

IN BASIC LIFE SUPPORT

FOR UNWITNESSED CARDIAC ARREST

Now that you have completed the training course in cardiopulmonary resuscitation (CPR), you will want to keep this leaflet as a review of what you have learned until you take your next refresher course.

Each year, more than 650,000 Americans die suddenly. There are many causes: poisoning, drowning, suffocation, choking, electrocution and smoke inhalation. But the most common cause of sudden death is heart attack. In some cases of sudden death caused by heart attack, the victim might have been saved. If he had known the usual early warnings of heart attack, if he had gotten to a hospital quickly or if someone near him could have performed CPR, his chances of surviving would have been increased greatly.

The most common signal of a heart attack is:

- uncomfortable pressure, squeezing, fullness or pain in the center of the chest behind the breastbone.

Other signals may be:

- sweating
- nausea
- shortness of breath, or
- a feeling of weakness

Sometimes these signals subside and return.

Basic CPR, an emergency first aid procedure, may save the life of a victim of cardiac arrest. From your training course, you know it is a simple procedure, as simple as A-B-C, Airway, Breathing and Circulation.



American Heart Association

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Heart Attack Warnings Vague, Ignoring Them Easy, Fatal

By Jane Brody

New York (NYT) — In the midst of an after-luncheon speech to a large group of his constituents, a New England politician in his 40's developed a crushing pain in the middle of his chest and became light-headed and short of breath.

He continued talking and the pain seemed to settle in his throat. Thinking a fish bone from lunch might have lodged there, he visited an ear, nose and throat specialist, after the speech, but the doctor found no bone.

On the way back to his hotel with his aides, the politician passed out and was taken to a hospital emergency room, where an electrocardiogram revealed that a myocardial infarction—a heart attack—was in progress.

This case, described recently by Dr. Thomas P. Hackett at a meeting of the American Heart Association, unfortunately is typical of the way most Americans deal with the symptoms of a possible heart attack. They deny that anything serious could be wrong, they attribute the symptoms to some other organ with less lethal implications than the heart, and the victim's companions share in the denial and fail to take appropriate action.

Studies of hundreds of persons who suffered heart attacks revealed that on the average four to five hours elapse between the onset of symptoms and arrival of the patient at a hospital. In fact, some people walk around for days with increasingly severe symptoms of a pending heart attack and do nothing about it until they literally collapse.

This delay in making the correct diagnosis and starting life-saving medical care is believed to be responsible for the unnecessary loss of more than 100,000 lives each year and needless damage to the hearts of tens of thousands of others who survive their heart attacks.

The first hour after a heart attack is the period of greatest danger—when 40 to 75 per cent of deaths occur, most of which could be prevented—but the average patient does not come under proper care until the maximum risk has passed.

A major problem is that many people don't recognize the symptoms of a heart attack and that these symptoms may be vague and readily ascribed to something else.

Between 70 and 90 per cent of patients have chest pains of sufficient intensity to stop them from what they are doing. But contrary to what many believe, a heart attack usually does not produce a giant immobilizing pain that takes one's breath away. Nor does a heart attack cause a sharp, stabbing pain.

The pain is more like uncomfortable pressure, fullness, or a squeezing sensation in the center of the chest behind the

shoulder, neck or arms, and it may come and go, sometimes disappearing for hours or overnight. The heart attack victim may also feel weak, nauseous or short of breath.

Many patients apparently mistake their symptoms for indigestion, since the most common response to the pain of a heart attack is to reach for an antacid.

It is not uncommon for the first symptoms of a heart attack to begin at a time of emotional or physical stress, such as

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while giving a speech or playing tennis. But a heart attack can happen anytime, any place and under any circumstances, awake or asleep.

The American Heart Association recommends that anyone experiencing chest discomfort that lasts more than two minutes should go to a hospital immediately. Once at the hospital, the patient should be treated as if he is having a heart attack until proven otherwise.

A person in the midst of a heart attack may have a normal electrocardiogram, and doctors sometimes mistakenly reassure patients that "it's not your heart" because the tracing on the cardiogram is normal. Various blood tests must also be done. It may take three days of hospital tests to rule out—or confirm—a heart attack.

One in five heart attacks is not diagnosed at the time it occurs, and many thousands of people are walking around today with damaged hearts and don't know it. These so-called "silent" infarcts are missed because they produce little or no pain or because they cause only brief—or no—electrocardiographic or blood changes. Sometimes the doctor simply misses the diagnosis.

But by far the most common problem in missed and delayed diagnosis is denial by the patient and his companions that heart attack could be occurring.

Dr. Hackett, who is director of psychiatry at Massachusetts General Hospital, said that like the New England politician,

patients commonly feel, "It couldn't be happening to me." Or they don't want to "cause a fuss" or get the doctor out of bed.

In one study, more than 90 per cent took an over-the-counter medicine or home remedy—ranging from Tums to alcohol—and half actually increased their physical activity for a while after their symptoms began.

Some knew they were having a heart attack but did nothing about it because they preferred death to life as a "cardiac cripple." But, in fact, the great majority of people who survive a heart attack are hardly "cripples." Rather, they lead full, normal lives, taking only moderate precautions to preserve their hearts.

Dr. Hackett maintains that teaching people the symptoms of a heart attack is not enough to overcome denial. Denial is also common among people who know the symptoms, such as patients who have already had one heart attack and doctors, who delay twice as long as average in responding to their own heart attack symptoms.

A person who realizes he is having a heart attack feels a sense of impending disaster, which pushes him further into denial. "Denial of peril is one of man's most basic responses to danger," Dr. Hackett pointed out. But, he added, it may be possible to counter it by telling people to expect to deny the existence of heart attack symptoms and to blame them on other organ systems.

"We should tell people that when they reach for a Briosche to ease the pain that has been there over 2 minutes they should instead reach for a phone and get to the hospital," Hackett recommended.

Whoever is with the patient at the time symptoms occur—spouse, business associate, friend or passerby—is perhaps the most effective means of countering denial. (Unfortunately the wife is as likely to deny her husband's symptoms as he is.)

It's Dr. Hackett's view that if that person—called the "heart saver" by the American Heart Association—takes executive action, telling the patient, "Come on, were going to the hospital right now," the most reluctant, denying patient will go along.

Client Number 24

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Evening Sun
Baltimore, Md.

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Heart Attacks

Sir: Data tell us that over one million Americans will have heart attacks this year. Approximately 350,000 of them will die within the first two hours of the onset of symptoms—and before they ever reach a hospital!

The sad fact is that the average victim waits too long before making the decision to seek help—usually because he/she refuses to believe that the early warning signs he feels are serious. He practices what we call "DENIAL." Once the decision is made, however, any impediment to the rapid acquisition of emergency medical services may mean the difference between life and death for that individual.

Minutes count when heart attack strikes—and precious minutes are too often wasted in activating an Emergency Medical Services System which has a local telephone number: Anne Arundel county, 987-1212; Baltimore city, 396-1111; Baltimore county, 823-2020; Harford county, 838-3333.

The American Heart Association's Central Maryland Chapter believes that it is in the best interest of the citizens of Maryland to organize and implement a state-wide uniform "911" Emergency Call Plan. The Emergency Medical Services System currently operating in Maryland, in combination with the American Heart Association's Public Health Education Program to teach Marylanders to recognize common signals of heart attack and the availability of and citizen par-

ticipation in our community CPR Courses, has been effective.

We are beginning now to see a decrease in the pre-hospital mortality rate of coronary patients—but there is still room for improvement.

A Uniform "911" Emergency Call Plan, in our opinion, would be the final link in our already extremely strong emergency medical services chain.

G. William Benedict, M.D., Ph.D.
Baltimore.

*Our correspondent is president,
American Heart Association's
Central Maryland Chapter.*

Reader Forum

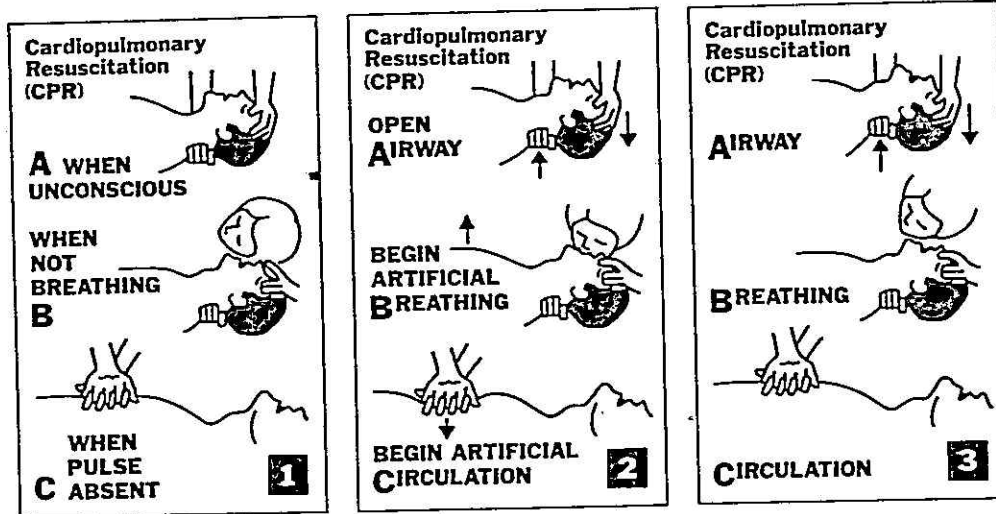
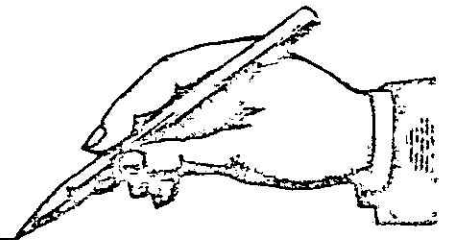


Figure 1

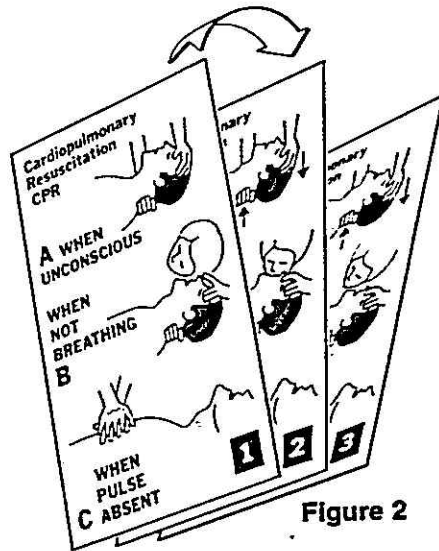


Figure 2

The ABCs of CPR*

Instruct bystanders to get help
Lay victim flat on his back on a hard surface

To open **AIRWAY**
Tilt head back

To begin **BREATHING**
Breathe into victim's mouth with 4 quick breaths

To begin **CIRCULATION**

- Check carotid pulse
- If absent
- Locate pressure point

Push down on pressure point 1½" to 2" with heel of palm 15 times at rate slightly faster than 1 per second

ALTERNATE BREATHING AND CIRCULATION
alternate by breathing twice into victim's mouth after each 15 pushes on pressure point

* This card summarizes emergency measures in CPR. A rescuer should first see to learn proper technique and the procedures to be followed in handling such special cases as neck injuries, airway obstructions, infant CPR, and others.

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and National Committee for Emergency Coronary Care

Figure 3

"ABCs of CPR" Review Card

SUDDEN DEATH from heart attack is the most important medical emergency today. Each year nearly 650,000 people in this country die from heart attack. Some experts believe that up to 300,000 deaths a year could be prevented if someone responded immediately with CPR. Until an ambulance or other advanced medical care arrives on the scene, CPR is often a person's only chance of survival.

The "ABCs of CPR" card, developed by Herman N. Uhley, MD, and the staff at Mount Zion Hospital and Medical Center, San Francisco, California, will give tens of thousands of Americans a better chance to save a life. The handy, animated wallet size plastic card reminds people how to perform CPR by indicating what action is required to perform the three basic steps. (See Figure 1.)

Using the ABC method of CPR, the front of the card shows a rescuer how to open the *airway*, begin *breathing* and begin

circulation. When tilted, the images on the front of the card move, demonstrating the action which must take place. (See Figure 2.) The back of the card gives more detailed information such as the number of times to breathe into the victim's mouth and the rate at which to push on the victim's chest. (See Figure 3.)

Dr. Uhley, whose idea sparked development of the card, is nationally recognized for his contributions in the field of cardiology. His achievements, to date include the development in San Francisco of one of the first citywide ambulance-to-hospital telemetry systems in the country, initiation of the development of a bedside heart monitoring system that keeps track of multiple aspects of the electrical signal of the heart, and the design of portable, inexpensive equipment for sending and receiving EKG data over the telephone.

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Reader Forum

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According to Uhley, the Mount Zion card is not a substitute for taking a course in the proper techniques and procedures to be used in CPR. But it can introduce and provide basic information of the technique and serve as a memory aid for those who already know how to do CPR.

"ABCs of CPR" cards are available to the public at the hospital production cost of 35¢ per card. Quantity discounts are available for orders over 15. To order cards, send a stamped, self-addressed envelope to Community Relations, Mount Zion Hospital and Medical Center, P.O. Box 7921, Dept. E, San Francisco, CA 94120.

CPR Saves Woman Trapped Underwater

By Ed Chandler
Englishtown, New Jersey

ON MARCH 7, 1978, the Englishtown-Manalapan, New Jersey, first aid squad and the Englishtown fire department were called to the scene of a motor vehicle accident. A compact car had failed to negotiate a turn and had run off the road and into a rain-swollen brook. A few people from a nearby tavern heard the noise, came out to see what had happened, and saw the car floating in the brook. They assisted the driver and two small children out of the car, and were about to assist the last woman out when the car suddenly went down.

The water was about eight feet deep and the car rested on the bottom. Three people went into the water trying to get to the trapped woman but were unsuccessful due to the muddy conditions and the speed of the running brook. Firefighters and bystanders tried to locate the car but were unsuccessful.

The Englishtown-Manalapan rescue truck arrived, and another attempt was made to locate the car. This attempt was successful. Second lieutenant of the squad, Ed Chandler, located the car and tied a rope around the door post. Men pulled hard and the car rose within sight. The rope broke, but another was quickly tied by Tom Freuh, an Englishtown firefighter. The car was visible now and another firefighter, Henry Carr, broke a window and attached a chain around the car. The truck started to winch out the car; as the car started out of the water it began to turn over due to the hilly ground. The woman was in a safe position in the car, so the winching operation continued until the car was on the bank of the brook.

The "Jaws of Life" had to be used by the first aid squad to extricate the woman from the car.

While the car had been underwater the driver's window was down about three inches; both doors were locked. There were no air pockets in the car; it was totally filled with water. From the time the car had sunk (11:05) until the time the lifeless woman was pulled out (11:26) 21 minutes had passed. According to Ed Chandler, the water was so cold he could not talk. The temperature of the water is the most significant part of this story.

The woman, having been extricated from the car, was put on the ambulance cot which had been prepared with a long board and a CPR board. CPR was started immediately; the

woman was put in the rig and rushed to the hospital. While en route the first aid squad was in radio contact directly through its hospital communication system to enable the hospital to prepare for the squad's arrival.

Once there, the victim was taken into the cardiac room, and the hospital staff took over. The emergency room doctor, Dr. Robert Baird, gave the woman two intracardiac injections of epinephrine and got a heartbeat from her!

The time the patient's heart started to beat was 11:53. This means that the patient had been clinically dead for 48 minutes.

Now, with a heartbeat and on a respirator, complications such as pulmonary edema started, and were handled very efficiently as they arose. The woman was admitted on the critical list to ICU. She spent five days there, and then was transferred to a floor where she remained until discharge.

The patient suffered no brain damage and is expected to live a perfectly normal life.

The crew who performed CPR on this woman are to be commended for their excellent work. They are Ed Chandler, Edie Chandler, Marie Rodriguez and Dan Rusinko. Jim Gray was the ambulance driver.

Dr. Baird attributes the remarkable outcome of this unusual case to the coldness of the water the woman was immersed in for 21 minutes. The condition is called hypothermia — the lowering of the body temperature which slows tissue metabolism and delays, significantly, cell destruction. While under water the woman was in a state of limbo, so to speak. Out of the water, her heart function and breathing were taken care of artificially by CPR until Dr. Baird started her heart on its own with epinephrine.

For all of you trained in CPR we stress the value of efficient CPR, and *don't give up*. Everyone in every community should be trained in this relatively simple skill. ✱

The Rico Suction System

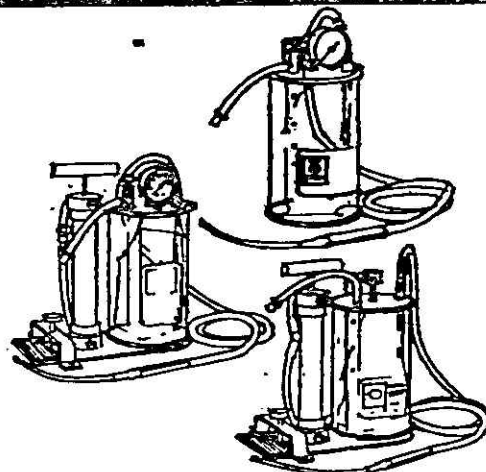
for aspirating patients while in transit by ambulance
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Circle No. 17 on Reader Information Card



Tending heart victim

HEART, from B1

such as ambulance drivers and emergency technicians, and Seattle has demonstrated remarkable results by training whole communities, including schoolchildren. But the realization that the ordinary everyday citizen ought to learn it is spreading more slowly elsewhere. The big question is why isn't CPR being taught in schools as part of the required curriculum?

You can learn it in three to four hours. It is very simple. CPR courses are offered free to anyone by the Heart Association of Central Maryland, using a trained instructor and training aids such as mannequins. This is how CPR works, using the ABCs—Airway, Breathing, Circulation.

1. First, unless the victim is already in bed, stretch him out on his back on the floor. Immediately open his airway by lifting his neck and pressing on his forehead.

2. Quickly determine if he has stopped breathing. Do this by leaning over him and putting your cheek or ear hand over his nose and mouth to feel for air being exhaled. Meanwhile, watch his chest to see if it is moving up and down.

If there is no breathing, open your mouth widely and seal your mouth around the victim's mouth and blow four times into the victim's mouth, removing your lips between each breath. Watch the chest, to make sure that it rises each time you blow.

Then, putting a finger on the Adam's apple, slide it to the side closest to you—either right or left—where you will feel for the beat of the carotid artery on his neck to see if he has a pulse.

This check should take only seconds. Every second counts.

5. If there is no pulse, you must begin pressing on the chest to accomplish artificial circulation. If your victim is an adult, you will press on the lower half of the sternum (breastbone) with the heel of one hand, making sure to keep your fingers up off the chest. Press with enough force to lower the sternum 2 inches. In this way, the heart is squeezed and blood is forced into the circulatory system.

It is mandatory that, because you are forcing blood through the person's body, you must also breathe for him at the same time, so that the blood going to his brain will be oxygenated. This combination of artificial circulation and breathing for the victim is known as CPR.

If you are a single rescuer, you will compress the sternum 15 times in a row, then blow two breaths into the victim's mouth, remembering to keep the nostrils pinched off as you blow into the mouth. Repeat the process over and over until help comes or until the victim begins breathing and his heart starts beating on its own.

Even the best-trained rescuer can only hope to circulate one-third of the normal heart's flow of blood throughout the body during CPR. In addition, the amount of oxygen in exhaled air is less than the victim would normally be breathing on his own.

That is why it is important for would-be rescuers to gain proficiency by attending a class in CPR and practicing on a mannequin. When you actually need to do it, you will probably be frightened and need to summon instantly all the ability you can.

It's time to learn how to tend heart victim

BY MARY KNUDSON

A man in your office suddenly grabs his chest, lunges forward and collapses unconscious on the floor. What would you do?

Bend over him for a minute or two, calling his name? Slap his face? Run screaming for your boss? Call an ambulance? Call a doctor? Call his wife? If that's all you can do, chances are you are contributing to his death through negligence.

Because in 4 minutes after the heart stops beating and oxygen is no longer getting to the brain, the man may well be dead. Really dead. Incapable of being wholly revived by a doctor, by ambulance workers, by any of the exotic equipment available in hospitals.

If too much time passes, after the victim quits breathing and his heart has stopped—if no one started breathing for him and started his heart beating again—he may turn into a vegetable.

He becomes a vegetable, incapable of thinking, because his brain is damaged by the absence of oxygenated blood. Brain cells die quickly. They cannot be replaced. When enough die, you've had it.

In the United States, 350,000 people died of heart attacks before they reached a hospital last year. Heart specialists say it is reasonable to believe that many of them could have been saved. If someone nearby when they were felled had quickly intervened.

"The greatest hope for reducing the mortality from heart attacks lies in prompt and correct intervention within those first few hours" after the heart attack, says Dr. Leonard Scherlis, chairman of the Heart Association of Maryland's CPR and Emergency Cardiac Care Committee. Dr. Scherlis is also chairman of the Division of Cardiology at University of Maryland Hospital.

The little bit of magic you can learn that will save lives is called cardiopulmonary resuscitation (CPR). It was developed here in Baltimore at the Johns Hopkins Hospital and is being taught all over the country to specialized groups.

See HEART, B3, Col. 1

The Page Opposite

The News American, Friday, May 25, 1979

17A

Science Beat

Teens ought to know the ABCs of CPR

Early last summer, a Maryland man collapsed at his home, victim of a sudden heart attack. Nearby were his 15-year-old granddaughter and his middle-aged son, the girl's father.

Panicky, the son did his best to summon an ambulance and to keep the teen-ager away from his stricken father.

Under normal circumstances an obedient child, the girl this time ignored her father and calling on skills learned in her 9th grade health education class, applied rhythmic mouth-to-mouth breathing and rapid chest compressions over her grandfather's stilled heart until help arrived.

The old man was clinically dead — without spontaneous pulse or respiration — when she began her efforts to keep oxygen-rich blood flowing to his threatened brain and other vital organs.

Grandad made it safely to the hospital and, thanks to her, recovered fully without brain damage.

Helen Sternler, health educator in the Harford County public schools, developed the program responsible for this story's happy ending. "That," she says, "is just one of our many happy endings."

She is also a convincing spokeswoman for the major push under way to teach Cardiopulmonary Resuscitation, or CPR, to all teen-agers.

"CPR should be the fourth R," says Sternler. "We're often busy telling teen-



Columnist

Joann Rodgers

agers what they can't do, yet here is something they can master.

"I always tell kids who go into the community to take a CPR course to take along the person they'd most like nearby. If they had a heart attack. And I know I could depend on CPR-trained kids to take care of me — perfectly."

The "ABC" of CPR can be taught in one afternoon: (A) open the airway or breathing passage; (B), restore breathing through mouth-to-mouth resuscitation and (C), apply compression or pressure to the chest wall to push blood through the heart and around the circulatory system.

Thousands of teen-agers are among the more than 12 million Americans who have learned CPR in the United States through programs offered by the American Heart Association, the American Red Cross and, when people like Helen Sternler have their way, in junior and senior high schools.

Recently, emergency medical experts began efforts to expand CPR training to ev-



RESUSCITATION TECHNIQUES: Mrs. Babette Gutman, center, and Mrs. Charles Hutzler III practice CPR under the supervision of Dr. John O'Neal Humphries. A major push is under way to have the life-saving techniques taught to all teen-agers.

ery teen and make CPR proficiency a requirement for high school graduation.

A look at the statistics on heart attacks explains the need for teen-ager CPR skills on a widespread basis.

Three out of four sudden deaths are witnessed by bystanders, and studies show that at least 100,000 lives a year might be saved if enough "average citizens" could begin emergency CPR and life support quickly.

Results of a study by Dr. Mickey Eisenberg at the University of Washington in Seattle, published in the *Journal of the American Medical Association* earlier this month, showed that if basic life support is begun within four minutes of a heart attack and advanced treatment (drugs and electronic aids) within eight, more than half of all victims survive.

Simply training more doctors, paramedics and ambulance crews is only half the story, says Eisenberg. "Much as CPR alone is not lifesaving, definitive care ... is not likely to be lifesaving unless CPR has been initiated quickly. The data suggest that early ... CPR can buy several additional minutes of time before definitive care must be provided if the patient is to survive."

Since 1971, a fourth of Seattle's population has learned CPR and today, more than a third of all mobile rescue vehicles there are called by bystanders, including teen-agers, who start CPR first.

Finally, says Bill Hathaway, of the Maryland Division of Emergency Medical Services, dozens of states developing teen CPR programs have gotten "overwhelm-

ingly positive" responses.

"Teen-agers are absolutely perfect students of CPR because they want to be involved in the community in a way that really counts.

"Let's face it, learning to save a life is a lot more exciting in health class than learning to brush your teeth."

Perhaps even more vital to the community health is the fact that teens tend to be around people in need of rescue.

They are involved in or near a majority of serious auto accidents; they have aging parents and grandparents at risk of heart stoppage. They baby-sit for children who may choke.

The Heimlich maneuver, or "hug," which gets food out of the windpipe by applying inward and upward force against the stomach, between the navel and rib cage, is a central part of CPR training. Choking or drowning is often accompanied by heart problems.

CPR, emphasizes Sternler, is not quite as easy as "ABC," but it's no more difficult than learning to serve a tennis ball.

An 80- to 90-pounder can do it effectively, and even handicapped students can learn to "talk" a non-handicapped person through emergency CPR.

In a nation often criticized for "babying" its young and keeping them dependent too long, teenager CPR provides at least one adult role our youth can fill with our gratitude.

Joann Rodgers covers medicine for *The News American*.