acceptance as bonafide instructors, despite their youth. But Sgt. Davis isn’t stopping there: when he introduces AEDs in his community speeches, the demonstrator is his daughter Stephanie. She’s eight.

Sgt. Gary Davis can be reached at [gumbycop@bellsouth.net](mailto:gumbycop@bellsouth.net).



Photo courtesy of Sgt. Gary Davis.

## Guidelines Questions/Guidelines Answers

# LMA as an Alternative Advanced Airway

by Richard Cummins, MD, MPH, MSc

The Guidelines 2000 position on the use of the laryngeal mask airway (LMA) as an alternative advanced airway is one of acceptance—not endorsement—of its use in locations and communities where tracheal intubation is not permitted, or in areas where the success rate of professionals using tracheal intubation is low. Many published reports support the Guidelines statement on LMAs. Over and over these reports document that an invasive airway can be “shoved” blindly down the throat without visualization of the vocal cords and still achieve oxygenation and ventilation equivalent to tracheal tubes.

Note that the Guidelines section on use of LMAs includes

- acknowledgment that aspiration can be a problem
- acknowledgment that skill performance must be monitored
- recommendation for very good training
- recommendation to have back-up airway devices
- recommendation for use of cricoid pressure, or the Sellick maneuver, to reduce the chances of regurgitation
- recommendations for suction devices to be standard equipment at resuscitation attempts to address the complications of regurgitation

Here is a section from *Guidelines 2000 for Cardiovascular Resuscitation and Emergency Cardiovascular Care: International Consensus on Science*, pages I-98 to I-99:

### Alternative Airways

In some communities tracheal intubation is not permitted, or patients are so few that practitioners obtain little experience. Alternative airways that require blind passage of the device into the airway may be simpler to master than passage of a tracheal tube under direct vision. Alternative airways include the laryngeal mask airway (LMA), the esophageal-tracheal Combitube (ETC), and the pharyngotracheal lumen airway (PTL). When used by adequately trained healthcare providers, the LMA and the ETC provide superior ventilation compared with face masks in patients in cardiac arrest (Class IIa). To achieve good outcomes with these devices, healthcare providers must maintain a high level of knowledge and skills through frequent practice and field use.

### Laryngeal Mask Airway

The LMA is an adjunctive airway device composed of a tube with a cuffed mask-like projection at the distal end. The LMA is introduced into the pharynx and advanced until resistance is felt as the distal portion of the tube locates in the hypopharynx. The cuff is then inflated, which seals the larynx, leaving the distal opening of the tube just above the glottis, providing a clear, secure airway.

The LMA provides a more secure and reliable means of ventilation than the face mask. Although the LMA does not ensure absolute protection against aspiration, studies have shown that regurgitation is less likely with the LMA than with the bag-mask device and that aspiration is uncommon. In comparison with the tracheal tube, the LMA provides equivalent ventilation. Training in the placement and use of an LMA is simpler than tracheal intubation because laryngoscopy and visualization of the vocal cords are unnecessary for insertion of the LMA. The LMA may have advantages over the tracheal tube when access to the patient is limited, there is a possibility of unstable neck injury, or appropriate positioning of the patient for tracheal intubation is impossible.

Studies have examined the use of LMA by nurses, respiratory therapists, and EMS personnel, many of whom had not previously used either an LMA or a tracheal tube. Successful insertion rates with the LMA range from 64% to 100%.

Even when the LMA can be inserted, studies report that a small proportion of patients cannot be ventilated with the LMA. Because insertion and ventilation are not ensured, it is important for providers to have an alternative strategy for management of the airway. Providers should receive adequate initial training in the use of the LMA and should practice with the device regularly to optimize insertion rates and to minimize complications. To ensure optimal outcomes we also highly recommend that EMS and other healthcare providers monitor their success rates and the occurrence of complications.

Questions from the field suggest that there may be conflict between the package insert and the AHA Guidelines. Use of the LMA is only one of numerous examples in which the Guidelines make “off-label” recommendations. That is, clinicians use a device or medication for an indication that is not mentioned in the manufacturers’ labeling or package inserts. The most widely discussed and acknowledged examples in the 2000 Guidelines: amiodarone for shock and vasopressor refractory VF, vasopressin for shock refractory VF, AED use without a pulse check, and the LMA for patients who have not been fasting. All of these

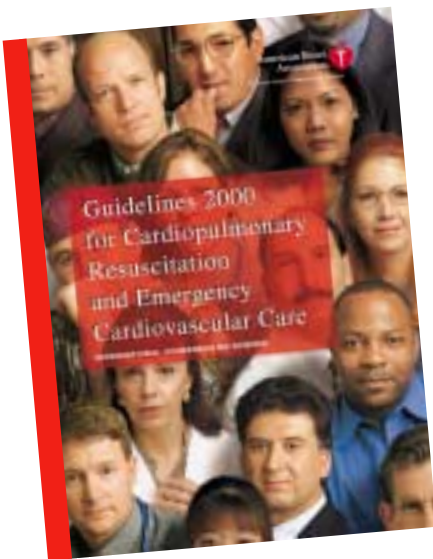
topics were discussed extensively at the Evidence Evaluation Conference. (See the Proceedings Supplement to *Annals of Emergency Medicine*, April 2001, for some of these discussions.)

Off-label recommendations are not a new or surprise “problem” with the Guidelines. These recommendations are appropriate and acceptable because their use is recommended in a manner “that would seem reasonable and appropriate to a reasonable and prudent medical doctor,” a manner based on (1) numerous published studies and (2) the consensus clinical judgment of medical experts.

Finally, note that Guidelines “acceptance” of the LMA is an effort to make the best of a less-than-perfect situation—where EMS tracheal intubation skills are difficult to train and maintain. The single motivation that drives all the guidelines is to help save lives. These LMA guidelines are a good example of where experts have gone the extra mile to give support to EMS systems by recommending advanced airway techniques that can be used by personnel who otherwise would not have the ability to provide this better and more advanced care. The final decision on use of these advanced airway devices rests with the EMS Medical Director.

AHA Regional and National Faculty should rely on the Guidelines and the supporting science over package inserts and advertisements.

*Richard Cummins was an AHA Senior Science Editor and a member of the Guidelines 2000 International Editorial Board.*



## ***Video-Based Instruction?*** **“What a Blast!”**

by Carol Stemple

I’ve been teaching the Heartsaver AED course now to the lay public for 2 years, using the watch-then-practice guidelines and all 8 scenarios for AED practice. I encourage students to enroll in the Heartsaver course with the AED addition because I’ve gotten such great feedback. We are empowering people with a really useful tool to make a difference. What a blast! This is a great course to teach. I’ve had countless students tell me: “I’ve taken CPR many times before, but this is the first time I learned anything.”

Does that mean that all our previous ways of teaching were bad? Not at all. I believe the idea behind video-based instruction is that there’s always room for us to find a better way. This “new” method has been taught for years in ACLS courses. It is designed to allow students to “make your mistakes today and learn from them.” This method promotes thinking and problem solving on the part of both instructor and student.

### **The Proof Is in the Results**

The results my students have achieved prove to me that this works. The “up-and-down” portion of the course keeps everyone awake; they don’t have a chance to doze off while listening to an instructor lecture. Learning each skill separately is much less intimidating; they get it right first—and THEN we move on to the thinking part. No one leaves my class without being able to make every response make sense to them. They do very well learning from their mistakes—if we just allow them to MAKE the mistakes. If we interject ourselves all the time, our students will never learn to think and solve the problem on their own in a real-life event.

*Carol Stemple runs Lifework in Ellicott City, Maryland. You can reach her at [carol@lifeworkhealth.com](mailto:carol@lifeworkhealth.com) or the website at [www.lifeworkhealth.com](http://www.lifeworkhealth.com). An earlier version of this communication appeared on the MERGINET.com CPR-AED Discussion List.*



A brief history:

## The Recovery Position

by Anthony J. Handley, MD, FRCP

You discover someone collapsed on the sidewalk. He is unresponsive and you send your friend to call 911. You open the victim's airway and check breathing. The victim is breathing and has no obvious injuries. What should you do now?

According to the new international guidelines, put him in the recovery position.

Most of you will say, "Of course I knew that!" Which is interesting, because before 1992 there was no mention of the recovery position in the AHA Guidelines—none at all! Is the recovery position a new concept then?

### Unblocking the Airway

The airway of an unconscious, breathing victim is easily blocked by the tongue, particularly when the person is lying on the back. If the victim is turned onto the side, the tongue falls forward, opening the airway and allowing secretions to drain from the mouth. The term "recovery position" is commonly used to describe this on-the-side position, although other terms also exist, each with slightly different meanings.

One of the earliest clinicians to understand that turning an unconscious patient onto the side helped to prevent respiratory obstruction was Robert Bowles, a consulting physician to the Victoria Hospital in Folkestone, England. In 1891 he wrote a treatise entitled *On Stertor, Apoplexy, and the Management of the Apoplectic State*.<sup>1</sup> As the title suggests (at least to those of you with some knowledge of Olde English!), he was mainly concerned with patients who had suffered strokes. He describes several case histories in which stroke victims lying on their backs developed noisy breathing (airway obstruction or stertor), which was relieved by turning them onto their sides. Frederick Hewitt, an anesthesiologist at The London Hospital, England, took up this idea in 1893 and advised the side position for postoperative, unconscious patients.<sup>2</sup> He also described, probably for the first time, the value of the chin lift in removing an obstructing tongue from the posterior pharyngeal wall. Unfortunately, Hewitt's progressive ideas were not taken up by the medical profession and, more than 50 years later, *A Textbook of Surgery* by F. Christopher (published in Philadelphia in 1949) still recommended that an anesthetized patient should be transported on the back.<sup>3</sup>

The first aid societies, at least in the UK, were slow to appreciate the value of the recovery position. The St. John

Ambulance Association textbook, *First Aid to the Injured*, continued to recommend lying the "insensible" patient on his back "with his head turned to one side." It was not until 1950 that the 40th edition added that: "If breathing is noisy (bubbling through secretions), turn the patient into the three-quarters prone position."<sup>4</sup> We would recognize this as the recovery position with the victim's lower arm placed behind the back, very similar to that illustrated in the 1992 AHA *Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiac Care*<sup>5</sup> (Figure 1).

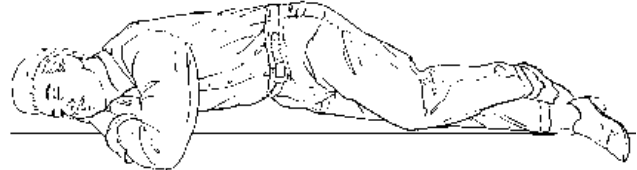


Figure 1. 1992 AHA recovery position.

Why did it take so long for the concept of the recovery position to be taken up by the AHA? We can only speculate on this, but between 1950 and 1992 several variations on a theme were being advocated in Europe. Thus we saw the Coma Position (virtually the AHA position), Rautek's Position (rather less prone) and the HAINES (High Arm IN Endangered Spine) Position (more upright and with the head better supported for cases of suspected cervical spine injury). There were many others.

### Evidence-Based on a Personal Level

In 1992 the European Resuscitation Council (ERC) published its own guidelines for resuscitation, which contained a description of a new recovery position.<sup>6</sup> The victim's lower arm was brought to the front of the body, resulting in a more vertical placement of the body (Figure 2). This was the dawn of the age of "evidence-based medicine" and at least some attempt had been made to research the optimal position—consisting mainly of rather senior physicians (the author included) rolling around on the floors of different European committee rooms trying to decide what to recommend. The incriminating photographs taken at the time remain classified information!



Figure 2. 1992 ERC recovery position.

This "ERC Recovery Position" proved popular. It was easy to turn the victim into the position, which was then very stable. Between 1993 and 1996, however, several case reports suggested that damage might occur to the nerves and blood vessels in the lower arm.<sup>7,8</sup> This was due to pressure both on the shoulder and

from the upper arm as it crossed the lower arm. In 1996 Rathgeber and his colleagues in Göttingen, Germany, published a study of the ERC recovery position.<sup>9</sup> They concluded that there was a risk of injury, particularly to conscious volunteers during training.

About the same time, the International Liaison Committee on Resuscitation (ILCOR) published its Advisory Statements on resuscitation.<sup>10</sup> The ILCOR BLS Subcommittee (wisely!) refused to recommend one specific recovery position but instead advised that: "... six principles ... should be followed when managing the unconscious, spontaneously breathing victim." These are:

1. The victim should be in as near a true lateral position as possible with the head dependant to allow free drainage of fluid.
2. The position should be stable.
3. Any pressure of the chest that impairs breathing should be avoided.
4. It should be possible to turn the victim onto the side and return to the back easily and safely, having particular regard to the possibility of cervical spine injury.
5. Good observation of and access to the airway should be possible.
6. The position itself should not give rise to any injury to the victim.

Concerned for its trainees as well as potential victims, and mindful of the sixth of the ILCOR principles, members of the Resuscitation Council (UK) published new guidelines for the recovery position in 1997.<sup>11</sup> They advised a return to the pre-1992 position, which was the one that St. John Ambulance and a number of statutory and voluntary first aid organizations had taught for many years (Figure 3). Did that make everyone happy? No so! In 1998, two papers appeared in the journal *Resuscitation* reporting that this recovery position caused pain and discomfort to volunteers when they were being turned from their backs to their fronts over their lower arms.<sup>12,13</sup>



Figure 3. St. John Ambulance recovery position.

So, how has the saga ended? The UK rolled back into the 1992 ERC recovery position, the ERC stayed where it was, and the AHA endorsed the six principles recommended by ILCOR as well as the ERC statement. Finally, all lived happily ever after? Nearly! Because of the possibility of injury to the victim's lower arm, the new international guidelines contain the following caution:

"If the victim remains in the recovery position for >30 minutes, turn the victim to the opposite side."<sup>14</sup>

Despite potential problems during its use, there is no doubt that placing the unconscious, breathing victim into the recovery position can be life saving.

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## Improving the Efficiency of CPR

# New Ways to Harness the Decompression Phase

by Jerry Potts, PhD

*Conflict of Interest Statement: Potts is a physiologist and former director of science for the AHA ECC Programs. He was employed by CPR<sub>x</sub>, the patent holder of the impedance threshold valve technology and manufacturer of that device, which is trademarked as the ResQ-Valve. CPR<sub>x</sub> also sells an ACD device called the ResQ-Pump.*

Cardiopulmonary resuscitation (CPR) continues to be one of the most commonly used emergency medical interventions. After more than 35 years, it remains the only widely acceptable way to immediately provide some perfusion to the vital organs of a cardiac arrest victim. Even when performed as recommended, however, the efficiency of standard CPR is quite poor: in animal models of cardiac arrest, it provides only 10% to 20% of the normal blood flow to the myocardium and 20% to 30% to the brain.<sup>1</sup> This low flow is due, in part, to the poor venous return to the heart generated by standard CPR. Without adequate filling during the decompression phase of CPR, subsequent compressions generate less than optimal cardiac output.

### Mechanical Adjuncts

In recent years, several alternatives to “standard” CPR have been studied including active compression-decompression (ACD)-CPR, interposed abdominal compressions (IAC) CPR, and “vest” CPR. One of the most thoroughly studied in animal models and in humans has been ACD-CPR. The principal mechanism behind ACD-CPR (and what sets it apart from these other methods) is the active decompression of the chest. That action creates a large negative pressure in the thorax during active decompression, much greater than when the chest is simply allowed to passively expand. That additional negative pressure enhances venous return to the heart, which in turn results in more cardiac output during the subsequent compression.

Animal studies have demonstrated this effect and the resulting improvement of blood flow to the heart and the brain.<sup>1</sup> In some circumstances, a marked improvement in long-term survival among out-of-hospital cardiac arrest patients has been reported when ACD-CPR was used.<sup>2</sup> In other circumstances, no survival outcome benefit has been reported. At present, ACD-CPR devices are not cleared for marketing in the United States.

Alternative techniques to enhance negative intrathoracic pressure during the decompression phase of CPR can also be accomplished by using an impedance threshold valve (ITV).<sup>3</sup> This device acts by regulating the air movement into the lungs during the decompression phase of CPR. During one complete compression/decompression cycle of CPR, air is actively pushed out of the lungs during the compression phase and then a small but important vacuum is created as the chest re-expands during the decompression phase. The valve (ITV) is designed to augment that vacuum by delaying the initial air movement back into the lungs during the decompression phase of CPR. The negative pressure created in the chest enhances the return of blood to the heart from the venous system. The ITV does not impede air movement into the lungs during active ventilation by the rescuer and does not impede air movement out of the lungs (Figure 1). This device fits into the respiratory circuit between the airway adjunct (tracheal tube or well-sealed face mask) and the resuscitation bag.

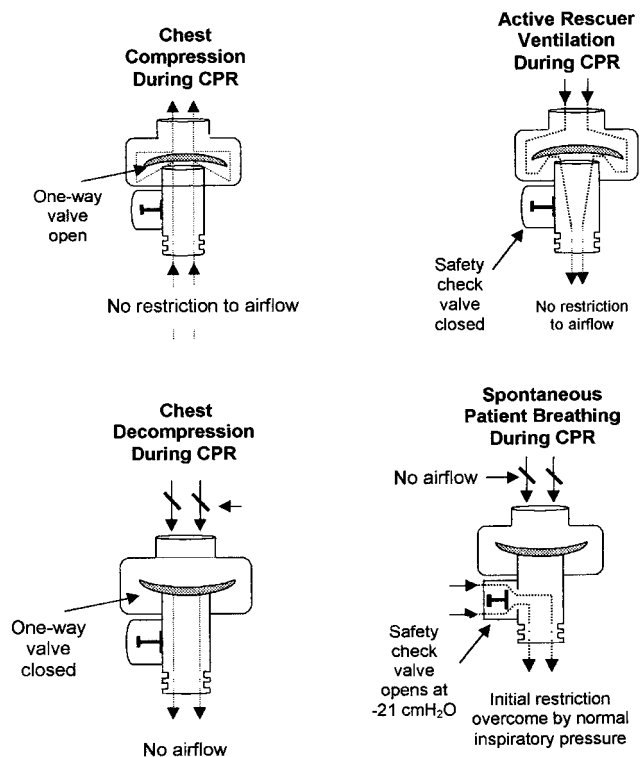


Figure 1. Airflow through the ITV.

Once the ITV is placed onto the airway adjunct, the device does not alter normal CPR protocol. Animal studies have demonstrated an improvement in hemodynamic parameters when the ITV is used with both standard and ACD-CPR. A study comparing standard CPR with and without the ITV will soon begin in Milwaukee.



Benefits of combining the ITV with ACD-CPR have been demonstrated in an animal model of cardiac arrest as well as in preliminary human clinical studies. Vital organ blood flow in animal studies<sup>4,5</sup> using this combination is superior to that created by using either of the devices alone. In human clinical trials, the hemodynamics<sup>6</sup> (Figure 2) and the survival rate<sup>7</sup> of patients resuscitated using ACD-CPR are improved when an ITV is also used. In February 2000 international experts reviewed the available evidence and the AHA assigned the use of ACD-CPR and the ITV a Class IIB recommendation, based on the ability of this device combination to augment hemodynamic parameters.<sup>8</sup>

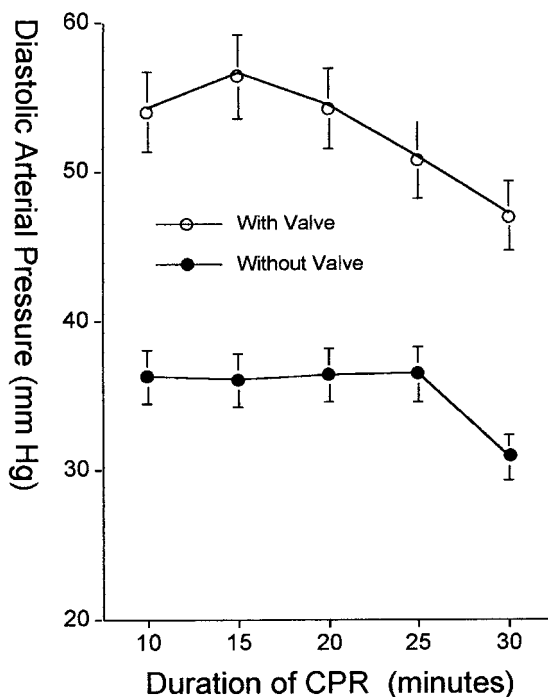


Figure 2. Diastolic arterial pressure recording during ACD-CPR with and without ITV in cardiac arrest patients. Based on data from Plaisance et al.<sup>6</sup>

### Challenges to Use

There are, of course, practical barriers to the implementation of new devices in resuscitation. This may be especially true for a device such as the one used for performing ACD-CPR because it requires more physical exertion in each cycle of CPR to actively decompress the chest. Use of the device also requires a change in a well-established behavioral pattern that most rescuers have followed for years when performing standard CPR. The use of the ITV, on the other hand, requires little adjustment to existing protocols and very little additional

training. If its use with standard CPR proves to increase survival rates significantly, the ITV may be an easy way for rescuers to gain the hemodynamic benefits of reducing intrathoracic pressure during the decompression phase of CPR.

Over time, the relative efficacy of standard CPR, using an ITV with standard CPR, ACD-CPR alone, or ACD-CPR with an ITV will become more clear. It is also possible that this same physiologic principle could provide benefit in other low-cardiac-output settings. Research in this area is already under way.

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# Teaching AHA Courses Outside US Boundaries?

## *Here's what you need to know*

With regard to ECC training abroad, the role of the AHA is to provide as much information as possible to encourage the development of local ECC training programs, to encourage self-sufficiency of those programs, and to provide a conduit for scientific and programmatic data internationally. The AHA is creating agreements with international organizations, such as heart foundations and health ministries, to develop AHA ECC training networks. These organizations are called AHA International Training Organizations (ITOs).

If you are interested in helping to establish an AHA ECC program abroad, please contact Sue Bork, ECC International Training Manager, at the AHA National Center. Email: sue.bork@heart.org; phone: 214-706-1823.

AHA instructors may teach ECC courses outside the United States as independent trainers (not representing the AHA). However, **AHA course cards may not be issued and the training may not be advertised or otherwise promoted as official AHA courses** except by AHA-approved ITOs or the Military Training Network and US Embassies to US personnel.

Information about all international training conducted by AHA training centers and instructors should be communicated to the ECC International Training Manager at the National Center so that appropriate contact can be made with resuscitation councils or heart foundations in that country, even when AHA cards are not issued.

In summary, AHA credentials can be issued ONLY when provided by an AHA ITO. AHA training materials may be used for any training throughout the world. Course materials may be purchased through the AHA distributors on the left.

## *“Education for All”: ECCU 2002*

### Plan now for Washington, DC, next September

*“Translation of the science of resuscitation into the safe and effective actions of laypersons and healthcare providers is the basic purpose of emergency cardiac care (ECC) education.” Chehardy P et al. Education. In: Proceedings of the International Guidelines 2000 Conference for CPR and ECC. Ann Emerg Med. 2001;37:S49-S59.*

Plan now to attend the Citizen CPR Foundation Emergency Cardiovascular Care Update Conference, September 5 to 8, 2002. The theme for 2002 is “Education for All: A Monumental Opportunity.” Conference headquarters is the Marriott Wardman Park Hotel, Washington, DC.

Abstract submission information for 1-hour concurrent sessions at ECCU 2002 will be available in October 2001, with a deadline of January 31, 2002. See the CCPRF website at www.citizencpr.com or contact the ECCU 2002 meeting management firm. Call 913-495-9816; fax 913-599-5340; or email Stephanie Newman, association manager, at SNewman@goAMP.com.

Check the CCPRF web site frequently for the latest conference information.

## Book Review

# Sudden Death and the Myth of CPR

by Stefan Timmermans, Temple University Press, Philadelphia, 1999, 272 pp.

Reviewed by Richard E. Kerber, MD

If you experience a cardiac arrest in a large city, what are your chances of survival? In the United States, if you live in Chicago or New York, probably only 1% to 2%—but in Seattle your chances are 1 in 4, and in Rochester, Minnesota, survival approaches 50%. Unfortunately, the statistics for most areas resemble Chicago and New York. These dismal results form the impetus for Stefan Timmermans' study. The author, a sociologist, examines the healthcare industry's response to sudden cardiac death by focusing on methodology and attitudes in the EDs of two US Midwestern hospitals. Interviews with nursing, paramedical, and medical personnel and direct personal observations in the emergency department form the basis of the study, which appears to be an expanded version of the author's doctoral dissertation.

### CPR as Anthropologic Ritual

This is a serious work, which highlights the shortcomings in our emergency response to cardiac arrest. The author emphasizes two important medical problems: poor survival rates and significant brain damage in a substantial proportion of those who do survive. These are well recognized but deserve re-emphasis. Timmermans' sociological viewpoint also highlights other areas that will be less familiar to a medical audience. He points out that CPR serves a useful anthropological function as a ritual, a temporal reprieve allowing the bereaved relatives and friends to come to terms with death, especially sudden and unexpected death. The institutional setting of the hospital ED allows personalized professional help—chaplains, social workers—to assist the grieving process. Importantly, the CPR process alleviates guilt in families by reassuring them that all possible efforts to revive the victim

were undertaken. The converse is that CPR represents the “medicalization” of a natural process (dying), which in many cases is inappropriate, intrusive, and unnecessary.

### Provocative Proposal

Timmermans advances some cogent criticisms of the CPR process that physicians may be reluctant to acknowledge. He identifies the role socioeconomic factors play in determining the extent and duration of resuscitative efforts in the ED, contrasting the responses to the cardiac arrest of a well-known sports coach or prominent politician with that of a drug addict. He points out that, contrary to virtually all other medical procedures, CPR is usually undertaken with only assumed, not explicit, consent, a departure from our usual stance of patient autonomy. This leads to a provocative proposal to reverse the paradigm—that CPR should become the exception, not the rule, to be undertaken only for those who would wish a resuscitative attempt (implementation of such a policy would be a challenge—he suggests wearing a “health-care wristband” [p. 188], which is unlikely to achieve popularity).

Timmermans correctly decries the unrealistic expectations the public has of CPR's efficacy, based especially on TV shows, where survival rates of 75% are achieved (of course, CPR is not unique in being the subject of unrealistic media portrayals—consider marriage!).

### Shortcomings

Unfortunately, this book is marred by serious shortcomings. Most disturbing is the author's bias, illustrated in the book's sensationalist and inflammatory title. There is a persistent “spin” throughout that is unpleasant and disturbing: defibrillation and CPR are “indiscriminate” (p. 77) and “promoted as a way to

*Continued on page 12*

## You Can Teach Teens to Save Lives

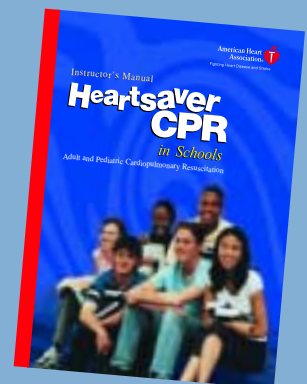
New Management Tool for Heartsaver CPR in Schools Curriculum Free on ECC Website

Why should you? How can you? What do you need to know to get started? Where can you go for answers?

You go to the ECC homepage at [www.cpr-ecc.org](http://www.cpr-ecc.org) and click on “Teach Teens To Save Lives” for a 16-page guide that will help you get organized and get going with the CPR in Schools curriculum.

Sections include descriptions of several training models, course options and credentials, breakdown of the course modules into class-period-size segments, list of available materials and needed and recommended equipment, budget worksheets, and frequently asked questions (with answers!).

For more information, contact Letitia Osborne at 214-706-1142.



*Continued from page 11*

achieve immortality” (p. 77), technicians are “observant” (p. 170) when critical of resuscitation efforts, the emergency community is “infinitely optimistic” (p. 77) (full disclosure: this reviewer has served two terms as Chair of the AHA Cardiac Care Committee and thus is a member of this community). Timmermans may be unaware of this bias, resulting in striking juxtapositions: “Even health care providers, who are fully aware of the futility of reviving, strongly support CPR” (p. 109) while on the next page we read: “His cousin was a paramedic and started compressions right away. Then the firemen defibrillated him. In a normal case we would have saved the patient...” (p. 110)—the rescuer who is quoted is clearly not aware of the “futility” of resuscitation. Healthcare personnel are repeatedly described as pervasively cynical about their efforts “...paramedics and physicians learn that another ethical principal is more important than the Hippocratic oath... ‘CYA’ (cover your ass[ets])” (p. 98), a comment which this reviewer finds personally offensive.

Legal and malpractice concerns are real in all areas of medicine, but Timmermans repeatedly exaggerates this with regard to CPR: “The physician has the authority to declare the patient dead, but only after the [AHA] resuscitation protocols have been exhausted. Stopping sooner would qualify as abandonment and might expose the physician and hospital to malpractice charges. The kind of insurance the patient carries further determines the length of a resuscitative effort (some insurers require minimum resuscitative lengths)” (p. 130). There is no citation for or documentation of these statements; I have directed my own hospital’s CPR program since 1971 and have yet to learn of a lawsuit or payment denial resulting from a physician’s determination to discontinue CPR.

### Nonfiction Novel?

Although the book contains the scholarly apparatus of footnotes and citations, the abundant quotations are attributed to fictitious names, and in a footnote the author admits that the dramatic vignettes are “composites” (p. 224). It is therefore impossible to know whether the quotations and vignettes should be read as a nonfiction novel.

Finally, and most importantly, Timmermans either ignores or is unaware of the dramatic improvement in survival rates associated with the use of AEDs

and the new strategies for their rapid deployment. He does not mention the pioneering work of White and colleagues, who in 1996 reported an astonishing 49% survival from out-of-hospital cardiac arrest by equipping police with AEDs, allowing very short collapse-to-shock times. The AHA strategy of “Public Access Defibrillation,” emphasizing the participation of nontraditional first responders (eg, security guards) with AEDs preplaced in areas with known high incidence of cardiac arrest (eg, airports, casinos) is not discussed. As White and others have shown, it is not necessary to “turn every street corner, home and beach into a 24-h satellite emergency department” (p. 204) to substantially improve survival. This review remains “infinitely optimistic” that continuing technological advances and innovative strategies, combined with the recognition that, as Timmermans argues, patient autonomy remains an important, not-to-be-forgotten consideration and “universal” CPR needs to be more focused, will result in dramatic improvement in the major public health problem of sudden cardiac death.

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*Richard E. Kerber, MD, is Professor of Medicine and associate director of the Cardiovascular Division of the University of Iowa College of Medicine in Iowa City, Iowa. This review is reprinted with permission from Elsevier Science Ireland Ltd. It originally appeared in Resuscitation. 2000;47:357-358.*





# National CPR Weekend Readies Thousands to Save Lives

Almost 32,000 laypeople prepared to help family and friends in an emergency by learning resuscitation skills at National CPR Weekend, April 28 and 29, 2001. But even those unable to train that weekend could hardly miss the media coverage of the event, which raised the profile of the importance of CPR and the American Heart Association's community CPR training programs. The AHA estimates that news of the weekend generated more than 213,000,000 media impressions through local and national print, audio, and television sources. More than 100,000 copies of the new *CPR for Family and Friends* booklet were distributed nationwide for use during the event and for future classes.

Kudos are in order for the top-training Florida/Puerto Rico Affiliate, which trained more than 7000 people during the weekend and to the Southeast Affiliate, responsible for training more than 5000.



"I thank all the American Heart Association volunteers and staff who helped make National CPR Weekend a success, and especially thank those who attended the event to learn CPR," said Charles Sand, MD, co-chair of the National CPR Weekend task force.

Kim Bowen, MD, co-chair of the National CPR Weekend task force, added: "We also thank our national event sponsors—Discovery Health Channel, Laerdal Medical Corporation, and the American College of Emergency Physicians—and the hundreds of local sponsors who supplied funds, materials, and in-kind support."

A future issue of *Currents* will feature the advice and "best practices" of experienced sites to help you plan, fund, and publicize a successful mass training event in your area.



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For more information, please call 877-LAERDAL (877-523-7325).



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## Teaching the Adult Learner

### Part 2 — An Evidence-Based Plan for Success

by Faith Harper and Louis Molino, Sr.

*In this second of 2 parts, we discuss the factors of retention and transference as they apply to the adult learning process and how they interact with the motivation and reinforcement factors discussed in Part 1 (Currents Summer 2001).*

#### Retention

Students must retain information to benefit from learning. If course participants do not learn the material well initially, they will not retain it. The student must see the meaning or purpose for that information and be able to interpret and apply that information to real-life circumstances.

We can support the adult learner to achieve the highest level of material retention by optimizing course material presentation and targeting our teaching technique to an appropriate “domain of learning”: cognitive, psychomotor, or affective domains.

#### Cognitive Domain

The cognitive domain is purely knowledge or “mind” based. It has three systematic instructional levels that include fact, understanding, and application. On the fact level the student defines and identifies course concepts. On the understanding level the student becomes able to put two or more concepts together. On the application level—the most important for adult learner retention—the student combines the concepts in a way that forms something new.

#### Psychomotor Domain

The psychomotor domain is skill oriented, the demonstration of which is proficiency building. The three practical instructional levels include imitation, practice, and habit. At the first level, the student simply imitates the initial demonstration of the instructor, with direct instructor oversight. At the second level, the student builds proficiency through practice, generally in small-group or individual training time, without direct oversight by the instructor.

Skills are a set of conditioned responses and reflexes that are taught through repetition over a period of time. Retention is directly affected by the amount of practice during the learning process. Instructors should emphasize retention by urging continual practice beyond the demonstration of correct performance. Go beyond “getting it right”: help the student reach the third level of the psychomotor domain, wherein the skill becomes a habit.

Instructors often refer to psychomotor skill as “muscle memory”; however, this term is somewhat misleading. Muscles cannot be taught to recall how to perform a given skill, but the brain can be conditioned to make certain psychomotor skills nearly automatic, for example, using a head tilt–chin lift to open an airway. This is not a muscle response but an automatic brain reaction to a conditioned reflex.



### Affective Domain

The affective domain is based on behaviors and attitudes more than knowledge and skill and is sometimes referred to as beliefs or values. The three levels in this domain are awareness, distinction, and integration. The first two levels are truly cognitive; however, integration is behavioral and requires learners to assess and synthesize course curriculum, usually through discussion and exchange of ideas between students and instructors.

### Transference

The final critical element of learning is transference. The transfer of learning is the ability of the student to take the information in the course and use it in a new setting. This is the ultimate goal of emergency cardiovascular care courses. If your student leaves the classroom unable or unwilling to use BLS skills in an emergency situation, then the course did not achieve its full potential. Like reinforcement, transference can be positive and negative.

In *Modern Practice*, Malcolm Knowles states: "At its best an adult learning experience should be a process of self-directed inquiry, with the resources of the teacher, fellow students, and materials being available to the learner but not imposed."

Even courses as skill oriented and highly structured as those in basic and advanced life support can be a process of self-directed inquiry. As effective instructors, we take on a leadership role as manager of a process. The process needs to be continually cultivated, with the preeminent goal being the transfer of classroom skill demonstration to an effective response by the student in a real-life emergency situation.

In this article we have attempted to identify some basic aspects of the complex adult learning process. As instructors we must recognize the need to facilitate adult learning and how our actions will affect our students' learning experience and their response to a real emergency.

## Two US Senate Bills Need Your Support

Senators Edward M. Kennedy (Democrat–Massachusetts) and Bill Frist, MD (Republican–Tennessee), have introduced two important bills that will be reaching the Senate this Fall: The Stroke Treatment and Ongoing Prevention Act and the Community Access to Emergency Defibrillation Act.

### Stroke Prevention

The Stroke Treatment and Ongoing Prevention ACT (STOP Stroke Act) of 2001 will support public health initiatives: a national, multi-media awareness campaign to promote stroke prevention and encourage stroke patients to seek immediate treatment; a registry and clearing-house to collect data about the care of acute stroke patients and foster the development of effective stroke care systems, with special consideration to rural facilities; grants to states for the development and implementation of stroke prevention, treatment, and rehabilitation systems; and continuing education programs

in new diagnostic approaches, technologies, and therapies.

### PAD

The Community AED Act of 2001 provides funds for communities to establish public access defibrillation programs. Communities receiving these grants will train EMS personnel, place AEDs in public places and provide training to personnel there and funds for maintenance, fund public CPR-AED classes, encourage private companies to develop AED programs, collect data to evaluate the effectiveness of the program in increasing out-of-hospital cardiac arrest survival rates, and provide for a national clearinghouse to supply AED information to schools.

Review a summary of this bill at [www.early-defib.org/docs/Community\\_AED\\_bill\\_summary.pdf](http://www.early-defib.org/docs/Community_AED_bill_summary.pdf).

**To locate your senators' email addresses, please go to:**  
[www.senate.gov/contacting/index\\_by\\_state.cfm](http://www.senate.gov/contacting/index_by_state.cfm).



Help fill this empty Senate Chamber with members of Congress who will support the Stroke Prevention and Community AED Act bills.

These 11 companies are underwriting the publication of *Currents*, enabling the widest dissemination of information on emergency cardiovascular care.

### Tell your friends how to get *Currents*!

When *Currents* readership reached 100,000 earlier this year, the costs of mailing each issue free to subscribers became prohibitive. This issue of *Currents* is the first mailed only to paid subscribers. That leaves about 50,000 of your associates empty handed. Let them know what they're missing in this issue—and how they can keep reading *Currents*. Anyone can register to read *Currents* on the Internet at no charge. And anyone can register to receive *Currents* by mail at only \$12 per year in the United States (\$15 elsewhere). See Page 2 of this issue to learn how. And tell your friends!

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