Baylor Scott & White HEALTH

Common Questions & Answers About Cardiopulmonary Resuscitation (CPR)

What you should know about CPR

There often comes a time when patients are so ill that they may only be kept alive by "artificial" means. Prior to about 1960, such patients died, but since then a number of life-sustaining or even life-restoring technologies have been invented, providing patients, families and physicians with previously unimaginable options. These technologies may at times be clearly beneficial and assist in restoring the patient to health. At other times the very same technology serves only to prolong dying and even increase the suffering of the patient. In such cases, physicians will often recommend that the technology be withheld and that the focus of treatment shift from cure to comfort. The purpose of this publication is to provide you with information about one of these life-restoring technologies, cardiopulmonary resuscitation (CPR).

What is CPR?

CPR is a medical intervention performed on a person whose heart has stopped beating (cardiac arrest) or whose breathing has stopped (respiratory arrest). CPR generally includes forceful compression of the chest over the breastbone, the placement of a tube in the windpipe (intubation) with artificial (mechanical) assisted breathing, electrical shocks to the body, the placement of large-needle IV (intravenous) lines for the administration of drugs and other more complicated procedures.

Does CPR work?

Yes and no. It is most effective in younger adult patients with certain types of heart problems or in response to complications from various medical interventions. In fact, CPR was invented to respond to unexpected death associated with anesthesia or surgery. Subsequently, many citizens in our society have been trained to perform basic CPR while awaiting the arrival of medical professionals. Heart defibrillators are often available in public spaces and many persons know of someone whose life was saved by CPR. However, CPR is significantly less successful than portrayed on television. Overall it does not work as often or as well as many think. This is especially true when CPR is performed in the setting of expected death, and it often increases suffering.

What are the circumstances of patients for whom CPR increases suffering and is not likely to work? Frail and often older patients with multiple acute and chronic medical problems such as advanced cancer, infections, heart, liver, lung or kidney diseases so severe that they must be hospitalized are unlikely to benefit from CPR. These are patients for whom physicians may be providing aggressive medical therapies, and yet the physician would not be surprised if the patient died. Although CPR may initially restore a heartbeat in up to 25 percent of such patients, very few of these patients survive long enough to be discharged from the hospital. When they do survive, they typically have serious brain injuries and need other forms of life support that require nursing home care. See end notes.

Given the poor results in such patients, what do doctors recommend?

When CPR is likely to fail, physicians will usually follow one of the oldest ethical principles of medicine, *first do no harm*, and recommend that resuscitation not be attempted in the event of death. A Do Not Attempt Resuscitation (DNAR) order will be written, meaning that chest compressions, intubation, electrical shocks and the other technological interventions of CPR will not be attempted.

How does a DNAR order affect other decisions about life-sustaining treatments?

DNAR orders alone do not mean other treatments will be withdrawn or withheld. At Baylor Scott &

White, DNAR orders are always modified by an additional order to either Continue Other Treatments (COT) or to Allow Natural Death (AND). When a doctor writes a DNAR/COT order and a patient's condition deteriorates, current treatments will be maintained or even increased, but should death occur, CPR will not be attempted. When a doctor writes a DNAR/AND order and a patient's condition deteriorates, the patient will be allowed to die as naturally and peacefully as possible without an increase in other treatments and without any attempt at CPR. (For more information about life-sustaining treatments, please ask your nurse, physician, social worker or chaplain for Baylor Scott & White publications about Serious Illness, Artificial Nutrition and Hydration and Severe Brain Injuries. You may also access these resources and more at BSWHealth.com/PatientInformation

What about DNAR orders outside the hospital, such as in the nursing home?

Many of the same considerations apply. The sad reality is that the very frailties, illnesses and advanced age that leave a patient homebound or nursing-home confined make the same patient extremely unlikely to benefit from CPR. Texas law recognizes this natural phenomenon and provides for a special type of advance directive to limit CPR outside the hospital, known as an Out-of-Hospital Do-Not-Resuscitate Order. This document is the only way to prevent paramedics from providing futile attempts at resuscitation outside the hospital setting.

Isn't there more to a decision about CPR and DNAR orders than statistics about results of treatment?

Yes. Decisions about whether or not to attempt CPR (or other advanced life-sustaining therapies) are not only scientifically complex; they are ethically and emotionally difficult as well.

What ethical issues are involved?

Deciding what is ethically right or wrong is a complicated process and individual beliefs certainly play a role in this process. We would like to share a few of our thoughts based upon years of study and reflection upon the ethical aspects of modern medicine. At Baylor Scott & White, we pride ourselves on delivering modern, quality treatment, while at the same time accepting the classic goals of medicine dating back over 2,500 years to the time of Hippocrates.

Those goals in modern language are:

1. cure whenever possible
2. relieve suffering always
3. never prolong the dying process

In our attempts to cure patients and follow the other goals of medicine, physicians and nurses strive to follow sound medical science and clinical judgment based on experience. We acknowledge, as should patients that scientifically based treatments intended to have only benefits are always accompanied by burdens and risks.

We also recognize that even the best science is accompanied by uncertainty that varies with the unique clinical circumstances of each patient. These unique circumstances are not only biological, but also psychological, social and even spiritual. Thus, we endorse "patient-centered decision making." Competent patients able to communicate their preferences may make their own treatment decisions, accepting or rejecting any offered therapy.

However, when patients are no longer able to communicate, we believe that decisions should be made based upon a combination of what the patient would want if they could know all of the medical facts about their condition, and/or what is in the best interest of the patient. In circumstances in which patients are no longer able to directly make their wishes known, we turn to advance directives such as Living Wills. We also turn to families or others close to the patient, asking them to serve not so much as the final decision maker for the patient, but as a "messenger" for the patient.

We respect different cultural and religious traditions and acknowledge that persons of good will may disagree with each other about what is ethically right or wrong in any particular case. Individual religious leaders may express a variety of opinions and each patient or family may wish to consult their own religious adviser. In general, the major religious traditions consider life-sustaining treatment appropriate only when the benefits for the patient significantly outweigh the burdens on the patient. There is no state or federal law which prohibits withholding attempts at CPR when medically appropriate.

Given the complexity of medical science, the uncertainty of clinical practice and the psychological, spiritual, cultural and legal aspects of ethical decisions, it can be difficult to decide what is right or wrong in a particular circumstance. At Baylor Scott & White, we have recognized experts in Supportive and Palliative Care who provide "comfort, care and planning for patients and families facing serious illness." The multidisciplinary members of our Supportive and Palliative Care teams can help patients, families, and physicians alike make decisions about how to manage serious illness, including whether or not to attempt CPR. Baylor Scott & White also provides a skilled multidisciplinary ethics consultation process to advise all parties and even help resolve ethical disagreements when they arise.

In closing, although modern science has created treatments unimaginable to the ancient healers, their moral insights remain relevant today. The biblical wisdom that there is, "a time to be born and a time to die," remains true. When we can no longer meet the first goal of medicine by cure or temporary remission, or return the patient to a quality of life that the patient can enjoy, we believe the most appropriate goal of medicine becomes comfort, allowing the patient to pass away as peacefully as possible, surrounded by a caring family and community.

Prepared by the Office of Clinical Ethics and Palliative Care, Baylor Scott & White Health.

End Notes:

The practice of CPR is now around 50 years old and there have been thousands of articles written about it in the medical literature. We offer a few references for your interest, should you desire.

1. Closed-chest Cardiac Massage. Kouwenhoven et al. *JAMA*. 1960;173(10):1064-1067. This was the first report on what was at the time a new technique in medicine. Prior to this report, when a patient died in America, they were simply dead. "Closed-chest cardiac massage," what we now call CPR, reported a 70 percent survival to discharge rate. Documentation of the nature of the patient's cardiac arrest was poor. Reported cases were pre- or post-op anesthesia holding area. No other study since has ever documented such a high survival rate.

2. Cardiopulmonary Resuscitation: Analysis of Six Years' Experience and Review of the Literature. DeBard. *Ann Emergency Med.* 1981;10(8)408-416. Coming more than 20 years after the Kouwenhoven report of 1960, this was a much larger review involving multiple hospitals. Review of 13,266 hospital-based CPR cases reported in the medical literature demonstrated an overall initial success rate of 39 percent, however only 17 percent of CPR patients survived to hospital discharge. This was one of the first large studies to make a strong distinction between initial restoration of heartbeat by CPR and survival to leave the hospital.

3. Why Outcome of Cardiopulmonary Resuscitation in General Wards is Poor. Hershey and Fisher. *Lancet*. 1982;1:31-34. This study was one of the first to document the ineffectiveness of CPR when applied to all hospital deaths, thus including expected deaths in the hospital (as opposed to the unexpected deaths in the Kouwenhoven study). In a general hospital population in which CPR accompanied all deaths, the survival to discharge was 3 percent. Furthermore, this study documented the substantial burdens of CPR when indiscriminately applied. Of 35 patients on whom CPR was attempted on a general medical ward, 20 initially ad a restoration of heartbeat and breathing, however only one survived to discharge. Those 20 patients spent an additional 214 days in the ICU and 470 more days on a hospital ward. Note the burden on the 20 patients who survived the initial arrest, only to have one survive to leave the hospital.

4. Survival after Cardiopulmonary Resuscitation for an In-hospital Cardiac Arrest. Urberg and Ways. *Journal of Family Practice.* 1987;25:41-44. This study helped identify certain patient characteristics associated with better or worse outcomes from CPR in the hospital. Patients who were free-living and independent prior to CPR in the hospital had a higher survival rate to hospital discharge (19 percent) than those who were homebound (<3percent) or nursing home residents (<3percent).

5. In-hospital Cardiopulmonary Resuscitation. Taffet et al. *JAMA*. 1988;260(14):2069-2072. In addition to revealing a dismal survival rate to hospital discharge for most patients,

this study also demonstrated a clear distinction between a "witnessed arrest"—cessation of heartbeat or breathing that occurs in the presence of a nurse or while the patient's heart is being continuously monitored—and an "unwitnessed arrest" in which the patient is not being monitored at the moment of the arrest. Eighteen of 235 witnessed arrests survived to discharge. Four of 164 unwitnessed arrests survived to discharge.

6. Outcomes of Cardiopulmonary Resuscitation in the Elderly. Murphy et al. *Annals of Internal Medicine*. 1989;111:99-205. This study involved five major hospitals and included some of the most prestigious facilities in the world. Again, there was a major distinction between the outcomes of patients on cardiac monitors (witnessed) versus non-cardiac monitored patients (unwitnessed). Fifteen of 204 witnessed arrests followed by CPR survived to discharge, but only one of 28 unwitnessed arrests survived to discharge, and that lone survivor was discharged on a ventilator six months post CPR. Of the 19 survivors, they typically had ventricular arrhythmias and were resuscitated within a few minutes. Only one of 360 patients with CPR lasting more than 15 minutes survived to discharge. Only one in 237 patients with asystole, EMD or agonal rhythm survived to discharge (in a persistent vegetative state). Note that the 28 unwitnessed-arrest patients are the equivalent of very sick nursing home patients or hospital patients on non- cardiac monitored units.

7. Predictors of Survival Following In-hospital Adult Cardiopulmonary Resuscitation. Brindley and Markland et al. *Canadian Medical Assoc. Journal,* 2002;167(4)343-348. Note the date on this study. More than 40 years after the first reports of successful CPR, there has been no meaningful improvement in outcome. Restoration of heartbeat with CPR occurred in 48 percent of patients who were on a cardiac monitor or otherwise had a witnessed arrest, and survival to discharge was 19 percent. For unwitnessed cardiac arrests, the initial success was 21 percent, but survival to discharge was only 1 percent. Unwitnessed cardiac arrests are in essence the type that occur on a general medical–surgical unit or in a nursing home setting in which there is neither a heart monitor on the patient, nor a nurse in continuous attendance at the patient's bedside.

8. CPR outcomes in the nursing home. Applebaum GE, King JE, Finucane TE. J Am Geriatr Soc. 1990; 38(3): 197-200. Nursing home CPR outcomes are dismal! Attempted CPR on 117 NH patients led to the following outcomes: 102 (89 percent) were pronounced dead in the emergency department, two died within 24 hours of admission to the hospital, and 11 more died with an average stay of five days in the hospital. One survived to discharge, returning to the nursing home with advanced dementia and died eight months later. One returned to the nursing home in the same condition they were in pre-arrest. All suffered the burdens of attempted CPR with painful procedures at the moment of death, but less than 1 percent obtained any benefit.