

Part 3: Ethics: 2025 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care

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ABSTRACT: In this chapter, the American Heart Association provides guidance on ethical considerations relevant to cardiopulmonary resuscitation and emergency cardiovascular care. An overview is provided of ethical frameworks that provide a structure through which difficult decisions can be analyzed. These include principlism, currently the predominant medical ethical framework, which considers moral principles of beneficence, nonmaleficence, respect for autonomy, and justice. Additional consideration is given to the value of dignity, and other ethical frameworks such as narrative ethics, crisis standards of care, utilitarianism, virtue ethics, and deontology. The importance of equity and the imperative for health care professionals and their organizations to actively address structural inequities, social determinants of health and resulting disparities related to Emergency Cardiovascular Care is highlighted. Processes for decision-making are discussed, including guidance on advance directives and shared decision-making. Decisions to initiate or withhold and subsequently to continue or terminate resuscitation are reviewed at length. In addition to considering this decision in adults and geriatric patients, specific attention is given to decision-making in children, newborn infants, and pregnant patients. The impact of prognostic uncertainty on these decisions is discussed, as well as the evaluation of potentially ineffective therapies and cultural and religious considerations. Other ethical topics are addressed briefly, including processes for research and knowledge generation; the impact of resuscitation on health care professionals, survivors, laypersons, families, and caregivers; family presence during resuscitation; crisis standards of care; advanced therapies, including extracorporeal support; and organ and tissue donation.

Key Words: AHA Scientific Statements ■ cardiopulmonary resuscitation ■ decision-making ■ delivery of health care ■ ethics ■ heart arrest ■ life support care ■ problem solving

TOP 10 TAKE-HOME MESSAGES

1. This guideline discusses selected ethical considerations relevant to resuscitation and emergency cardiovascular care (ECC) and emphasizes the importance of deliberate consideration of individual decisions and their unique circumstances.
2. Principlism is the most well-known of the many ethical frameworks that together identify and clarify the obligations of health care professionals (HCPs) and organizations and that provide a framework through which difficult decisions can be analyzed.
3. Multiple ethical frameworks, a preponderance of scholarship and expert consensus in this writing group support the imperative that HCPs and their organizations should actively address inequities in social determinants of health, thereby eliminating resulting disparities in cardiac arrest and emergency cardiovascular care.
4. Portable orders for life-sustaining treatment (POLST) are the best method to document advance care plans (ACPs) specific to cardiopulmonary resuscitation (CPR), are available throughout the United States, and should be honored by HCPs.
5. In most situations, shared decision-making (SDM) is the preferred approach to making patient-centered treatment decisions.

6. Decisions to withhold or terminate CPR are complex, so set protocols can provide guidance, reduce bias, and prevent moral distress.
7. Special legal and ethical considerations apply to resuscitation of children and newborn infants.
8. The process and outcomes of resuscitation can have lasting consequences for HCPs, survivors, laypersons, families, and caregivers.
9. Allowing family presence during resuscitation (FPDR) is the recommended approach in most situations because it can improve short- and long-term psychological outcomes.
10. Organ and tissue donation should be considered in all patients resuscitated from cardiac arrest who progress to death by neurological criteria or for whom withdrawal of life-sustaining therapies is planned.

INTRODUCTION

Medical ethics provides theoretical frameworks that identify and clarify the obligations of HCPs and their organizations and offers a structure through which difficult decisions can be analyzed (Figure 1). The 2015 Guidelines Update discussed decisions to withhold or terminate CPR for adults, prognostication after cardiac arrest, and organ and tissue donation.¹ That Guideline focused on practical treatment recommendations rather than the underlying ethical principles. The 2020 Guidelines did not include a writing group, literature reviews, or output focused specifically on ethics, although some ethical considerations were integrated into the Guidelines chapters and supporting recommendations.

To address this gap, a comprehensive reevaluation of the literature pertinent to the ethics of CPR and ECC was undertaken to develop this guideline. Processes for topic identification, literature review, evidence synthesis, and writing are addressed in “Part 2: Evidence Evaluation and Guidelines Development.” This guideline focuses on those aspects of medical ethics most pertinent to CPR and ECC. The Guideline refers to HCPs and their organizations throughout, which are intended to be broadly inclusive of the many allied health professionals who participate in ECC, including emergency medical services (EMS), nurses, pharmacists, respiratory therapists, social workers, clinical ethicists, physicians, educators, and others and the institutions through which they provide services. HCPs have a *prima facie* obligation to follow institutional policies regarding ethical issues in resuscitation in addition to the guidelines in this document. In turn, institutions have an obligation to develop ethically sound policies, educate HCPs on both policies and ethical guidelines, and provide the resources necessary to adhere to these standards and resolve difficult issues when they arise.

The Ethics Writing Group included a diverse group of content experts with backgrounds in emergency medicine, critical care medicine, neurocritical care, cardiology, and EMS, including experts in neonatal, pediatric, and adult medicine as well as medical ethics in each domain. Group members were appointed by the American Heart Association (AHA) Emergency Cardiovascular Care Science Subcommittee and approved by the AHA Manuscript Oversight Committee, with a member also appointed by the American Academy of Pediatrics. Writing group members were selected to

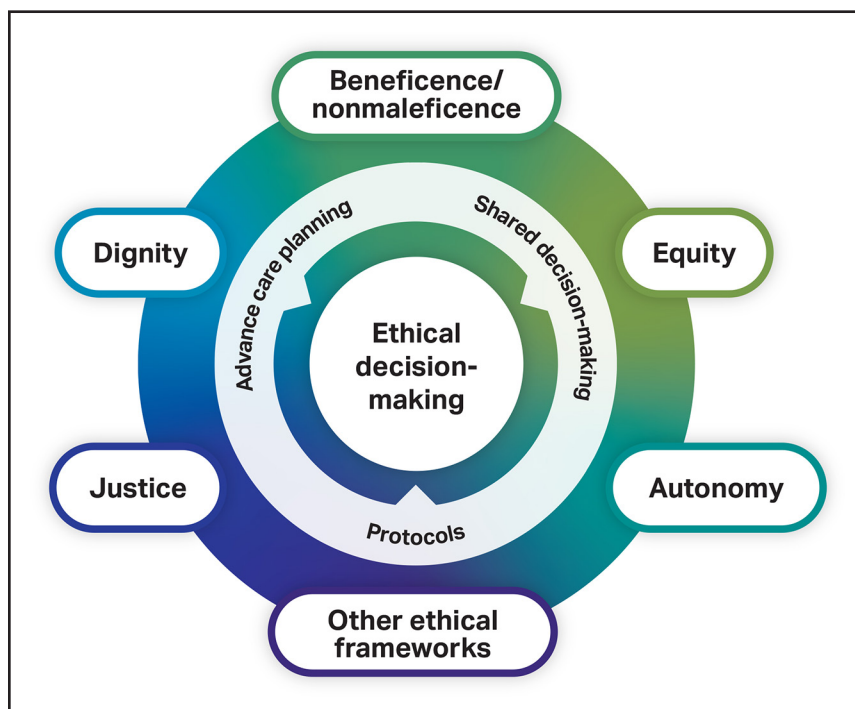


Figure 1. A conceptual framework for ethical decision-making in resuscitation and emergency cardiovascular care.

Medical ethics offers frameworks through which health care professionals can analyze difficult decisions. Principlism considers moral principles of autonomy, beneficence, nonmaleficence, and justice and is currently the predominant ethical framework. Related values of dignity and equity are of particular importance in emergency cardiovascular care. In addition to principlism, other ethical frameworks, including ethics of care, deontology, narrative ethics, and others, offer complementary perspectives. Together, these frameworks, principles, and values informed development of ethical treatment protocols (common in the prehospital care environment), advance directives, and in-the-moment shared decision-making.

represent many backgrounds in clinical medicine and ethics to form a group that was institutionally diverse and inclusive of women, underrepresented racial and ethnic groups, and early career participants. The AHA has rigorous conflict of interest policies and procedures to minimize risk of bias or improper influence during the development of guidelines. Before their appointment, writing group members disclosed all relevant commercial relationships and other potential (including intellectual) conflicts. These procedures are described in “Part 2: Evidence Evaluation and Guidelines Development.” This chapter uses a narrative review format to allow for detailed discussion of complex ethical issues. This differs substantially from the format used in other AHA clinical practice guidelines. The process used for inclusion of ethics content followed a traditional literature review without development of standard “knowledge chunks” or PICO-format questions. Because ethical knowledge is not advanced through traditional clinical research, the writing group did not assign Class of Recommendation (COR) and Level of Evidence (LOE) to the practice recommendations. Instead, multiple ethical frameworks, a preponderance of scholarship and expert consensus in this writing group support the recommendations contained in this document.

FOUNDATIONAL ETHICAL PRINCIPLES

Principlism

Principlism, as initially described by Beauchamp and Childress, is a deliberative ethical process centered on 4 moral principles: respect for autonomy, beneficence, nonmaleficence, and justice.² The intent is that no single principle is superior or takes precedence over another, allowing for a balanced framework to consider the issue or issues at hand. Because of their own biases or preferences, HCPs may consciously or unconsciously rank or prioritize one principle over another, with additional influences from society, culture, institutional norms, or the specifics of an individual case. Critiques of principlism highlight the potential for interprinciple conflict without a clear path for resolution; inadequacy in dealing with moral problems; lack of unifying relationship between the individual principles; and the White, male, European origins of the framework that may neglect or bias against groups or individuals.^{3,4}

The principlist approach may be helpful when considering a patient in the context of their individual circumstance but also within a care team, institution, or community. Evaluating each principle and any conflict between it and each of the others provides a systematic method of ethical evaluation and identifies any accommodations that may be necessary. When operationalized in practice, a bioethical question may be evaluated through the lens of each individual principle, which offers multiple perspectives that can be synthesized into a pluralistic

approach. This 4-categories method is commonly used for ethical decision-making and uses the principles as foundational themes toward collecting information, data, and perspectives.⁵

Respect for Autonomy

Respect for autonomy focuses on honoring individuals' rights to make informed decisions about their own health care. In the context of resuscitation, this principle guides clinical decisions by ensuring that, whenever possible, clinicians elicit and respect patients' values and preferences regarding decisions to refuse, withhold, or withdraw life-sustaining therapies and end-of-life (EOL) care. Respecting autonomy requires honest communication and SDM with patients, their surrogate, or both.^{6–8} This can include bidirectional sharing of facts and perspectives, correcting misconceptions, and challenging all parties to structure decisions that are aligned with the patient's goals and values. Including loved ones at the bedside to witness resuscitative efforts can also facilitate the autonomy of patients and their loved ones (refer to Impact on Laypersons, Families, and Caregivers).^{9–12}

The limits of autonomy become apparent when patients are unable to make decisions or communicate their wishes. Ideally, patients with capacity have considered and documented their preferences regarding balance of benefits and harms of resuscitation in advance (refer to Beneficence and Nonmaleficence and Advance Directives). In the absence of capacity (eg, most pediatric patients and adults who never had or lost capacity) or clear evidence of previously capable adult patients' wishes, such as advanced directives, decisions about the best balance of benefits and harms fall to surrogate decision-makers (refer to Ethical Decision-Making in Resuscitation). A surrogate may be an appointed health care proxy or family member, such as a parent for a pediatric patient. When a patient lacks capacity, autonomy can be respected when a surrogate uses substituted judgment, providing insight into what a patient's wishes would be if they could relay them.¹³ When a patient's wishes are unknown, clinicians and surrogates make decisions based on what they believe to be in the patient's best interest (refer to Beneficence and Nonmaleficence). If there are no surrogate decision-makers, clinicians must determine the balance of benefits and harms.¹⁴ In this circumstance, resources like ethics consultation or an ethics committee may be helpful, when available.¹⁴ When there is uncertainty, the default approach is generally to initiate resuscitation while continuing efforts to determine a patient's wishes regarding EOL care.

Beneficence and Nonmaleficence

Beneficence and nonmaleficence are 2 closely related principles. Beneficence guides clinicians to make

medical decisions that benefit patients. Nonmaleficence is the ethical obligation for clinicians to not harm patients. Often, it is relatively straightforward to apply these 2 principles to medical decisions. For example, when lifesaving emergency surgery is necessary, the benefits outweigh risks of morbidity and mortality, even if substantial. However, there are circumstances when balancing potential benefits and harms can be complicated. When uncertainty about diagnosis, prognosis, or treatment outcomes exists, benefits and harms may be difficult to assess and HCPs are guided to balance likely benefits over possible harms. Additionally, there are times when a beneficial decision is also harmful (eg, opioids for dyspnea at EOL causing respiratory depression). Under such conditions, the doctrine of double effect—an ethical doctrine justifying an action that has both a positive (intended) effect and negative (unintended) effect when the positive effect is not achievable without the negative effect—permits HCPs to make ethical decisions that benefit the patient even when anticipating potential for harm.¹⁵ These decisions must be limited to circumstances in which there are no better alternatives, harm is not intended to achieve the benefit, and all efforts are made to minimize the harm.

It can be challenging for HCPs to make thorough assessments of benefits and harms under conditions of urgent decision-making, limited medical information, and prognostic uncertainty.¹⁶ Initiating resuscitation can be lifesaving but entail risks, including physical or emotional suffering, existential harm, and indignity. There may be other benefits and harms to consider as well, such as peace of mind for surviving family members to believe all attempts were made to save their loved one's life, or the harm of a resuscitation that results in survival with an unacceptable quality of life. Assessments of benefits and harms may be value based and differ among patients, surrogate decision-makers, and medical team members. HCPs can ethically forgo resuscitation in the absence of a surrogate decision-maker if they determine a lack of potential benefit, such as choosing to not initiate resuscitation when there is objective evidence of irreversible death (refer to Withholding or Terminating CPR in Adults).¹⁷

Assessing the balance of benefits and harms can be challenging. This may especially be the case when clinicians and surrogates disagree, for example, or when HCPs have biases that impact their assessment, or when a patient's life cannot be saved and goals turn to offering the opportunity for organ and tissue donation, and balancing benefits to patients with risk of harm to HCPs. These ethical challenges are explored in subsequent sections of this chapter.

Justice

Justice is defined as fairness, specifically the fair, equitable, and appropriate treatment of persons.^{2,18}

Procedural justice refers to the fairness of the processes used to make decisions or allocate resources, while *distributive justice* refers to the fairness of the outcomes of decision-making.^{19,20} These perspectives may overlap, as demonstrated during crisis standard of care scenarios. In the setting of resuscitation, the principle of procedural justice requires patients to be treated in a fair and equitable manner with the best available care. Issues related to distributive justice can include the allocation of scarce resources, such as time and attention from HCPs and the equipment necessary to deliver high-quality care. If specific resources are scarce, allocation of these resources should be based on evidence-based determinants of expected outcomes (refer to Crisis Standards of Care). Decisions regarding EOL care should be founded on justice and may include considerations like urgency, expected benefit, change in quality of life, and patient preferences. Explicit (with conscious awareness) or implicit (without conscious awareness) biases should be recognized and minimized when making resuscitation decisions.²¹ Institutions that develop policies should also aim to promote fairness and justice. Historically, this has not always occurred. For example, significant concerns were raised about the impact of race, ethnicity, and disability on access to care under many triage guidelines developed during the COVID-19 pandemic, thereby disadvantaging certain populations.^{22,23} Justice requires that all backgrounds and identities be valued and treated equally to avoid resuscitation bias.^{24–26}

Other Ethical Frameworks

Over the last century, a shift from paternalism to patient-centered medicine in the United States has resulted in better-informed and individualized care. Along with advances in treatments and technology, this has led to myriad ethical issues and challenges. Many ethical frameworks are available to help HCPs navigate these dilemmas. A combination of frameworks is often necessary to consider fully how best to respond to an ethical conflict. Religious and cultural perspectives of HCPs, patients, and surrogates also inform their views and may affect their valuation or interpretation of certain principles relative to the issue at hand. We discuss these considerations with regard to patients and families in this section and also recognize that the influence of these factors on HCPs themselves is important and valid.

Ethical frameworks provide a pathway to navigate an issue and hopefully come to a resolution, yet the frameworks themselves vary in ways beyond their focus and the values they prioritize. Some frameworks provide insight or reasoning to build knowledge and guide action, including principlism and narrative ethics, which focuses on the details and nuance of a case to better understand someone's unique perspective and needs.^{27–29} Other

frameworks are tailored to specific situations and are not always broadly applicable. An example is crisis standards of care, which work to maximize survival while best using scarce resources.²⁵ Others are underpinned by substantive ethical theories that specify what constitutes morally correct action based on the desired outcome. The framework of utilitarianism aims to maximize good for the most people and is a guiding framework for the organ allocation systems in the United States.³⁰ Virtue ethics defines moral behavior based on the virtues and character of the individual moral actor; to make moral decisions, a person should strive to develop key virtues inherent to one's role or profession, such as honesty, integrity, and empathy.^{31–36} Deontology centers on the moral duties and ethical rules of HCPs to the ailing patient in front of them, regardless of the outcome.³⁷ These examples are not exhaustive; rather, they serve to demonstrate how variable frameworks may guide pragmatic responses to complex issues around resuscitation. These frameworks and others are integrated into a more specific discussion of ethical topics in resuscitation in a later section.

Dignity

Resuscitation can be a traumatic experience for patients, their families, and HCPs. Within a principlist framework, dignity is encompassed in part by respect for autonomy and is also a consideration of beneficence. In the context of resuscitation, dignity is the patient's inherent worth and value as a person, even during a life-threatening event.³⁸ Given its importance during ECC, the value of dignity merits additional consideration. As discussed earlier, HCPs must balance the potential benefits of resuscitation with the inherent physical and psychological harms it creates, while also maintaining respect for patient dignity and privacy. The perception of patient suffering by HCPs, however, should not be used as justification for withholding or withdrawal of resuscitation without awareness of the patient's wishes or reliable input from an appropriate surrogate because this may introduce HCPs' biases into these decisions.

Many cardiac arrests occur in public settings. While the primary focus of HCPs should be on lifesaving resuscitation, it is also important that they respect patient dignity and privacy by shielding the patient to the extent possible and reasonable from those not participating in care.^{39,40} When family is present during resuscitation efforts (refer to Impact on Laypersons, Families, and Caregivers), HCPs must recognize that the event is traumatic for them and, whenever possible, communicate with the family to explain procedures and provide support.^{39,40}

While rare, there are reports of patient consciousness or awareness during CPR, and small observational studies have described some patients resuscitated from cardiac arrest who reported a sense of consciousness

during resuscitation.^{41–43} Consciousness induced by CPR can be distressing to patients, HCPs, and families and has other risks, such as potential for dislodgement of medical devices. Regardless of patient awareness, HCPs should treat every patient with dignity during resuscitation by preserving bodily integrity as much as possible, responding appropriately to any signs of distress or pain, and maintaining professional conversation and communication during resuscitation. The ethical imperative to respect patients' dignity is paramount, regardless of their level of awareness.

Striving for Equitable Health and Resuscitation

Within a principlist framework, justice demands equitable treatment of all individuals. In resuscitation, inequities arising from bias and discrimination can have deadly effects. The AHA's goal of improving cardiovascular health for all cannot be fully realized until inequities that drive health care outcome disparities are eliminated.^{44,45} Health inequities arise from social determinants of health and are both entirely preventable and deeply rooted in societal structures. Discrimination and structural inequities adversely affect the cardiovascular health of numerous sociodemographic groups, and can be overt or subtle. There are many ways in which certain groups receive prioritization and privilege while others, described as marginalized, face barriers in accessing the full range of societal rights and services. Discrimination and marginalization occur along lines of race, ethnicity, gender and gender identity, sexual orientation, physical or neurocognitive disabilities, language, immigration status, cultural background, age, religion and spirituality, body shape, mental health, socioeconomic status, education, and geography. There is no exhaustive list that exists to capture all endemic and emerging biases. Inequities transcend political boundaries and impact populations from a myriad of backgrounds, making this an important issue for all peoples. Failing to acknowledge and address these disparities allows systemic inequities to remain unchallenged and healthcare disparities to persist. For this reason, HCPs and their organizations should actively address structural inequities in social determinants of health, thereby eliminating resulting disparities in cardiac arrest and emergency cardiovascular care.

Health inequities exist in disease prevention and across all links of the Chain of Survival (refer to "Part 4: Systems of Care" for discussion of the Chain of Survival).^{46–48} Disparities in disease prevention among marginalized groups stem from mental, physical, and environmental health stressors as well as barriers to accessing safe living conditions, high-quality nutrition, education and work opportunities, and health care (including health insurance and accessible health care facilities).^{49–51} When an emergency occurs, disparities exist in prehospital preparedness and response, including CPR training,

recognition of cardiac arrest, delivery of layperson CPR, automated external defibrillator access and use, timely first responder and EMS arrival, use of lights and sirens, and delivery of high-quality CPR.^{52–56} Disparities in advanced resuscitation include access to cardiac catheterization, critical care services, and mechanical cardiopulmonary support.^{57–59} Disparities have been documented in communication that supports high-quality ECC, including shared decision-making, anticipatory counseling, advance care planning, access to palliative care, and high-quality EOL communication.^{60–63} Disparities in outcomes have also been described for 1-year, 3-year, and 5-year survival following hospital discharge.⁶⁴ Use of machine learning and artificial intelligence to facilitate clinical diagnosis and decision-making is an emerging risk that can exacerbate disparities if these technologies are not intentionally designed to eliminate propagation of existing inequities.^{65,66} Similarly, while protocols are often used to standardize care and reduce bias, they can unintentionally entrench inequities if they are not designed and implemented with equity in mind. These and other pervasive inequities increase morbidity and mortality of individuals from marginalized groups.⁶⁷ Despite abundant literature documenting resuscitation outcome disparities, research in this area is still relatively nascent. Societal biases and structural inequities likely affect the degree to which this research has been performed, funded, or published, which impacts the strength of evidence required by guidelines to make strong recommendations.^{67a,b,c}

Many of the predominant ethical frameworks converge implicitly on the wrongness of inequity. However, interpretation of these frameworks has commonly been limited to a duty to provide equal treatment of patients who have already presented for care (ie, everyone is treated the same way, such as all similarly situated patients having the same likelihood to receive layperson CPR regardless of their personal characteristics). Treating patients equally does not address inequities that have impacted marginalized individuals long before their presentation to medical care. These factors often result in more advanced disease and worse prognosis (ie, patients who have not received layperson CPR or had less access to health care prior to cardiac arrest have more severe illness after resuscitation and are therefore less likely to receive mechanical circulatory support [refer to Advanced Therapies]). Therefore, simply treating patients equally is insufficient to resolve outcome disparities.

Instead, a growing body of scholarship supports an imperative to treat patients equitably.^{68–70} To deliver equitable treatment, HCPs and health care organizations must identify and eliminate structural inequities, discrimination and address social determinants of health, as well as ensure that they provide sufficient resources to marginalized groups. Ethical education for HCPs has traditionally focused on principlism, which does not

specifically address these issues.⁷¹ A preponderance of ethics scholarship supports that emerging frameworks offered by marginalized groups deserve recognition.^{71a,b} Such frameworks provide alternative lenses for understanding and addressing the health effects of social and structural inequities, and incorporating these into resuscitation education can provide HCPs perspectives complementary to principlism.

The AHA's mission, "to be a relentless force for a world of longer, healthier lives," and its vision, "advancing health and hope for everyone, everywhere," support the need for HCPs and their organizations to actively address inequities in cardiac arrest and emergency cardiovascular care.^{44,45,72} Areas of focus for the resuscitation community include screening and prevention, resuscitation training, community preparedness, measurement and tracking, partnerships, advocacy, and engagement. The AHA recognizes the critical nature of partnering with and amplifying the voice of communities who are best positioned to identify disparities and solutions.

Achieving optimal resuscitation outcomes requires sustained work and commitment by HCPs and their organizations to eliminate disparities by addressing structural inequities and social determinants of health.

ETHICAL DECISION-MAKING IN RESUSCITATION

Advance Care Planning

The default approach to life-threatening illnesses such as cardiac arrest in many countries and settings is to initiate treatment. This decision must be made rapidly in patients who typically lack capacity at a time surrogate decision-makers may be overwhelmed or unavailable. Some patients wish to forgo resuscitative efforts based on their perceptions of the benefits and harms and other personal values and preferences. Timely communication of these wishes is essential to ensure that HCPs can respect these patients' autonomy, so documentation of an advance care plan (ACP) is crucial.^{73–75} Because it is impossible for a written ACP to fully address every possible medical situation that might be encountered, an ACP should ideally include appointment of a health care proxy (durable power of attorney for health care) authorized to make decisions in case the patient is incapacitated.⁷⁵ Commonly encountered ACP documents include living wills, advance directives, do not attempt CPR (DNACPR) orders, and POLST. These documents should be revisited periodically because preferences can change over time.

The preferred form of ACP documentation in the setting of cardiac arrest is POLST (or a state-specific acronym, such as IPOST [Iowa Physician Order for Scope of Treatment] or MOLST [Medical Orders for Life-Sustaining Treatment]), although POLST documents have some limitations, which are discussed in this section. Living wills are

legal documents that provide guidance on wishes specific to life-sustaining EOL treatments, but these documents can be vague, can be difficult to apply in specific clinical situations, and may require a determination of both a terminal condition and lack of decision-making capacity.⁷⁶ Advance directives are often completed as part of estate planning and typically provide broader guidance on future medical care but may be difficult to interpret during medical emergencies.⁷³ They are often not part of the medical record and may not be shared among care facilities and acute care settings.^{73–75,77,78} General DNACPR requirements vary by state and can be less well-defined than POLST, making these ACPs difficult to honor. They are also often misunderstood by the public.^{74,79} Some patients may be reluctant to complete DNACPR documents under the false assumption that comfort measures may not be provided in EOL situations. In a recent population-based study, DNACPR orders were encountered in about 10% of prehospital HCPs dispatched to out-of-hospital cardiac arrests (OHCAs); however, some patients still received full CPR due to contradictory family wishes or successful resuscitation before access to and review of the DNACPR document.⁸⁰

A POLST is an ACP document specifically designed to communicate patient medical wishes by translating them into medical orders that can be followed in both inpatient and outpatient settings.^{73–75,81,82} A version of POLST is available in all 50 US states and the District of Columbia; in many states, a POLST provides a legal DNACPR order that must be honored by first responders.^{81,83} Implementation of POLST has reduced treatment intensity among patients with severe illness, reduced prehospital resuscitation efforts, and increased odds of death outside the hospital compared with in-hospital deaths.^{81,84,85} A POLST document provides more specific direction over health care treatments than an advance directive and more options than a DNACPR order. A POLST is completed by a health care professional (HCP) using SDM, must be signed by both the HCP and patient or surrogate, and must provide resuscitation guidance as well as instructions for other medical interventions.⁸⁶ A POLST promotes patient autonomy, clarifies treatment preferences, and facilitates appropriate prehospital and emergency care.⁸² These forms should be updated regularly as patient preferences may change over time. Ongoing issues with POLST forms include variable completeness, between-state variability, need for proper interpretation, potential for discrepancies among sections, and accessibility.^{73,81,87} There is particular variation among states regarding the use of POLST in pediatric populations. Documentation should be kept easily accessible to ensure prompt availability and use during EOL situations. Accessibility issues have been addressed in some states through rapidly searchable electronic registries.

Other challenges include situations in which there is disagreement between a patient's ACP and surrogate decision-maker preferences.⁸⁸ The patient's wishes, as

expressed in person or via ACP, are principal, and a surrogate's preference should be honored if the patient's wishes are uncertain.

Shared Decision-Making

Decisions around resuscitation can be challenging for HCPs, patients, and surrogate decision-makers. These include decisions to initiate, forgo, continue, or terminate resuscitation, as well as choices between different treatment options. Not all patients have ACPs, and ACPs do not provide explicit guidance on all possible medical decisions. Moreover, CPR is commonly an unanticipated event that is fraught with emotion, stress, and time pressure to make complex life-or-death decisions. When feasible, the recommended approach to real-time decisions about resuscitation or advance care planning is a collaborative process between HCPs and patients or their surrogates called *shared decision-making* (SDM).^{89,90} Because full SDM is not feasible during the actual event of cardiac arrest—when CPR must be initiated immediately—the process should ideally occur in advance, such as through proactive discussions in chronic care, emergency, or inpatient settings.

Patient autonomy and informed consent are cornerstones of medical ethics. Adult patients have relatively unrestricted authority to choose between available medical options based on their goals, values, resources, and personal assessment of the balance between benefits and harms. Adults can preemptively engage in advance care planning to indicate their medical preferences should they become incapacitated.⁹¹ If a patient is unable to make medical decisions for themselves and no preexisting ACP exists, a surrogate must make decisions on their behalf. For an adult who previously had capacity, the surrogate decision-maker should be guided to the ethical standard of substituted judgment, choosing the medical option that best aligns with their understanding of what the patient would have wanted.⁹² Even when an ACP exists, patients almost always still require a surrogate to interpret and apply preferences to the current clinical situation in collaboration with clinicians. Pediatric patients do not have the authority to consent to medical procedures because of lack of capacity (with a few exceptions, eg, emancipated minors), and so they require surrogate decision-makers. Because pediatric patients are not generally considered to have the life experience or cognitive development to make medical decisions for themselves, substituted judgment does not apply. Instead, surrogates are guided by the best interest standard to make decisions intended to maximize benefit and minimize harm (refer to Pediatric Considerations and Neonatal Considerations).⁹³ Surrogates for adult patients who never acquired or lost capacity and for whom personal preferences are unknown also follow the best-interest standard. Patient decision aids,

including those specific to CPR, are strongly recommended in SDM because they improve patient and surrogate understanding of risks, benefits, and trade-offs. Clinicians should consider using decision aids, where available, to support value-aligned decisions. Health care professionals have 3 roles in resuscitation decision-making: (1) determining reasonable medical options from which to choose, (2) using SDM to support patient or surrogate decision-making, and (3) making best-interest medical decisions for patients who lack capacity and for whom there is no ACP or surrogate available (Figure 2).

Major medical organizations endorse SDM as the optimal decision-making process.^{94–96} In SDM, HCPs together with a patient, their surrogate, or both collaborate to make the best medical choices for that patient. This approach blends the medical expertise of HCPs with the personal values and preferences of the patient to achieve goal-concordant care and improves patient and family satisfaction. The process of SDM includes several components: (1) HCPs ensure a patient, surrogate, or both, understand the patient's current medical condition; (2) HCPs outline available medical options

and discuss the likely outcomes of each option; (3) HCPs elicit the patient's goals, values, and preferences; (4) HCPs make a recommendation for the medical option most aligned with the patient's goals and values; and (5) HCPs support the patient, surrogate, or both, in choosing a medical option (Figure 2). Ideally, SDM occurs in the setting of a trusting, compassionate relationship, even if only minutes are available to build that trust. Health care professionals must strive to be honest, transparent, clear, and unbiased when discussing diagnosis, prognosis, uncertainties, and medical options. They should be aware that how decisions are framed can strongly influence patient and surrogate choices. Evidence demonstrates that defaults, word choices, and presentation order can unintentionally bias decisions, so HCPs must take care to present options in a balanced, intentional, and ethically responsible manner. Health care professionals should elicit patient's or surrogate's preferred style of decision-making and seek to make recommendations in line with that preference.^{97,98} Health care professionals should incorporate additional support services as needed, such as social work, ethics, palliative care, interpreter services, cultural navigation, religious

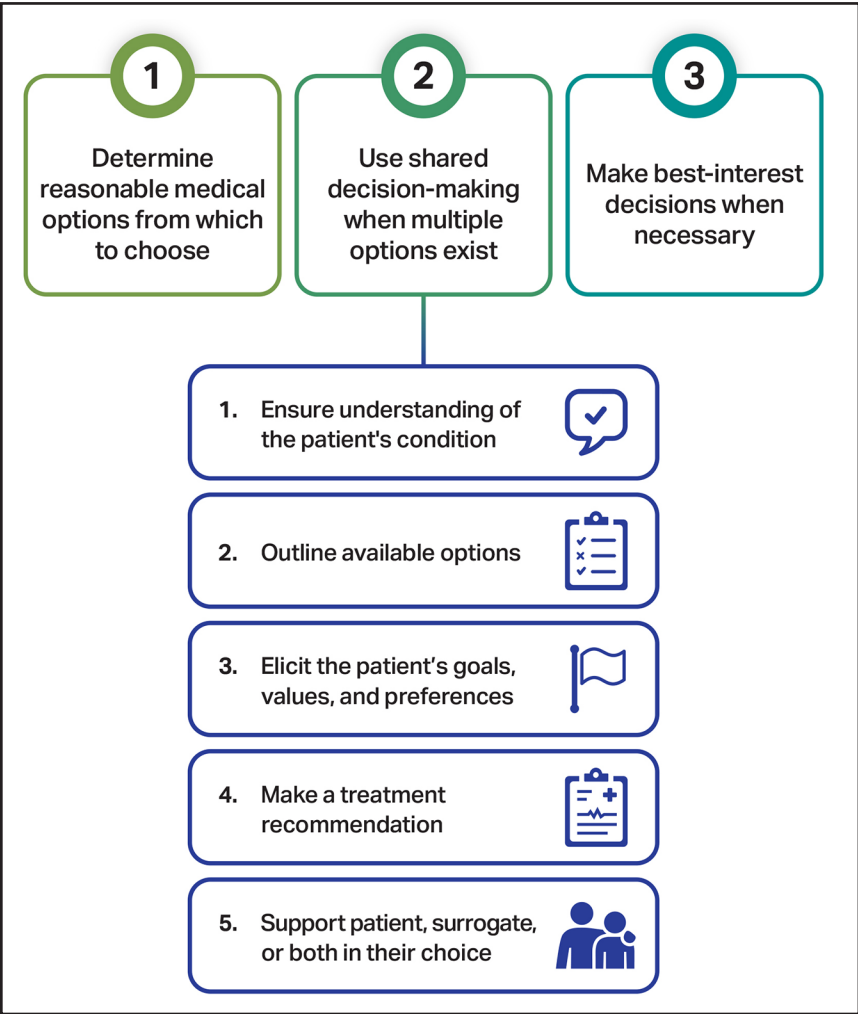


Figure 2. The role of health care professionals in shared decision-making. Health care professionals have 3 key roles in medical decision-making, the preferred process through which patient-centered decisions are made. When only 1 reasonable medical option is available, health care professionals must ensure the surrogate's understanding of the clinical situation and provide support, but presenting a surrogate with unreasonable medical options from which to choose is confusing and counterproductive. In some situations, best-interest standards guide health care professionals and surrogates to make decisions that maximize benefit and minimize harm. Decisions based on best-interest standards are often additionally guided by federal, state, and local laws.

services, and other family and community support when possible. Finally, HCPs should recommend community- and web-based resources to support advance care planning, including tools to facilitate conversations and clarify values. Health care professionals are strongly discouraged from simply providing the patient, surrogate, or both, with a menu of options without decisional support.

A few common situations may pose ethical challenges when complex emergency cardiovascular decisions must be made. First, a patient or surrogate may request interventions not considered medically appropriate by the HCPs. In general, medical teams are not required to provide nonbeneficial medical interventions (refer to Potentially Inappropriate Therapies). While a patient and surrogate have ethical rights to choose between reasonable medical options, they do not have a right to demand treatments that are not medically reasonable. However, perspectives about what options are medically appropriate are often value based and may differ between a patient, surrogate, or both and HCPs (eg, extending life with mechanical ventilation in the setting of a terminal illness), and even among HCPs. Disagreements about the appropriateness of medical therapies should be resolved through a process-based approach (refer to Potentially Inappropriate Therapies).^{99,100} A *process-based approach* refers to a structured framework to resolve disagreements, often involving ethics consultation, engagement of clinical leadership, and adherence to institutional policies designed to ensure fairness, transparency, consensus, and an accessible appeal process.¹⁰¹

Second, bias and discrimination can affect SDM, leading to inequities in communication and decision-making. Inequities exist in how HCPs develop trusting relationships, convey prognostic information, provide resources to overcome communication barriers, and make recommendations.¹⁰² For example, marginalized populations may face limited access to interpreter services, receive less-detailed prognostic information, or experience lower levels of trust and engagement in care planning conversations due to historical and ongoing disparities. Health care professionals should be attentive to their own biases, engage in bias reduction efforts, and actively work to provide equitable SDM for all patients and surrogates (refer to Striving for Equitable Health and Resuscitation).

Third, ethical decision-making in resuscitation may be challenging due to time pressures, limited medical information, prognostic uncertainty, and lack of a surrogate decision-maker. This may be particularly true in the prehospital setting, such as when choosing to initiate or terminate resuscitation (TOR).^{103,104} Although it may be impossible to include all components of SDM in resuscitation, the process itself still has value in supporting patients, surrogates, and HCPs.

Finally, with high-stakes, emotional, and time-pressured decisions, there is risk that conflict may arise between HCPs, between a patient or surrogate and

the medical team, and within a patient's family. While disagreements are a natural component of complex decision-making and unavoidable, HCPs should employ every effort to maintain a therapeutic relationship, support ongoing productive communication, and mitigate the harms of conflict to minimize distress for patients, families, and the medical team.

Decisions to Initiate/Withhold or Continue/Terminate Resuscitation

The ethical frameworks, moral principles, and approach to SDM discussed in previous sections offer HCPs structures through which they can analyze complex medical decisions and engage patients and surrogates in the decision-making process. Management of life-threatening cardiovascular emergencies has unique practical and ethical considerations. Key topics discussed below represent the most common specific circumstances encountered by HCPs.

Withholding or Terminating CPR in Adults

There are more than 350 000 OHCA every year in the United States.^{105,106} In approximately half, prehospital HCPs do not attempt resuscitation based, in part, on guidelines summarized in the 2015 AHA Guidelines Update and reaffirmed in 2020 and 2025 (refer to "Part 9: Advanced Life Support" and "Part 4: Systems of Care"). Guideline-concordant reasons to withhold CPR include situations in which attempting CPR would place the rescuer at serious risk of physical harm (refer to Impact on Health Care Professionals); presence of objective signs of irreversible death; and presence of an ACP requesting DNACPR (refer to Advance Care Planning).

Historically, HCPs have only honored written, signed advance directives to withhold CPR in OHCA. In these instances, rescuers may initiate CPR temporarily while the documents are retrieved and reviewed.^{107,108} Verbal requests from family to withhold CPR are now accepted in some communities, based on legal guidance and with medical oversight.^{17,109,110} The ability to accept verbal requests allows HCPs to honor patients' autonomy and transition more rapidly to assisting families with loss and bereavement.¹¹⁰

The default position of offering resuscitation for any cardiac arrest has been challenged, with some advocating for a more selective approach wherein resuscitation is prioritized for individuals who have a higher probability of survival with preserved neurological function.^{17,100} This approach upholds the ethical principle of nonmaleficence, avoiding the potential harm of CPR when it is unlikely to result in an acceptable outcome.¹⁷ Another approach to consider when a patient is extremely unlikely to benefit from resuscitation is informed non-dissent, where a clinician informs the family that unless

they object, no resuscitation will be performed.⁹⁵ Such an approach relies on rapid assessment and excellent communication regarding the patient's condition and the reasoning behind withholding CPR. Equally important is good surrogate comprehension, mitigating power differentials, ensuring understanding of the right to dissent the recommendation, and assessing a surrogate's sense of empowerment to dissent.⁹⁵ This method respects the patient and family's need for involvement and understanding without burdening them with decisional guilt. While these methods are more traditionally discussed in the in-hospital setting,¹¹¹ it may be reasonable to discuss them outside the hospital or upon arrival to the emergency department. Concerns for CPR harm and nonbeneficial resuscitation outcomes have also led to the development of some OHCA guidelines to withhold resuscitation if the prospects of survival are estimated to be nil.^{107,110,112} Given the complexity of this determination and resulting treatment decisions, variable standards exist worldwide.^{113–115}

Once resuscitation has been initiated, further ethical questions exist around termination of efforts. Many pre-hospital care systems worldwide allow HCPs to cease resuscitation in adults—based either on standing orders or an order from online medical direction—if patients meet predefined TOR criteria (refer to “Part 9: Advanced Life Support” for clinical considerations).^{108,116} From an ethical standpoint, whether in- or out-of-hospital, TOR protocols work to uphold the balance of beneficence and nonmaleficence by recommending continued CPR in patients who may recover while avoiding continuation of ineffective CPR for those extremely unlikely to benefit. Termination of resuscitation protocols limit bias and uniformly deliver emergency care across various populations. Using TOR rules can also promote distributive justice by avoiding misuse of prehospital care systems for nonbeneficial transports, which renders them unavailable to the community they serve for the next emergency and exposes rescuers and the public to dangers of emergency transport. Termination of resuscitation rules can also exacerbate inequalities or sow public mistrust if they are not applied (or are not perceived to be applied) equitably. Another risk of applying TOR rules is that some patients meeting termination criteria might still recover with continued resuscitation, so these patients would, therefore, be harmed if CPR was stopped. Thus, TOR rules must be conservative, recommending termination only when the prospects of recovery are extremely small. Furthermore, reassessment and adjustments to TOR rules and policies must evolve with advancing therapies and outcome data. On balance, it is ethical and just for EMS systems to use TOR rules.

Within the TOR decision matrix, prehospital systems must also determine the benefit of moving patients from the scenes of their collapse to hospitals. Protocols used to guide this decision vary widely across the United

States, with some recommending immediate transportation and others recommending longer on-scene resuscitation (refer to “Part 9: Advanced Life Support” and “Part 4: Systems of Care” for specific guidance). This decision must balance multiple factors, including efficacy of the resuscitation efforts during transport and its effect on the outcome. Other considerations include the availability of more advanced personnel and equipment at the hospital and potential benefits to the family from hospital-based support, particularly for pediatric OHCA.

There are also nearly 300 000 in-hospital cardiac arrests per year in the United States.¹¹⁷ Decisions to withhold or terminate CPR for adult in-hospital cardiac arrest are not dissimilar to adult OHCA but often benefit from more established relationships, prognostic data, and time before the arrest to have explored patients' values and preferences more thoroughly. As in OHCA, the default approach for in-hospital cardiac arrest is to initiate CPR unless there are known prior wishes not to be resuscitated or signs of irreversible death.¹¹ As summarized in a recent publication by the International Liaison Committee on Resuscitation, it is key that HCPs establish treatment goals early after hospitalization, including patients' wishes to initiate or forgo CPR, and reassess these wishes frequently. These discussions can help ensure provided treatments are consistent with patients' values and preferences.

Conflicts can arise between families and HCPs around decisions to initiate or terminate resuscitation. For example, families may request initiation or continuation of CPR in cases where HCPs feel resuscitation offers no plausible benefit. Because resuscitation carries a risk of harm, the principle of nonmaleficence supports withholding these efforts when there is no potential for benefit (refer to Potentially Inappropriate Therapies). Outside the hospital, the resources and the time needed to resolve these conflicts may be limited, and the prognosis for recovery may be less certain. To ensure respect for autonomy, in some OHCA situations, it may be prudent to honor families' wishes to continue CPR and transport unless there are signs of irreversible death or an ACP documenting that a patient would not want this care (refer to Advance Care Planning). In the hospital, conflicts between families and HCPs can often be resolved through excellent communication to establish clear goals for medical care or compromises such as a time-limited trial of critical care that allows the family to feel reasonable efforts were made to provide treatment. In both the in- and out-of-hospital settings, performing deliberately low-quality CPR (for example, delivery of intentionally superficial chest compressions, sometimes termed a *slow code*¹¹⁸) confers physical risks to the patient as well as indignity and is unlikely to result in return of spontaneous circulation. These efforts may be motivated by a desire to convey to the family that aggressive treatment was attempted while avoiding what HCPs believe to be medically ineffective measures.¹¹⁹ This intent is tantamount

to deliberate deception and, therefore, is not an ethically sound approach.

Occasionally, conflicts between families and HCPs can become intractable. These situations should be resolved through a process-based approach (refer to Potentially Inappropriate Therapies). Further details about withholding or terminating resuscitative efforts in specific populations are discussed, as well as discussion of advance care planning, risk to HCPs, prognostication, and potentially inappropriate therapies.

Geriatric Considerations

Geriatric patients represent a large and growing segment of the population. Although some authors define geriatrics at a specific age (often 65–70 years), there is no set age at which all individuals meet a specific definition. Many considerations for older adults may also have implications for younger patients.¹²⁰ We have chosen to not define this population by a specific age but rather by a consideration of frailty, disability, comorbidities, and cognitive frailty, which may negatively impact survival following cardiac arrest.^{121–124} Many, but not all, geriatric patients have beliefs about medical care at EOL and may not want CPR in the event of cardiac arrest.¹²⁵ However, age should not be a sole determinant for EOL decisions, development of an ACP limiting life-sustaining therapies, or resuscitative decisions.¹²⁶ A recent expert consensus concluded that many patients nearing EOL prefer a focus on palliative care, quality of life, and comfort.¹²⁷ Thus, when EOL is anticipated, it is important for HCPs to engage patients, their surrogate, or both in SDM to establish patient-centered goals for treatment.^{128–132} It is equally important that HCPs document these decisions in an ACP because many patients in need of resuscitation lack capacity when emergency treatment decisions must be made. Health care professionals should discuss goals of treatment with patients and learn preferences before a crisis occurs.

Pediatric Considerations

The need for CPR and ECC for pediatric patients is less common than for adult patients, but not rare. More than 20 000 pediatric patients experience cardiac arrest in-hospital or out-of-hospital annually in the United States.^{117,133} Pediatric patients present unique medical and ethical challenges for HCPs due to the need for parental/surrogate decision-making, challenges in TOR, the importance of family presence and support during and after resuscitation (refer to Family Presence During Resuscitation), and occasional need for mitigation of conflict between HCPs and family. While parental decision-making may not practically vary from surrogate decision-making for incapacitated adults, the emotional valence afforded to a parent's decisions for their child

often creates a markedly different feeling and weight from these decisions. For simplicity, this discussion will refer to parents as decision-makers, acknowledging that legal guardians and agents of the state can also make surrogate decisions for children in their care.

Most pediatric patients do not have legal rights to make health decisions for themselves, and most are unable to consider or express preferences for resuscitation based on limited life experience, cognitive development, or both, thereby impairing capacity.¹³⁴ Parents, therefore, make decisions based on the best interest standard (refer to Ethical Decision-Making in Resuscitation); this may include decisions to withhold CPR or stop ongoing life-sustaining therapies.⁹⁶ Identifying what is “best” is a value judgment that can be debated and poses a significant challenge for HCPs when engaging in SDM. Parents are given significant leeway in making decisions on behalf of their children (referred to as the zone of parental discretion or constrained parental autonomy), but parental authority is not absolute.^{135–137} Parental authority can be limited based on the harm principle, a threshold below which a parental decision may place the child at imminent risk of serious harm, allowing for state involvement to override parental authority.¹³⁸ Under emergency conditions like cardiac arrest, a life-threatening event requiring immediate intervention, most states have a process to allow HCPs to override parental decisional authority if the situation meets conditions of the harm principle.¹³⁹

Under 3 sources of authority, some adolescents can make certain medical decisions on their own: (1) those seeking care for certain circumstances/conditions covered under state statutes where there is concern that failure to accept minor consent will prevent minors from seeking care for the condition (eg, sexually transmitted infections); (2) mature minors, who meet certain statutory standards are deemed by a judicial determination to meet the requisite requirements to make an informed medical decision limited to the scope of the question brought before the court; (3) emancipated minors, for whom emancipation legally confers the status of adult, granting them the autonomy to make their own medical decisions (however, this legal status is often limited to very specific circumstances and varies considerably state to state). Within these narrow constraints, minors do not generally have decision-making power over their own resuscitation preferences. However, older children and adolescents should be included in SDM (particularly those with chronic medical conditions) and HCPs should seek their assent commensurate with their developmental ability to provide it, including for decisions around resuscitation. When treatment goals established by HCPs and parents do not permit dissent (some decisions impart such an immense benefit that the child is not allowed to dissent; for example, chemotherapy for a curable cancer where nontreatment would result in death), in lieu of assent,

HCPs and parents should disclose information about the treatment, without deception.⁹⁶

Under most circumstances, the default in pediatrics is to initiate resuscitation, and there is rarely conflict about this decision between parents and HCPs. Exceptions to this include children who have ACPs, including DNACPR or POLST orders, or an in-the-moment shared decision to withhold resuscitation. Real-time SDM nonetheless requires accurate representations, to the extent that HCP knowledge permits, regarding risks, benefits, and outcomes expected from resuscitation to promote robust SDM with families. Even with an active POLST or DNACPR in place, implementation challenges can exist for children with life-limiting conditions in community settings such as daycares or schools, requiring careful coordination between pediatricians, staff members, EMS teams, and often local or state laws to ensure family wishes for EOL care are honored.¹⁴⁰

While decisions to initiate resuscitation are generally noncontroversial in pediatrics, decisions to terminate resuscitative efforts can be much more challenging. For a variety of reasons, it is not uncommon for pediatric CPR to continue longer than in adults. Many non-pediatric emergency responders may be uncomfortable with the death of a child, choosing to continue efforts until a pediatric-trained professional is available. Pediatric specialists often practice in institutions that can also offer families more comprehensive bereavement support. With high-quality CPR, acceptable outcomes have been reported in children after prolonged CPR, particularly if extracorporeal life support (ECLS) is available and appropriate.^{141,142} During in-hospital arrests, pediatric HCPs at times continue CPR until the family can arrive at the bedside, within reason.¹⁴³ Although conventional ethics suggests that decisions should focus solely on the impact on the child, in the setting of an imminent death, many HCPs may shift their duties to the surviving bereaved family members. This choice to consider a duty to the well-being of family members can be justified ethically by the cost to society of parental and family psychological outcomes following the death of a child.¹⁴⁴ These nuances surrounding CPR in children create challenges that require HCPs to make rapid and continuous assessments to best balance benefits and harms.

Occasionally, conflicts arise between families and HCPs around decisions to initiate or terminate resuscitation. These most often occur in the intensive care setting when a child is already receiving life support, the illness trajectory has been established, no further curative therapies are available, and death is imminent. Some families may request continuation of life support or resuscitation against the recommendation of the medical team. Every effort should be made to resolve these conflicts with strategies including maintaining the family-medical team relationship; using high-quality communication supported by specialists as available; offering family

emotional support; and allowing sufficient time for the family to feel that everything has been done, which may include time-limited therapy trials.¹⁴³

Occasionally, conflict becomes intractable. In these instances, the medical team may seek to override parental requests through an institutional process to assess the use of potentially ineffective therapies.¹⁰⁰ Withdrawal of life-sustaining therapies against parental wishes is rare in pediatric patients, may result in more harm than benefit for all involved, and may be regulated by state laws governing surrogate decision-making. In these circumstances, HCPs should be vigilant to ensure that potential biases or disparities in conflict management are identified and addressed. Significant distress for families and HCPs can arise around these cases and should be addressed with resources available. Health care professionals may raise the valid ethical tension between respecting parental authority within the zone of parental discretion or guidance of constrained parental autonomy, concern for ongoing suffering of the child, as well as potential scarce resource utilization. Importantly, decisions about scarce resource allocation should not be made at the bedside by the child's medical team but should be made through a fair process at the institutional level (such as development of triage protocols and use of a triage team) to avoid biases that impact outcomes.

EOL care is beyond the scope of this guideline. However, it is important to acknowledge that high-quality pediatric EOL care is crucial for dying children and their families. All HCPs who provide pediatric resuscitation should have some familiarity with basic pediatric palliative care concepts. Specialty pediatric palliative care consultation should be considered, if available, and if not, transfer to a facility where such care can be provided should be considered. Elements of high-quality EOL care can be provided concomitantly to ongoing resuscitation and may ease conflict, family trauma, and HCP distress regardless of the resuscitation outcome.

Neonatal Considerations

There are several contextual complexities surrounding resuscitative decisions for neonates that may be unique from other patient populations. Though some newborn infants die during CPR, most deaths occur in the context of withholding or withdrawing life-sustaining therapies.^{145,146} Decisions about resuscitation for newborns generally occur at 2 time points: decisions to withhold resuscitative measures often happen during the perinatal period, while decisions to withdraw life-sustaining therapies tend to be made after initial stabilization. Many newborn infants who require resuscitation at birth will respond well to medical therapies. Though the need for CPR in newborn infants is a risk factor for neonatal mortality and neurodevelopmental morbidity, some infants who require CPR or other ECC will go on to survive without significant neurologic

sequelae.¹⁴⁷ Resuscitation and intensive care should be provided when this is considered a likely outcome (refer to “Part 5: Neonatal Resuscitation”).

Some newborns have clinical conditions that put them at very high risk of mortality or severe morbidity. In this setting, initiating or continuing life-sustaining therapies may be considered by parents and HCPs to be contrary to the infants' best interests.¹⁴⁸ For example, in extreme prematurity, specifically for newborn infants born at gestational ages at the borderline of viability, withholding resuscitation may be considered permissible.¹⁴⁹ This gestational age range is decreasing as medicine advances and varies based on local outcomes.¹⁵⁰ The interplay between estimated gestational age, other clinical factors, and prognosis is complicated.^{151,152} Decisions about whether or not to initiate resuscitation for newborn infants in this gray zone should consider potential uncertainty in gestational age; other available clinical information; the values, views, and wishes of the parents; the availability of resources to treat the premature infant; and local legal statutes (refer to “Part 5: Neonatal Resuscitation” for specific recommendations).^{153–157} A similar situation exists for newborn infants diagnosed prenatally with conditions believed to be life limiting. These have evolved over time as those once considered to be uniformly fatal early in infancy may now survive into childhood. There are deeply personal decisions attached to such situations, with existential and pragmatic considerations,¹⁵⁸ which may impact postnatal experiences and decision-making.

The evolving nature of available prenatal therapies may shift the timing to make decisions about neonatal resuscitation in certain clinical situations. For example, in the decade and a half since fetal repair for myelomeningocele was shown to have benefit,¹⁵⁹ the procedure has become more common.¹⁶⁰ A small proportion of fetuses undergoing in utero procedures experience significant intraoperative bradycardia, which may necessitate the consideration of in utero resuscitation measures, emergent delivery, or both, to attempt neonatal stabilization. There is marked between-hospital variability in approaches to this high-stakes decision making, and there is not general agreement on whether intraoperative delivery and resuscitation ought to be considered obligatory, permissible, or even impermissible.^{161,162} Artificial womb and artificial placenta technologies at the fetus-neonate interface represents a new frontier with many unresolved ethical concerns.^{163–165} Information is continually evolving and HCPs and organizations should collectively strive to review current information and decide what falls within and outside of the zone of parental discretion.

Following initial resuscitation, some newborn infants will die in the intensive care unit despite the best efforts of HCPs. Developing a prenatal or postnatal ACP may benefit newborns at high risk for death or significant

morbidity because it allows advance discussions around values, goals, and care preferences outside of the context of an urgent decision.^{166,167} Such ACPs not only address questions regarding the provision or withholding of resuscitative measures in the setting of an acute clinical change but also help HCPs and families collectively explore the meaning of such a change in the context of the critical illness and available prognostic information. High-quality SDM is of paramount importance. Multiple studies have examined parent and HCP preferences for neonatal decision-making^{148,168} and have identified unique considerations for this population. Clinicians and parents often differ in perceptions and values about acceptability of patient outcomes, which can lead to conflicts in communication and decision-making. A key contributing factor to these differences may be ableism, specifically with regard to neurodevelopmental impairment, which may profoundly influence neonatal prognostication.¹⁶⁹ Conceptualization of a good death in the neonatal setting often differs between parents and HCPs, between parents, and between clinicians.^{170,171} Clinicians should consider how their biases around these issues may influence what choices are offered to families and how they are framed.¹⁷²

Time constraints may hamper perinatal decision-making. While advances in the fields of fetal imaging and prenatal genetic testing have led to more precise prenatal prognostication, some uncertainty in the postnatal condition may remain. If a baby is born with an existing prenatal ACP that indicates the family desires to limit intensive care interventions, plans can be considered provisional in most circumstances until confirmatory postnatal evaluation is performed. If uncertainty regarding the short- or long-term prognosis remains, teams typically proceed with full resuscitation and intensive care to allow for time to make informed decisions. It is important to note that full resuscitation at birth does not commit a newborn infant to continued intensive care after additional information becomes available.

Pregnancy

A pregnant patient in cardiac arrest presents unique medical, ethical, and legal challenges for responding HCPs. If the maternal condition is not rapidly reversible through resuscitation, HCPs may need to expeditiously deliver the fetus(es) when the uterine size is greater than or equal to 20 weeks' size (at or above the umbilicus). In this situation, the cesarean birth should be considered a resuscitative hysterotomy and delivery intended to provide uterine decompression to improve maternal resuscitative efforts (refer to “Part 10: Adult and Pediatric Special Circumstances of Resuscitation”). It may also be considered a perimortem delivery—an attempt to save the life of the fetus if the pregnancy is at a gestational age that will allow for postnatal stabilization.¹⁷³ Given the

current legal landscape regarding pregnancy termination across the United States, responding HCPs may feel uncertain about how to proceed in these difficult situations. Some pregnant patients with established negative views regarding pregnancy termination may express specific wishes about how they would want HCPs to proceed in such a situation, and these should be honored. In the absence of clear documentation of a patient's wishes to the contrary, the ethical principle of beneficence obligates HCPs to provide whatever resuscitative measures they deem will best support the emergency care needs of a pregnant patient in cardiac arrest, including resuscitative delivery before or after a gestational age consistent with fetal viability.

Prognostication and Uncertainty

Understanding the likely outcomes of an illness under different treatment options informs excellent SDM. Unfortunately, outcomes of resuscitation can be difficult or impossible to predict with confidence, yet treatment decisions that both respect patients' autonomy and that are concordant with their perceptions of benefits and harms must still be made. Outcomes data and ethical frameworks are synthesized into clinical tools that range from protocolized treatment algorithms to full SDM. In unexpected cardiac arrest, clinicians are often guided by protocols to determine when to initiate, continue, or terminate CPR. By comparison, decisions about continuation of life-sustaining therapies in the intensive care unit often involve an iterative process, anticipatory guidance, and exploration of goals and values.

Likelihood and quality of recovery from any given clinical circumstance can improve with medical advances. Because clinical decision-making is both guided by historical data and can influence recovery potential, outcome prediction is exquisitely sensitive to uncertainty and self-fulfilling prophecy bias. The question of how historical data can perpetuate a self-fulfilling process is not limited to resuscitation and can be prevalent in many critically ill populations for which withdrawing life-sustaining therapies has commonly occurred in the past.^{174,175} For example, advances in both available treatments and understanding of parents' perceptions of quality of life have significantly altered the prognosis of infants born at the cusp of viability and those with previously nonsurvivable chromosomal anomalies.^{176–179} With evolving attitudes and treatment decisions, outcomes change.

Data that guide prediction of outcomes before a decision to initiate CPR, while CPR is ongoing, or after return of spontaneous circulation are particularly susceptible to self-fulfilling prophecies and uncertainty in individual cases. In most circumstances, clinical data cannot preclude recovery potential with absolute certainty and existing literature has serious scientific limitations.

Distinguishing the nature of prognostication before, during, and after cardiac arrest may be helpful. While the likelihood of return of spontaneous circulation before or during CPR is affected primarily by premorbid disease, quality of CPR, and the circumstances of arrest, postarrest prognostication is further influenced by estimated severity of neurological injury and other organ failures. Knowledge gaps specific to post-arrest prognostication are an area of growing awareness and require careful attention in future analysis and research (refer to "Part 8: Pediatric Advanced Life Support" and "Part 11: Post-Cardiac Arrest Care.")¹⁸⁰ Health care professionals should share the best available knowledge regarding options and outcomes with qualifiers informed by the degree of certainty or uncertainty in any particular situation (refer to "Part 11: Post-Cardiac Arrest Care" and "Part 8: Pediatric Advanced Life Support" for a detailed discussion of these limitations as well as current prognostication data).

Further caution is needed when considering what defines a meaningful recovery. Patients and families are highly variable in what they consider to be an acceptable quality of life, and HCPs often view disability as resulting in a worse quality of life than what patients and families report.^{181,182} This discrepancy raises important questions about ensuring equitable care for these populations and how estimates of functional recovery potential inform decisions to initiate, continue, or stop resuscitation.^{183,184} Understanding what drives interpretation of prognosis and why patients or surrogates are reluctant to believe HCPs' prognostic estimates (particularly when the prognosis is believed to be poor) is an important element of effective communication.¹⁸⁵ More needs to be understood about how protocols, guidelines, communication, and elements of SDM might be adjusted to address these factors.

Ethical considerations demand caution when creating protocols or discussing realistic expectations with families to avoid decisions that may result in preventable deaths. Only by acknowledging these issues of uncertainty and potential self-fulfilling prophecy bias can HCPs and researchers begin to address the complexity of these interactions and have a clearer understanding of next steps.¹⁸⁶ When supporting families through SDM, clinicians must be honest with themselves about the limitations of their prognostic tools and how the range of potential recovery outcomes align with patients' values and preferences.^{95,174,175}

Good ethics start with good data. Improving the quality of prognostic tools and guidelines should continue to be a priority. Additionally, more needs to be understood on how machine learning can create, perpetuate, or compound these issues and potentially offer recommendations to mitigate risks.⁶⁶ Constant reassessment of the available data and novel solutions to data interpretation will help strike the balance to guide policy and well-informed SDM. Such a balance will help mitigate the

harms caused by decisions made based on unknown prognoses and biased by self-fulfilling prophecies.

Despite these limitations, available data and resulting guidelines inform a best estimate of which patients may benefit from initiation or continuation of CPR or continued life-sustaining therapies after initial resuscitation. Resulting decisions will always have individual and societal implications. Prolonged aggressive treatment of all individuals would deplete even resource-rich communities, let alone those with limited resources, and subject many patients to care inconsistent with their values and preferences. Conversely, no guideline or protocol can eliminate the possibility that some patients who would have benefited from aggressive treatment do not receive this care.

Potentially Inappropriate Therapies

In some circumstances, one or more medical treatments may be of no realistic benefit to a given patient.¹⁸⁷ All interventions have inherent risks of physical harm or indignity. Further, distributive justice supports the concept that medical treatments are limited resources that should be provided only when there is an expectation of potential benefit. Major professional societies support the ethical concept that HCPs are not obligated to provide treatments that have no plausible benefit to a patient, even when requested by surrogate decision-makers.^{100,188} For example, initiating CPR when there is clear evidence of irreversible death (eg, decapitation) is neither recommended nor required. Similarly, it is ethically justifiable to discontinue treatments that are determined to be of no possible benefit.¹⁸⁹ Beyond examples in which there is no possibility a treatment will achieve its intended purpose, there are instances in which a treatment may achieve its proximate intent but not advance overall care toward a patient's goal. For example, initiating renal replacement therapy may effectively filter the blood but will not promote survival in the face of a nonsurvivable neurological injury. Health care professionals must be aware of and consider relevant laws and policies that require or prohibit treatment in any particular circumstance. Excellent communication with patients and surrogates about both the proximate and larger goals for medical care and their perceptions of benefit and harm is essential when considering realistic benefits.^{100,189,190}

There are several challenges that can arise when considering withholding or withdrawing potentially ineffective CPR or ECC. First, determining that there is no plausible benefit to a patient can involve value-laden questions and subjective judgments. For example, living longer in a neurologically devastated state may justify continued life-sustaining therapies from the perspective of one patient (as represented by a surrogate decision-maker) but be unacceptable to another. In cardiac arrest and postarrest care, prognostication can be challenging (refer to Prognostication and Uncertainty). Once initiated,

resuscitation can be discontinued, but the decision not to initiate treatment is often irrevocable. Thus, HCPs should generally err on the side of providing resuscitation when uncertainty exists. Although some professional bodies have limited consideration of potential benefit to achieving physiologic goals for a patient,^{99,100} this may be insufficient to guide decision-making in resuscitation.

Requests from surrogates for resuscitation considered inappropriate by HCPs pose ethical challenges.¹⁹¹ These cases are infrequent and can often be prevented or resolved through excellent communication and SDM (refer to Ethical Decision-Making in Resuscitation). However, when intractable, these disagreements can result in adverse emotional outcomes in patients, surrogates, and HCPs and suboptimal treatment decisions. In general, disagreements between a patient, surrogate, or both and HCPs about the appropriateness of treatments should be resolved through a process-based approach.^{99,100} Detailed discussion of these processes is beyond the scope of this guideline, but in general, these processes are designed to avoid harm to patients and ensure procedural justice. Time constraints when considering resuscitation may limit the ability to use fully a process-based approach, but these real-world constraints do not justify a careless approach. Whenever possible, to minimize the chance an individual HCP's perspectives and biases influence determinations of benefit and to protect HCPs from moral distress, processes to resolve conflict about potentially inappropriate therapies (and resulting treatment decisions) should rely on an institutional committee or ethics consultant and be made in accordance with institutional policies.^{99,100}

Cultural, Religious, and Other Considerations

In a society that is increasingly diverse and pluralistic, HCPs must understand the cultural norms, family traditions, religious beliefs, and spiritual considerations with regard to resuscitation decisions.¹⁹² In general, the law of the land applies to most members of a society with respect to initiation of CPR and TOR.¹⁹³ More complicated are decisions related to EOL care, especially ACPs, withdrawal of life-sustaining therapies, and declaration of death by neurologic criteria. It is important to recognize that even within a particular religious tradition or culture, there is often significant variability in how individual patients and surrogates approach EOL decisions, such that HCPs cannot assume a particular response.^{194,195} These decisions are also influenced by factors like socioeconomic status, education, considerations of societal costs, broken trust in the medical system, and ethical beliefs of the involved HCPs that may modify the interpretation and application of religious and cultural norms.^{192,196,197}

In many cultures and religions, HCPs have been traditionally trusted with the authority to guide medical treatment.^{193,198} Respecting autonomy means that it is equally

important for HCPs to discuss with patients, surrogates, or both their wishes regarding the degree of involvement of HCPs, family, community members, or religious authorities in decisions related to EOL care. In some cultures and religious traditions, the concept of death by neurologic criteria is not well accepted and organ transplantation rates remain exceptionally low.¹⁹⁹ Similarly, various cultures and traditions prioritize length versus quality of life differently. Sensitivity to differing views on the definition of death may be increasingly important when discussing the transition from resuscitation to comfort measures and withdrawal of life-sustaining therapies. The treatment of suffering near EOL may also vary significantly between individuals and different cultures/religious traditions. For example, some traditions view suffering as redemptive and, therefore, patients may wish to avoid treatments that affect clarity of mind to overcome suffering.²⁰⁰ There may be limits on the acceptance of religious or cultural wishes. For example, while the decision by an adult Jehovah's Witness to refuse blood transfusions is generally accepted, many institutions may seek court approval over a parent's objections to transfuse minors in elective situations or transfuse such patients in emergency situations. Lastly, there are many cultural and religious traditions that should be respected, when possible, at EOL.²⁰¹ These may include reception of sacraments near death, traditions in the way the body is handled after death, respect for bodily integrity, and the timing of funeral rites and burial or cremation.^{193,198,200,202,203}

OTHER ETHICAL TOPICS

Ethical considerations in resuscitation are not limited to decisions to initiate or withhold CPR or to continue or terminate CPR or other life-sustaining therapies. Many other topics merit special consideration. These include the ethics of resuscitation research and knowledge generation, the impact of resuscitation on all involved individuals, resource limitations leading to crisis standards, advanced therapies, and organ and tissue donation; this does not represent an exhaustive list, but these topics are encountered regularly by HCPs and so are addressed in a later section.

Research and Knowledge Generation

Medical research seeks to create generalizable knowledge. During resuscitation, research poses unique challenges. Studies show that even in emergency circumstances, many research participants report being glad they were asked for prospective consent.²⁰⁴ However, patients experiencing life-threatening emergencies often lack capacity and narrow therapeutic windows for intervention and acute emotional reactions of surrogates preclude usual informed consent processes, and yet, available treatments remain unsatisfactory. To address this scenario, a process for Exception From Informed Consent was developed for emergency research that meets

specific regulatory requirements.²⁰⁵ Exception From Informed Consent requires prospective community consultation and public disclosure, coupled with the ability for individuals to indicate to researchers that they wish to opt out of trial participation. Even under Exception From Informed Consent, when it is possible, potential research participants should be allowed to decline participation.

Some research in resuscitation (eg, all observational research) does not meet criteria for approval under Exception From Informed Consent. Other ethical pathways for regulatory approval include seeking a waiver of informed consent (eg, when the research is purely observation and determined to pose no greater than minimal risk to participants) or obtaining prospective informed consent.²⁰⁶ It is the role of institutional review boards, not investigators, to determine the appropriate regulatory pathways and the responsibility of medical researchers to seek institutional review board approval for their research. It is unethical and illegal for investigators to bypass regulatory requirements for activities meeting recognized definitions of clinical research.²⁰⁶ Patients who experience life-threatening emergencies including cardiac arrest are often unable to advocate for themselves and particularly susceptible to power dynamics introduced by their unexpected and precarious state. The history of medical research is fraught with examples of putatively well-intentioned investigators unethically exploiting vulnerable populations to advance medical knowledge.²⁰⁷

The AHA's Emergency Cardiovascular Care Committee believes that there is an ethical responsibility to use the utmost rigor when synthesizing available evidence into treatment guidelines (refer to "Part 2: Evidence Evaluation and Guidelines Development"). In resuscitation, there is often insufficient evidence to support a strong recommendation of benefit or harm. In these situations, HCPs and health care organizations must still develop and update protocols and make individualized treatment decisions, as appropriate. When there is a plan to investigate these sources of practice variability to create generalizable knowledge, research protections apply and should not be circumvented through use of quality improvement regulatory pathways.

Impact on Health Care Professionals

The AHA strongly advocates for HCPs who perform resuscitation to be protected from physical harm.²⁰⁸ Assessing scene safety is the first step in the recommended approach to basic and advanced life support, and taking preventive measures helps to mitigate infection and electrical risks in addition to musculoskeletal injuries.²⁰⁹ Health care professionals have legal and ethical duties in their professional capacities to provide treatment to patients. How far this duty extends in the face of personal risk remains hotly debated.²¹⁰ Health care

professionals' perceptions of risk may differ significantly from evidence-based risk assessments.²¹¹ Moreover, time-pressured judgments may be influenced by HCPs' conscious and unconscious biases. For example, historically some HCPs refused to care for patients infected with HIV despite little objective risk.²¹²

To provide more objective guidance, health care, governmental, and regulatory institutions synthesize available evidence quantifying the risk to HCPs from delivering care in any particular circumstance (eg, the probability of disease exposure, the probability of resulting infection, and the severity of the consequences) and provide strategies to minimize this risk without adversely affecting patient outcomes. For example, aerosol-generating procedures during resuscitation carry some risks (refer to "Part 10: Adult and Pediatric Special Circumstances of Resuscitation"). A systematic approach to these decisions can protect HCPs, minimize adverse effects on patients, and maximize equitability of care. Evidence-based recommendations cannot fully address every clinical scenario or circumstance, so HCPs must be able to interpret and apply guidance in context. When doing so, they should be mindful of their potential biases, be deliberate in their approach to decision-making, and apply a systematic approach to weighing the available evidence.

In addition to the potential for physical harm, performing CPR is one of the most stressful and emotionally demanding experiences in health care. While many HCPs report participating in CPR is a positive experience,²¹³ myriad studies highlight the potential for post-traumatic stress among HCPs who perform CPR.^{214–216} Health care professionals who practice in settings where CPR is common, such as the intensive care unit, experience uniquely high levels of anxiety, depression, and burnout.^{217,218}

Moral distress can occur when there is disagreement about whether CPR is the 'right' thing to do and is described in this context as an individual psychological phenomenon experienced by an HCP who makes a moral judgment about the right course of action but who is unable to act on that judgment due to institutional or structural constraints.²¹⁹ The risk of moral distress here originates from disagreement about when providing CPR is the right thing to do. Studies of HCPs show that they perceive many attempts at CPR to be inappropriate,^{220,221} especially when they believe from available information that prognosis is likely to be poor.²¹⁹ In some cases, moral distress is categorized more broadly to include any negative emotional response to morally challenging situations, such as those of moral constraint or conflict.^{222,223} Research shows that moral distress has significant consequences to the well-being of HCPs and the provision of medical care.²²⁴ Clinicians experiencing high levels of moral distress are more likely to seek different roles or leave the profession altogether.^{225,226}

To some extent, moral distress in the setting of resuscitation is unavoidable. As resuscitation science advances, both clinical and ethical best practices must be continually redefined (refer to Prognostication and Uncertainty). During this process, there will often be a lack of moral consensus, which can lead to moral distress.²²⁷ Institutions have opportunities and an ethical obligation to provide ethical guidelines and policies regarding resuscitation and to establish procedures for discussing controversial ethical issues and resolving refractory disputes. Managing these complex emotions and responses should not fall on the individual alone. Just as health care organizations can address stress, burnout, and clinician wellness through therapeutic and educational interventions,²²⁸ moral distress can be mitigated using multidisciplinary resources, such as ethics and moral distress consultation services^{229–231} and post-CPR debriefing.²³² These efforts provide a safe space for discussion and processing emotions and help HCPs feel heard and understood.

Impact on Survivors

Patients who survive CPR often experience lasting physical, functional, cognitive, social, emotional, and other symptoms.²³³ These may cause significant and sustained harm to survivors, but when properly addressed, these harms can often be mitigated through evidence-based screening, intervention, and referral to post-acute services (refer to "Part 11: Post-Cardiac Arrest Care" and "Part 8: Pediatric Advanced Life Support"). For this reason, the AHA recognizes survivorship and recovery as integral to the Chain of Survival. Although the duty of HCPs to patients is often bound by setting and timing (for example, EMS professionals are not ethically bound to provide rehabilitation services after hospital discharge), the same is not true of health care organizations. These organizations have an ethical responsibility to develop systems of care that optimize the long-term health and well-being of the patients they serve (refer to "Part 4: Systems of Care"). Additional research that guides how best to achieve this goal is urgently needed.

Impact on Laypersons, Families, and Caregivers

Cardiac arrest and other cardiovascular emergencies can have lasting psychosocial impacts on laypersons, including responders who deliver early resuscitative intervention, families and friends, and caregivers of patients who were successfully resuscitated. Although the primary duty of HCPs is to the patient, ethical obligations extend to supporting families, caregivers, and others who surround the patient.²³⁴ These obligations are grounded in beneficence and equity, as well as ethics of care and utilitarianism, and can minimize costs to society

that result from adverse social and emotional outcomes of individuals adjacent to the patient.

Witnessing cardiac arrest and delivering CPR can be empowering but can also be traumatic experiences for lay responders.^{235,236} In addition to direct harm to responders from emotional distress and resulting psychosocial sequelae, adverse outcomes can reduce willingness to respond in the future.²³⁷ The ethical obligations to lay responders parallel those to HCPs, as addressed previously.

Family Presence During Resuscitation

Increasingly, family members are allowed to be present during resuscitation to (1) allow for support and dignity of the patient, (2) witness efforts by HCPs, and (3) aid the care team by providing information about the patient's condition and expressed wishes. Determining how to best support FPDR is complex and multifaceted, balancing the needs of the patient, the family, and the HCP team. Though not every patient and their supportive others will desire such accompaniment, many do favor this approach.^{238,239} FPDR can have emotional benefits for family members by providing closure and a better understanding of the patient's condition and reducing complicated grief, which can lead to improved long-term psychological outcomes.^{238,240} Recognizing these benefits, multiple professional guidelines recommend inclusion of patients' relatives during CPR.^{241,242} For infants and children, several studies have shown that FPDR has beneficial behavioral health outcomes in the grief process (refer to "Part 8: Pediatric Advanced Life Support" for specific recommendations).^{243,244} FPDR has been recommended in pediatric advanced life support for 20 years and is routinely practiced in many settings that provide high-level pediatric care. Studies have demonstrated that experienced HCPs are more likely to support the practice.^{245,246}

At the same time, there are concerns associated with FPDR, including potential emotional trauma to family members,²⁴⁰ interference with medical care,²⁴⁷ patient confidentiality,²⁴⁸ and the necessity of maintaining professional autonomy in clinical decision-making. Professional autonomy empowers HCPs to apply their clinical judgment in determining the most appropriate treatment or intervention for each patient. This is especially crucial in resuscitation, where quick and decisive action is often required. Interference is uncommon in both pediatric and adult resuscitations.^{249,250}

When considering FPDR, the focus should be to prioritize patient welfare, while also factoring the psychological impact on family members and the dynamics of the medical team. Teams should respect patient and family autonomy while maintaining optimal resuscitative care, thus demonstrating beneficence and nonmaleficence. To ensure that patients and family members who desire FPDR receive just care, institutions should develop clear

policies on whether there are specific circumstances or considerations that could preclude FPDR. In addition, institutions should ensure sufficient resources and training to support clear communication, robust emotional support for the family (ideally from a team member dedicated to this task, such as a social worker or chaplain), and professional training for HCPs in managing situations involving FPDR.^{240,251}

Regardless of presence during initial resuscitation, cardiac arrest and cardiovascular emergencies have a lasting impact on families of both decedents and survivors. Families of decedents often develop posttraumatic stress, anxiety, and depression.²⁵² Early factors such as quality and clarity of communication and FPDR can help mitigate these reactions, but additional bereavement and psychiatric support may be required. Families and caregivers of patients who survive initial resuscitation also endure lasting consequences, including posttraumatic stress, anxiety, anger, and confusion.²³³ To respect patient autonomy and promote beneficence and nonmaleficence, HCPs should ascertain whether patient wishes regarding the extent of caregiver involvement have been established, should monitor caregivers for distress, and should provide appropriate support and referrals for additional services following the resuscitation.²³⁴

Crisis Standards of Care

Crisis standards of care are guidelines that amend the standard of medical care in response to a disaster event. Qualifying events are those of sufficient size and scope to outpace the capacity of health care systems, facilities, and HCPs to meet the usual standard of care.^{253–255} Crisis standards are distinct from contingency standards, in which strained systems repurpose resources and enact mitigation strategies to avoid compromising care.²⁵⁶ In high-resource settings, crisis standards of care are implemented most often during mass casualty events (terrorism, natural disasters) and outbreaks (epidemics, pandemics). Crisis standards do not change or diminish HCPs' duty to patients. In a crisis, HCPs' legal and ethical responsibility is to take the same action that a reasonable and prudent HCP would take under similar circumstances. To date, there are no cases in which HCPs acting in good faith in disaster response have been found liable for the care they provided.^{257,258} Crisis standards of care guide what actions may be considered reasonable and prudent without asking individual HCPs to make this judgment alone and in real time. This approach can mitigate moral distress by providing clear frameworks for decision-making and prioritization and minimize inequities when these judgments are made by individual HCPs who are susceptible to conscious and unconscious biases. This framework allows institutions and government entities

to develop policies to provide care in a thoughtful, equitable manner and further obligates institutions to develop collaborative arrangements, share resources, and transfer patients, allowing for creative approaches and solutions.

Ethical norms of utilitarianism and fairness inform the design and implementation of crisis standards. Utilitarianism holds that the proper course of action is the one that produces the greatest good for the greatest number of people. This view dictates that in a catastrophe, care should be organized to save the most lives possible. While a principlist approach to an individual's care remains relevant,² crises often demand rebalancing ethical priorities. Autonomy may be deprioritized in favor of justice and beneficence reconceptualized as acting for the good of the population at large rather than the good of the individual patient.²⁵⁹ The principle of solidarity, everyone acting toward a common purpose and assuming mutual responsibility, often emerges as a relevant moral consideration in crisis states.

Crisis standards of care should strive to provide a just distribution of resources and promote equitable health outcomes (refer to Striving for Equitable Health and Resuscitation). Simply dividing resources equally or using a first-come, first-served approach will not save the most lives, and relying on scoring systems that utilize comorbidities and expected life years will often result in a disproportionate impact on poor and marginalized populations.^{260–263} Without a clear best solution to this challenge, focusing on the process by which crisis standards are written and implemented is essential. The moral standing of any crisis standard depends on it being recognized as fair by the people most likely to be affected by it. Stakeholders at all levels should provide input, and consideration should be given to adopting standards that reflect the values and priorities of the affected communities. For example, from 2012 to 2014, Maryland authored its crisis standards policy by conducting 15 community engagement forums across the state. The input from laypersons, ethicists, lawyers, medical personnel, and public health experts was used to generate a framework for resource allocation in case of a disaster event, which was then reviewed and approved by advocacy groups representing persons with disabilities and older adults.^{264,265} During the COVID-19 pandemic, several US states, including Maryland, documented crisis standards of care and found that previous policy work aided in navigating the exceptional ethical and practical demands placed on HCPs and organizations. Many organizations found that the crisis standards of care were necessarily tailored to specific scarce resources. During surge cases, for example, organizations faced critical shortages of personal protective equipment, therapies, and vaccines.^{266,267}

Advanced Therapies

A variety of advanced therapies may be considered to treat highly selected cardiac arrest patients who fail to respond to conventional resuscitation. These include extracorporeal membrane oxygenation initiated as a rescue therapy during active CPR, called extracorporeal CPR (ECPR), and other forms of mechanical circulatory support, which we consider here as a specific example of an advanced therapy with ethical implications. A summary of the evidence for ECPR and resulting treatment recommendations are discussed in “Part 9: Advanced Life Support” and “Part 8: Pediatric Advanced Life Support.” These technologies require careful ethical consideration.²⁶⁸ Ethical issues include limited data to guide patient selection, difficulty obtaining informed consent, high cost and resource utilization with associated questions of equitable distribution, and the role of these therapies in the possible transition from unsuccessful resuscitation to organ donation or withdrawal of life-sustaining therapies (refer to “Part 4: Systems of Care”).

Few data are available to guide patient selection for ECPR in adults who experience OHCA, specifically differentiating patients who might benefit from the procedure from those who might be harmed. In addition, potentially eligible patients uniformly lack capacity during ongoing CPR and surrogate decision-makers are often unavailable or unable to engage fully in SDM or provide informed consent in the time frame within which a treatment decision must be made.^{269,270} Thus, ECPR is often initiated based on implied consent rather than informed consent.

Given substantial uncertainty identifying patients who may benefit from ECPR, some patients are treated but fail to regain sufficient cardiac or neurological function to permit acceptable quality of recovery. In this situation, continuing advanced therapies can potentially become inappropriate.²⁷¹ After initiation of ECPR, it is important to reevaluate the patient's prognosis, treatment options, and values and preferences for medical care frequently and to engage in SDM with the patient or surrogate as they become available. Extracorporeal CPR programs need to have plans in place addressing how to handle (from both HCP and patient or surrogate perspectives) situations in which the patient remains dependent on extracorporeal support despite maximal therapy and options to transition to other therapies are exhausted. As costly, labor-intensive, and reliant on potentially limited resources as advanced therapies like ECPR are, there may be situations (such as a respiratory pandemic) in which allocation of advanced therapies becomes an urgent issue. Prior literature provides guidance on how hospital teams can develop ethically permissible policies allowing unilateral withdrawal of unsuccessful extracorporeal support despite patient or surrogate objections,

although this remains an incompletely settled question in the ethics literature.^{271,272}

There are significant financial, personnel, and infrastructure costs associated with ECPR. Few studies have examined the cost effectiveness of ECPR, although preliminary analysis suggests it might be cost effective in selected cases.^{273,274} Policymakers do not yet have sufficient data to decide if the costs of providing routine ECPR for eligible patients is justified relative to other potential uses of resources. Complicating ethical consideration of these questions is the difficult-to-quantify potential future benefits of more widespread adoption. As discussed previously (refer to Prognostication and Uncertainty), with advances in care, patient outcomes improve over time. Greater adoption of advanced therapies today may lower future costs and improve patient outcomes as HCPs gain expertise and these tools become more widely available. Potential future medical progress must be weighed against the costs and potential harms of implementation today.

Because ECPR is a limited resource in current systems of care, it must be distributed justly. A recent study found significant racial, gender, and insurance status disparities in the use of advanced therapies.^{275,276} Although there is a paucity of data to explain these observed differences, it is likely there are both systemic and individual contributions. Systemically, patients who live in poorer neighborhoods or rural areas may have longer EMS response or transport times to ECPR-capable facilities. This can substantially limit any benefit conferred by ECPR or entirely preclude access to treatment. This source of disparity can be addressed through development of systems of care (refer to “Part 4: Systems of Care”). Individual HCPs who make treatment decisions that determine ECPR eligibility (decision to initiate CPR, decision to transport with CPR ongoing, decision for ECPR after hospital arrival, etc) have both conscious and unconscious biases that affect their decision-making. High-stakes decisions under time pressure often rely on heuristics that are particularly susceptible to unconscious biases. Inequities originating from these human factors can be attenuated through use of protocols, but it is important to note that protocols can also perpetuate systemic inequities. For example, protocols that incorporate assessments of likelihood of benefit from ECPR that are influenced by social drivers of health potentially create systematic exclusion of certain patient populations for expected lack of benefit, leading to inequitable outcomes. For example, measures of organ dysfunction, such as pulse oximetry or biomarkers of renal function, can be influenced by race or ethnicity.^{277,278} Thus, it is essential to consider these potential biases, in addition to disability and possibly genetic conditions, in designing any ECPR program.

Implications of advanced therapies on organ and tissue donation are discussed in a later section.

Organ and Tissue Donation

As discussed in the 2023 focused update on advanced cardiovascular life support and reaffirmed elsewhere in these guidelines, organ and tissue donation should be considered in all patients resuscitated from cardiac arrest who progress to death by neurological criteria or for whom withdrawal of life-sustaining therapies is planned (refer to “Part 4: Systems of Care,” “Part 9: Advanced Life Support,” and “Part 8: Pediatric Advanced Life Support”).²⁷⁹ Organ and tissue donation should also be considered in other clinical circumstances that permit (eg, tissue donation after circulatory death). Schiff and colleagues recommend the “implementation of protocols that aim to promote public trust and reduce conflicts of interest...proactively addressing these ethical and logistical challenges...to maximize lives saved through improved resuscitation with good neurological outcomes and increased organ donation opportunities when resuscitation is unsuccessful.”²⁸⁰ As in all situations, decisions for a planned transition to EOL care should be made for the patient's benefit before, and independently of, any consideration of offering organ donation to the patient or surrogate. Ethically, these measures respect the autonomy of patients who would wish to become organ donors; offer benefits to surrogates or HCPs who find solace in the donation outcome; and have clear benefits to the organ recipients, their families, and society through improved health, longevity, and quality of life after transplantation.

Extracorporeal perfusion can be initiated after failed CPR specifically to facilitate uncontrolled donation after circulatory death (uDCD) in patients deemed to have no possibility of recovery from their cardiac arrests.²⁸¹ Many European countries have an opt-out perspective in which it is assumed that a cardiac arrest patient would wish to be a donor unless they specifically decline. In the United States, the default position is an opt-in approach in which patients are presumed not to be organ donors unless they have specified a wish to do so. This poses an ethical question for HCPs treating refractory cardiac arrest as to whether extracorporeal machine perfusion should be initiated after TOR and pronouncement of death by circulatory criteria to preserve an opportunity for organ donation.²⁸² In opt-in systems, some argue that protocols to initiate extracorporeal perfusion for organ preservation without patient or surrogate consent may damage public trust by appearing to favor public interest over the individual patient's benefit and autonomy.^{280,283} Extracorporeal perfusion raises additional questions about the irreversibility of death because cardiac activity or brain perfusion can be restored, potentially in violation of the dead donor rule.^{283,284} A final ethical concern is the just distribution of expensive and labor-intensive extracorporeal support capabilities in rural or underserved urban areas. It is important to recognize that if ECLS for clinical purposes is not available, use of extracorporeal

machine perfusion use for organ preservation alone could reinforce the appearance of favoring organ preservation over lifesaving measures.^{280,283,285}

With regard to the transition of ECLS from a life-sustaining measure to a support for uDCD, Dalle Ave and colleagues²⁸² recommend the following:

- (1) [T]he development of internationally accepted termination of resuscitation guidelines that would have to be satisfied prior to inclusion of patients in any [uDCD] protocol, (2) the choice regarding modalities of ongoing resuscitation during transfer should be focused on the primary priority of attempting to save the life of patients, (3) only centers of excellence in life-saving resuscitation should initiate or maintain [uDCD] programs, (4) [ECLS] should be clinically considered first before the initiation of any [uDCD] protocol, and (5) there should be no discrimination in the availability of access to [ECLS].

Ethically, these recommendations minimize the risk of perceived or actual conflicts of interest, seek to maintain public trust, and ensure an equitable distribution of limited resources.

There are additional nuances in organ and tissue donation after cardiac arrest in neonatal and pediatric patients that should be considered. Fewer neonatal and pediatric patients become donors when compared with adults,^{286–288} which limits available data on the frequency and outcomes of attempted donation.²⁸⁸ This may contribute to variability in center-specific approaches to donation, with potential impact on whether donation is offered for clinical or research purposes,^{288,289} center-specific approaches to counseling families/informed consent,²⁹⁰ methods used to determine death,^{290,291} premortem interventions performed to facilitate donation,^{288,292} and choices offered in perimortem care.²⁸⁶

These issues need to be addressed in any program offering organ donation after cardiac arrest. As medical advances related to organ donation and transplantation evolve, there is a need for enhanced collaboration across

centers to standardize approaches and provide HCP and community education.

CONCLUSION

Ethical frameworks provide a structure through which difficult decisions can be considered, including many situations frequently encountered in resuscitation and ECC. This guideline summarizes key principles that have been developed from historical frameworks as well as more contemporary expressions of these evolving principles. This document offers practical guidance on how best to implement these concepts in the often emotionally charged setting of acute care, but it is not intended to be exhaustive. HCPs, clinical ethicists who provide them guidance, as well as institutions developing policies and procedures should use this guideline as a foundation for their own critical analysis of difficult situations. They should also use this guideline to engage their patients, families, and colleagues in thoughtful discussion, debate, and SDM to make the best decision for each individual patient in a specific set of circumstances. Such complexity will never be easily translated into the algorithms often used to guide treatment throughout other chapters in these guidelines. Yet these intricacies may also provide the rewards of patient interaction and the human experience that result in moments of professional fulfillment as equitable and compassionate care is provided to patients and families in these situations.

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Disclosures

Appendix 1. Writing Group Disclosures

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(Continued)

Appendix 1. Continued

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This table represents the relationships of writing group members that may be perceived as actual or reasonably perceived conflicts of interest as reported on the Disclosure Questionnaire, which all members of the writing group are required to complete and submit. A relationship is considered to be "significant" if (a) the person receives \$5000 or more during any 12-month period, or 5% or more of the person's gross income; or (b) the person owns 5% or more of the voting stock or share of the entity, or owns \$5000 or more of the fair market value of the entity. A relationship is considered to be "modest" if it is less than "significant" under the preceding definition.

*Modest.

†Significant.

Appendix 2. Reviewer Disclosures

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*Modest.
†Significant.

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