EMS communicator
Vol. 6, No. 2
The Emergency Medical Services Newsletter

Significant CPR Skill and Knowledge Decay Found in 'Heart Saver' Trained Laypersons

How well is CPR training retained by a layperson? To what degree are the written and practical skills maintained over a period of time? A report on a study addressing these questions was included in the March 2 issue of the *Journal of the American Medical Association* (JAMA).

Four researchers from the National Heart and Blood Vessel Research and Demonstration Center at Baylor College of Medicine in Houston evaluated a sample of 61 randomly selected laypersons (out of a total of 280) six months after they completed a four-hour CPR course given by the American Heart Association (AHA). The course, called "the Heart Saver," teaches the single rescuer, "unwitnessed" sequence on an adult. Certification is valid for one year initially and three years following retesting.

To determine their retention of both CPR understanding and practical skills, Frank Weaver and three researchers had the 45 women and 16 men evaluated by two lay CPR instructors and a lay CPR instructor-trainer who supervised and monitored the sessions to ensure standardization. The practical test on a recording manikin was the same as that administered at the conclusion of the course six months previously. Twelve items were considered in the test, which included the basic recognition and initiation sequence of CPR (the 'ABCs') as well as the measured degree and rate of ventilations and compressions.

The statistics of the sequential evaluation demonstrated a significant loss of retention of CPR training. Whereas 85.2 percent of the test group were able to perform an entirely correct CPR sequence upon completion of the course, only 11 percent were able to demonstrate correct skills after the six-month period. Of the functional skills—timing and depth of ventilations and compresses—the two percent who were able to perform them initially with total accuracy had lost their skill by the time of the follow-up study.

The written, or "cognitive," evaluation which tested the subjects' understanding of the five major elements of CPR—recognition, airway, breathing, cardiac compressions, and the ventilation-compression ratio—had a higher success rate. The questions regarding cardiac compressions revealed the most loss of understanding, having only 8.3 percent of the persons answer them correctly, dropping from 13.3 percent originally. Breathing showed the second fewest correct answers, at 26.7 percent, a reduction by almost half from the previous rating of 57.6 percent. Ventilation-compression ratio was the third most affected, with 51.7 from an original 83.6 percentage correct, while understanding of airway and recognition remained above 85 percent.

The results also demonstrated the degree to which review can assist in retention. Twenty-six, or 42.6 percent, of the participants had studied the CPR wallet card or pamphlet prior to the follow-up study to refresh their memory of the CPR techniques. Eight of these persons (30.8 percent) had practiced on a manikin in the six-month period. The results of CPR review demonstrated a reduction of knowledge in the written evaluation from an initial 87 to only 76 in mean percent-

(Continued on page 4)

Conference to Address Legal Implications of Emergency Medical Care

The American Society of Law & Medicine (ASLM) will hold a national conference on the legal implications of emergency medical care at the Fairmont Hotel in New Orleans, Louisiana, on May 18-19 with John A. Norris, J.D., M.B.A., serving as Conference Chairperson. Co-sponsored by the American Bar Assoc.'s Medicine & Law Committee of the Insurance Negligence & compensation Section, the conference intends to raise new insights and expand on concepts and issues raised at the ASLM's first national conference on the same subject in 1975.

The May program will build on such 1975 issues as the future of EMS in the changing American health scene, legal aspects of prehospital emergency care, CPR, training programs, transportation, in-hospital emergency care, model legislation, and governmental administration and funding of EMS. It also will concentrate on providing a basic understanding of the many diverse legal problems and pitfalls existent in the delivery of emergency medical care. American liability law relative to the various EMS providers and payors will be examined, as will the various contractual problems inherent in the systemized approach to providing EMS that the Federal government currently is supporting.

The invited faculty speakers are all practitioners or scholars of national reputation.

Registration information is available from: National Conference on the Legal Implications of Emergency Medical Care, c/o American Society of Law & Medicine, 454 Brookline Avenue, Boston, Mass. 02215.

CPR Skill Decay

(Continued from page 1)

age. The manikin review was particularly effective, the report explained, because a "significantly higher" score was recorded by the eight subjects compared with the reading review and no-review groups.

Noting that earlier studies showing a decrease in skill level after only three months have indicated that the AHA's recommendation for recertification after a period of one year is not realistic and should be initiated sooner, the report argues that "implementation of such a program is inhibited by constraints inherent in the volunteer nature" of the current methods of CPR training. "We suggest an alternative approach," the report adds. "A standardized, self-administered mail evaluation could be designed and conducted at selected levels," which would "provide a relatively economical means for reviewing and assessing retention of CPR information." This method also would provide an immediate gauge of the rescuer's weak areas of knowledge and thereby assist him in his review and practice.

Suggesting that perhaps the AHA-recommended standards are too stringent for the average layperson to master and retain, the report concludes with the question, "Are these the only skill levels that will save the cardiac arrest victim? If so, more effective means of teaching CPR must be developed. If not, the standards of performance should be adjusted to an attainable but still effective level."

Coming in the Next Issue

A special report on the U.S. Department of Transportation's issue paper outlining the need for EMS coordination and system's improvement will be published in the next issue of the *EMS COMMUNICATOR.*

A commentary by Dr. Edward B.J. Winslow on the results of this study is also included in the March 2 *JAMA* issue. With the efficacy of CPR instruction questioned in the report, Dr. Winslow describes the study's results as being even "more discouraging" than those from a prior study performed by the same researchers. Perhaps the researchers' standards of CPR training are too high, though. Do they expect too much? Dr. Winslow cites that of the physicians ("presumably already training in CPR") appearing for training in advanced cardiac life support, less than one-fourth could meet Weaver et al's standards when they started a course of instruction.

In light of this discouraging fact, is the success rate of CPR by laypersons, he asks, worth the expenditure of time, money, and training? His query is resolved with his statement that CPR as provided by laypersons "does save lives." Successful programs in Seattle, Wash., and Marin County, Calif., for example, are cited as demonstrating that CPR-trained persons have been effective, showing that "bystander-initiated CPR improved the victim's chances of long-term survival from 22 to 44 percent." Lay persons, in addition, when trained in CPR by lay instructors have demonstrated an 80 percent accuracy rate.

Viewing these statistics, and those of the significant loss of CPR skill retention as demonstrated by the Houston study, Dr. Winslow concludes that training of the lay public in CPR is indeed "worthwhile" and should be endorsed "wholeheartedly" by the medical community. "Those trained in CPR," he finally suggests, "should assume responsibility to refresh and maintain their skills."

Jehovah's Witnesses

(Continued from page 3)

acute situations, he continued. This system passes blood coming out of the patient through only filters before it is returned to his body. Since replacement fluids such as Ringer's lactate or dextran are allowed, a technique called incirculation, diversion, and reinfusion of blood is also acceptable during surgery. This infuses the patient's blood and Ringer's lactate simultaneously. Unacceptable is the Sorenson system of autotransfusion, which collects the patient's blood for future use as needed, Dr. Herbsman explained. The possibility of a Jehovah's Witness banking his own blood is thereby excluded.

Because spiritual salvation is more important to a Jehovah's Witness than his own temporal life, noted Dr. Herbsman, there is no point in trying to convince him that he needs blood to save his life. Their literal reading of the Bible simply forbids "ingestion" of blood in any form.

Further, the right of adults to refuse treatment has been upheld by the courts, and the AMA has supported a patient's right to refuse blood.

Most Jehovah's Witnesses carry identification cards, he said, so appropriate care can be recognized and provided in cases of emergency when the patient is unconscious.

Dr. Herbsman is professor of clinical surgery at the State University of New York, Downstate Medical Center, Brooklyn.

EMS Communicator

The Emergency Medical Services Newsletter

Published bimonthly as part of the MEDICAL 911 EMS information service by Emergency Care Information Center. Also available separately through an annual subscription ($10.00).

MEDICAL 911 serves the information needs of every health professional who administers, plans or delivers emergency medical services. A description of MEDICAL 911 and subscription information is available from the Emergency Care Information Center, 701 Ridgefield Road, Wilton, Conn. 06897. Telephone (203) 762-3911.

The Editors of EMS COMMUNICATOR and MEDICAL 911 welcome comments and contributions from subscribers. Editorial correspondence should be sent to the address above.