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## Features

# When Not to Rescue: An Ethical Analysis of Best Practices for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care

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### ABSTRACT

It is now a default obligation to provide cardiopulmonary resuscitation (CPR), in the absence of knowledge of a patient's or surrogate's wishes to the contrary. We submit that it is time to re-evaluate this position. Attempting CPR should be subject to the same scrutiny demanded of other medical interventions that involve balancing a great benefit against grievous harms.

### INTRODUCTION

Within hospitals in the United States, cardiopulmonary resuscitation (CPR) carries the unique status of being the only intervention that is automatically used unless a patient or surrogate explicitly refuses it or, uncommonly, if the treatment team determines it is contraindicated. Outside the hospital,

the response to sudden cardiac arrest is also unique: trained bystanders, if they are available, administer medical treatments while waiting for emergency medical responders to arrive. The underlying assumption governing the current approach is that everything that can be done should be done to save a person's life.

We propose fundamental changes to our response to sudden cardiac arrest. Both inside and outside the hospital, health professionals should refrain from the practice of resuscitating victims of cardiac arrest at any cost and regardless of outcome. Instead, the value of rescue should be placed in a broader context of other priorities within cardiac care. The goals of (1) helping the greatest number of people and (2) protecting the normal opportunities open to individuals—that is, capabilities and functioning that contribute to people's ability to participate in the social, political, and economic life of their society and to carry out their own plans and goals—should be the guiding ethical principles. The probability of medical success should also be a central consideration in determining whether or not to resuscitate. In disaster situations, when the need for rescue exceeds a society's capacity to respond, patients should be prioritized using triage. In every rescue attempt, our goal should be patient-centered, focusing not on physiological survival alone, but instead on an outcome in which individuals can

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benefit and can experience and appreciate their own lives.

### THE DUTY TO RESCUE VICTIMS OF SUDDEN CARDIAC ARREST

The current default position within cardiac care is to prioritize the rescue of individuals who are in immediate peril, while tolerating social disparities in risk for cardiac disease and disability. This is reflected in the *2015 American Heart Association Guidelines Update for CPR and ECC* (emergency cardiovascular care) (hereafter, the *2015 AHA Guidelines*), which state, “Without objective signs of irreversible death (for example, decapitation, rigor mortis or decomposition) and in the absence of known advance directives declining resuscitative attempts, full resuscitation should be offered.”<sup>1</sup> The *2015 AHA Guidelines* place nearly absolute weight on the value of responding to a person who is in need of one kind of medical attention. We recommend replacing the *2015 AHA Guidelines* with a set of twin guidelines that better align our response to cardiac arrest with ethical requirements and patient-centered values:

1. Give priority to preserving normal opportunities for individuals and
2. Emphasize rescuing individuals for whom there exists a reasonable probability of medical success.

We agree with those who hold that the appropriate principle of distributive justice for setting priorities within a healthcare system is a principle that protects equality of opportunity.<sup>2</sup> Preventing and treating sudden cardiac arrest (SCA) with effective healthcare services contributes to preserving the normal opportunities of individuals, as the services preserve individuals’ ability to function in society and to realize their plans and goals. Prioritizing normal opportunities leads us to reject the *2015 AHA Guidelines*, which require full resuscitation efforts in the absence of obvious signs of irreversible death. Rather than emphasizing survival alone, our approach also emphasizes safeguarding the normal opportunities of individuals. We approach obligations to victims of cardiac arrest from a social and institutional perspective that shifts the focus away from an individualistic application of beneficence toward values—such as social justice and promoting the public good—that relate to the distributional and aggregate implications of rescue. Considering distributional and aggregate implications of rescue leads us to focus attention on establishing policies and ethical guidelines for which the probability of medical success is a major factor.

### Historical and Cultural Influences

The original indications for attempting closed-chest CPR were based on the expectation that the procedure would result in a relatively healthy patient, for example, after acute myocardial infarction (MI).<sup>3</sup> The procedure is now employed for a wide variety of conditions beyond otherwise healthy patients that include permanently unconscious patients, irreversibly demented patients, and patients in the last moments of a fatal disease. CPR is attempted by nonmedical as well as medical personnel; “in the field” as well as in medically controlled environments; by trained and nontrained bystanders; in nursing homes, airports, sports arenas; and upon persons of every age and social group, from the well-conditioned school athlete to the severely impaired nursing home resident.

Lay bystanders who perform emergency CPR may be unaware of the tragic time gap of vulnerability between the cerebral cortex and brainstem;<sup>4</sup> while the cortex can sustain just four to six minutes of anoxia, the brainstem can survive 15 to 20 minutes before it is irreparably destroyed.<sup>5</sup> Witnessing the rapid arrival of emergency medical personnel only 10 minutes after calling 911, laypeople may be amazed at this astonishing feat; yet they may not realize that, for the victim and family, CPR may be the prelude to a long and agonizing trajectory of permanent unconsciousness. The victim may survive only to join the estimated 10,000 to 25,000 permanently unconscious adults and 4,000 to 10,000 permanently unconscious children housed in hospitals and nursing homes across the U.S., many of whom are victims of failed CPR.<sup>6</sup>

We recognize that because attempts at CPR are carried out in so many different settings and circumstances, outcomes are not easily measured and compared. Despite the absence of a strong empirical database, attempting CPR has become so embedded in medical practice that it is the only intervention that requires the informed consent of a patient *not* to do. It is a default obligation in the absence of knowledge of a patient’s or surrogate’s wishes to the contrary. We submit that it is time to re-evaluate this position. Attempting CPR should be subject to the same scrutiny demanded of other medical interventions, such as potentially toxic cancer chemotherapy, that involve balancing a great benefit against grievous harms.<sup>7</sup>

The psychological impulse to rescue is a strong motivating factor that drives the allocation of resources toward rescue. When an identifiable victim is at risk of death, we are inclined to respond and to attempt to save the individual. Thus, as Jonsen framed it, we “throw a rope to the drowning, rush into

the burning buildings to snatch the entrapped, dispatch teams to search for the snowbound.”<sup>8</sup> Yet this psychological impulse may or may not have ethical backing in particular situations. Among the ethical challenges created by rescue situations is that yielding to a duty to rescue in each and every case of apparent need would lead to an impossibly expensive system. At the same time, yielding only in a narrow range of cases would seem unfair to those not rescued.<sup>9</sup> That a patient is in imminent peril does not, by itself, suffice to show that there is a duty to intervene. If a chance for a successful outcome is virtually nonexistent, or if the quality of the outcome to be achieved by an intervention falls well below a threshold that is considered minimal, the intervention should not be attempted, even if it is abundant and readily available.<sup>10</sup> Patient advocacy does not support “doing everything”; rather, it justifies helping the patient. When an intervention fails to offer a patient any significant benefit, the claim that one is “rescuing” or attempting to “rescue” the patient is dubious. This labeling obscures the morally egregious features of what one is doing; as Jecker has noted, “A more honest telling might be: harming the patient, wasting resources, feeding false hope, disregarding professional standards, failing to show courage, being seduced by technology, neglecting to focus on palliative care, being co-opted by the family, refusing to acknowledge medicine’s limits, denying a patient’s impending death.”<sup>11</sup>

This more honest telling reveals that when an intervention does not offer any significant benefit to a patient, the harms associated with the intervention are not offset. The ethical principle of nonmaleficence, or “do no harm,” represents the first duty of the clinician and provides a basis for a duty to refrain from using nonbeneficial medical interventions.<sup>12</sup>

In rescue situations when there is a reasonable prospect of benefitting the patient, a major factor that should be taken into account is the probability of medical success. What constitutes a “reasonable” prospect of benefit can be determined by appealing to the threshold proposed for quantitative futility, which mirrors the threshold used in the statistical evaluation of clinical trials. In the statistical evaluation of clinical trials, if an intervention produces its desired effect in only one in 100 cases, this is not considered significant, because it occurs so infrequently that it may be due to chance. Likewise, if the likelihood of medical benefit from a particular intervention is just one in 100, that is not considered significant and qualifies as quantitatively futile.<sup>13</sup> While focusing on the probability of medical

success has a utilitarian aspect, it also appeals to a deontological imperative to come to the aid of the most medically needy individuals. Individuals who are in imminent peril and can be helped need our aid, while those whose medical conditions cannot be improved do not have any “need” for medical interventions.<sup>14</sup> In response, it might be argued that refraining from acting when a patient faces imminent peril would have deleterious effects on careproviders’ compassion, or on patients’ and families’ trust. Our response is that genuine compassion is not demonstrated simply by using medical interventions, but rather by responding in a manner that helps the patient.

In the context of limited resources or limited dollars to pay for healthcare, society may ethically choose to place higher priority on nonrescue services. For example, in cardiac care, using CPR in the field to attempt to rescue a patient who has suffered a cardiac arrest and has been anoxic for an extended period may have less societal priority than investing in basic scientific and clinical research aimed at effectively preventing SCA. In situations of resource or fiscal scarcity when society chooses to limit the resources available for cardiac rescue, health professionals are responsible for carrying out society’s mandate and foregoing the rescue of an identifiable victim.<sup>15</sup> Gaming the system by making an exception for one’s own patient violates ethical principles of justice and fairness.<sup>16</sup> Nonetheless, for careproviders, patients are “up close and personal,” and call forth strong moral responses of compassion and respect for the individual. Although persons who are not one’s patients may be affected by decisions made at the bedside about the allocation of scarce resources, these persons are not identifiable, and represent what some have called “statistical lives.”<sup>17</sup> From a utilitarian or social justice perspective, the distinction between an identifiable life and a statistical life is ethically irrelevant: a life lost or preserved is still a life. Yet it is psychologically challenging for careproviders (and others) to regard the lives of identifiable patients as being on par with statistical lives.

While these considerations are relevant throughout medical care, they bear special relevance to cardiac care. SCA is the most common cause of death in the U.S. Incidences of mortality and morbidity can be reduced by providing emergency medical services to victims of out-of-hospital cardiac arrest (OHCA) by calling 911, and by providing emergency services to victims of in-hospital cardiac arrest. By the time a patient is experiencing SCA, however, there is an overwhelming probability of death. An

estimated 91.6 percent of all patients with SCA due to atrial fibrillation (afib) and 82.3 percent of patients with SCA due to ventricular fibrillation (vfib) who are treated outside the hospital do not survive.<sup>18</sup> For in-hospital cardiac arrest (IHCA), survival is only slightly better, with overall rate of mortality following IHCA of 84.1.<sup>19</sup>

Improvements in outcomes for both IHCA and OHCA have been modest over the past 25 years. Although some aspects of resuscitation care have improved over time, such as increased CPR by bystanders and shortened times to defibrillation, these trends appear to be offset by the clinical features of patients who present with SCA, such as increasing age and the decreasing proportion who present with vfib.<sup>20</sup> Much of the data related to in-hospital CPR outcomes are extrapolated from out-of-hospital data, and consensus recommendations by the AHA regarding improving outcomes following in-hospital SCA note a lack of evidence that is specifically focused on in-hospital SCA.<sup>21</sup> Thus many of the *2015 AHA Guidelines* for improving outcomes associated with in-hospital SCA are extrapolated from data on out-of-hospital SCA. Further research focusing on in-hospital SCA are needed to improve recommendations in this area.

It has been argued that OHCA is treatable and that the prospect of improving outcomes is demonstrated by the nearly 500 percent difference in survival rates across communities in the U.S.<sup>22</sup> Someone who suffers a cardiac arrest in Seattle-King County has a 62 percent chance of survival; by comparison, in U.S. cities such as New York and Chicago, survival rates are in the single digits.<sup>23</sup> The example of Seattle-King County demonstrates the possibility of achieving better outcomes and suggests the importance of conducting research to identify the factors that contribute to successful out-of-hospital CPR. Since OHCA occurs in more than one out of every 1,000 U.S. citizens each year, it represents an important area for research that is aimed at improving the quality of care. Thus, one promising strategy for saving more lives would be to prioritize investments in basic scientific and clinical research that are aimed at improving the quality of resuscitative care.<sup>24</sup>

An alternative strategy to reduce the incidence of cardiac death and morbidity would be to invest in preventive and/or public health measures that focus “upstream” on reducing the incidence of SCA in the general population. For example, mortality and morbidity may be reduced by using cardiac medications and devices in high-risk populations; raising awareness of SCA and sudden cardiac death

(SCD) among the public, patients, and healthcare professionals; identifying, in advance, patients who are at greatest risk; reducing barriers to SCA care; and reducing disparities in SCA care and outcomes, for example, by improving reporting, planning, and performing best practices related to IHCA and OHCA. Such interventions tend to have higher yield than rescue interventions that take place post-SCA, as they cost less and benefit a larger population.

Evidence that investment in research and prevention yield benefits comes from the U.S. National Institutes of Health (NIH) Post-Resuscitation and Initial Utility in Life Saving Efforts (PULSE) workshops. The PULSE conferences developed recommendations that include establishing a consortium of resuscitation researchers, whose research is aimed at improving the outcomes of resuscitation. The resultant Resuscitation Outcomes Consortium (ROC) has conducted studies of the effectiveness of promising new therapies during the past decade. For instance, ROC reported the value of early defibrillation by bystanders using an automated external defibrillator (AED), and the value of bystanders performing CPR and immediately summoning emergency medical services (EMS), with the rapid arrival of EMS and implementation of EMS-based protocols for resuscitation. ROC reports that the burden of out-of-hospital SCA (and traumatic injury) is similar to that of major heart attack or heart failure. ROC has also reports that cardiac outcomes have improved in ROC-participating communities. Finally, ROC reports those therapies that are ineffective, allowing resources to be used in pursuit of more beneficial therapies.<sup>25</sup> All told, ROC may be a successful example of a coordinated and collaborative approach toward the allocation of federal resources in support of research on potentially lifesaving treatment for cardiac arrest. More research efforts of this kind will be needed to make a lasting and significant difference in the treatment of SCA.

### **Ethical Justification**

**Individual beneficence.** The ethical backing for foregone rescue under certain defined conditions begins with recognizing that there is no ethical duty incumbent upon individuals to rescue a stranger in peril, even though there may be a strong psychological inclination to help. The arguments of those who claim otherwise are not ultimately persuasive. The most frequently cited normative basis for an individual obligation to rescue is *beneficence*, or the obligation to do good.<sup>26</sup> Beauchamp and Childress, for example, claim that individuals have a general obligation of beneficence that applies to rescuing

strangers, provided that certain conditions apply.<sup>27</sup> These conditions attempt to weigh the likely benefits of rescue against the risks or sacrifice on the part of the rescuer by requiring that: (1) the stranger, Y, is at risk of significant loss of or damage to life or health or some other major interest; (2) an action by the rescuer, X, is necessary, singly or in concert with others, to prevent this loss or damage; (3) X's action singly or in concert with others has a very high probability of preventing the loss or damage; (4) X's action would not present very significant risks, costs, or burdens to X; and (5) the benefit that Y can be expected to gain outweighs the harms, costs, or burdens X is likely to incur. Singer has likewise argued that there is a general duty of beneficence incumbent upon individuals that holds until we reach a level at which we would sacrifice something of comparable moral importance.<sup>28</sup> Singer, who is utilitarian, argues that an individual obligation to rescue arises in situations when rescue is likely to produce more benefit than harm.<sup>29</sup>

The problem with assigning individuals a duty to rescue based on general beneficence is that it is overly demanding.<sup>30</sup> It requires performing acts that we would ordinarily regard as supererogatory, not obligatory. Thus, we are ethically justified in pursuing our own projects and activities, even though such pursuits are based on *agent-relative* reasons, that is, reasons that apply only to us as individuals and do not matter much, or at all, to others. More formally expressed, an agent-relative reason is one in which the general form of the reason includes an essential reference to the person who has it.<sup>31</sup>

A further problem with grounding a duty to rescue on general beneficence is that the distribution of burden falls disproportionately on those individuals who happen across persons in peril, rather than being distributed more fairly and evenly among society at large. These concerns suggest a need to move beyond beneficence and to consider the question of whether society as a whole has an obligation to help those in imminent peril.<sup>32</sup>

**Societal beneficence.** Even if it is not morally incumbent upon an individual to provide aid to a stranger in imminent peril, there is nonetheless a collective obligation on the part of the wider society. Rescue obligations are generally coordinated at a societal level for purposes of efficiency. This approach ensures that the whole community collectively shares the burden of rescue, rather than having the burden fall disproportionately and arbitrarily on an individual who happens, by chance, to come across a victim.<sup>33</sup> In the treatment of cardiac arrest, the more specific question arises: What is society's

collective obligation to recognize and carry out rescue obligations in the field, for example, by funding and implementing emergency medicine systems to provide such services? The answer to this question requires a society to weigh the opportunity costs of prioritizing rescue compared with other possible investments. Approaching a duty to rescue from a social and institutional perspective shifts the focus away from the individualistic application of beneficence toward values—such as social justice and promoting the public good—that relate to distributional and aggregate implications of rescue.<sup>34</sup> That first responders, including fire, police, and ambulance services, are supported by tax dollars suggests that a collective obligation is generally recognized. Moreover, that everyone in the U.S., regardless of insurance status, ability to pay, or other factors, has a legal right to emergency medical treatment through the Emergency Medical Treatment and Labor Act suggests that a societal obligation to provide care to persons in emergent situations, now established in law, reflects the ethical consensus that treatment of medical emergencies by facilities that have emergency departments should be available to all.<sup>35</sup>

The ethical basis for a societal duty to rescue can be found, not by appealing to individual beneficence, but instead by invoking values such as social justice and promoting the public good. Although there is no obligation on the part of individual bystanders to rescue a person in imminent peril, there is a generally recognized obligation on the part of all members of a society to contribute to public systems that provide rescue.<sup>36</sup>

To examine the ethical basis and limits of a collective duty to rescue, it is instructive to consider whether or not there is such a duty in moderate trade-off situations, that is, situations when there is a moderately good chance of a successful outcome, but rescue would be costly. One position holds that a *justice-based* societal duty to rescue exists only if we would agree to such a duty from behind a *veil of ignorance* (discussed below).<sup>37</sup> From behind a veil of ignorance, what we would choose to do if there was an opportunity to be rescued that was not a “long shot,” but moderately good, albeit costly? Would we forgo moderate rescue opportunities to invest in alternatives that would have a higher yield, such as basic scientific and clinical research? We submit that we would place higher priority on preventing SCA, for example, by instituting public health measures, offering preventive medical care, and investing in basic scientific and clinical research measures. These alternative resource investments would potentially benefit more patients in the future, and thus

carry a much higher yield, than rescue attempts that offered only a moderate chance of success. The basis for this claim is that, under a veil of ignorance, deliberators would give priority to protecting fair, equal opportunity.<sup>38</sup>

**Ethics in emergency situations.** In rescue situations, when multiple individuals require immediate aid and available resources are limited, clinicians use triage to prioritize patients in a fair and systematic manner. This occurs not only in mass casualty situations, such as during natural disasters when a surge of patients overwhelms the capacity of local systems, but also in emergency departments on busy nights when patients are cued according to triage criteria. Triage places priority on saving the greatest number of lives, assuming that each life saved represents a net gain.<sup>39</sup>

Kipnis distinguishes *disaster triage*, which is supported by utilitarian principles, from other forms of triage, such as *clinical triage* and *battlefield triage*.<sup>40</sup> Whereas clinical triage gives priority to patients who are imminently dying, battlefield triage prioritizes persons who have minor injuries and aims to return them to battle (combining considerations of medical benefit with social worth factors). In contrast to both clinical and battlefield triage, disaster triage distinguishes three groups. First are the so-called “walking wounded.” Second are those who have sustained serious injuries yet who can be treated with relatively simple procedures. Third are individuals who have serious injuries who require relatively complex and risky interventions to meet their medical needs. Disaster triage assigns priority to the middle group, that is, to persons who have serious injuries that can be improved with relatively simple procedures, but who will not improve without aid. Disaster triage focuses exclusively on medical factors, as clinical triage does, but is distinct because it considers both medical urgency and the likelihood of medical benefit.

In the above trifurcation, we agree with Kipnis’s proposal that society should employ principles of disaster triage in crisis situations by giving limited resources first to persons who can benefit from relatively simple procedures. In cardiac care, for example, those who are most critically ill and who can benefit from less-intensive resource investments should be given priority over those who are similarly endangered but who require more costly and risky interventions. So too, those who will survive and function reasonably well without immediate medical attention should receive lower priority than individuals who are critically ill and can benefit from relatively small investments of scarce re-

sources. We urge caution, however, and emphasize the point that this approach assumes, as a background condition, the just distribution of resources to different areas of medical care. For example, it assumes that the needs of individuals in rescue situations have already been weighed against the value of other health investments, such as preventive medicine and public health measures.<sup>41</sup>

In summary, because SCA is the most common cause of death in the U.S., relative to other diseases, it merits higher priority. When seeking to reduce the mortality and morbidity associated with cardiac disease, it is ethically important to weigh the duty to rescue the individual victim of SCA against other values, such as preventive and public health measures that will benefit a larger group.<sup>42</sup> More research is needed to better understand the effectiveness of both SCD treatment and prevention to ensure the best possible use of finite resources. Our call for moderation in rescue challenges the *2015 AHA Guidelines*, which state, “Without objective signs of irreversible death (for example, decapitation, rigor mortis or decomposition) and in the absence of known advance directives declining resuscitative attempts, full resuscitation should be offered.”<sup>43</sup>

Having placed rescue in the broader context of allocating scarce healthcare resources, we turn next to the ethical principle of justice to explore more directly the guidance that it gives in setting priorities within cardiac care broadly.

#### JUSTICE IN THE ALLOCATION OF SCARCE HEALTHCARE RESOURCES

Although careproviders are trained to make healthcare decisions focusing on benefitting the individual patient for whom they are providing care, medical decisions represent more than the choices of individual careproviders and patients. Healthcare decisions occur in the context of institutional, cultural, legal, financial, and other contextual features. One of the central contextual features affecting healthcare is resource constraints.<sup>44</sup> Constraints on healthcare resources include both resources and fiscal limits. Resource constraints arise due to limits in the raw materials required to make a healthcare service available. For example, there are more patients with end-stage cardiac disease than there are cadaver organs available. Resource limits also reflect workforce shortages. For instance, the American College of Cardiology reports that currently there is a deficit of approximately 1,700 general cardiologists in the U.S.; at the current rate, the deficit will increase to 16,000 by 2025.<sup>45</sup>

Fiscal constraints exist because there is a finite amount of money available at any given time to pay for healthcare services. In 2014, for example, the U.S. spent 17 percent of its gross domestic product (GDP) on healthcare.<sup>46</sup> It could be argued that the U.S. ought to spend more or less on healthcare, yet the percentage of GDP a nation spends is limited. Not only is money itself a scarce commodity, societies also choose to invest in many social goods other than healthcare, such as national defense, public transit, police, and fire safety. Moreover, government spending on healthcare diverts funds from other health-producing services, such as education and environmental quality. Thus, even if we cared only about health, it would not be prudent to invest all of our society's resources in healthcare services.<sup>47</sup> What percent of GDP would it be "prudent" for the U.S. to spend? Different approaches to answering this question include assessing the nation's spending by comparing it to similar countries; considering the process of political decision making; asking how much a country should spend to attain a particular level of health; and using a budgetary approach, in which desired health status changes are identified and a determination of what needs to be purchased to achieve those goals is made.<sup>48</sup> Whatever approach we use to make this determination, it is important to underscore that there is no apparent correlation between higher spending on healthcare and improved health outcomes. Thus, the U.S. spent more per person on healthcare than 12 other high-income nations in 2013, yet it had the lowest life expectancy and some of the worst health outcomes for this group.<sup>49</sup> What drives U.S. spending may have less to do with quality and more to do with a "business culture," in which medical care is seen primarily as a revenue stream, resulting in costs ratcheting up without any discernible improvement in quality.<sup>50</sup>

### **Distributive Justice**

In the context of resource and fiscal scarcity, *distributive justice* becomes a central ethical consideration. Distributive justice refers to the problem of devising normative standards for allocating healthcare services when there are not enough resources or money to provide the services to everyone who stands to benefit. In the bioethics literature, discussions of distributive justice often focus primarily on individuals who are already experiencing a medical problem and are seeking access to medical services. With this framing, the ethical question becomes: How should we distribute particular healthcare services to medically needy patients who stand to benefit from those services? When we allocate

limited resources in this way, we assume that allocation has already taken place at many other levels: to healthcare as a whole; among different categories of services within healthcare; and within a particular healthcare category, to different types of services. Framing distributive justice with a focus on patient selection involves what has been called a *medical paradigm of justice*.<sup>51</sup> A medical paradigm is concerned with individuals who are already sick, that is, who have developed a medical condition and are at the end state of medical need. With a medical paradigm, we seek an answer to the following justice question: According to what criteria should a medical treatment be distributed among multiple patients who stand to benefit?

When we allocate resources within a medical paradigm of justice, standards of *formal justice* and *material justice* apply. Formal justice requires treating ethically similar cases similarly. Thus, when characteristics that are ethically irrelevant become a basis for distributing a medical treatment, the standards of formal justice are violated. For example, the National Registry of Cardiopulmonary Resuscitation Investigators report that Black patients with IHCA were significantly less likely to survive to discharge than White patients, with lower rates of survival observed during both immediate resuscitation and post-resuscitation periods. Other studies have found significant sex-based disparities in risk of SCD,<sup>52</sup> and racial differences in survival after IHCA.<sup>53</sup> In the U.S., there is evidence that both Blacks and women under utilize implantable cardioverter-defibrillator (ICD) therapy.<sup>54</sup> These findings are at odds with principles of formal justice, because race and sex are not ethically relevant bases for distributing cardiac services.

Whereas formal justice has a procedural focus, material justice has a substantive focus. Material justice purports to tell us exactly which cases are similar and which are different in ethically relevant respects. For example, material justice criteria may call for allocating healthcare resources on the basis of factors such as the likelihood, length, or quality of medical benefit; resources required; the cost of treatment; or the imminence of death. It has been argued on material justice grounds that, other things being equal, CPR should be provided to patients who have a higher probability of rapid and full recovery before it is provided to patients who have a lower probability of rapid and full recovery.<sup>55</sup>

### **Medical Justice**

There is general acceptance within the medical profession that physicians should distribute limited

treatments based solely on potential medical benefit, without regard to nonmedical factors. Thus rationing that is based on other factors, such as social worth, chronological age, or lifestyle choices are not the province of the physician. Medical justice identifies the primary responsibility of healthcare professionals to be acting in the best interests of their patients. Thus, physicians owe the ideal of service to anyone in need who can benefit from medical treatment; as Schneiderman and Jecker argue, “Although as citizens in society, physicians can and should contribute to social health policy decisions, at the bedside of an individual patient they should avoid making unilateral rationing decisions.”<sup>56</sup> Ideally, the field of medical justice would be noncomparative, and physicians would provide—or not provide—interventions without comparing the potential medical benefit of treating one patient against the potential medical benefit of treating another patient. Medical benefit encompasses a range of considerations, including the likelihood, length, and quality of medical benefit; the urgency of medical need; and, in some instances, the resources required by a particular patient.<sup>57</sup> This position gains ethical support from a variety of sources. First, rationing by healthcare professionals has adverse effects, such as undermining trust in the careprovider-patient relationship. Furthermore, society at large, not the careprovider, has the ethical and political mandate to make decisions regarding rationing and allocating resources. Finally, historical traditions of ethics in medicine require, for example, that physicians swear allegiance to patients’ welfare by following that method of treatment which “according to my ability and judgment I consider for the benefit of my patients,” and “abstain from whatever is deleterious and mischievous” (the Hippocratic Oath).<sup>58</sup>

Although careproviders are ethically limited to distributing scarce healthcare resources on the basis of potential medical benefit, a society may impose limits based on both medical and nonmedical factors. Thus, in contrast to medical justice, *social justice* has a broader range of acceptable criteria. Healthcare professionals have a duty to uphold societal decisions regarding the allocation of healthcare, rather than attempting to “game the system” to benefit their own patients. This is because formal justice requires “playing by the rules” of an agreed upon policy, rather than seeking an exception for one’s own patients.<sup>59</sup>

### Societal Justice

The principle of *societal justice* gained traction during the 1960s, when physicians enlisted com-

mittees of laypersons in unprecedented ways to assist with the selection of patients for the then-scarce resource of kidney dialysis.<sup>60</sup> Although some referred to these committees disparagingly as “God squads,” the goal of delegating rationing decisions to a lay committee reflects an important ethical point: rationing decisions properly rest with society, not physicians (or other health professionals). In contrast to medical justice, societal justice is comparative. Societal justice draws distinctions among different individuals and groups and allocates scarce resources on both medical and nonmedical grounds.<sup>61</sup>

Even when healthcare resources are allocated in a way that conforms to standards of formal and material justice, other justice concerns may remain. To the extent that society can improve the social conditions that can put populations at greater risk of disease and disability, considerations of justice are at stake. What has been called a *social paradigm of justice* focuses on the source of medical problems, that is, on how a person’s need for healthcare services arose in the first place. Social determinants, such as lack of education, food insecurity, living in poverty, living in an unsafe neighborhood, or belonging to minority racial or ethnic group, are established factors that place populations at risk for medical conditions and early death. This level of allocation focuses on the allocation of resources between different types of services within a single healthcare category; that is, how much of society’s scarce resources and money should be devoted to public health measures that are designed to reduce the risk of cardiac disease within a healthy population? A social paradigm of justice frames questions of justice in terms of social factors that place people at increased risk of disease, injury, or early death. According to a social paradigm, the central question regarding justice is: How can we modify or prevent risk for disease, injury, or early death?<sup>62</sup>

In cardiac care, for example, a risk within a population can vary depending on geographical location. As noted above, a victim of SCA in Seattle-King County has a far higher chance of survival than a similar victim in Chicago, which would demonstrate that societal decisions and human actions may contribute to, and may exacerbate, a medical crisis. Risk within a population also varies based on racial or ethnic group. For instance, in the U.S., Latinos and Blacks are at higher risk than Whites for OHCA arrhythmias associated with a poor prognosis. This may reflect delayed response time due to the reduced likelihood of receiving assistance from bystanders in neighborhoods that are primarily Latino, Black,

poor, or non-English speaking. Public interventions to increase the administration of CPR by bystanders and to improve health outcomes in neighborhoods that are at heightened risk may for SCA reduce this disparity.<sup>63</sup> When social and political choices put some groups at greater risk for disease and disability, to focus exclusively on the endpoint of health-care distribution—as medical justice does—gives us, at best, a partial picture. It leaves out the question of how the disease and disability arose in the first place, that is, a question of who becomes sick and why.

## SETTING PRIORITIES

### Finding the Elusive Middle Ground

A helpful way to think about setting priorities may be to frame this as making a choice to benefit one or the other of two hypothetical types of individuals, As and Bs. Suppose As are much sicker or much more disabled than Bs, and suppose it is possible to measure the units of benefit that can be given each individual, for example, in quality-adjusted life years (QALYs) or some other unit of measurement. Many believe that if a treatment can deliver equal benefit to As or Bs, we should prioritize helping As, who are worse-off from the beginning.<sup>64</sup>

Although utilitarian approaches (such as cost-benefit and cost-effectiveness analyses) tend to be neutral in according priority to much sicker As over healthier Bs, many would prioritize rescuing the more needy over the less sick and less disabled. Similarly, many would be willing to forgo some extra benefits for the healthier Bs to provide greater benefits for the As. Yet even though they may favor the As, most people may tend to reject giving the As full priority.

By setting up a choice about rescue in this comparative way, it is more clear what is at stake in the *2015 AHA Guidelines* to rescue all victims of SCA in the field unless they show overt signs of death. What is at stake is that resources that might have been used in other, more effective ways are no longer available. The question thus may be framed as follows: How much priority should we give to A-type patient populations, rather than to B-type patient populations?

This example illustrates the deeper tension between *consequentialist moral reasoning*, on the one hand, and *nonconsequentialist reasoning*, on the other hand. Consequentialist reasoning focuses exclusively on producing the best consequences over all. By contrast, nonconsequentialist moral reasoning emphasizes duties that hold irrespective of con-

sequences. The requirement in the *2015 AHA Guidelines* to begin CPR on all victims of OHCA reflects a nonconsequentialist approach. It suggests that whatever the consequences, there is an absolute duty to attempt to rescue an individual in peril. By contrast, those who endorse prioritizing nonrescue measures, such as public health and preventive medicine measures to reduce harm to persons who might become sick, appeal to consequentialist considerations and the idea of producing the best consequences for the population as a whole.

The distinction between consequentialist and nonconsequentialist reasoning is also evident in the standpoints of health professionals versus the wider society. Health professionals tend to emphasize a duty to help their particular patients, irrespective of harms and benefits to others. By contrast, the standpoint of the wider society tends to highlight the greater good served by preventing harm to a much larger number of individuals. Determining the relative priority of cardiac prevention versus rescue requires addressing the best balance between consequentialist and nonconsequentialist moral reasoning. We submit that the most ethically defensible resolution is one that avoids extreme positions, that is, rejects placing absolute priority on either treating victims of SCA or reducing risk of future cardiovascular events in a population. We thus reject the *2015 AHA Guidelines* for essentially universal provision of CPR and ECC unless refused by the patient, and support instead a policy that limits CPR to OHCA based on material justice standards such as the likelihood, length, and quality of medical benefit.

While there is no satisfactory theoretical justification for an intermediary position, there is a justification based on considered judgments about particular cases. Although we draw on general normative approaches to articulate normative rules and principles, actually prioritizing principles when they are in conflict requires considering the circumstances and cases that characterize the debate. The choice between type-A persons and type-B persons in the above example helps us to see the justification for giving some weight to non-utilitarian considerations, such as rescuing the victims of SCA, but also illustrates, in a concrete fashion, the value of not giving absolute priority to rescue.<sup>65</sup>

Another way to frame priorities in terms of concrete choices in particular cases is to consider which justice principles would be selected in hypothetical situations by parties under a veil of ignorance, mentioned above.<sup>66</sup> This heuristic device requires us to imagine that we are deprived of all knowledge

of particular facts about ourselves and do not know how our choices will affect us personally. In this way we are prevented from tailoring choices to our own advantage and must consider the possibility that we might be in the position of those who are least well-off with respect to whatever rule or principle is chosen.

One possible principle is a utilitarian one that distributes goods to create the greatest net balance of satisfaction. This tends to favor giving near absolute priority to public health measures that benefit a much larger population of individuals rather than giving priority to rescue, which primarily benefits just the individual SCA victim. Yet from the perspective of the veil of ignorance, a utilitarian principle would be rejected, because no one has a reason to agree to a personal disadvantage to produce a greater net balance of happiness or pleasure. Instead, behind a veil of ignorance, deliberators would be inclined to give priority to protecting fair, equal opportunity. This requires prioritizing healthcare services that prevent, cure, or compensate for deficiencies in the normal range of opportunities that are open to individuals.<sup>67</sup>

With an emphasis on safeguarding opportunity, we propose the following ranking of priorities within cardiac care:

1. Modifiable risk factors that curtail normal opportunity,
2. Rescue with a moderate chance of successful outcome,
3. Rescue with a low likelihood or quality of successful outcome.

### **1. Modifiable Risk Factors that Curtail Normal Opportunity**

The highest priority should be to address modifiable risk factors that carry the potential to profoundly curtail normal opportunities. For example, medication to control blood pressure, and public health measures, such as programs that improve diet and exercise in a population, have a much greater potential impact on the health of a population compared to the provision of healthcare services to treat people who are already sick. In ranking prevention first, parties in the original position might reason along the following lines. Although disease processes are the immediate cause of SCA, societal choices also contribute to the incidence of SCA in a population, and to morbidity and mortality post-SCA. Failing to reduce the incidence of SCA, when effective means to do so exist, violates standards of justice and illustrates what has been called *passive injustice*. Passive injustice consists of the refusal to

prevent harm from occurring when prevention can reasonably be done.<sup>68</sup> The surest way to safeguard normal opportunity is to prevent mortality and morbidity from occurring in the first place. Intervening after cardiac disease takes hold is a more costly and potentially less effective means of protecting normal opportunity.<sup>69</sup>

### **2. Rescue with a Moderate Chance of Successful Outcome**

The next priority should be rescue attempts for which there is a moderate chance of successful outcome. In moderately successful rescue, there is a moderate chance of restoring normal functioning, or something close to normal functioning. The justification for focusing on a moderate chance of success might be as follows. Although rights to equal opportunity give us claims on others for appropriate forms of healthcare, these claims are limited. The principle of justice does not extend to every rescue situation, and justice favors measures that try to prevent the need for medical rescue over those that attempt to rescue. We have some obligations due to the principle of justice to protect opportunity, but rescue should not be seen as the highest or sole priority.<sup>70</sup> Parties who are behind a veil of ignorance would see an exclusive focus on medical care for individuals who are in a crisis situation as having the unfortunate effect of diverting public health resources away from the primary obligations of justice, which are to prevent disease. Society has an obligation to protect the public good, in addition to its obligation to help individuals who are in a crisis situation. Addressing both duties requires seeking a proper balance. As Hodge and Gostin note, "Perhaps no duty is more fundamental to American Government than protecting the public's health."<sup>71</sup> The duty to protect the public's health is based on utilitarian principles of avoiding harm and creating the greatest good for all members of society. This approach must be balanced against the rights of individuals in rescue situations.<sup>72</sup>

### **3. Rescue with a Low Likelihood or Quality of Successful Outcome**

The lowest priority should be assigned to the rescue of SCA victims when the likelihood or quality of outcome associated with the rescue intervention is poor, but not futile. Within this category, those outcomes that cost more would be placed behind those that cost less. The ethical justification for this ranking is discussed in more detail below. An important challenge to our proposal is that prioritizing a high likelihood and quality of outcome may

disadvantage vulnerable populations, such as racial minorities and members of lower socioeconomic groups, who have predictably poorer outcomes than their counterparts. In response, we reiterate the importance of combining an emphasis on outcome, with a high priority on research that is intended to reduce health disparities and improve outcomes for disadvantaged populations. There is currently no national database that tracks the incidence, outcomes, and various factors associated with cardiac arrest. We support the Institute of Medicine's recommendation to develop a national registry to track cardiac arrest events and make information about the incidence and outcomes of cardiac arrest publicly available.<sup>73</sup> We also support greater investment in basic science and clinical research in this area. Despite the prevalence of cardiac arrest in the U.S., federal research dollars devoted to resuscitation research are less than other diseases and conditions that occur with similar frequency in the U.S. population.<sup>74</sup> Once greater investment and research are developed, we support evidence-based strategies to reduce disparities in cardiac arrest outcomes.

### CONCLUSION

In summary, we propose fundamental changes to the current approach to SCA. When setting priorities in cardiac care, the highest priority should be placed on interventions with the greatest chance of preserving normal opportunity for individuals. Priority should also be placed on helping the greatest number of people and on selecting interventions that have the greatest likelihood of benefitting patients. The AHA should base its guidelines for rescuing victims of SCA not simply on the individualistic application of beneficence—a medical justice model—but also on social justice and promoting the public good. The distributional and aggregate implications of rescue provide an appropriate ethical context for setting priorities in cardiac care.

Our arguments appeal to a combination of normative concepts and principles. We appeal to beneficence to argue that physicians do not have an ethical obligation to attempt rescue when there is virtually no chance of helping a patient. We invoke the principle of fair, equal opportunity when resources are allocated among different areas of cardiac care. We call upon a utilitarian-based principle of triage when resources are allocated among multiple individuals in disaster situations. Finally, we distinguish medical and societal justice to support the distinct ethical duties of individual careproviders versus society.

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