4-2007

# Cheating Death: The Demedicalization of CPR

Michelle Nicole Erwin

# CHEATING DEATH: THE DEMEDICALIZATION OF CPR

by

Michelle Nicole Erwin

A Thesis
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
Degree of Master of Arts
Department of Sociology

Western Michigan University
Kalamazoo, Michigan
April 2007

ACKNOWLEDGMENTS

I would like to thank my thesis advisor, Dr. Gerald Markle, most of all for his willingness to help me pursue this project and his guidance throughout the process. I am also thankful for my committee members, Dr. Angela Moe and Dr. Victoria Ross, who were kind enough to sign-on to this project and who each contributed their individual expertise. Without the teaching of all the professors at Western Michigan University who helped mold me, each in their own way, I would not have been able to accomplish this task.

I am also grateful for my husband who encouraged me and discussed with me all of the issues and ideas I encountered during this process, both about the topic and the research process in general. He has been my greatest academic colleague, editor, and supporter.

Michelle Nicole Erwin

# CHEATING DEATH: THE DEMEDICALIZATION OF CPR

Michelle Nicole Erwin, M.A.

Western Michigan University, 2007

My research explores cardiopulmonary resuscitation (CPR) as a case study of demedicalization. I will use an instrumental case study method to examine the history and setting of CPR. In order to gain a stronger understanding of CPR in particular, I will look in depth at the actors and organizations involved in the development, medicalization, and demedicalization of CPR. The purpose of this study is to better grasp how demedicalization occurs in a more general context by looking through the lens of CPR. I will adapt a framework that is used for examining medicalization authored by Peter Conrad (1980), to allow for the examination of cases of demedicalization. This study will look for the criteria developed by Conrad within the case of CPR as well as make comparisons of how this framework fits with other cases of demedicalization.

This research is important within the overall literature because not much has been written concerning demedicalization. The fact that CPR meets all criteria for demedicalization greatly increases our knowledge of the phenomenon and it gives credence to Conrad's framework as a relevant tool for understanding this process. If demedicalization is to become a legitimate alternative in our examination of medicine and, if our society is to see progress away from medicalization, then we should be searching out cases, such as CPR, in order to more fully illuminate this phenomenon.

TABLE OF CONTENTS

Table of Contents—Continued

# CHAPTER I

## INTRODUCTION

Seventeen-year-old Kasia Smetny was at a tennis match…when she saw another spectator, a white-haired man of 60, fall to the ground. A small crowd gathered around the man's unconscious body, recalls Smetny…Drawing on training in cardiopulmonary resuscitation (CPR) that she received in Grade 9...Smetny checked for a pulse and, when she failed to find any, made sure his airway was clear, then blew into his lungs. Still unable to locate a pulse, she placed her hands on his chest and leaned the weight of her body against them. The stricken man responded by gasping--and by the time an ambulance arrived soon after, he was showing definite signs of life. The man she helped was Robert Weatherston…who recovered and was soon walking several kilometers a day. Weatherston phoned Smetny later to thank her for helping save his life. "I'm happy I was there," she says. "I just did what seemed natural. (Nichols, 1998, p.63)

In the early 21st century a story like the one above is not unusual to hear. In fact, many people are currently "CPR certified." All one has to do is contact the local Red Cross, sign up for a few days worth of classes, and pay a small sum; no previous medical education or medical authority is required. Today, anyone can learn the procedure and it can be performed on the streets, in contrast with a few decades ago, when only a cardiologist was able to perform the procedure of CPR and no one else was allowed to obtain the training to do it.

Such demedicalization is rare among medical procedures. Rather, most procedures tend to follow the order of "medicalization," which can be simply defined as "to make medical." Often this means that medical knowledge and ability is kept in the hands of medical experts, never to be fully known or understood by the general public. As Navarro (1986), professor in the Department of Health Policy Management at Johns Hopkins University, wrote:

> Science then becomes what scientists - a small group of individuals in society -do. And scientific medicine is what medical scientists and practitioners do. …all systemic knowledge produced outside those institutions, and by individuals other

than scientists, is not considered science…Thus knowledge is legitimized only and exclusively when it comes from scientists. This dichotomy of science/ideology then appears operationally as the dichotomy of expert/non-expert… (p.163)

CPR appears to be an exception. Kasia, or any other person who is not considered medical personnel, cannot sign up for a class or go online to learn how to do most other procedures, for example, perform surgery or deliver a baby. In this thesis my general question is: what does CPR teach us about demedicalization within medicine and society.

My specific questions of this case are:

1. Regarding the medicalization of CPR: (a) who were the key actors and organizations; (b) what were their interests; (c) what is the history and the setting; (d) are there other cases similar to the case of CPR?
2. Regarding the demedicalization of CPR: (a) who were the key actors and organizations; (b) what were their interests; (c) what is the history and the setting; (d) are there other cases similar to the case of CPR?
3. Has any actor of note been opposed, either to medicalization or demedicalization?

## History of CPR

Every year, about 300,000 Americans collapse and die because of a heart that abruptly falters and stops. That's cardiac arrest. No blood circulates, so oxygen can't make its rounds. The most dire threat is to the brain, which is irreparably damaged in four to six minutes without CPR. According to the American Heart

> Association (AHA), 95 percent of cardiac arrest victims die before reaching the hospital. But, it adds, the use of CPR can dramatically improve survival rates. (Srikameswaran, 2002, para. 37).

Only 1-3 percent of cardiac arrest victims survive to be discharged from the hospital (Cummins et. al., 1991). Out-of-hospital survival rates are hard to keep track of and vary widely among different sources.

The American Heart Association notes that there have never been any national statistics on CPR because there is no single agency collecting that information. For this reason there is no consensus on the number of lives saved using CPR, its success, or how often it is used (Markle & McCrea, forthcoming). The research and statistics that do promote CPR's effectiveness comes from regional survival rates from small, short-term studies, which vary largely from study to study as can be seen in a study done by Eisenberg between 1967 and 1988. (Timmerman, 1999). They found variation in survival rates ranging from 2% to 26% (Eisenberg, 1997). With such a diverse range of survival rates it is hard to understand why CPR became demedicalized and continues to be used with such vigor.

In this section I present a brief history of CPR in the U.S. I rely on the contributions of several authors and organizations for this history: Mark DeBard, Mickey Eisenberg, James Jude, Joseph Ornato, Mary Ann Peberdy, and the American Heart Association.

Resuscitation is not a new phenomenon; the beginnings of successful 'reversals of death' are believed to have taken place around 900 to 850 B.C. It has been recorded in religious texts that several prophets revived people from death in ways that could be

likened to resuscitation or compression. Many other techniques and attempts were made from this time up to the more recent past - where this research focuses. The two techniques that combine to make up modern CPR can be found in very early stages with mouth-to-mouth ventilation used in the mid-1700's and "open chest cardiac massage" advocated in the early 1900's and continuing until the 1950's. Open chest cardiac massage (OCCM) involved the first person on the scene opening the left side of the patient's chest with a scalpel and intermittently squeezing the heart by hand inside the chest while a second person held the ribs apart. This conventional, although extremely invasive, approach to handling such near death experiences was an accepted practice among physicians at the time.

Between 1950 and 1960, innovations were made concerning both components of what we consider modern CPR: mouth-to-mouth resuscitation is the placing of ones mouth over that of the victim and blowing air into the lungs to provide oxygen to the brain and chest compressions (earlier known as "external chest cardiac massage") are the pushing down on the chest just below the ribs, to get blood pumping properly.

It was during this time, 1956-1959, that Peter Safar, professor of resuscitation medicine and physician and James Elam, physician of anesthesiology and resuscitation researcher, perfected "mouth-to-mouth respiration. The technique was endorsed by the National Research Council/National Academy of Sciences, a branch of the "National Academies," the American Medical Association (AMA) Council on Medical Physics, the American Society of Anesthesiologists, and the Medical Society of the State of New York. Mouth-to-mouth respiration was also adopted by the United States Military and the American Red Cross. During the early 1950s, "closed chest cardiac massage" was

being practiced with frequent failure. Although the procedure was notably ineffective, in 1959 the first documentation of human resuscitation using the cardiac massage/chest compression technique was recorded.

Modern CPR as we know it was officially accepted in 1960 when William Kouwenhoven, who until his death was a professor of electrical engineering, Guy Knickerbocker, professor of electrical engineering, and James Jude, physician and surgeon, combined mouth-to-mouth resuscitation with chest compressions. What marks this occasion are the first published results appearing in 1960 in the July (173) issue of the *Journal of the American Medical Association* (JAMA), the official journal of the A.M.A. However, the combined techniques did not officially dawn the title, CPR, until 1962. It appears that once results about the effectiveness of CPR were published in more than one journal during the 1960's the procedure rose in popularity.

As the procedure gained recognition and acceptance by medical authorities, it's dissemination to a wider audience took place. Prior to 1960, only thoracic surgeons were allowed to perform, what we today call, chest compressions. This meant that medical personnel considered chest compressions a procedure done only by those most qualified; people who had the training. At this time only thoracic surgeons had the training to perform chest compressions. After 1960, the National American Heart Association asked that the information and training about CPR be given to all cardiologists. The enthusiasm surrounding the new procedure swelled. But before it gained too much popularity and in light of the possible dangers and indiscriminate use, in 1961, the medical director of the American Heart Association also issued a memo with a strong warning that heart associations should only give programs on closed-cardiac massage to physicians until

more research is published on the technique. The American Heart Association also organized workshops for its physician members but emphasized that these were meant only as a service for practicing physicians, not as an official endorsement of the technique. An editorial was written in the journal put out by the American Heart Association, *Circulation,* in 1962, and signed by the American Heart Association, the American Red Cross, and the Industrial Medical Association. The article emphasized that CPR be considered a medical procedure only applied by carefully trained personnel such as physicians, dentists, nurses, and specially qualified emergency rescue personnel (American Heart Association, American Red Cross, & Industrial Medical Association, 1962). The editorial goes on to say, "...whether training should be extended to certain segments of the general public must be postponed until further experience accumulates (p. 324).

In 1965 the same group of organizations along with the U.S. Public Health Service revisited the issue and submitted a statement in *Circulation* once again. This time they labeled CPR an "emergency procedure" and stressed the importance of training and retraining to ensure proper performance. They emphasized that training be disseminated to members of the medical, dental, nursing, and allied health professionals and rescue squads. Again they suggested the field wait to open up the training for the general public (American Heart Association, American Red Cross, Industrial Medical Association, & United States Public Health Service, 1965).

Also in 1965 organized nursing was being informed and trained in CPR, but they "were slow in acceptance of this method as part of their duty" (Jude, 2003, p.960). Soon nurses became the first line of defense in the saving of lives. During this time Jude,

Kouwenhoven, and Knickerbocker were getting this information ready for public use and in the meantime, videos were made, "Resusci-Anne" was created, and instructions on how to do bystander CPR were developed. In the late 1960's and early 1970's paramedic programs became well established and soon incorporated CPR into their curriculums. In the early 1960's the discovery of CPR:

> ...changed the way doctors treated patients with cardiac arrest. The closed-chest method replaced the 'ghastly ritual' of open cardiac massage and demystified the technique of cardiopulmonary resuscitation. No longer would resuscitation be limited to surgeons and those few nonsurgeons bold enough to wield a scalpel to open a cardiac arrest patients chest. (Fye, 1996, p.178-179)

Despite closed-chest cardiac massage's improvement over the open chest method, many, besides organizations were skeptical of CPR. The largest group opposing CPR were physicians, surgeons, and emergency department personnel. In 1966 an *ad hoc* committee on CPR of the National Research Council held a conference to review existing literature on the procedure. One of the last sessions of the conference, the question-and-answer session, addressed the issue of physician resistance to CPR as evidenced by one of the questions: "How are physicians to be persuaded that certain laypersons should use CPR?" (Timmerman, 1999, p.61). Dr. Leonard Scherlis responded with, "Sometimes physicians do not accept these suggestions until they are 'pressured' by other groups in the area or until medico-legal considerations make it increasingly necessary for them to become expert in these measures" (National Research Council-NAC. 1966, p.195).

It was not until 1972 that Leonard Cobb, a physician in the coronary care unit at Harborview Medical Center in Seattle, held the first mass CPR training session in

Washington. Since 1972, there has been widespread training of the public and telephone-assisted CPR has become popular within the emergency field. The World Wide Web has also made a contribution to the breadth of CPR dissemination. While it is not noted by much, if any, of the literature it is still highly relevant, CPR training has moved from videos and Resusci-Anne to the internet. One cannot receive certification via the internet, as of yet, but one can learn the procedure and put it into practice should the opportunity arise.

More than a decade after CPR was first defined and published in JAMA, a National Conference on Standards for CPR and Emergency Cardiac Care (ECC) was held in 1973. This conference officially recommended using lay CPR alongside paramedic/ambulance systems. Archer Gordon, a physician, was chair of this conference where official definitions and standards were set for basic life support and advanced lifesaving techniques. The conference members decided "Basic life support was CPR; it should be taught to everyone. Advanced life support went further…" (Timmerman, 1999, p.66). Out of this conference, official guidelines were created and eventually 5 million copies, in several different languages were distributed worldwide. Materials for teaching CPR were also developed by the AHA and the American National Red Cross. The main thesis behind the guidelines was this: "…unless otherwise indicated, these standards are universally applicable" (CPR-ECC, 1973, p.864). Thus, ushering in an official demedicalization of CPR.

# CHAPTER II

# THEORY

Medicalization must be present for demedicalization to occur. It has two widely accepted definitions: Zola (1983) defines it as a "process whereby more and more of everyday life has come under medical dominion, influence and supervision" (p.295); according to Conrad (1975) it is "defining behavior as a medical problem or illness and mandating or licensing the medical profession to provide some type of treatment for it" (p.12). Conrad's definition more accurately describes the medicalization that has been removed from CPR. Most scholars conceptualize medicalization as a negative phenomenon in American society; this stems from a perceived state of overmedicalization (Fox, 1988). A clear understanding of medicalization will be given before fully examining demedicalization, via a brief historical overview of medicalization in American society and specific cases of medicalization.

## Medicalization

In America, it seems that the ever apparent medicalization of society evolves from a sense of medical (professional) imperialism, especially during the 1960's and 1970's. Medical imperialism is here defined as the control and authority over what it means to be sick, in essence, a control over people, by the medical profession. Historically, medicine took the place of religion as the way to heal sickness and disease (Conrad, 1980). Physicians were not always given the credibility that they are today; often people would prefer to be healed by a spiritual leader rather than a physician, whom was often thought of as "quack." It has taken time for physicians to have the authority and control that the present-day affords them (Freidson, 1988). Over time, the authority of physicians

increased, taking the place of and surpassing the authority of priests and shamans. Illness was no longer to be dealt with in the realm of the supernatural as evidenced by the European Renaissance, when the beginning of a true interest in medical knowledge over that of spiritual rituals or insight occurred (Conrad, 1980). With the coming of increased and stringent medical training and educational requirements, came medical imperialism. In 1847 the AMA was formed to enforce standards for physicians by limiting who could practice medicine to those who were educated in medicine; "...it enacted a code of ethics that denied fraternal courtesy to 'irregular' practitioners" (Starr, 1982, p. 90). Instead of putting faith in ones spiritual leader, one began to put a lot of faith in ones doctor. It is this medical imperialism that led the way for medicalization.

Based on the writings of philosopher and social theorist, Ivan Illich (1982), I define medical imperialism as the privileged and dominant status of medicine and its practitioners. The medical institution has the authority to define what an illness is over the treatment of sickness, healing procedures, and how medical care is given; a medical hegemony if you will. According to Freidson (1988), "the medical profession has first claim to jurisdiction over the label of illness and anything to which it may be attached..." (p.251). This implies that medical professionals have more control than anyone else over these matters; giving them automatic authority and some would say social control. Illich (1982) refers to a similar idea of which he uses several terms to describe, "cultural or social iatrogenesis, medicalization of life, or diagnostic imperialism." He claims that

> The medical profession is a manifestation in one particular sector of the control over the structure of class power over which the university-trained elites have acquired. Only doctors now know 'what' constitutes sickness, who is sick, and

what shall be done to the sick and to those whom they consider *at a special risk.* (p.47)

This imperialism has its roots in the power and perceived infallible character of science in general. This has allowed medicine to have the appearance of neutrality and unquestioned validity. Medical practitioners have power over lay knowledge about sickness and healing. Sandra Harding, author of *Is Science Multicultural?* (1998), claims that this power over lay knowledge allows for the produced science to appear "...as value neutral, normal, natural and therefore not political at all the policies and practices through which powerful groups can gain the information and explanations that they need to advance only their priorities" (p.132). This reiterates what Navarro (1986) says about the only legitimized knowledge being the knowledge that comes from scientists and experts.

Starr, author of *The Social Transformation of American Medicine* (1982), argues that this power came to the medical community through the beliefs of the general public about their own abilities and understanding.

> ...Americans were persuaded to rely on the skills of the nascent medical profession...the more receptive one became to seeing the world through the eyes of those who claimed specialized, technical knowledge... (p.19)

He claimed that the social transformation of American medicine boils down to a point in history when Americans had an unyielding trust for the medical establishment. "The inexorable professionalization of medicine, together with reverence for the scientific method, have invested practitioners with sacrosanct powers, and correspondingly vitiated the responsibility of the rest of us for health" (Carlson, 1975, p.141). Attitudes toward those with medical authority were based on the belief that only

professionals could make judgments about ones health. The American reliance on medical professionals is intertwined with the rise in medicalization of everyday life; "...it is largely an insidious and often undramatic phenomenon accomplished by medicalizing much of daily living, by making medicine and labels 'healthy' and 'ill' relevant to an ever-increasing part of human existence" (Zola, 1983, p.247). More recently Conrad (2005) states that healthcare has changed so drastically over the past 20 years that medicalization is no longer due to medical imperialism and physician ambition, but is due more in part to drug industry policy, consumer demand, managed care, and health insurance. This change in medicalization theory is important to note, but holds less significance to the era in which CPR was demedicalized. While it may no longer be the case, in the 1960's and 1970's it was medical imperialism that often preceded medicalization.

Several classic cases of medicalization come out of debates about alcohol, birthing, and hyperactivity in children. In each of these cases the general belief about how to handle them comes from a medical tradition. Alcoholics go to rehabilitation centers; pregnant women must either go to a medical doctor to give birth or must increase the level of medical use by having a Caesarean section; and children must be given prescription drugs to "cure" their hyperactivity. These three cases are treated as "diseases" or sicknesses to a greater or lesser degree. Our society promotes the view that the best solution to anything defined as an illness is to seek traditional medical expertise. While there is still medical evidence that shows an overuse of C-sections, one can find a trend toward demedicalization of childbirth as the use of midwives and natural birthing centers increases. Simultaneously some hospitals are co-opting natural birthing methods.

It is not always clear if a procedure, behavior or situation falls under the definition of medicalization or demedicalization. As with childbirth, we can find pockets of tension between both theories.

Conrad (1992) argues that there are different levels of medicalization: conceptual (medical vocabulary), institutional (organizations use a medical approach with physicians as gatekeepers), and interactional (physicians are directly involved). Using this framework we can look at the example of childbirth and see a *process* of demedicalization, even though parts of this event are often still medicalized. In many instances childbirth is at the interactional level of medicalization, but other situations attain only a conceptual level of medicalization. These varying levels can be similarly applied to demedicalization; Conrad does not mention this possibility directly, but when using midwifery as an example of demedicalization he mentions it as not completely demedicalized.

Medicalization is often thought of in negative terms. For example, most homosexuals do not want to be treated as if their sexuality is an illness. Doing so brings a negative label to what they believe is normal and natural – not ill or sick. There are also benefits to medicalization. In the cases of addiction and seizures, because they are now defined as illnesses, there is less stigma attached to persons suffering from either. Prior to the medicalization of each, people who suffered from seizures were thought to be "crazy." A large benefit of this new definition stemmed from the fact that once these situations became defined as medical, insurance companies started paying for services to "heal" the illness. Medicalization has made it easier for people to live their lives and heal from their problems.

There are also positive and negative consequences to demedicalization. Demedicalization as well as medicalization is often a fluid process. There are even some instances where remedicalization occurs. For example, Conrad (1980) describes the medicalization, demedicalization, and remedicalization of addiction. In this case, when demedicalization of addiction occurred, it put the responsibility and stigma back onto addicted persons. There was no longer a medical justification for what they were doing. With the remedicalization however, people were once again relieved of the negative label. The case of addiction is a good example both of the fluid process between medicalization and demedicalization, but also of the benefits and consequences of both extremes on the continuum.

A classic definition of demedicalization is given by Renee Fox (1977) who characterizes it as a trend toward doctor-patient egalitarianism, self-care, and physician regulation. A more recent definition (and more fitting with the case of CPR) defines demedicalization as a lessening of power from medical authorities (Golden, 1999). Golden, a social historian, claims that "Demedicalization is not the opposite of medicalization--each is a distinct and highly contentious historical process" (p.270). Demedicalization is a "yielding of power" over who is allowed to define what is illness (Golden, 1999). The definition of demedicalization I use here is an historical process, behavior or procedure that no longer requires the expertise of a medical professional or organization to use a medical definition or to in any way attend to the process, behavior or procedure.

Conrad (1992) suggests that such a definition is easily confused with

deprofessionalization, as in the cases of midwives or physician assistants. It seems that often, but not in every case of demedicalization, deprofessionalization is required to further the process (Lowenberg & Davis, 1994). To clarify, if a case requires a deprofessionalization for demedicalization to occur, then the end result will be the elimination of the need for medical professional assistance and not merely a need for a lower ranked medical professional. An example where there is a distinction between deprofessionalization and demedicalization comes from sexuality/sexual medicine. Part of the demedicalizing process here is the explosion of nonprofessional sexual experts in popular magazines, books, television, internet sites and radio (Tiefer, 2006).

Some well-known cases of demedicalization can be examined using Conrad's framework, e.g., the demedicalization of homosexuality, women's health (general), and artificial insemination.

Homosexuality was considered a mental illness for the first two editions of the Diagnostic and Statistical Manual (DSM). After a violent confrontation with police at a gay bar ("Stonewall"), homosexual organizations began gaining more members and becoming more outspoken compared with those organized in the 50's and 60's; media also increased society's awareness of the homosexual movement. In 1970 gay activists attended several professional organization conferences to further push for liberation from the medicalized label. After all of this attention, state and regional psychiatric societies ruled to remove homosexuality from its official nomenclature. This social movement pressure led, in 1973, to the American Psychiatric Association (APA) voting to no longer define homosexuality as a mental illness (Conrad, 1980). In this case we would say that homosexuality was no longer medicalized – demedicalized - at the conceptual,

organizational, and interactional levels. The APA no longer used mental illness vocabulary, no longer defined it as illness in the physician's reference material (DSM) and no longer diagnosed clients as homosexual when in direct interaction with them. At each level we see a removal of medical intervention, which led to a complete demedicalization of homosexuality. In this case, because it is a mental illness and not a procedure, the completion of demedicalization is not about who has the authority to treat, but about whether or not homosexuality should be defined and treated as a medical illness at all.

Another example of demedicalization in medicine occurred during the 1970's era of feminism when women began educating themselves about their own bodies and participating more fully in their own healing. This especially happened in the fields of gynecology and childbirth. Evidence of this change in medicine can be seen through the publication of *Our Bodies, Ourselves: A Book by and for Women in 1970.* According to Gloria Steinem, the "best" health care in "prefeminist days was whatever limited information the medical establishment considered appropriate – for patients in general and women in particular" (1998, p.16). *Our Bodies, Ourselves* began the process of demedicalizing women's medicine by putting more power and knowledge into the hands of women. It made known and gave credence to the authority women could have over their own bodies. Using Conrad's (1992) framework we can see that this case fits into the conceptual and interactional categories. Women's health became demedicalized because, at a conceptual level, women used their own experiences and vocabulary to talk about women's health as evidenced by *Our Bodies, Ourselves* and at an interactional level women no longer needed to interact with a physician to learn about their bodies;

they could use their own and other women's knowledge of the body to be informed.

While there are a limited number of demedicalization case studies, there are fewer, if any, cases of demedicalized procedures (as in CPR). However, there is a medical procedure that has experienced a vacillating demedicalization process – artificial insemination. There has not been a movement within the medical profession for this and there has only peripherally been a movement from without it, as a fringe of the women's health movement. Historically it has been medicalized; the procedure has tenuously required a physician, at the interactional level. Wikler and Wikler (1991) state that this procedure was first medicalized because it was created by physicians. From there demedicalization occurred because "there has not been any organized effort by physician groups to retain their hegemony" (Wikler & Wikler, 1991, p.9). This demedicalization process followed the overarching women's movement, but the authors do not emphasize the social movement aspect as an outstanding contributor to the process. This may be due in part to the tools needed to perform the procedure, a turkey baster, (much like cardiopulmonary resuscitation – minimal). With this in mind, women could perform this procedure in their homes and there are records of successful inseminations using this technique (Fabe & Wikler, 1979).

At the organizational level there was never an official statement allowing women to perform this procedure on their own. In this case, not having this organizational demedicalization allowed for a remedicalization of the procedure. In 1986 a California Court of Appeal ruled that artificial insemination required a physician's involvement. Wikler and Wikler (1991) also note that, on a conceptual level, patients and physicians alike continued to believe that skills of a medical professional were necessary for the

technique to work. Artificial insemination is today considered a medicalized procedure.

In the cases of homosexuality and women's health there is an added component that assists in bringing about demedicalization - a social movement. During the 60's and 70's both homosexual men and women as well as heterosexual women began protesting their discrimination and oppression. Included in this oppression was medicalization of sexuality, at all levels, and women's health, at the conceptual and interactional levels. These two groups started social movements that eventually led to some level of demedicalization. Without gay rights and women's liberation movements demedicalization may not have been possible during this time. Looking at these two cases and using them as templates for how demedicalization occurs, it would seem that a social movement is an important ingredient. These popular examples show non-medical or lay people demanding authority and rising up to define their own situation instead of allowing medical professionals to do it for them.

Considering the examples given here, there appears to be two different ways that social movements to demedicalize can occur. Homosexuality and women's health were demedicalized by a movement of lay, non-medical people; a rising up of the people, if you will. This is different from other instances of demedicalization where the motivation to demedicalize comes from financial interests or other experts/professional and officials.

It is important to distinguish between these two types of movements because, historically, the two lay movements mentioned here have been more difficult to define on the medicalization-demedicalization continuum than the professional movement. On the other side of that, "movements" from within the medical establishment do not see much, if any, contention. Women's health, especially in the areas of gynecology, pregnancy,

and childbirth has seen pockets of remedicalization; the C-section continues to be overused for example (Sakala, 1993). Many women are still ignorant of how their bodies work and continue to rely on doctors to tell them what to do during pregnancy and the like. Similarly, midwifery is considered a form of demedicalization, but currently is not completely demedicalized because some states are pressuring certified midwives to work under a more medical model (Weitz & Sullivan, 1985). This may be a product of the backlash to the women's movement that is occurring more generally.

Lowenberg and Davis (1994) operate under a different framework when examining a case of demedicalization – holistic health. The authors have three criteria: locus of causality (who is at fault for the sickness), status relationships (doctor-patient interaction), and pathogenic sphere (the extent to which everyday life comes under medical jurisdiction). This framework was not used to examine the previous cases because it lacks universality; it fits the case of holistic health appropriately, but is not easily transferred to the varied possible cases of demedicalization. The conclusion of this case study is that holistic health does not meet the three demedicalization criterion. Like Conrad's framework, there is a sense that the line between medicalization and demedicalization is unclear; that there is a non-linear, fluidity about the process. There are not many cases using either framework to yet determine which more accurately fits the demedicalization process.

As evidenced by the examples of demedicalization given here, we can see that there are different reasons why a process, behavior or procedure may become demedicalized. Some cases require demedicalization at all levels and others do not. The type of social movement or lack thereof could assist in the process of moving back to the

original medicalization or toward a more solid demedicalization.

# CHAPTER III

# METHODS

In this chapter I begin by situating myself within this research as I believe it is vital that the researcher expose the reasons for having started a line of research. It is my understanding that research is never wholly objective and therefore, one must bring to light that which otherwise might be hidden under a false sense of objectivity. Then I discuss and justify why I chose an instrumental case study as a method and explain how I conducted it. Lastly, I explore possible limitations and I rationalize why this project is reliable, generalizable, and valid.

## Researcher Position

I have always had an interest in the medical field and the power dynamics between those who are allowed to know and those who are not; mainly the relationship between physicians and patients. I came across this particular case while reading one of my professor's manuscripts. Some statistics and a brief history about CPR were mentioned, which lured me into wondering if and how medical sociologists have let this unique example of demedicalization slip through the academic cracks. It has always been my interpretation and critique that the medical establishment has had an overwhelmingly unnecessary amount of power over the public as well as had a hand in what medical sociologists consider an epidemic of overmedicalization in our society. As it happens, CPR appears to be a case that goes against my assumptions about the field. I figured that in order to be justified in my critique of the medical world, I should learn more about this particular case.

I'm also approaching this research with a background in public CPR training.

Since I was sixteen, I've taken classes in the procedure and as my certification expires, have been re-certified. In the process of conducting this research I have questioned whether or not I want to be held responsible (want the authority) for performing CPR should it unexpectedly happen around me. Throughout this project I am acknowledging and gauging how my thoughts and feelings about the medical world and medicalization are changing; recognizing that social scientific research is never wholly objective in the traditional use of the term.

## Case Study

A case study is an in-depth exploration of one particular case (situation, group, person, etc.) for the purpose of gaining depth of understanding into the overall issue(s) being studied. The focus of methodology in this research is not the particular research procedures, as much as the intersection "between theory and research methods and data (Feagin, Orum, and Sjoberg, 1991). I have chosen to use the case study method because the advantages of this method, according to Feagin, Orum, and Sjoberg (1991), enhance the research questions asked of cardiopulmonary resuscitation:

> 1. It can furnish the dimensions of time and history to the study of social life, thereby enabling the investigator to examine continuity and change in lifeworld patterns and 2. It encourages and facilitates, in practice, theoretical innovation and generalization. (p.7)

Stake (2000) also suggests that the case study method is valuable for refining theory. In order to sufficiently study the process of CPR as it affects society, it must be examined from an historical vantage point and the case study approach allows for such examination (Feagin, Orum, and Sjoberg, 1991).

In a sense, I am combining two types of case study approaches, historical and sociological, in order to gain a fuller insight into the demedicalization of CPR. To look at the implications of events as they unfold, a historical approach is needed and to look at the theoretical implications, a sociological approach is needed (Ragin, 1992). However, this research does rely more heavily on a sociological case study method because a sociological tool is used to analyze CPR (Wieviorka, 1992), i.e. Conrad's medicalization framework. Since the issues involved in demedicalization were known (to a degree) prior to studying CPR, this project was better able to make use of such tools (Stake, 2000).

Researching CPR in this way, I have undertaken what Stake (2000) calls, an *instrumental case study*:

> ...a particular case is examined mainly to provide insight into an issue or to redraw a generalization. The case is of secondary interest, it plays a supportive role, and it facilitates our understanding of something else. The case is still looked at in depth, its contexts scrutinized, its ordinary activities detailed, but all because this helps the researcher to pursue the external interest. (p.437)

This case became an interest of mine prior to starting any research, which is indicative of an instrumental case study (Stake, 2000); CPR came to me, I did not search for it. In other types of case studies, the researcher will look for a case that characterizes a phenomenon.

I have drawn, to a greater or lesser degree, from six common types of data gathered in case studies. According to Stake (2000), they are as follows: "1. the nature of the case, 2. the case's historical background, 3. the physical setting, 4. other contexts, 5. other cases through which this case is recognized, and 6. those informants through

whom the case can be known" (p.438-439).

I have thoroughly researched the "nature" and "history" of CPR by gathering articles from medical journals such as the *Journal of the American Medical Association, Circulation, Annals of Emergency Medicine, Anesthesiology, the American Journal of Cardiology,* etc.; books by key actors involved in CPR such as David Bruce Dill, Peter Safar, James Jude, Mark DeBard, Mickey Eisenberg, William Kouwenhoven, Joseph Ornato, Mary Ann Pebardy, etc.; and information from organizations (i.e. websites, magazines, published works, etc.) such as the American Medical Association, the American Red Cross, American Heart Association, National Research Council/National Academies, etc.

The "physical setting" of CPR is not as important to this research as it might be in case studies where observation is a logical and/or necessary component. However, the physical setting in this case is the time period in which CPR goes through the process of demedicalization. It is important to this case that from the official inception of CPR in1962 it took 11 years for it to be completely demedicalized; in other words, it took time for this to occur. It is typical of case studies to "set boundaries" around the case in order to be clear about what is being studied; it helps define the case (Ragin, 1992). Most of what I am looking at in regards to CPR is set within this limit of 11 years.

The "other contexts" I examined were economic and political motivations. In my research of CPR, I looked at possible motivations for each actor's involvement – I searched for vested interests. This materialized into a finding worth speculating about because it is unique that none of the actors seem to be motivated by these factors.

In my explication of why and how I consider CPR to be a case of

demedicalization, I situate it within a context of other cases of demedicalization. This accounts for "other cases through which this case is recognized;" the fifth common type of data gathered in the case study method. Most of this information was found in the medical sociology literature, especially by those authors with seminal writings on the topic of medicalization and demedicalization (i.e. Zola, Fox, and Conrad). This also helps to justify the importance of this case, CPR, to the overall literature because it shows that the case belongs to "a specific family of phenomena (Ragin, 1992, p.14). By comparing CPR to other cases of demedicalization I am able to broaden earlier understandings (Walton, 1992) of demedicalization

Lastly, the main source of data collected for this research came from "those informants through whom the case can be known." In most case studies, this involves speaking and/or interacting directly with people. This research is partly historical in nature and did not utilize interviews or participant observations as is typical when ""informants" are involved. However, the writings of key actors and organizations who participated in the development or demedicalization of CPR are used and often direct quotes are found in the literature. In this instance it is possible to glean an understanding, to know, of CPR through these "informants." Knowing the lives of these actors and organizations also contributed to this data. I used obituaries, biographies, personal websites, interviews in magazines, etc. of key actors in order to come to this understanding.

These sources allowed me to address my empirical research questions, which in turn, informed on the theoretical research question about demedicalization. Having a case study that is both empirical and theoretical is normative for this method (Ragin,

1992). This allowed me to obtain the depth required in a typical case study.

Once I gathered my data and wrote out what I had found of the history of CPR, characteristics of key actors and organizations both as they applied to medicalization and demedicalization, I looked for themes. I used open thematic coding, to find general themes and categories (Esterberg, 2002) that helped to explain how demedicalization occurred in CPR both generally and as they applied to Conrad's framework. Once this was done I created typologies from which to look for these themes recurring in the data (Esterberg, 2002). This process was utilized to help overcome possible limitations of the case study method.

Limitations argued by critics of qualitative data generally and the case study methods more specifically, are generalizability, reliability, and validity. The main debate in case study method literature is the issue of generalizability. Many researchers have questioned the case study's ability to tell us more about society outside of the case at hand. While it should be recognized that this case study of CPR will give depth as opposed to breadth, concerning the procedure of CPR and the actors surrounding it, one should consider the generalizability of the theory. Putting the evidence of CPR and the theory of demedicalization up against one another not only works to speak to the validity of the findings, but, according to Burawoy et al. (1991), also works to improve the original theories. He sees analysis as a continual process. "The shortcomings of the theory become grounds for a reconstruction that locates the social situation in its historically specific context..." (p.9). This is Burawoy et al.'s idea of theory reconstruction, which attests to the generalizability of findings. Theoretical reconstruction is also used as a way to fill in "theoretical gaps or silences" in the

literature about demedicalization by pointing out the anomaly found in CPR (p.10). By some this is considered a "virtue" of the case study method (Feagin, Orum, & Sjoberg, 1991). We can generalize new understandings of demedicalization from this study to the overall knowledge about the theory in order to create a better understanding from which other researchers may glean. In this way I am coupling reconstruction with Glaser and Strauss' grounded theory approach. With this research I am making a contribution to the literature outside of the empirical findings with the hope that theoretical generalization can take place.

The second issue, reliability, is defined as "the ability to replicate the original study using the same research instrument and to get the same results" (Feagin, Orum, & Sjoberg, 1991, p.17). Often reliability is difficult to justify when looking at a particular case. However, I am using Conrad's framework by which to understand the demedicalization of CPR, which by definition, allows future researchers to replicate this study. Because I have adapted Conrad's framework to demedicalization when it was originally intended for medicalization, there is a possibility that the exact same results would not be found; however, I have used this theoretical tool with the intent of increasing this projects measure of reliability.

The last issue often considered, is validity of observations. This study, because it does not involve human subjects or a constantly changing setting, is less prone to this limitation. It is said that the case study method allows the observer to gather "complementary and overlapping measures" (Feagin, Orum, & Sjoberg, 1991, p.19). By collecting data from different sources (e.g. people and organizations to websites and journals) I have utilized "triangulation" to account for the validity of my findings

(Denzin, 1989).

# CHAPTER IV

# FINDINGS

## CPR as a Procedure

The two procedures used in performing CPR were developed almost simultaneously, yet separately. In order to keep this chronology from being confusing, this section will be split up into two sections: actors who developed mouth-to-mouth resuscitation and actors who developed chest compressions. I discuss about the more influential characters first and save the others who played an indirect role in CPR's development for last. Otherwise I will discuss these findings in chronological order. In the second main section I discuss actors who helped demedicalize CPR. There are a few actors who I find integral to the development as well as the demedicalization of CPR. Due to this overlap I mention these actors in both sections. Once again, I discuss them in order of the importance of their contribution to the demedicalization of CPR.

## Development of CPR – Mouth-to-Mouth Resuscitation

### David Bruce Dill

According to Dill, it was his job as director of medical research for the U.S. Army Chemical Research and Development Laboratory to be the "scientific director of the Medical Laboratories responsible to the Medical Corps officer for the research programs" (Dill & Archer, 1980, p.33). He held this appointment from 1947 to his retirement in 1961. At that time the laboratory was called the Army Chemical Corps. The mission of the Chemical Corps was "to study and investigate toxicological warfare, including chemical, biological, and radiological warfare…to develop, manufacture, procure and supply material and equipment pertaining to these types of warfare, except as specifically

assigned to other agencies" (U.S. Army Chemical Corps, 1956, p.23 & 26). According to this recently deemed "unclassified" (1990) information, in 1956 the Chemical Corps was reorganized. They wanted to run the scientific and professional, military and civilian personnel with more efficiency. This was to invigorate participation in the scientific community, which included a positive policy on publication and setting up a visiting scientists program (U.S. Army Chemical Corps, 1956).

One of the major goals of the medical laboratories at this time was to find improved methods for protection against attack by nerve gases developed in World War II in Germany because they caused paralysis of nerve muscles and therefore, improved resuscitation techniques were needed. Dill asked a colleague, Archer Gordon to assist him in this endeavor. Together they used governmental contracts to gather experts in the field of physiology to "attack the problem" (U.S. Army Chemical Corps, 1956). Other key roles were played by young medical officers, supported by the Army's Surgeon General, who served their two-year duty by assisting in this research, one of whom was James Elam. Another young physician, prompted by the Army's Surgeon General, also agreed to help in the research, Peter Safar. In conjunction with the Army, the American National Red Cross supported the research being done under Dill's authority.

In 1957 the team presented their research on mouth-to-mouth resuscitation at a conference on "Artificial Respiration and Nerve Gas Poisoning." This prompted the research team to have the papers published in a symposium by the *Journal of the American Medical Association* (JAMA), the official journal of the American Medical Association (AMA). Dill wrote the introduction while Gordon and associates, Elam and associates, and Safar wrote reports of the symposium demonstrating the effectiveness of

mouth-to-mouth resuscitation and inadequacies of other methods. It was at this time that the National Academies of Sciences-National Research Council recommended that the mouth-to-mouth resuscitation was the preferred method to be used for infants and small children. In 1958, they extended this recommendation to all individuals requiring emergency artificial ventilation (Dill & Archer, 1980).

Peter Safar

There are several important developers of CPR who have been dubbed the "father of CPR" and a couple of these happened to work with Dill on the resuscitation research funded by the government. One of them is anesthesiologist, Peter Safar. Safar, prior to this death in August of 2003, was in the middle of writing a book about resuscitation in the 20th century. Toward the end of his career most of his research was focused on the resuscitation of the brain in addition to the heart and lungs. He called it "cardiopulmonary-cerebral resuscitation" or "CPCR." His motivation for this line of research came out of the death of his 11-year-old daughter in 1966. She had lapsed into a coma after a severe asthma attack. A staff writer from *The Post Gazette* said of this event, "The resuscitation expert could revive his daughter's heart and lungs, but not her brain" (Srikamaeswaran, 2003, p.7). Safar rushed his daughter to the hospital and did try to revive her as quoted. This research began in the 80's after Safar talked with a U.S. Army surgeon about the process of dying that soldiers killed in action endure because they often have chest or abdomen wounds that stop the heart. He found that mild cooling of the body prevents brain damage after cardiac arrest. He recommended that the American Heart Association include this in its resuscitation guidelines.

Safar was a close colleague of James Elam who, along with two other researchers

published the first scientific paper showing that enough oxygen could be delivered into a non-breathing patient's lungs from a rescuer's exhaled breath through a tube device in 1956, entitled, *Ventilator*. Elam's research was mostly ignored by the field. Elam's experience motivated Safar to improve on the research by creating a gadget-free method that could be performed by anyone. Safar had noted that tilting the head back and pulling the jaw forward keeps the airway straight and open, which brings about the best results (this is the A used in the ABC's of CPR; A is for Airway). In December of 1956 Safar began human experiments in an operating room at the Baltimore City Hospital. Volunteers were sedated with curare, which paralyzes the breathing muscles, but allows the heart to continue beating. (This type of experiment wouldn't pass through a human subjects review board today.) He had professionals, his wife, firefighters, and Boy Scouts perform, what he called, mouth-to-mouth ventilation.

Safar published this research in JAMA in 1958 and it was later reprinted in September 2001 in Anesthesiology to launch a "Classic Papers Revisited" series. These experiments were repeated in children by Archer Gordon of the University of California. "The three of us convinced the world in one year to change artificial breathing methods," Safar said. Safar had contributed to the first two steps of "ABC" CPR; A for Airway and B for Breathing. C for Circulation was to come about simultaneously by another group of doctors/researchers.

Safar stopped treating patients in 1989. He remained a committed member of "Physicians for Social Responsibility," the "International Physicians for the Prevention of Nuclear War," and the local chapter of the "World Federalist Association." Before his death, he was written about as a man who "still hopes for systematic life-supporting first

aid training of every man, woman and child in this country and around the world" (Srikameswaran, 2002, p.9). When asked if he'd want to be resuscitated if his heart stopped, he said, "If I had a chance to come back with a good brain, absolutely. I will always have more things to do" (p.10).

James Otis Elam

A colleague of Dr. Safar's was instrumental in the conception of mouth-to-mouth resuscitation - James Otis Elam - also mentioned by Dill. In 1951 he was on staff in the Department of Anesthesiology at Barnes Hospital in St. Louis, MO where he began his research on a carbon dioxide ($CO_2$) absorption system. He moved to the Buffalo Roswell Park Memorial Institute to further explore this line of research. In order to continue his research from this point, he needed to construct a machine that could mimic human respiration. Elam found himself asking questions beyond $CO_2$ absorption. He speculated "that if the machine could be "programmed" to breathe *like* a human being, it could be further modified to breathe *for* a human being" (Sands, 1999, para. 8). He created a prototype ventilator out of this speculation.

It is easy to see how this line of research led to his joining with Peter Safar and others in research that brought about modern day mouth-to-mouth resuscitation. Prior to the 1950's Safar and Elam proved the ineffectiveness of the chest-pressure and arm-lift method of resuscitation of the time. In 1954 Elam used experiments to show the soundness of a technique called, exhaled air ventilation. Elam assisted Safar in conducting many experiments on the superiority of the rescue breathing technique as mentioned earlier.

Archer S. Gordon

Another researcher under the supervision of Dill is Archer S. Gordon. His contributions to the development of CPR are more peripheral. Gordon was initially skeptical and didn't support the mouth-to-mouth resuscitation technique. It wasn't until he knew of Safar and Elam's experiments on adults, was able to replicate the experiments with children, and was able to come up with the same results that he supported the technique (Sands, 1999) and assisted his colleagues in publications.

## Development of CPR – Chest Compressions

There is another part of the ABC's of CPR that many people had a hand in creating – C for Circulation. CPR requires that mouth-to-mouth resuscitation be given (two rescue breaths) after every 30 chest compressions (AHA, 2005b). Chest compressions help circulate the blood and maintain blood flow to the major organs.

William Kouwenhoven

According to Johns Hopkins University newsletter columnists, Cavagnaro and Kiviat (2000) "You needn't be a doctor to save a life, thanks to William Kouwenhoven" (p.1). Like Safar, Kouwenhoven, is considered a 'father of CPR' and spearheaded one of the major components of the procedure. He, Guy Knickerbocker, and James Jude are responsible for the closed-chest cardiac massage, which would later be termed, chest compressions, done in performing CPR.

Kouwenhoven, an electrical engineer, was the creator of the defibrillator. Defibrillators were being used successfully by hospitals in 1957. In 1958 Knickerbocker experimented with defibrillators on dogs and found that even applying pressure with the electrodes before a current was run through it would cause a rise in blood pressure. This

sparked an idea with the 3-man research team and between 1958 and 1960 Kouwenhoven, Knickerbocker, and Jude spent time "experimenting with different hand positioning and rhythms and found that through external massage, they could restore 40% of the normal blood circulation" (Cavagnaro & Kiviat, 2000, para. 5).

One source (Worthington, 1998) suggests that Kouwenhoven's work inspired Safar and Elam's work on mouth-to-mouth resuscitation, but no evidence of this is found in any of the accounts of either Safar or Elam. In 1961, Kouwenhoven, Jude, and Knickerbocker published their presentation to the American Surgical Association in the *Annals of Surgery*. This article is the first time the two techniques, external cardiac massage and artificial respiration (chest compressions and mouth-to-mouth resuscitation) were combined and showed an increase in successful resuscitations (Jude, Kouwenhoven, & Knickerbocker, 1961).

Guy Knickerbocker

Kouwenhoven's protégé was Guy Knickerbocker, also an electrical engineer. He is most widely known for his assistance in the development of a closed chest defibrillator, which is now standard equipment in hospitals around the world (Walker, 1999). He was assisting Kouwenhoven in the experiments with defibrillation on dogs that led to the discovery of pressure being placed on the chest that, regardless of electricity, could save a dog's life. He also participated in the experimenting with hand placements and rhythms that led to what we now know as chest compressions. In an article about Kouwenhoven he recounts this discovery and what it meant to him. "I don't know that at the time that I had any strong feelings that our research was going to be earthshaking…I don't consider myself an inventor of CPR. Everybody stands on the shoulders of other people"

(Beaudouin, 2002, p. 31).

James Jude

Also labeled by some as 'the father of CPR,' and the last of the three who discovered the chest compression, James Jude. In an excerpt from an article about the life of Kouwenhoven (Beaudouin, 2002), Jude inserts his own memory of how he came to the research team. This is his account. During his time as an intern, he researched hypothermia, its effect on the heart, and its use in surgery. Kouwenhoven and Knickerbocker were doing their electricity research on the floor above Jude. In 1955 he says that he worked in the laboratory down the hall from Kouwenhoven and that is how they met. As part of his work on hypothermia he was looking at defibrillation techniques. Knickerbocker, who was then a doctoral student under Kouwenhoven came to help Jude with this research. In 1957 Jude received a call from Knickerbocker about the discovery that when pressure from a defibrillator without electricity is used on a dog's chest, its blood pressure will rise. When Jude returned, he was an assistant resident in cardiac surgery and had the opportunity to apply this new closed-chest cardiac massage on patients in a controlled setting. He says that after a few clinical trials they began teaching the techniques to local firefighters, in tandem with mouth-to-mouth resuscitation. Jude continued to work on a part-time basis with Kouwenhoven until he left Johns Hopkins.

## Demedicalization of CPR

Peter Safar

Some of the people and organizations who helped develop CPR as well as others who had no hand in its development, also assisted in its demedicalization. For example,

in 1956 Peter Safar had professionals, his wife, firefighters, and Boy Scouts perform, what he called, mouth-to-mouth ventilation.

Martin McMahon, one of the volunteers from Safar's experiments and chief of the Baltimore Fire Department ambulance service convinced Safar of the possibility of pre-hospital care. Up until this time people were transferred to the hospital by station wagons and hearses and no treatment was given in the mean time. Together the two designed a modern ambulance equipped with a patient bed, seating for an attendant, an oxygen source, and equipment to insert an airway tube to support breathing (intubation). The firemen of this department were trained to use intubation methods as well as mouth-to-mouth resuscitation and eventually, basic CPR. "So the first ambulance was staffed by the first emergency medical technicians" (Srikamaeswaran, 2003, p.6).

Safar was also encouraged to approach a toymaker, Asmund Laerdal, to develop a realistic mannequin for CPR training. Soon after their meeting a prototype of the life-size Resusci-Anne doll was ready. These were integral steps to modern day CPR training for lay people. Annie was the major tool that allowed lay people to be "certified" in the technique. It's possible that without the help of the mannequin, major regulatory bodies would not have allowed the complete demedicalization of CPR.

James Otis Elam

One of Elam's major contributions was his ability to popularize the method. Elam had convinced the New York State Health Commissioner, Herman Hilliboe, of the importance of the technique. Hilliboe commissioned Elam to write an instructional booklet titled "Rescue Breathing," (this term is interchangeable with mouth-to-mouth resuscitation) which was published by the New York State Department of Health, Health

Education Services in Albany, NY and was distributed nationally in 1959. The booklets were such a success that Elam also produced films demonstrating this new life-saving technique.

Archer S. Gordon

Gordon also played a role in demedicalizing CPR. In 1966 the American Heart Association and the American Red Cross and various other national and federal agencies requested a review of the recommendations of CPR by the National Academy of Sciences/National Research Council. An *ad hoc* conference convened in Washington D.C. and the recommendations were edited by Gordon and published in JAMA. These recommendations helped standardize the procedure, which spurred the creation of widespread training programs both at the first aid and professional rescuer levels. They also highlighted the importance of training the general public. Gordon became the third chairman of the American Heart Associations Committee on CPR and Emergency Cardiac Care. This committee was established in 1963. He was active in the production of many CPR training films over the years. He participated in making CPR films as a medical authority, commentator, or advisor for the following films: *CPR for Bystanders* (1986), *CPR for Heartsavers* (1982), *CPR for Citizens* (1980), *New Pulse of Life* (1977), *Breath of Life* (1967), and *Pulse of Life* (1967). Having these films available for training purposes, largely assisted in the demedicalization process.

In 1973 a national conference on CPR standards was held with Gordon as chairman. Out of this conference came the recommendation to train the general public in CPR; it set CPR standards that were published in JAMA in 1974. As stated by Archer: "After years of painstaking research and effort, the loop had been closed and all segments

of society were to be involved in CPR" (Dill & Archer, 1980, p.36.)

American Heart Association

The American Heart Association (AHA) is an organization that would seem to be directly invested in CPR. Especially because it is the organization's current mission to "reduce disability and death from cardiovascular diseases and stroke" and CPR is one way to reduce death due to myocardial infarctions or as most people know it – heart attacks (AHA, 2005d, para. 2). According to the association's website, there is a section devoted to CPR, which has a search engine for CPR classes. Any person browsing the web can find a class in their area with the help of the AHA. The AHA is also the body that approves new CPR guidelines when researchers provide evidence that they need changing. In 2005 the guidelines were updated from 2000's guidelines, 15 chest compressions for every 2 rescue breaths, to 30 chest compressions for every 2 rescue breaths.

In 1930, the organization focused on the how it could broaden its activities to reach the general public. In 1946 the American Legion donated $50,000 to AHA to do research and start a community rheumatic fever program. As part of this broadening, and eventually reorganizing (1948), initiative, it began to bring in non-medical volunteers. The AHA (2005c) claims that since 1949 they have increased in size, financial resources, involvement with medical and non-medical volunteers, and influence. The organization's website never mentions their acceptance of CPR specifically, but admits that during the time that CPR was accepted, it had recently gained more influence.

Shortly after the first official publication of the procedure the creators of the technique began making presentations to local medical organizations, local affiliates of

the AHA and other medical societies. These smaller organizations showed interest in having other medical professionals learn CPR. It wasn't long after 1960 that the AHA started advocating for information and training about CPR to be given to all cardiologists. "The National Heart Association took interest and wanted the method brought to the attention of all cardiologists; thus, we were invited to give a continuous "poster" session at their annual meeting, held in the fall of 1960" (Jude, 2003, p.960). This was instrumental in the eventual dissemination of CPR to lay people because the AHA was one of the first national organizations to advance the demedicalization of CPR. Sometime after a book written by Jude and Elam was published in 1965, *Fundamentals of Cardiopulmonary Resuscitation*, did the national AHA form a committee on resuscitation for the explicit purpose of establishing national guidelines and training materials. This committee has existed in some form until the present day. In 1966 and once CPR training films were made, such as the well received, *Pulse of Life,* the AHA contacted the National Research Council and the American Red Cross to "further document the effectiveness and establish basic standards for using CPR" (Jude, 2003, p.961). In 1975, volunteer-led affiliates of local AHA organizations started participating more heavily in research, education, and community programs.

Even though it was not directly involved with CPR during it's development or popularization in the fifties, sixties, or seventies, between 1980 and 1986, the organization changed its internal structure to better reach the public with a "louder, clearer voice" (AHA, 2005c, para. 7). From this point on the AHA became a more visible advocator of public health. In the 1990's the nature of AHA's scientific findings changed from labs and clinics to physician's offices and American households. The

organization, despite opposition from some industries, continued to champion the American public.

In October of 1990 the AHA supported an article written by its Advanced Cardiac Life Support subcommittee and the Emergency Cardiac Care committee on what is now officially accepted as the "chain of survival" (Cummins, et al., 1991). Then in 1992 official guidelines were published by the AHA on the implementation of the chain of survival. The chain of survival concept consists of four links: early access, early CPR, early defibrillation, and early advanced cardiac life support. This included equipping the nation with 9-1-1 access and emergency personnel with defibrillators. As set up by the 1990 committees it was expected that trained lay persons would initiate CPR rather than rely on emergency responders to be the first to do CPR. This concept is important to the history of CPR because it ensured the need for demedicalization through the use of lay people. The slogan also invites a community effort on the part of lay people and others to participate in the saving of lives. "Each early intervention requires the training of persons ranging from the lay rescuer, to the first responder, to EMTs, to the emergency room physician" (AHA, 2005a, para. 2).

In addition, CPR used alone does not have high survival rates, but, within this chain of survival system it is still a necessary link to increasing survival rates. "CPR, by itself, is only about 5% effective! But we must remember that CPR is only one link in this chain. When all four links are in place, the rate of survival for the adult victim increases to about 40%" (Southwestern College, 2007, para. 8). It is assumed that if each link in the chain of survival were strengthened, then results would show higher rates of survival. Richard Cummins (1995) supported the chain of survival when he wrote, "Now

researchers must shift from a longstanding interest in how and whether CPR works. We must now focus on improving CPR techniques, making CPR work better, getting more people to learn CPR, and getting more people to start CPR" (p.836).

> In a paradigm in which the value of CPR is beyond question, survival rates have become a *post factum* justification; data provide guidelines for tinkering but not for overhauling the system. This sentiment was confirmed in 1992 when the American Heart Association adopted the principle that "some CPR is better than no CPR," meaning that even badly performed CPR is better than no CPR at all. (Timmerman, 1999, p.78)

The AHA reports its history as though, over time, its mission has changed from more scientific-oriented research to more public and community health-oriented research and education. This is important for the evolution of CPR because having AHA sign on to the approval of the demedicalization of CPR means that at least some of the motivation for public CPR was backed by an organization who advocates for public knowledge.

American Medical Association

Another important organization that has, throughout history, recommended and supported the use of CPR is the American Medical Association (AMA). It is their mission to "help doctors help patients by uniting physicians nationwide to work on the most important professional and public health issues" (AMA, 2006, para. 1). In 1942 it established a committee on medical education to accredit programs, which led to the creation of the MD degree. Around this time, in 1944, AMA received praise for its radio show "Doctors at War" as a great service to the medical department of the U.S. Army. As an extension of its radio broadcasts, AMA began to use the television to bring health

messages to the public (1946).

According to the chronological timeline provided by the AMA that has been referenced here, there is no mention of CPR until 1986, when the AMA is said to have publicized and recommended the incorporation of CPR into secondary schools. The usefulness of the history of the AMA provided here is it's standardization of medicine and medical education and the years when there was a focus on educating the public about health issues.

American Red Cross

There were also organizations like the American Red Cross, who have actively engaged in disseminating CPR education to the public. They were one of the first organizations to accept components of CPR on an official level. The American Red Cross, at one time called the American National Red Cross, has the legal status of "federal instrumentality," which requires the organization to protect victims of conflict, to provide family communications and other forms of support to the U.S. military, and to maintain a system of domestic and international disaster relief. The main goal of the organization is to save lives and help people prevent, prepare for and respond to emergencies. Part of acting on this goal for the organization is to participate and support biomedical research and the development of technologies that will save lives.

In the 1950's this organization supported the research being done by David Bruce Dill and his researchers and "In 1958, based on the superior benefits found in their research studies, the American Red Cross adopted the method of mouth-to-mouth breathing as the preferred method..." (Jude, 2003, p.959). However, it wasn't until the 1970's that the Red Cross began to work closely with the American Heart Association to

teach CPR to the public. In 1974 CPR became an official Red Cross course. To help the American Red Cross celebrate its 100th anniversary, a convention was held and promoted by the new slogan "Red Cross; Ready for a New Century." This slogan was adopted to send the message that the organization would continue to educate the public about its programs. During this celebration, a major initiative was claimed it would bring health awareness and skills to Americans. "This signified a shift from the traditional teaching methods of how to avoid, cope, and prevent emergencies to long-range health goals..." (American Red Cross, 2006, para. 5).

In 2004 the American Red Cross "Press Room" issued a statement about the importance of learning CPR. "The American Red Cross and American Heart Association encourage everyone to prepare themselves to save a life - by enrolling in a CPR and AED training course today" (American Red Cross, 2004, para. 8). The American Red Cross is an organization that counts among its accomplishments the ability to educate the public about how to use CPR in everyday life. It is the mission of the organization for everyone to be ready in any emergency situation.

The National Research Council/National Academy of Sciences

Like the AMA, the National Academy of Sciences/National Research Council has played an ancillary role in the creation of CPR in that it recommended, along with other organizations with medical authority, when CPR should or should not be taught to the general public. These organizations have also given their stamp of approval or disapproval about the standards and guidelines of CPR.

The National Research Council has become the principal operating agency of both the National Academy of Sciences (NAS) and the National Academy of Engineering

in providing services to the government, the public, and the scientific communities (National Academies, *National Research Council*). There is no mention of CPR in the organizations public historical records, however, according to Jude's (2003) historical account, the National Research Council/National Academy of Sciences endorsed the mouth-to-mouth technique.

Wolf Creek Conferences

One venue through which CPR advanced and became stimulated within the field of medicine was through the "Wolf Creek Conferences." The first conference was initiated by James Elam and hosted by James Jude in 1975 at his Wolf Creek lodge in Georgia. "There was great need of objective data such that guidelines on resuscitation might be secure" (Weil Institute of Critical Care Medicine, 2005, para. 1). This first meeting consisted of only 26 attendees. Peter Safar initiated the publishing of the conference by Springer-Verlag, which happened in 1975 and it is believed that Asmund Laerdal, inventor of the Resusci-Anne, funded the publishing of the event. "...Asmund Laerdal, innovative benefactor of resuscitation since 1960, whose generosity made publication of this Conference possible" (Safar, 1975, p. ix). The people who attended include the major players mentioned in the "Development of CPR" section, except for William Kouwenhoven who was sick and died a month later, as well as some others. In the words of Safar, after the conference,

> Mobilization of large-scale public involvement in life-saving efforts is essential. But the challenges and opportunities of implementing new knowledge in CPR on a large scale have brought agencies and politics into the field, unnecessarily complicating initially clear concepts and simple techniques. Because of this and

> because of the need for a fresh look at the past, present, and future trends and priorities, 24 of the initiators of modern CPR met on October 30 and 31, 1975 in the solitude of Georgia's mountains to discuss recent advances in and the potential future of emergency resuscitation. (1975, p. vii)

Safar goes on to mention that this conference held a room of old friends and collaborators, in addition to currently active researchers. The book, Advances in Cardiopulmonary Resuscitation (1975), in which the papers discussed at this conference are published, there are sections, "if we are to promote the future development of resuscitation in a…manner, supportive of human evolution" that contain work on "the public health issues and philosophic, sociologic, and economic problems created by the potentials of modern resuscitation" (Safar, 1975, p. viii).

This conference was formed outside of any official medical establishment other than what the physicians, professors, and researchers created by the sheer fact that they were gathering. This appears to have been a couple of days where researchers could escape the politics and agencies in an attempt to preserve CPR and the work that had been done. This is an instance where, despite the supportive medical establishment, researchers could candidly express their concerns about getting this information to the public and to discuss how to go about doing it; all the while taking into account the public health issues and the potential problems that CPR could create on a wide scale.

Leonard Cobb

There were also individuals promoting the demedicalization of CPR by actually disseminating information; people like Leonard Cobb. In 1967 Leonard Cobb was director of cardiology at Harborview Medical Center in Seattle, WA. He read an article

about Belfast, Ireland and its new way to treat heart attacks by using a converted ambulance into a mobile intensive care unit that was staffed with physicians and nurses. "The idea of assigning doctors and nurses to a mobile unit never caught on in the United States. Instead, a few physicians in five American cities developed an alternative program that created the paramedic" (Ramsey, 2003, para. 4). One of these cities was Seattle and Cobb headed the team that developed the program. The plan was to recruit firefighters to train as paramedics who would initiate pre-hospital emergency care for victims of heart attack.

The team in Seattle was awarded a grant from one of Lyndon B. Johnson's Great Society initiatives to carry out the plan. In March of 1970, the first Medic One unit was sent out onto the streets of Seattle. For almost the first year the paramedics were accompanied by a physician. It took time for everyone to feel comfortable with the skills of the paramedics, but once that became clear, the physicians kept in contact by radio and/or phone. This process resembles that of CPR and its demedicalization and in the process, became a catalyst for the continued demedicalization of CPR. Through the use of paramedics, the knowledge of CPR moved further away from "certified" physicians and nurses only. Medic One resuscitated and admitted 61 patients to the hospital within the first year of operation.

In 1971 Cobb met Mickey Eisenberg. Cobb was Eisenberg's attending physician in the coronary care unit at Harborview Medical Center. Cobb was an advocate for the 'chain of survival' model for first response and according to Eisenberg he was the person to first involve bystanders into this model by setting up programs to teach the public how to do CPR. This model is now the national standard for emergency response to heart

attacks. "Eisenberg estimated that Seattle's Medic One and its related programs have saved more than 3,000 people" (Ramsey, 2003, para. 14).

Mickey Eisenberg

Eisenberg is one person who plays a major advocate role in CPR today. He has taught and studied CPR for 30 years and according to his own website through the University of Washington on CPR, "he is actively involved in using innovative means (such as this web page) to teach CPR to as many people as possible" (Eisenberg, 2006, para. 1). He was an intern under Leonard Cobb in 1971, while he was getting his MD.

One can tell that Eisenberg is an advocate for CPR by browsing his website, even the title says it all, "Learn CPR, You Can Do It!" While the website is a free public service provided by the University of Washington School of Medicine, it is run by Eisenberg (2006). There is an "Ask the Doctor" link and he is the doctor; this is just one of the many CPR resources offered. It has detailed guides illustrating how to do the various types of CPR (infant, adult, children, dogs, & cats) as well as a pocket guide that can be printed out and carried around. He includes video demonstrations of all of them. The website also has "Fun Facts," a link that has other links, FAQs, a quiz, and CPR history. He pleads of the web surfer not only to use his website for information but to "Please try to attend a CPR training course in your community and help save a life" (para. 6). Eisenberg was quoted in an article by the Dean of Medicine at the University of Washington as having said of the first people saved by Cobb's, Medic One, "These are lives that were quite literally snatched from the jaws of death" (Ramsey, 2003, para. 15). Through his efforts and accomplishments he has become quite well known.

Mark DeBard

In addition to Eisenberg, I relied on several other authors' histories of CPR; Mark DeBard is one of them. In 1980 he wrote a 2-page article in the *Annals of Emergency Medicine* on the history of cardiopulmonary resuscitation and has spent his time since then being heads of councils and boards. There is no evidence in DeBard's history that his involvement in CPR went beyond the one article, either before or after its publication. On the Ohio State University's faculty webpage, where there is a brief on the life of DeBard, his "interests" involve being a council speaker and serving on the Board of Directors.

Joseph Ornato & Mary Ann Pebardy

There are two more professors of medicine that helped inform this history of CPR, Joseph P. Ornato, a professor and chairman of the Department of Emergency Medicine at Virginia Commonwealth University (VCU) Medical Center and Mary Ann Peberdy, an associate professor at VCU in the Department of Internal Medicine. Ornato and Peberdy edited a book that was part of the "Contemporary Cardiology Series" called, *Cardiopulmonary Resuscitation,* published by Humana Press in New Jersey. This book focuses on the latest therapies and techniques for rescuing persons in cardiac arrest. The authors who have contributed to the book give information for the expert resuscitator instead of the lay resuscitator. Ethical issues dealing with the routine, hospital use of resuscitation on children and adults is also dealt with. Mary Ann Peberdy and Joseph Ornato were enlisted by the International Liaison Committee on Resuscitation (ILCOR) to provide scientific evidence-based reviews on 22 topics related to cardiopulmonary resuscitation (CPR) and emergency cardiac care (ECC). These topics range from

important questions concerning acid-base treatment during cardiac arrest to issues of post-resuscitation care (VCU, VCURES, 2004, para. 1).

Most of Ornato's more recent work focuses on the use of Automatic External Defibrillators (AEDs) and it's dissemination to the public. He said of a study on the dissemination of AEDs to the public, which he presented on behalf of the National Heart, Blood, and Lung Institute in Orlando, FL in 2003,

> This study was a major frontier to cross. We now have the results of the world's largest test of public access defibrillation. We trained almost 20,000 volunteers. They did an incredible job and there were no major injuries or serious safety issues. (National Heart, Lung, Blood Institute, 2003, para. 8)

Public access to AEDs is, like public access to CPR once was; slowly catching on by health professionals as a procedure that could be performed by lay people. The history of AEDs is exhibiting similar patterns to CPR in that the knowledge of the procedure is being handed down through the ranks of expertise. If Ornato is promoting public use of defibrillators, then it can be assumed he is also an advocate for CPR. The study referred to by Ornato mentions the combined effect (increase in survival of cardiac arrest) of CPR and AEDs (Ornato, et. al., 2003). Since at least 1995 Ornato has been writing articles and reports with other authors as well as for the AHA on public access to AEDs. He is a major advocate for the public having access and training in this procedure.

Pebardy also has an emphasis in her more recent writings on public access to AEDs, which would lead one to believe that she too would advocate for lay knowledge and use of CPR as well. Most recently she presented at the Annual Practical Critical Care conference (2006) on *Cardiac Arrest: The First 3 Days*. According to Time's

online magazine, "Last year [Mary Ann] Peberdy saw to it that all five buildings at her medical school were provided with defibrillators and teams of nurses trained to use them. The cost: about a nickel per paying patient" (Kluger & Lemonick, 1997, para. 7). Peberdy and Ornato are making a career from their research and advocacy of defibrillation.

From this lineup it is evident that many actors and organizations contributed to the development and demedicalization of CPR. I have focused here on the most influential; this leaves out pockets of people and small organizations whose impact is important, but does not stand out amongst the others. Not only did it take many people and their affiliations to develop and demedicalize CPR, but it also took many years. This was a process that did not happen overnight. The next chapter explores in more detail and speculates how demedicalization occurred in CPR.

# CHAPTER V

# DISCUSSION AND CONCLUSION

In the previous chapter, I described the process of how CPR was medicalized and demedicalized. In this chapter, I attempt to understand why both processes happened.

## Development and Medicalization Process: Key Actors and Characteristics

In current sociological literature, medicalization is often used in a derogatory manner; here, I am stating it as a given. Before CPR can be demedicalized, it must first be "made medical." There are many different avenues that led to CPR reaching an official and medically professional level of medicalization.

### Military and Funding

It is not a new phenomenon that the military is often the driving force behind a majority of scientific and medical research. There have been many times throughout American history, continuing to this day, where the military has been the main source of funding for research. For example, in 1945, Vannevar Bush advised the president after World War II:

> There must be more-and more adequate-military research in peacetime. It is essential that the civilian scientists continue in peacetime some portion of those contributions to national security which they have made so effectively during war. (p. 6)

It has been a normative practice, especially in new technology, to have funding from the military to do research. "The decisive contribution of scientists to these war efforts implied a dramatic turn in the role for science and technology in future military affairs" (Smit, 1995, p.598). Science has witnessed growth in particular areas because of

the initiative of the military and where it funnels money.

This is true of respiration research that led to CPR. For better or worse, this has caused a skewed development of science (Smit, 1995). "Medicine itself, that most humane of all technologies, owes almost as much to war as it does to peace" (Ziman, 1976, p.303).

An interesting key characteristic of several of the researchers (Dill, Safar, Elam, Gordon) involved with development of CPR is their involvement with the military. The interest in resuscitation stemmed from a need to protect military personnel against nerve gas attacks; not to protect all people – military and civilian – against death by cardiac arrest as is often done today.

The beginning research on what would eventually become CPR came out of military funding through the U.S. Army Chemical Research and Development Laboratory with the scientific director, David Dill, assigned to oversee the laboratories, and, thus, research on resuscitation techniques by the Medical Corps Officer who was assigned by the Army's Surgeon General. All of this is to say that the chain from the top of the medical military ladder down to the key actors in resuscitation is not long; this means that the "top-dog" medical military authorities backed the decision to research resuscitation. With support from such high ranked officers, it is easy to see how the resuscitation side of CPR was medicalized. There are military officers who are only involved in and assigned to medical tasks, what I am calling, "medical military." These could range from Army nurses and doctors on the field to officers in charge of medical research on the home front to the Surgeon General who has warning labels put on dangerous products (i.e. cigarettes) in the name of his or her title. To have the financial backing and general

support of a large, well-known, mostly-trusted institution such as the military/government is what helps increase the odds that research, especially medical, will be accepted as mainstream and medically authoritative.

As with most research, if there is slim to no funding to support the project, then there is less of a chance that the findings will be conducted, published, and disseminated. In the same vein, because there was such an emphasis on resuscitation, it only makes sense that other research, by default, was not pursued.

> Idealistically, the source of funding should not be important; clearly, the quality of the research should be of prime importance. However, there are advantages and disadvantages to all funding sources...While government funds should be free of commercial conflicts they tend to target specific areas, sometimes for good reason (e.g. HIV, bioterriorism). Institutional and departmental funded research does not bring outside funding and, therefore, is not viewed with the same enthusiasm as new funding sources from the outside. (Miller, 2002, p.363)

This happens in all grant-funded research across all disciplines. What is researched and how it is researched is often affected by the funding source. There is an expectation to "delight your donors" even in resuscitation research (Thompson, et al., 1996). Without initial funding from a prestigious and grounded entity as the military, it is possible that CPR would not have been discovered when it did and/or demedicalized at all.

A good example is the way the profession of cardiology operated within the medical community, which began to change after World War II. The United States federal government initiated "an ambitious campaign" to fund this research and build up the area of academic medicine (Fye, 1996). This was also a time when many grants were

being awarded to medical schools, teaching hospitals, and research institutes; money helps to perpetuate innovative research. In 1949, nearly $11 million in grants was awarded. University cardiology departments grew with a similar intensity. In 1952 and 1953 the director of the National Heart Institute (NHI) went before Senators and the Congress with hopes of convincing them to appropriate more money to train heart specialists and increase programs across the nation. The speaker said, "Heart disease enacts an enormous economic cost in medical and institutional care, in *military manpower*, and in industrial production" (Fye, 1996, p.160; emphasis added).

Outsiders

It was David Bruce Dill's job to seek out the most qualified investigators for each project (Fenn, 1963). In doing this he found physician-researchers who were the best in their fields to come together and "attack" this resuscitation problem. Among them were two anesthesiologists, Peter Safar and James Elam and one physiologist, Archer Gordon. While these men were perfecting resuscitation methods, William Kouwenhoven, Guy Knickerbocker, and James Jude were perfecting the chest compression technique. Kouwenhoven and Knickerbocker were both electrical engineers by training and Jude was a surgeon. These innovators were medically trained individuals who, because of their official medical status, medicalized CPR. What is most interesting here is the fact that none of these men were cardiologists by training, and two were not even physicians. Jude was the closest exception; he became an assistant resident of cardiac surgery.

Despite the fact that these men were not cardiologists per se, they are still working under the esteemed professionalized career of physician or medical doctor/researcher (most of them to some extent or another). This allows, using Conrad's

(1992) framework, for medicalization at the interactional level. Thus, indicating that physicians were directly involved in researching the procedure as well as mandated as the only ones who could perform the procedure.

Organizations

Organizations did not assist in the development of CPR in the same way the physicians did; however, they still assisted in its medicalization and, slowly, in its demedicalization. The American Heart Association assisted in the medicalization of CPR by officially forming a committee on resuscitation after 1965, whose express purpose was to establish guidelines for performing the procedure – they established medical rules. Other organizations also became involved in the regulating of early techniques and CPR standards; the American Red Cross officially accepted mouth-to-mouth breathing in 1958.

When a historical process, behavior or procedure is backed by a medical authority and the official rules of that institution, the process of medicalization can happen more readily. Homosexuality, mentioned in the theory chapter, is a good example of this. It was "officially" labeled a mental illness according to the rules and definitions set up by the official mental health manual, the DSM, and it was an important indicator that it had become medicalized. This step in the medicalization of homosexuality also made it more difficult for demedicalization to occur.

In this instance CPR had become conceptually medicalized because the vocabulary that had been published was in medical terms. Also, because organizations were involved and used a medical approach with physicians as the gatekeepers, CPR was medicalized at the institutional level. This too can be seen in the military involvement in

CPR. More removed from the situation than medical organizations, the military still took a medical (research) approach and used physicians to carry it out.

Individual Actors

Of the men mentioned here, Peter Safar appears to have had the most impact on CPR. Also, his interests in CPR have a different meaning than all of the other developers of CPR. He was driven to be interested in resuscitation partly because he was recruited by Dill and, more uniquely, because his daughter suffered and in 1966 died from a severe asthma attack. He could not revive her and began to devote his life into making sure others could revive their loved ones – could prevent their loved ones from dying. Before his death, he was doing research on cardiopulmonary cerebral resuscitation (CPCR), that could have prevented his daughter from dying had it been discovered in 1966.

Several, if not all, of the "father's of CPR" also became involved with CPR either by accident through other research and/or to assist them in furthering the research they had already undertaken elsewhere. For instance, James Elam, unlike Safar did not initially have an emotional force to push him into resuscitation research. Elam required the use of a new resuscitation technique further his research on a $CO_2$ absorption system. This peaked his curiosity about how one could use a machine to mimic human respiration and soon his research interest turned to respiration and working with a close colleague. Jude is another example of someone who accidentally came upon a technique that led to CPR. He worked on his hypothermia research in the same building, a floor below Kouwenhoven and Knickerbocker; this is how he first met the two men and found that they were doing electricity research. In researching hypothermia, he realized that he needed to find a way to defibrillate people. It was at this time that Kouwenhoven

instructed Knickerbocker to help Jude with his work.

## Process of Demedicalization: Key Actors and Characteristics

### Altruism

Some key actors appear to believe strongly in the concept of fighting off death with CPR. As physicians, that is one's call in life – to heal and to save – according to the definition. It is the job of a physician to be trained in the art of healing. The ultimate type of healing would be saving a life. To heal someone is to prevent them from being in the clutches of death; death being the so-called greatest failure a physician could experience. The language of CPR is used in these terms, on has "failed" when a patient is not revived. When one takes part in creating and advocating for a procedure that claims to be, at every possible moment, saving lives, then one is achieving the ultimate goal of ones life. It would seem that everyone in the medical field would aspire to create a vaccine, procedure, surgery, or antibiotic that saves lives.

When as many people as possible are trained to save lives – more lives will inevitably be saved. This appears to be the crux of why the actors became involved in the demedicalization of CPR. Safar began this process before the dawning of the official title, CPR; he experimentally taught firefighters, boy scouts, and other professionals mouth-to-mouth resuscitation (at that time, ventilation). This was the beginning of the *process* of demedicalization. Referring back to Conrad's level framework, we can determine that at this point in history, demedicalization had not occurred at any of the three levels (conceptual, institutional, or interactional) because the language is still medical, major institutions still use a medical approach with physicians as gatekeepers, and the standard is for physicians to perform mouth-to-mouth resuscitation. This

moment in time lies along the continuum of demedicalization, but does not reach any of the three defining catapults that would project CPR into a fuller demedicalization.

A step taken toward an official demedicalization included Safar and one of the fire chiefs who participated in his human experiments. They started by deprofessionalizing the staff required to attend to emergency situations by creating an ambulance and staffing them with emergency medical technicians. Physicians were no longer necessary for this step in the "chain of survival." The ambulance became a tool that allowed demedicalization. Safar created another tool that would further project CPR's demedicalization – the Resuci-Anne doll. This mannequin could be used to teach anyone how to perform CPR. Initially, it was used to train medical professionals, but, contemporarily the mannequin is also used to train lay people.

Safar's colleague, Elam, also assisted in this process. He helped Safar with his work and for the New York Health State Commissioner developed an instructional booklet for rescue breathing (mouth-to-mouth resuscitation). In addition he produced instructional films along the same lines. As CPR edges toward a fuller demedicalization, we can see a move toward conceptual demedicalization with the production of instructional booklets for the public. At the language level, resuscitation is being demedicalized before it has even become CPR. Only after this level of demedicalization was affected, did organizations help CPR reach another level.

Following Traditional Routes

It is evident that the routes taken to develop and demedicalize CPR were traditional ones: research, conferences, publications, organizations, and committees. The involvement of organizations was one of the last steps (and levels) in the process of

demedicalization and when it occurred, it gave the public a sense that CPR could be performed by anyone; it gave a sense that it was "official." The link that tied organizations into the process of demedicalization was the conference held and sponsored by the early physicians in 1975, the "Wolf Creek Conference." This was a conference that physicians put together to specifically work on how to demedicalize CPR. However, they did not use the term demedicalization, in the publication of the conference edited by Peter Safar; they used phrases such as, "teaching of CPR to the majority of the population" and "disseminating knowledge and skills" (Safar, 1975, p.240-241). The discussions that came out of this conference were then published as a book. This appears to have been a springboard for influential organizations to become involved.

The regulatory organizations, such as the AHA, the AMA, the American Red Cross etc., played a significant part in the demedicalization of CPR; however instead of spearheading the effort they followed suit only after the key actors had done a sufficient amount of research and with that, convincing. As with many influential organizations such as these, they play a conservative role in policy change and tend to follow movements instead of starting them. For example, a link has been found between large cigarette industries and their slow involvement in policymaking (Troyer & Markle, 1983). It is the involvement of large organizations that allows for demedicalization at the institutional level. When organizations do finally allow and officially proclaim in regulatory documents that physicians are not required as gatekeepers for the performance of CPR – a "medical approach" is not needed at the time of cardiac arrest. On a practical level, had these organizations not given their approval of the demedicalization of CPR, then the same amount of resources to educate lay people might not have been available.

At the same time, without the motivation of the physicians, the organizations, more than likely would not have gotten involved with the demedicalization of CPR.

After the organizations officially approved the concept that CPR could be applied by lay people and mass trainings were held, more physicians began to jump on the bandwagon and continue the process of demedicalization. Eisenberg, Pebardy, and Ornato, just to name a few, continue to advocate that everyone be educated in CPR techniques. This reinforced the demedicalization of CPR and did not allow room for a remedicalization as happened in the history of addiction. These physicians have dedicated their careers to studying CPR claiming that it was and for some still is, on the behalf of altruism. Demedicalization of CPR continues to increase with the increase in technology and the new ways of communicating to "ordinary" people. Eisenberg's website, "Learn CPR, You Can Do It!" is evidence of that.

## Implications

It is important to return to the theoretical underpinnings on which this discussion is based since one purpose of this project is to shed light on the theory of demedicalization. The first issue that must be addressed is Conrad's notion of deprofessionalization often being confused with demedicalization. For CPR to be demedicalized an element of deprofessionalization had to take place. This case is probably one of the strongest examples of the two concepts being so intertwined. CPR deprofessionalized through the ranks of medical professionals, but it was not until *medical professionals were not needed in order for the public to perform CPR that* demedicalization occurred. Until that point it was only a process of deprofessionalization.

We can see demedicalization on a partially conceptual level, an organizational

level, and an interactional level. Conceptually, the CPR training given to lay people is sometimes a mixture of medical and lay vocabulary; although it leans more toward the language of the "ordinary" person. The language used for education is basic – the main tools given are the ABC's of CPR; however, lay people also use the terms chest compressions and mouth-to-mouth resuscitation just as medical professionals do. The vocabulary used to teach CPR no longer presents itself in typical medically hierarchical fashion. Jargon is mostly eliminated in such a way that people with many different educational backgrounds can comprehend the language. To the extent that more expertise and technology is available, physicians, nurses, and paramedics use more "advanced" techniques to resuscitate.

On an institutional level, it has taken the physician as gatekeeper to advocate for and agree to having lay people "save lives" through CPR education. Without this level of *medicalization*, lay people might not have been given such authority. This falls in line with the notion that medicalization has to happen before demedicalization can occur; at least it suggests that this could be the case with procedures. Physicians and associations, such as the AMA and AHA, used their gatekeeper status to give up authority and allow demedicalization to take place. Once barriers originally put up by these regulatory organizations were removed, then lay people could take it upon themselves to participate in the saving of lives (at least those that could afford it).

Finally, on an interactional level we see demedicalization happening in the development of CPR; here it is most obvious. In the dawning of CPR as an official procedure, a cardiologist had to be called in to perform it. Over time this authority was transferred down the ranks of medical professionals (surgeons, nurses, paramedics, etc.)

until demedicalization began happening in the aforementioned levels and a group of physicians began advocating for the education of lay people. A medical professional was no longer required to perform the procedure, which rounds out the evidence that a complete demedicalization had occurred.

Another aspect of demedicalization found in the cases mentioned previously (homosexuality and women's health), is the formation of a social movement. The evolution of CPR doesn't include the same type of social movement as the previous examples. The question is whether or not a social movement actually took place within CPR. One could say that homosexuality and women's health went through a process of demedicalization with the help of social movements of the people (general public), while CPR experienced demedicalization through a social movement of the elite (physicians). There were many influential physicians involved in the creation and/or furtherance of CPR as a technique, as well as advocated for all people to be educated in the procedure. In this case, the motivation did not stem from a feeling of discrimination or oppression as it did with the others. Another difference between the two types of movements (besides the motivation for the movements) is the amount of people involved and the level of media attention in each.

This is important because it helps flesh out what it means for a historical process, behavior or procedure to be demedicalized. A social movement was not necessary for demedicalization to occur in CPR. One can assume that this was due to the fact that CPR met all of Conrad's criteria for demedicalization, whereas the other two cases did not. Under this assumption, therefore, homosexuality and women's health required another step – a social movement. More cases need to be examined using Conrad's framework in

order to make a definitive statement as to whether or not a social movement is needed for demedicalization to occur.

## Future Research

I would like to explore in more depth the history and the present state of demedicalization in CPR. Since several advocates of CPR mentioned here are still alive, it would behoove the researcher to contact and interview them in order to study their claims and views of the history of CPR, which might differ somewhat from the history and published works medical sociologists and others have written about CPR. Similarly, obtaining more direct information by contacting the organizations involved; having direct memos from the time period, for example, would greatly enhance the findings.

Many historians advise going directly to the source if at all possible (Marius and Page, 2002). Additionally, more depth could be given to the analysis of demedicalization by interviewing people who are currently being trained in CPR and how they are being trained (i.e. what language, tools, and techniques are being used). This has the possibility of shedding a more direct light on the consequence of demedicalization in the 1970's.

Another avenue might be to do a content or discourse analysis of the materials used in the 1960's and 1970's to get a fuller, more direct, picture of the process of demedicalization that was occurring at the time. A similar analysis could be done of current CPR websites in order to learn more about the consequences of this demedicalization for the present. The research done in this paper has opened doors and pointed the way for further research on the topic. Without this current piece the directions that should now be taken in the area of demedicalization of CPR would not be as evident.

This research has also spurred interests less directly related only to the demedicalization of CPR as a case study. In the future I would like to examine how the demedicalization of CPR has affected American society's view of death and how it has influenced, and been influenced by, the medicalization of death.

The fact that anyone can know and/or perform CPR has become relatively common. We assume that the correct response to a cardiac arrest or any other near death experience is to perform CPR in order to prevent death before medical personnel arrives. This contributes to the medicalization of death; death is treated like an illness to avoid instead of a part of life. If CPR does not save a life, it is considered a failure, which means that death is failure (at least in the medical field). This medical field concept has blended into everyday life and is generally accepted by the public. According to Stefan Timmerman (1999),

> Western societies at the turn of the twenty-first century have turned away from personal, community-centered dying and embarked instead on an elusive search for the postponement of death…With resuscitation protocols spelling out the script during the last moments, death becomes the wrong outcome…The dying process remains invisible, and the customary phrase, "We did everything we could, but. . . ." once again underscores that death should not have occurred. A society that builds and supports an extensive resuscitative system opts for aggressive intervention, death defiance, and medicalization of the dying process (p. 6).

This would also be an important avenue from which to continue this work because most views of demedicalization have been positive and have resulted in positive

outcomes, whereas medicalization has often been viewed to result in negative outcomes. Examining the demedicalization of CPR's effects on the medicalization of death has potential to further expand the theory and what it means for demedicalization to occur in our society.

Similarly, it would be worthwhile to compare more extensively different case studies of demedicalization to get an even deeper understanding about how this happens and why. Among the cases included in such a study, besides CPR, should be a case study of Automated External Defibrillators (AEDs). AEDs, a tool used in a procedure to revive people from death, appear to be following the same path of demedicalization as CPR. It would be especially poignant to compare these two case studies because one of them is situated in the sixties and the other in the present-day.

Another possible way to expound on the demedicalization of CPR would be to look further into what it means for the key actors involved to have an altruistic motivation. Most of what is researched in sociology involves looking for the loophole, what needs to change about a society, or shedding light on an injustice. None of those sociological findings are invalid or "wrong;" they often leave out room for the positive happenings in our society – the positive consequences of group behavior. Altruism is not often the thesis of sociological literature, so to explore the altruistic behavior of the people involved in saving lives through CPR could expand what sociology in general, medical sociology in particular, is capable of teaching us about American society.

## Conclusion

The phenomenon of demedicalization has generally been overlooked in medical sociology and for good reason. American society, since the early 20th century has seen an

enormous surge of medicalization as physicians (and their professionalization) have taken the place of religious leaders/healers and folk ("quack") remedies. Demedicalization seems to be happening in rare cases and as discussed using Conrad's (1992) framework, at different levels, on a continuum with medicalization. If demedicalization does not occur at all three levels (conceptual, institutional, and interactional) then there is a constant possibility for remedicalization to occur. We can speculate that as long as medicine and its practitioners are the only answers to a large portion of ailments and problems, there will be sparse examples and case studies of demedicalization.

The fact that this case is an example of demedicalization on all levels greatly increases our knowledge of the phenomenon. CPR gives proof that Conrad's framework is relevant as a tool for understanding this process, and affirms that if all levels are met there is less chance for remedicalization. If demedicalization is to become a legitimate alternative in our examination of medicine and, if our society is to see progress away from medicalization, then we should be searching out cases, such as CPR, in order to more fully illuminate this phenomenon.

REFERENCES

American Heart Association, American Red Cross, & Industrial Medical Association. (1962). Editorial: The closed chest method of cardiopulmonary resuscitation benefits and hazards. *Circulation, 26,* 324.

American Heart Association, American Red Cross, Industrial Medical Association, & United States Public Health Service. (1965). Editorial: The closed-chest method of cardiopulmonary resuscitation-revised statement. *Circulation, 31,* 641-643.

American Heart Association, Inc. (2005a). *EMS.* Retrieved from http://www. americanheart. org/presenter.jhtml?identifier=3011796.

American Heart Association, Inc. (2005b). *History of CPR.* Retrieved from http://www.americanheart.org/presenter.jhtml? identifier=3012990.

American Heart Association, Inc. (2005c). *History of the american heart association.* Retrieved from http://www.americanheart.org/presenter. jhtml?identifier=10860.

American Heart Association, Inc. (2005d). *Mission of the american heart association.* Retrieved from http://www.americanheart.org/ presenter. jhtml?identifier=10858.

American Medical Association. (2006). *AMA mission.* Retrieved from http://www.ama-assn.org/ama/pub/category/1815.html.

American Red Cross. (2004). *Press room: American red cross and american heart association emphasize CPR training; CPR with rescue breathing and chest compressions benefits victims.* Retrieved from http:// www.

redcross.org/pressrelease/0,1077,0_489_2386,00.html.

American Red Cross. (2006). *New technologies help serve Americans at home.* Retrieved from http://www.redcross.org/museum/history/60-79_b.asp.

Beaudouin, D. (2002). Reviving the body electric. [Electronic Version]. *Johns Hopkins Engineer, Fall,* 27-32. Retrieved from http://engineering.jhu.edu/include/content/pdf/engmag02/27_32.pdf.

Boston Women's Health Collective. (1976). *Our bodies, ourselves: A book by and for women.* New York: Simon & Schuster.

Burawoy, M., Burton, A., Ferguson, A., & Fox, K. (1991). *Ethnography unbound: power and resistance in the modern metropolis.* Berkeley, CA: University of California.

Bush, V. (1945). *Science: The endless frontier* (Charter document for the U.S. National Science Foundation). Washington, D.C.: Government Printing Office. (Reprinted in 1960 & 1980).

Carlson, R. (1975). *The end of medicine*. New York: John Wiley.

Cavagnaro, L. & Kiviat, B. (2000). Simply CPR. *Johns Hopkins Magazine*. Retrieved from http://www.jhu.edu/~jhumag/0400web/12.html.

Conrad, P. (1975). The discovery of hyperkinesis: Notes on the medicalization of deviant behavior. *Social Problems, 23 (1),* 12-21.

Conrad, P. (1992). Medicalization and social control. *Annual Review of Sociology, 18,* 209-232.

Conrad, P. (2005). The shifting engines of medicalization. *Journal of Health and*

*Social Behavior, 46,* 3-14.

Conrad, P. & Schneider, J. (1980). *Deviance and medicalization: From badness to sickness.* St. Louis: The C.V. Mosby Company.

CPR-ECC. (1973). Standards for cardiopulmonary resuscitation and emergency cardiac care. *Journal of the American Medical Association, 227(7),* 836–68.

Cummins, R. (1995). CPR and ventricular fibrillation: Lasts longer, ends better. *Annals of Emergency Medicine, 25,* 833–836.

Cummins, Ornato, Thies, and others. (1991). Improving survival from sudden Cardiac arrest: The "chain of survival" concept. *Circulation, 83(5),* 1832-1847.

DeBard, M. (1980). The history of cardiopulmonary resuscitation. *Annals of Emergency Medicine, 156,* 273-275.

Denzin, N. (1989). *The research act.* Englewood Cliffs, N.J.: Prentice-Hall.

Dill, D. & Gordon, A. (1980). Background on manual artificial respiration and mouth-to-mouth. Addendum: Background of cardiopulmonary resuscitation. Resuscitation. [Electronic version]. *The American Physiological Society*, 3, 33-37. Retrieved from http://www.the-aps.org/publications/tphys/legacy/1980/issue3/33.pdf).

Eisenberg, M. (1997). *Life in the balance; Emergency medicine and the quest to reverse sudden death.* New York, NY: Oxford University Press.

Eisenberg, M. (2006). *Learn CPR, you can do it!* University of Washington.

Retrieved from http://depts.washington.edu/learncpr/index.html.

Elam, J., Brown, E., & Janney, C. (1956). Ventilator. *Anesthesiology, 17,* 504-513.

Esterberg, K. (2002). *Qualitative methods in social research.* Boston: McGraw-Hill.

Fabe, M. & Wikler, N. (1979). *Up against the clock: Career women speak on the choice to have children.* New York: Random House.

Feagin, J., Orum, A., & Sjoberg, G. (1991). *A case for the case study.* Chapel Hill: The University of North Carolina Press.

Fenn, W. (1963). *History of the American physiological society: The third quarter century, 1937-1962.* Washington: American Physiological Society.

Fox, Renee. (1977). The medicalization and demedicalization of American society. *Proceedings of the American Academy of Arts and Sciences (Daedalus), 106,* 9-22.

Fox, Renee. (1988). *Essays in medical sociology.* New Brunswick: Transaction Books.

Freidson, E. (1988). Profession of medicine: A study of the sociology of applied knowledge. Chicago: The University of Chicago Press.

Fye, W. (1996). *American cardiology: The history of a specialty and its college.* Baltimore: Johns Hopkins University Press.

Glaser, B. & Strauss, A. (1967). *The discovery of grounded theory: Strategies for qualitative research.* Chicago, IL: Aldine.

Golden, J. (1999). An argument that goes back to the womb: The

demedicalization of fetal alcohol syndrome, 1973-1992. [Electronic Version]. *Journal of Social History, 33.2,* 269. Retrieved from http://find.galegroup.com.libproxy.library.wmich. edu/itx/ infomark.do?&contentSet=IAC-Documents&type=retrieve&tabID= T002&prodId= EAIM&docId=A58675447&source= gale&srcprod=EAIM&userGroupName=lom_wmichu&version=1.0.

Harding, S. (1998). *Is science multicultural? Postcolonialisms, feminisms, and epistemologies*. Bloomington, IN: Indiana University Press.

Illich, Ivan. (1982). *Medical nemesis*. New York: Pantheon Books.

Jude, J. (2003). Personal reminiscences of the origin and history of cardiopulmonary resuscitation (CPR). *The American Journal of Cardiology, 92,* 956-963.

Jude, J., Kouwenhoven, W., & Knickerbocker, G. (1961). A new approach to cardiac resuscitation. [Electronic Version]. *Annals of Surgery, 154(3),* 311-317. Retrieved from http://www.pubmedcentral.nih.gov/ articlerender.fcgi?artid= 1465907.

Kluger, J. & Lemonick, M. (1997). Matters of the heart: A gathering of cardiovascular experts yields new and surprising information about the body's most important muscle. [Electronic Version]. *TIME Magazine*. Retrieved from http://www.time.com/time/magazine/article/ 0,9171,987410,00.html?internalid=ACA.

Kouwenhoven, W., Jude, J., & Knickerbocker, G. (1960). Closed chest cardiac massage. *JAMA, 173,* 1064-1067.

Lowenberg, J. & Davis, F. (1994). Beyond medicalisation-demedicalisation: The case of holistic health. *Sociology of Health and Illness, 16,* 579-599.

Markle, G. & McCrea, F. (forthcoming). *A thought experiment on the disappearance of medicine.* Albany, NY: State University of New York Press.

Marius, R. & Page, M. (2002). *A short guide to writing about history.* New York: Longman.

Miller, R. (2002). The place of research and the role of academic anaesthetists in anaesthesetic departments. *Best Practice and Research Clinical Anaesthesiology, 16,* 353-370.

National Research Council-NAC. (1966). *Cardiopulmonary Resuscitation Conference Proceedings.*

Navarro, V. (1986). *Crisis, health, and medicine.* New York, NY: Tavistock Publications.

National Heart, Lung, Blood Institute. (2003). Public access defibrillation by trained community volunteers increases survival for victims of cardiac arrest. [Electronic Version]. *NIH News*. Retrieved from http://www.nih. gov/ news/pr/nov2003/nhlbi-11.htm.

Nichols, M. (1998). Critical lessons for life. *Maclean's, 111,* 63-64.

Ornato, J., McBurnie, M., Nichol, G., Salive, M., Weisfeldt, M., Riegel, B., Christenson, J., Terndrup, T., & Daya, M. (2003). The public access defibrillation (PAD) trial: study design and rationale. *Resuscitation, 56 (2),* 135-147.

Ornato, J. & Peberdy, M. (Eds.). (2004). *Contemporary cardiology: cardiopulmonary resuscitation*. Totowa, NJ: Humana Press Inc.

Physician. (n.d.). *Dictionary.com unabridged (v 1.1)*. Retrieved from http://dictionary.reference.com/browse/physician.

Ragin, C. (1992). Introduction: Cases of "What is a case?" In Ragin, C. & Becker, H. (Eds.), *What is a case? Exploring foundations of social inquiry* (pp.121- 138). Cambridge: Cambridge University Press.

Ramsey, P. (2003). *Dean's report 2003: Clinical leadership.* Retrieved from http://depts.washington.edu/drrpt/2003/stories/clinicleadership/ seattle.html.

Safar, P. (1958). Ventilatory efficacy of mouth-to-mouth artificial respiration: Airway obstruction during manual and mouth-to-mouth artificial respiration. *Journal of the American Medical Association, 167,* 335-341.

Safar, P. (Ed.). (1975). *Advances in cardiopulmonary resuscitation.* New York: Springer-Verlag.

Safar, P. (2001). From control of airway and breathing to cardiopulmonary-Cerebral resuscitation. *Anesthesiology, 95,* 789-791.

Sakala, C. (1993). Medically unnecessary Cesarean section births: Introduction to a symposium. *Social Science and Medicine, 37,* 1177-1198.

Sands, R. (1999). James Otis Elam, M.D.: Respiratory researcher (1918- 1995). *American Society of Anesthesiologists Newsletter, 63, 9.* Retrieved from http://www.asahq.org/Newsletters/ 1999/09_99/elam0999. html.

Smit, W. (1995). Science, technology, and the military. In Jasanoff, S., Markle, G., Petersen, J. & Pinch, T. (Eds.). *Handbook of science and technology*

*studies.* (pp.598-626). Thousand Oaks, CA: Sage Publications.

Southwestern College: Community Training Center. (2007). *Student resources: History of CPR.* Retrieved from http://www.swc.cc.ca.us/~kjacobs/backround.html.

Srikameswaran, A. (2002). Lifestyle: Dr. Peter Safar: A life devoted to cheating death. *The Post-Gazette.* Retrieved from http://www.post-gazette.com/lifestyle/20020331safar0331fnp2.asp.

Srikameswaran, A. (2003). Obituary: Dr. Peter Safar/Renowned Pitt physician called 'father of CPR.' *The Post-Gazette.* Retrieved from http://www.post-gazette.com/obituaries/20030805safar0805p1.asp

Stake, R. (2000). Case studies. In N.K. Denzin & Y.S. Lincoln, (Eds.), *Handbook of qualitative research* (pp. 435-454). Thousand Oaks, CA: Sage Publications, Inc.

Starr, P. (1982). *The social transformation of American medicine*. New York, NY: Basic Books.

Thompson, W.; Bellamy, R., Cummins, R., Delooz, H., Dick, W., Kochanek, P., Ornato,J., Ricci, E., Weil, M. & Winter, P. (1996). Funding resuscitation research. *Critical Care Medicine, 24(2),* 90-94.

Tiefer, L. (2006). *The viagra phenomenon.* Thousand Oaks: Sage Publications.

Timmerman, S. (1999). *Sudden death and the myth of CPR.* [Electronic Version]. Philadelphia: Temple University.

Troyer, R. & Markle, G. (1983). *Cigarettes, the battle over smoking.* New Brunswick: Rutgers University Press.

U.S. Army Chemical Corps. (1956). *Summary of Major Events and Problems.* Retrieved from http://www.thememoryhole.org/mil/chem-corps/summary_1956.htm.

Virginia Commonwealth University, VCURES. (2004). *VCURES assist American Heart Association and International Liaison Committee on Resuscitation in developing cardiopulmonary resuscitation and emergency cardiovascular treatment guidelines.* Retrieved from http://www.vcu.edu/vcures/news/news_05_aha_ilc_cpr.htm.

Walker, B. (Ed.). (1999). Alumni news. [Electronic Version]. *Johns Hopkins Magazine.* Retrieved from http://www.jhu.edu/~jhumag/0699web/alumnews.html.

Walton, J. (1992). Making the theoretical case. In Ragin, C. & Becker, H, (Eds.), *What is a case? Exploring foundations of social inquiry* (pp.121- 138). Cambridge: Cambridge University Press.

Weil Institute of Critical Care Medicine. (2005). *History of Wolf Creek.* Retrieved from http://www.weiliccm.org/education/Wolfcreek.html.

Weitz, R. & Sullivan, D. (1985). Licensed lay midwifery and the medical model of childbirth. *Sociology of Health and Illness, 7,* 36-55.

Wieviorka, M. (1992). Case studies: History or sociology? In Ragin, C. & Becker, H. (Eds.), *What is a case? Exploring foundations of social inquiry* (pp.121- 138). Cambridge: Cambridge University Press.

Wikler, D. & Wikler, N. (1991). Turkey-baster babies: The demedicalization of artificial insemination. *The Milbank Quarterly, 69,* 5-40.

Worthington, J. (1998). The engineer who could. *Hopkins Medical News.* Retrieved from: http://www.hopkinsmedicine.org/hmn/W98/feature.html.

Ziman, J. (1976). *The force of knowledge: The scientific dimension of society.* Cambridge: Cambridge University Press.

Zola, I.K. (1983). *Socio-medical inquiries: Recollections, reflections, and Reconsiderations.* Philadelphia: Temple University Press.