

Wilderness Medicine Ethics

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Ethics is the application of moral values and principles to guide human action. Providing care for others often involves intense human interactions and health care providers must frequently examine ethical issues in their work. The moral issues in wilderness medicine, while an extension of traditional medical ethics, are not directly comparable to the moral issues that arise in either medicine delivered in health care facilities or the care delivered by urban emergency medical services. Wilderness medicine is unique, and its special attributes create unique ethical problems (Table 1). The working environment, concepts of standard of care, safety of the rescuers and patients, and even the relationship between the provider and the patient are different in a remote environment than in a traditional medical setting. For example, a hospital’s working environment is rarely a factor considered by the hospital-based practitioner in the determination of what medical care to deliver, but the working environment is of major concern in the wilderness. Similarly, whereas patients usually have a clear legal relationship to the hospital practitioner, and arrive requesting care, neither condition is necessarily true in the wilderness setting. Even more striking are the differences between the hospital and the wilderness setting with regard to equipment availability, personnel training, the need for evacuation or rescue, and the provision for the safety of those involved. All these differences can lead to unique ethical dilemmas in wilderness medicine.

This chapter provides an overview of ethical values as they are applied to wilderness medicine. It describes a model for bioethical decision-making in wilderness medicine and provides examples of unique dilemmas in wilderness medicine.

TABLE 1. Differences among Hospital Practice, Emergency Medical Services, and Wilderness Medicine

HOSPITAL PRACTICE	EMERGENCY MEDICAL SERVICES	WILDERNESS MEDICINE*	
Environment known, changeable	Controlled, known, static Uncontrolled, partly known, changeable	Partly controlled, partly	
Patient requests care	Known, requests care Unknown, sometimes requests care	Unknown, sometimes	
Equipment	Sophisticated	Adequate	Rudimentary
Security	Safe	Usually safe	Questionable
Personnel	Highly educated, definitive care Variable education, basic care	Highly educated, basic care	
Evacuation concern	Rare	Built into system	Major
Rescue	No	Rare	Common

*Includes search and rescue.

APPLICATION OF VALUES AND PRINCIPLES TO GUIDE HUMAN ACTIVITIES

Moral values are acquired throughout life from many sources and develop into ethical action guides. In everyday situations, individuals may be unaware that these values are guiding their actions. However, when faced with situations that are rarely encountered people may question how they should apply their values to solve practical problems. Such situations develop in wilderness medicine since the settings can challenge practitioners to demonstrate expertise outside the usual scope of their medical specialties.

Both patients' and clinicians' values control patient–clinician encounters. When patients express their values, clinicians can get an impression of the patients' views about necessary treatment, desired quality of life, and other complex attitudes that control the willingness to seek and accept medical care. The clinicians' own values, both personal and professional, are also part of the relationship and sometimes conflict with the patients' values.

Ethical discussions often revolve around applying ethical principals in a consistent manner or in a way that could be applied by all practitioners in the same situation. Ethical principles or rules should be applied consistently across all scenarios. If an accepted principle is that patients with decision-making capacity may make their own decisions about health care, this principle should be applied to all situations, not just when it is convenient for the health care provider. Likewise, if the principle is universal to medical practice, all health care providers, not just a privileged or unique group, should be able to apply it to their practice.

Sources of Values

Moral values are the guideposts used to structure an individual's actions in life. They signify what a person's duties and responsibilities are, what is important to them, and how they interact with others. Thomas Aquinas said that the three vital things for each person are “to know what he ought to believe; to know what he ought to desire; and to know what he ought to do.”¹

Moral values derive from many sources: family, society, school, religion, the media, and professional training and related interactions. Family and religion generally guide the development of values in the formative years. For nearly everyone, these values form the bedrock on which his or her life is structured. Emphasizing the importance of early childhood learning is the maxim: If you control a child's life until the age of six years, he is yours forever. Additional significant influences are the media, schooling, and society. In this electronic age, the media begin to influence an individual's values early in life. Education broadens a child's experiences and values beyond the small world of the home. Finally, societal pressures continue to influence most individuals' value systems throughout life. Taken as a whole, different individuals' values derived from these multiple sources may conflict, leading to disagreements over which action to take when ethical dilemmas arise.

Professional schooling and interactions further refine how a person's values are applied. For example, one reason that medical students take anatomy courses is to destroy an ingrained cultural value against mutilating the dead. This allows them to accept and acquire the values of beneficial mutilation (surgery), handling the dead (resuscitations, pathology, transplants), and invading another's body (invasive medical procedures).² In addition, when exposed to clinical practice, medical students, nurses, medics, and other health care providers learn to adopt the values of their preceptors. In any residency program, trainees learn intrinsic professional values, and the majority of them behave remarkably like the faculty.

Values in Modern Biomedical Ethics

Another category of professional values, sometimes referred to as the *Georgetown bioethics catechism*, has emerged as an ideal for modern medicine, especially in the United States. These values include autonomy, beneficence, non-maleficence, and distributive justice.

For the past two decades in the United States, the overriding professional and societal bioethical value has been a patient's **autonomy**. Autonomy recognizes an adult's right to accept or reject recommendations for his or her personal medical care (even to the extent of refusing all care) in the presence of appropriate decision-making capacity. Current bioethical opinion demands that clinicians respect patient autonomy. This is the counterweight to the long-practiced paternalism of the medical profession, wherein the physician alone determined what was good for the patient. Coupled with paternalism is coercion, the threat or use of violence to influence behavior or choice. The august figure in white (or in a medic's or search-and-rescue uniform) who implies that there will be dire consequences if medical recommendations are not followed remains a potent challenge to patient autonomy.

At the patient's bedside, **beneficence**, the act of doing good, and **confidentiality**, the holding of information in confidence, have been long-held and nearly universal tenets of the medical profession. Likewise, personal integrity, the adherence to one's own moral and professional standards, is basic to ethical thought and action. The basic tenet taught to all medical students is **non-maleficence**, or "First, do no harm." This credo, often stated in the Latin form, *Primum non nocere*, derives from the historical knowledge that patients' encounters with physicians can be harmful as well as helpful. It recognizes every physician's fallibility.

The concept of comparative or **distributive justice** suggests that all individuals and groups in society should share equitably in the benefits and burdens of that society. Many society-wide decisions about the allocation of limited health care resources are based on this principle. Yet, it is a fallacy to extrapolate from this valid principle the idea that individual clinicians can arbitrarily limit or terminate care on a case-by-case basis simply because there exists a need to limit resource expenditures.³

Values Applicable to Wilderness Medicine

Safety or Security

Safety is wilderness medicine's controlling value in most circumstances. Safety, or security, signifies a measure of responsibility toward oneself, one's companions, and the patient. In the unique setting of wilderness medicine, this responsibility extends to the wilderness team's safety from the environment, victims, and their own poor judgment, a concept more familiar to emergency medical services (EMS) personnel than to health care providers in normal medical practice. However, this value is of paramount importance in wilderness medicine. Safety is the responsibility of any wilderness medical provider, even if he or she is not officially designated a provider but must take over in a medical crisis on the basis of special knowledge or skills. Decisions about rescue, evacuation, terminating group travel, or even attempts to perform certain medical interventions must include safety considerations.

Concerns about safety are applied in the following order: oneself, other team members, and then the patient. Ethical theory supports this hierarchy. Beneficence by medical personnel does not imply a need to endanger oneself, and, indeed, if medical skills are to be useful, medical personnel must be able to render care. In addition, inherent in any leadership position is a responsibility to protect one's team. Therefore, the team members' safety is the second responsibility. Finally, the patient's safety should be ensured, but never at the expense of the medical team's safety. This is to say that in unknown or unknowable circumstances, the medical leader may have to weigh potential risks against benefits. All risks must be considered in these "calculations," such as in the case of a badly injured trekker who might survive if evacuated by aeromedical transport. If the helicopter team is willing to attempt a pickup, the

wilderness medical care provider must determine whether local conditions are sufficiently safe, balanced against the chance of benefit to the patient, to justify the request.

One such example illustrating security issues occurred in the Pacific Northwest near Mount Baker. A group of adults and adolescents were on a hike above some snowfields when two parents and their daughter decided to glissade down one of the fields, something they had done before. As the mother and daughter sped over a crest, they dropped into a crevasse and were injured. The father pieced together what had happened and sought help. Eventually, a group of climbers were enlisted. No one was eager to descend into the trench but one man from the climbing group agreed to be lowered on a rope, telling the group, “Just make sure you get me out.”

The ethical question here is how much risk and responsibility untrained volunteers have in this type of wilderness crisis. A second issue that has to be considered is the capability of the group to attempt a rescue without endangering themselves and possibly creating a need for a second rescue. As a member of the hiking group, the father above had a responsibility to help; however, since he was technically incapable of the rescue, his only responsible avenue of action was to seek help. Bystanders, on the other hand, have no fundamental responsibility to help or to assume any risk beyond what they are willing to assume. The man who agreed to be lowered into the crevasse would have been acting ethically if at any point in the rescue attempt he had signaled to the group to pull him up without helping the victims or if he had walked away without allowing himself to be lowered into the trench in the first place. Despite entreaties from others, bystanders need not justify their participation or nonparticipation to anyone but themselves.⁴

In contrast, Ernest Shackleton, the appointed leader of a 19th-century attempt to be the first to reach the South Pole, did have a responsibility to do his utmost to see his men safely home. During the voyage, their ship broke up in the ice, and the men had to pull lifeboats over ice to reach open sea, struggling against all odds to reach safety. Shackleton’s steady and undaunted leadership is credited with helping get all his men to safety.⁵

A unique ethical problem that arises in wilderness settings—and that has often led to disasters—is when the team, especially the nonmedical team leader, ignores or overrides the medical person’s decision. Individual team members have been harmed and multiple team members lost because factors other than the team members’ safety and well-being were given priority.^{6,7} Heeding the demands of safety is especially important because the majority of people who are in the wilderness have risk-taking personalities, leading them to downplay security in favor of adventure.

Utility

In the language of ethics, utilitarian thinking plays a dominant role in wilderness ethics. Utilitarianism is the philosophy that promotes the greatest good or happiness for the greatest number of individuals. When applied to wilderness medicine, it promotes the well-being of the many over the well-being of the individual. This can be defended by simply recognizing the unique aspects of wilderness medical practice, such as the uncontrolled environment, unfamiliarity with the patient, rudimentary equipment, and changeable situations—all contributing to safety concerns.

The ultimate application of utility in remote settings was described in the great survivor story of the men of the *Essex*, the doomed whaling ship that was the basis for Herman Melville’s *Moby Dick*.⁸ As was common after shipwrecks, the men drew lots to decide who would be sacrificed and die so that the others in the small boat could live a little longer without starvation.⁹ One can argue that if all the men consented to this process, then it was ethical, but the very nature of the situation put each man under such extreme duress that it would be questionable if any man’s consent could be considered voluntary.

In these types of extreme circumstances, the ethics of draconian decisions such as survivor cannibalism are always fraught with paradoxical ethical dilemmas.²

Decision-Making Capacity and Consent

Many ethical dilemmas in emergency medical care revolve around ascertaining a patient's decision-making capacity, often linked with consent to (or more often refusal of) a medical procedure. Since a basic canon of both ethics and law, as stated by Justice Cardozo, is, "Every human being of adult years and sound mind has a right to determine what shall be done with his own body,"¹⁰ these decisions about what action to take can often be made clearer by understanding what is meant by decision-making capacity and how it relates to consent. (Note that the word *competent* is often used when *capacity* is really what is meant. *Competent*, meaning, "possessing the requisite natural or legal qualifications," is a legal term and can be determined only by the court.¹¹)

Box 1. Components of Decision-Making Capacity¹²

Knowledge of the options

Awareness of the consequences of each option

Appreciation of personal costs and benefits of options in relation to relatively stable values and preferences

Capacity is always decision-specific rather than global. To have adequate decision-making capacity in any particular circumstance, a person must understand the available options and the consequences of acting on the various options and be able to compare any option he or she chooses against the costs and benefits related to a relatively stable framework of personal values and priorities (Box 1).^{12,13} This last requirement is the most difficult to understand and requires a subjective interpretation. The easiest way to assess it is to ask why an individual made such a decision. Disagreement with the physician's recommendation is not in and of itself grounds for determining whether a person is incapable of making his or her own decisions. In fact, even the refusal of lifesaving medical care may not prove the person is incapable of making valid decisions, if it is made on the basis of firmly held religious beliefs, as in the case of a Jehovah's Witness refusing a blood transfusion.

A person must be permitted to consent to or to refuse any medical intervention if he or she has decision-making capacity for that decision and if the clinician respects the patient's autonomy. Three general types of consent exist: presumed, implied, and informed. **Presumed consent**, sometimes called emergency consent, covers the necessary lifesaving procedures that any reasonable person would wish to have if lacking decision-making capacity; controlling hemorrhage and securing an airway in an unconscious victim of a fall are common examples. **Implied consent** is when a person with decision-making capacity cooperates with a procedure, such as holding out an arm to donate blood or to allow initiation of an intravenous line. **Informed consent** is when a person who retains decision-making capacity is given all the pertinent facts regarding the risks and benefits of a particular procedure, understands them, and voluntarily agrees to undergo the procedure.¹⁴

Questions applying to consent in the wilderness setting can be difficult. Does the victim have the capacity to understand the situation? Will decision-making capacity be questioned only if a person refuses "good" medical care? Also, unresolved even in standard medical practice, what procedures require informed, as distinct from implied, consent? The requirement to obtain informed consent varies in practice and law from area to area. This variation stems from differing local practice standards and state law and disparities in physician training. Determining decision-making capacity and providing an

opportunity for a victim to consent to a procedure when appropriate are crucial to respecting a patient's autonomy.

BIOETHICAL DECISION-MAKING PROCESS¹⁵

Both standard bioethics and wilderness medical ethics often involve difficult situations with no “correct” answer. Usually, more than two possible actions exist. When faced with such a dilemma, how should the practitioner choose? Health care professionals often apply their values without much conscious deliberation. They act instinctively based on their prior behavior and training. Values are constantly (although not necessarily consistently) applied to everyday decisions. Of course, most decisions are not ethical decisions. Ethical dilemmas arise with a conflict between two seemingly equivalent values that are represented by different and mutually exclusive possible actions.

An example of a bioethical dilemma in wilderness medicine may help illustrate ethical decision-making. A distress call has been received from anxious relatives or by radio from a plane flying over a wilderness area. The victim is in a hazardous area or, more commonly, is caught in terrible weather. The clinician directing a search-and-rescue team must decide how to respond to the call in a setting that may put the team in danger. The standard bioethical value of beneficence directly competes with the bioethical value of safety in wilderness medicine. Each has a strong pull on the decision maker, with each value providing good arguments for sending or not sending the rescue team. Although the value of safety may often be considered paramount in the wilderness setting, the emotional and altruistic pulls of beneficence make this a difficult choice. Considering this case, a word should first be said about rights and duties in relation to health care.

Although the word *rights* is glibly used in many situations, a personal right is present only if another person or society as a whole has an identifiable duty to the individual. One person has a right to receive a service from another person only when the second person has a duty and therefore an obligation to provide that service. Correspondingly, no health care practitioner has a duty to provide all the health care people desire or need. Practitioners do, however, have a duty to provide safety, when possible, for those they direct in wilderness settings.

Because an ethical dilemma arises when two or more seemingly correct actions appear to have equal benefits, the choice of actions should be examined first. How are these proposed “correct” actions determined in the first place? After that, which of these actions is the more ethically acceptable?

Deciding on an Action in the Standard Setting

Jonsen and colleagues¹⁶ have suggested four groups of factors to consider when determining a course of action in the face of a bioethical dilemma in the standard clinical paradigm. These include the medical indications for the action, the patient's preferences, consideration of the quality of life, and other contextual factors. These have been seen as an “ethical square,” with the top two boxes weighing more heavily (Fig. 1).

Medical indications are often more straightforward in the wilderness setting than they are in standard health care. In the wilderness, treatment is basic, injuries and illnesses are generally acute, and intervention is normally life preserving rather than death prolonging. The clinicians use standard clinical algorithms for their appropriate level of training and expertise. In remote areas, of course, questions may arise about whether an ophthalmologist should attempt to reduce a hip dislocation or whether a nurse should attempt to establish a surgical airway. These dilemmas should, when feasible, be decided with input from the patient or surrogate. As a matter of proper planning, behavior in critical scenarios must be decided in advance. In general, however, medical indications are clear.

Bioethicists normally feel most comfortable helping to resolve cases using only the medical indications and patient wishes, which are all above the double line in Figure 1. When these factors are ambiguous, however, two other sets of factors must be considered: contextual factors and quality of life. In the wilderness setting, the primary contextual factor is safety. This may overshadow all other considerations involved in a victim's treatment. Other contextual factors include financial implications of various treatments and the effect of various options on other trip members. In the standard medical situation, this is, admittedly, a fuzzy area. Related to these, and even more nebulous, are quality-of-life factors. These relate to the nature of a person's current and presumed future existence as viewed by others. For those who retain decision-making capacity, their autonomous decisions reflect their view of life. In the wilderness setting, time and circumstances usually do not allow clinicians to make quality-of-life judgments.

Deciding on an Action in the Wilderness

The importance of safety factors in the wilderness setting leads to the altered diagram of decision making for ethical problems in wilderness medicine (Fig. 2). This includes three groups of factors to consider when deciding on a course of action: patient autonomy, safety, and medical indications. Within this decision-making model, safety factors must be given the most weight.

Safety factors include the security of the medical and rescue personnel and victim, and risks of the proposed procedures, and the evacuation method. As mentioned previously, the safety of the medical team is a valid consideration because of the inherent risk-taking nature of people in the wilderness. In recent legal actions pertaining to wilderness injuries, the law has recognized a "doctrine of reasonable implied assumption of risk." This implied risk is also part of an acceptable concept of wilderness triage. Wilderness triage takes place when the same injuries or illnesses that would cause minimal morbidity in a medically sophisticated environment inevitably cause death if they occur in the wilderness. A fractured femur in the lone wilderness traveler or an abdominal gunshot wound in a remote area is often a virtual death sentence. This is a risk that wilderness adventurers take, although not always with a clear understanding of the enormity of the risk.

Using an Algorithm as a Guide for a Decision

In bioethics, although disagreements may arise regarding the optimal course of action using a specific set of values, general agreement often exists as to what constitutes ethically wrong actions. The method of ethical case analysis described in Figure 3 is designed to provide the emergency practitioner with prompt assistance in selecting an ethically correct, although not necessarily a theoretically "best," course of action.¹⁷ This method applies equally well in both the wilderness setting and the normal hospital setting.

The first step in using the algorithm in Figure 3 is to use a known precedent. This is the simplest solution to an ethical dilemma but requires planning in advance, including reading and thinking about ethical problems. Many physicians and other health care professionals are not prepared to do this. Just as with any emergency procedure, wilderness medicine physicians and health care professionals should be prepared with a course of action for the most common ethical dilemmas likely to occur in the wilderness setting.

With no precedent, the second step is to "buy time." What action will not be harmful to the patient and will provide time for the consultation or information gathering needed to refine the action plan? In a wilderness medical setting, this might mean placing a person's arm in a sling for comfort while deciding whether an inexperienced provider should attempt to reduce a dislocation or fracture.

With no precedent on which to rely and no way to buy time, the health care professional must select a possible course of action and test it for ethical viability. The impartiality test, the universalizability test,

and the interpersonal justifiability test are drawn from three different philosophical theories. First, the **impartiality test** is applied. The practitioner asks whether he or she would ask to have this action performed if they were in the patient's place. In essence, this is a form of the Golden Rule, "Do unto others as you would have done unto you." According to John Stuart Mill, this espouses "the complete spirit of the ethics of utility."¹⁸ Second, the **universalizability test** asks if the health care professional would feel comfortable having all practitioners perform this action in all relevantly similar circumstances. This generalizes the action and asks whether developing a universal rule for the contemplated behavior is reasonable. This is merely a restatement of Kant's categorical imperative: "Act as if the maxim of thy act were to become by thy will a universal law of nature."¹⁹ Finally, the **interpersonal justifiability test** asks if the practitioner can supply good reasons to others for his or her action. Will peers, superiors, or the public be satisfied with the action taken and reasons for it? This test uses David Gauthier's basic theory of consensus values as a final screen for a proposed action.²⁰ If all three tests can be answered in the affirmative, the health care professional can be reasonably assured that the proposed action falls within the scope of morally acceptable actions. If, however, the proposed action fails any of these tests, the algorithm must be applied to another proposed action.

ETHICAL DILEMMAS IN WILDERNESS MEDICINE

With its unique setting and mode of practice, wilderness medicine provides practitioners with situations that are rarely seen by most other providers. These dilemmas can be grouped into three categories: standards of care, priority in care, and the decision-making process (Box 2). As might be expected, some of the issues in each group deal with provider-patient dilemmas, while others have more to do with group or governmental policies. These dilemmas have few parallels in other areas of medical practice, except perhaps battlefield medical practice or medical care during major disasters, resulting in ethical decisions that differ from those in standard medical settings. Such dilemmas include providing euthanasia for potentially nonfatal medical conditions, abandoning patients, and prioritizing medical care between original patients and rescue team members. The ethical decision-making process used to sort through these dilemmas, however, is similar to that used in other settings, a basic truism sometimes obscured by the unique setting and issues of wilderness medical care. A limited discussion of these ethical dilemmas and the values involved follows.

Box 2. Ethical Dilemmas in Wilderness Care

STANDARD-OF-CARE DILEMMAS

- Limited resources: The standard of care differs. What should be brought into the field? How are resources distributed?
- Cultural: Are Western standards of care and attitudes appropriate when treating locals in a foreign country?
- Nontrained personnel: How much authority is delegated to nontrained personnel?

PRIORITY-IN-CARE DILEMMAS

- Triage choices: Who should be rescued first? (Those most injured or ill? Injured or ill rescuers? Those with the best chance of survival? Women and children? Those with important information, such as scientists who have collected data? Those who do not volunteer to stay behind?)
- Issues of survival
- Issues of direct life-threatening situations for the provider or providers
- Motorized vehicle restrictions and environmental protection in wilderness areas

DECISION-MAKING DILEMMAS

- Unavailability of a surrogate or a family member
- Euthanasia
- Lack of ethics consultation
- Advance directives
- No-rescue areas

Standard-of-Care Dilemmas

Limited Resources

In the wilderness setting, resources are limited. Medical equipment is usually confined to supplies that can be carried into the field on foot or, in some cases, on horseback or by helicopter. Moreover, wilderness rescue personnel may have limited medical skills. The combination of limited skills and limited availability of supplies and equipment gives rise to ethical dilemmas. What should be included in wilderness medical kits? Their composition is resource allocation at its most basic. And who makes the decision?

Rarely do people consider advanced decision making a part of medical care. However, it is very much a part of wilderness medicine. For example, decisions regarding the contents of medical kits made well in advance rather than during triage affect the patient's care. Although the individual wilderness traveler usually determines what is carried into the field, he or she generally fails to realize that this decision may set a limit on treatment. Any traveler into a wilderness area must assume that the contents of the medical kit will be the only resources available for medical treatment. Although the group, a medical committee, or the medical director or advisor selects equipment for organized wilderness excursions or search-and-rescue teams, the selection still limits the medical care that can be given.

Although commercially available standardized medical kits are usually designed on the basis of "medical" criteria, it is vital to recognize that some types of treatment will be implicitly unavailable because of what is excluded from these kits. No one is expected to carry a fully stocked emergency department into the field, but clearly identifying the ethical dilemmas entailed in compiling these kits helps team members in their decisions. For example, if a decision not to carry antiarrhythmic medications or a defibrillator is made and if a team member suffers a cardiac rhythm abnormality, there will be little that can be done for him or her. Some people may omit medical kit items that could be useful, such as intravenous solutions. As the medical person on one doomed expedition to the Himalayan peak Nanda Devi recalled, "[My] irritation grew as [I] remembered [being] pressured into leaving intravenous fluids behind."⁷ Such pre-expedition resource decisions may jeopardize a team member. It helps if team members know in advance that these decisions were made—and even participate in making them.

Explicit triage decisions, although harder to make, are often easier to recognize as ethical dilemmas. These are discussed later in the chapter.

Cultural Differences

Many wilderness emergencies occur in places outside of the United States or other Western countries. Are Western standards of care and attitudes appropriate when treating locals in a foreign country? Whose values control medical treatment and other actions?

Three circumstances may present ethical dilemmas in the delivery of medical care during expeditions to remote areas. The first is a lack of cultural sensitivity. Aggressive offers to care for disease or injury may frustrate or anger local patients or providers, whose methods of treatment fit within the region's

cultural milieu and may be as good as or better than “modern” medicine. Temporarily replacing or upstaging traditional healers and their methods may degrade them in the eyes of the local population.

The second situation is when medical problems occur that are beyond the capabilities of an expedition’s practitioners. After offering the care for which they are competent, practitioners may feel obligated to attempt treatments beyond their knowledge or abilities. An internist may face treating a gunshot wound to the chest, a psychiatrist may encounter a complicated obstetric emergency, or a paramedic may confront an epidemic. Often without any direction except a moral compass, these caregivers may be tempted to stretch their abilities beyond the limits of patient safety. Cultural ethical concerns should be considered when deciding which course of action to pursue.

The third situation relates to the larger question of the fairness of chance encounters: a woman’s life is saved through the luck that a passing trekker could treat her pyelonephritis; after a surgeon relocates a hip, a man will continue to provide for his family; and a paramedic happens to be on hand to intubate a child with epiglottitis. These situations in themselves rarely encompass ethical issues. The larger question, which may be more philosophical than practical, is how these interventions interfere with the balance of life in the area. Are chance encounters an aberration or simply a part of life? One of the most common situations in this category is a wilderness team from a developed country leaving medications behind with individuals who would not normally have access to them. Beyond the questions of the medications’ efficacy, continued availability, and safety in inexperienced hands, there are the ethical concerns about interfering and altering the life balance in other cultures. Trekkers who traverse areas that others commonly visit do not face this dilemma, because medications are routinely distributed by the succession of groups. This question arises, however, in expeditions entering rarely visited areas, such as remote areas in Papua New Guinea or the Amazon basin.

How Much Authority Is Given to Nontrained Personnel?

Wilderness travelers face ethical dilemmas when they encounter medical situations for which they are untrained. This is certainly not restricted to laypersons. Medics, physician assistants, nurses, and physicians may quickly find themselves out of their depth in a wilderness setting. This occurs when they treat patients with conditions comfortably treated only in an urban environment or when an illness or injury is beyond the scope of personal experience and knowledge. In deciding whether to intervene in such a situation, the person planning to help must weigh the chance of benefiting the patient (value of beneficence) against the chance of doing the recipient of care harm (nonmaleficence).

The following hypothetical case illustrates both the questions raised in this type of dilemma and the application of the Rapid Approach to Emergency Ethical Problems (see Figure 3). A backcountry excursion sets out with a medical provider who is unprepared for orthopedic emergencies. When a group member dislocates her shoulder, the provider is unwilling to go beyond his level of training by attempting shoulder relocation, although the victim (as well as the rest of the party) encourages the attempt. Another member of the party with even less training volunteers to attempt the maneuver; the clinician is then in a double bind, seemingly forced to either overextend his or her skills or to acquiesce to even less knowledgeable medical care for the victim.

How could this dilemma be resolved using the Rapid Approach to Emergency Ethical Problems? The first step would be to anticipate such a situation in advance and to plan a course of action. Because orthopedic trauma is common in the wilderness, any medical provider should expect to face such a situation. (Note that planning may obviate this ethical dilemma, as it does in many other situations, since the provider may then learn the requisite orthopedic knowledge and skills in advance or may abandon plans to assume this wilderness medical role.) Whether or not the skill level is unchanged, the provider may also decide on an ethical course of action after discussing the potential problem in advance with knowledgeable peers or acquiring information from other sources. Perhaps the provider has previously

decided to act in such situations (his or her paradigm in the Rapid Approach to Emergency Ethical Problems). It is reasonable to base intervention on (1) determining whether the patient has decisional capacity, (2) informing the patient fully and honestly of the apparent situation and options, and (3) acquiescing to the patient's desires, whether attempting relocation or simply securing the arm in place. Honest acceptance of the patient's autonomy to control his or her medical care often resolves a seemingly difficult ethical dilemma.

If the provider believes that the "experienced" layman offering to help has insufficient knowledge, the provider must then decide whether the paradigm case for which he or she prepared a response is similar enough to the current circumstances to use. If it is, the dilemma is resolved, and that rule should be followed. If, however, the provider believes that the current situation differs significantly from the paradigm case or if he or she has simply failed to decide in advance on an ethical course of action, the provider should move on to step 2: buying time. In the scenario presented, buying time may consist of making the patient comfortable before contacting help or thinking through the problem. Help may be available to organized wilderness excursions through radio or cellular telephone communication. The assistance may be experienced advice about other actions to resolve the dilemma or orthopedic advice on ways to reduce the shoulder. Sometimes, however, no help is available or not enough time can be bought to secure help. In that case, the health care provider must make a decision to act.

At this stage, step 3, the provider attempts to choose an action that is ethically acceptable (by applying Figure 2), even if it is not the optimal action he or she might select if more time were available to consider the problem. Possible actions in this case might include attempting a reduction, allowing the layperson to attempt a reduction, simply immobilizing the victim's shoulder, leaving the victim and going for help, or ignoring the situation and leaving the decision to someone else. The provider must first choose a course of action (remembering that not deciding is also a course of action) and then decide whether the choice falls within the scope of ethically acceptable behavior. If, for example, the proposed action is shoulder immobilization, the three tests of impartiality (golden rule), universalizability (should every practitioner do as I plan to do?), and interpersonal justifiability (would I be ashamed to have my actions publicized?) should be applied to this action. If the action passes all three tests, it is probably ethically acceptable and may be used. Remember that ethically acceptable actions may differ with the circumstances or the wilderness group involved.

Health care policy is another aspect of this type of ethical dilemma. Restricting medical practitioners from fully using their skills and knowledge may limit wilderness medical care. Paramedics, for example, are told that in some jurisdictions, on penalty of losing their licenses, they may not reduce fractures, perform cricothyrotomies, or, in a few locations, perform endotracheal intubations. Emergency medical technicians, first aiders, first responders, and the like are more severely restricted. Nurses may not know what procedures their licenses allow, and physicians are constantly concerned about liability. In general, many practitioners in wilderness settings feel that the laws and administrative policies under which they work restrict their actions. This attitude and their subsequent behavior may lead to substandard care for victims of wilderness injury or illness. The Wilderness Medical Society and other groups have begun working to overcome these limitations. Currently, however, an ethical dilemma may exist when practitioners face medical situations in the field that they know how to treat but that exceed their licenses or official certifications. A clear conflict may exist between the law and ethical responsibility. Practitioners have to decide the best course of action, preferably in advance of the problem.

Priority-in-Care Dilemmas

Triage takes on new dimensions in wilderness settings. Ethical dilemmas easily arise when health care providers face not only triage among victims but also critical decisions about whether to help victims at

all. These settings also produce situations in which the rescuers or other members of the party may be placed in danger by helping an injured person.

Triage Choices: Whom to Rescue First and How to Distribute Resources

Medical practitioners, especially those in the fields of surgery and emergency care, are familiar with medical triage in which multiple patients need care and in which patients must be sorted by severity of injury, availability of resources, and possibility of successful treatment. These triage decisions have their own unique set of ethical dilemmas. Wilderness triage is unusual on several counts and may present ethical dilemmas markedly different from those encountered in non-wilderness environments.

Three ethical dilemmas result from wilderness triage questions that are unlikely to occur elsewhere, with the exception of battlefield settings.²¹ The first dilemma arises when the wilderness practitioner knows all the victims and may have personal ties to at least one. This is unlike normal triage scenarios and complicates any decision about who receives treatment, especially if resources are limited. For example, in an outbreak of giardiasis in a party of twelve, the provider may have only enough metronidazole (Flagyl) to treat five people. Another, more serious example would be a lightning strike in the midst of six people, with only one other individual capable of providing assistance. In each case, the medical practitioner applying triage criteria may be torn between medical and personal concerns.

A second ethical triage dilemma arises in what may be termed the “us-versus-them” situation. Members of both the wilderness party and the local population may be in the victim pool to be triaged. To whom does the provider owe primary responsibility? Some may argue that the implicit or explicit contract between the provider and the group members warrants treating group members first. Yet, in the battlefield setting, which may often be analogous to the wilderness setting with regards to medical ethics, the Geneva Convention specifies that patients are always to be triaged for medical care *on the basis of medical need and the ability to treat*. Whether military caregivers follow this dictum in practice is moot. The wilderness caregiver must carefully consider this issue before venturing into the field.

Finally, ethical dilemmas arise because not all team members are equal. If triage among team members is necessary, treatment on the basis of pure medical necessity is not always realistic. In the giardiasis example, will the sickest patients be treated or will treatment be given to the less sick guide and translator, who are needed to lead the party safely out of the wilderness? The greatest good for the greatest number, or the concept of group safety, must prevail. However, this may be neither a comfortable nor an intuitively obvious decision.

An ethical dilemma also arises when a rescue team member is injured while out in the field. The question is asked whether rescue teams should treat their injured team member before, or instead of, victims. Wilderness rescue is an inherently dangerous operation. Although the safety record of some organized and experienced rescue groups has been excellent, this is not universal, particularly with ad hoc rescue attempts.²² Where should the team’s priorities lie? Again, an analogy can be drawn with triage parameters in emergency care. The principle of triage is that as long as resources are available, the most seriously injured are treated first. Those that cannot be saved with available resources or be evacuated in time to be saved are given only comfort measures. This situation logically and morally prevails in wilderness medical care. However, emotion rather than reason often influences actions, so the wilderness health care provider must ensure that ethical decision-making prevails.

Issues of Survival

In some situations, the lives of expedition members may be put at immediate risk if an injured person receives optimal assistance. One well-known example is high-altitude climber Simon Yates, who, while trying to lower his injured climbing partner, Joe Simpson, down to base camp in the Peruvian Andes,

found himself in a situation in which he had to either cut the lowering rope tethering his partner, almost assuredly killing him, or risk also dying himself.²³ (He chose to cut the rope and, unbelievably, Simpson survived.)

I couldn't help him, and it occurred to me that in all likelihood he would fall to his death. I wasn't disturbed by the thought. In a way I hoped he would fall. I knew I couldn't leave him while he was still fighting for it, but I had no idea how I might help him. I could get down. If I tried to get him down I might die with him. It didn't frighten me. It just seemed a waste. It would be pointless....The knife! The thought came out of nowhere. Of course, the knife. Be quick, come on, get it....I reached down again, and this time I touched the blade to the rope. It needed no pressure. The taut rope exploded at the touch of the blade, and I flew backwards into the seat as the pulling strain vanished....I was alive, and for the moment that was all I could think about....There was no guilt, not even sorrow....I was actually pleased that I had been strong enough to cut the rope. There had been nothing else left to me, and so I had gone ahead with it. I had done it....I was alive because I had held everything together right up to the last moment. It had been executed calmly....I should feel guilty. I don't. I did right.

In another example, a diver may surface too quickly and suffer an air embolism. Reviewing the ethical considerations in wilderness medicine's ethical triangle (see Figure 2), both medical indications and possibly the patient (autonomy) influence the decision to rapidly transport the victim to a recompression chamber. However, even with the medical urgency of the situation, the other divers' safety mandates that the boat remain in the area until the other divers are on board. This example demonstrates again that in the wilderness setting, security factors are primary in making ethical decisions.

Issues of Direct Life-Threatening Situations for the Provider

Health care providers in a wilderness setting often have the opportunity to rescue others, which directly supports their underlying motivation to be of help. However, situations arise in which providing help puts the caregiver (or the entire team) at significant risk. This has already been discussed in Safety: Another Value Applicable to Wilderness Medicine. Wilderness medical leaders commonly decline to enter a dangerous situation to attempt to rescue a patient. However, a more direct and powerful ethical issue arises when the caregiver must directly and explicitly sacrifice the patient for personal or team safety (somewhat analogous to the difference between passive and active euthanasia). This occurs, for example, when a helicopter hoisting a patient encounters difficulties that endanger the craft. Standard procedure is to cut the hoist line, sacrificing the patient. In the abstract, the safety of the helicopter crew (and possibly rescuers on the ground) outweighs that of the patient. Yet in reality, the conflict between safety and beneficence may not be intrinsically clear to the health care provider; an answer in favor of safety contradicts all professional education and experiences. This conflict must be resolved in advance or within a few seconds during the event if anyone is to survive. In the analogous scenario of the battlefield, the question is raised, "How many medics do you sacrifice to save one infantryman?" The same dilemma applies to rescuers.

Decision-Making Dilemmas

Health care decisions are generally the responsibility of the adult with decision-making capacity. If a patient lacks the ability to make these decisions, health care providers normally seek a surrogate decision maker, an advance directive, or the counsel of a bioethics committee or colleague. These resources are rarely available in the wilderness setting. Health care decisions can therefore become more problematic. When family or close friends are present, they may act as surrogates to make decisions for the patient, but this is much less frequent in the wilderness setting than in the urban environment. The

wilderness medical provider must therefore be prepared to make difficult decisions without this guidance.

Advance Directives

To allay the problems of the absence of surrogate decision makers or knowledge about a patient's wishes, health care providers for organized expeditions, especially those in which significant risk of danger exists, may want to request that each team member complete an advance directive. The normal forms of advance directive (durable power of attorney for health care and living will) may not suffice in the wilderness setting. Rather, a more specific directive should be used. It should detail how aggressive each individual would want the team to be in trying to extract him or her from a dangerous situation if the victim (1) had a reasonable chance of survival given available resources, (2) had a reasonable chance of survival but with serious physical disability, (3) had a reasonable chance of survival but with serious brain injury, or (4) had a poor chance of surviving (5) what to do with the body if the individual dies. Any directive given by a team member would be tempered by the need to ensure the safety of other team members, but such a directive might give the medical provider a better idea of each team member's desires. Indeed, just discussing these scenarios with the team prior to the trip may be beneficial in elucidating attitudes and health care desires in the wilderness.

Euthanasia

Controversy continues to rage in society and medicine over the concept of active euthanasia (so-called mercy killing). In wilderness medicine, however, euthanasia may be less ethically problematic, although it is a very sensitive issue to discuss and a devastating event for those involved. Active euthanasia may be an ethically acceptable alternative in the rare situation when a patient will die either because he or she cannot be rescued from the wilderness environment or because the survival of group members would be jeopardized by attempting to evacuate or remain with him or her until help arrives. The seriously injured person on a high-altitude climb with inclement weather quickly approaching and the injured caver in a flooding cave are two examples. In these cases, euthanasia is based on the beneficence of relieving suffering in a doomed individual (although many in the medical profession believe that mercy killing violates professional principles), security for other members of the party (not creating more victims), and perhaps patient autonomy.²⁴

Further complicating the preceding scenarios is the question of whether such patients should be simply left to die (passive euthanasia) or more humanely killed (active euthanasia). This question should be given serious consideration, because many incidents of passive euthanasia in wilderness settings occur, especially in high-risk or remote areas. Passive euthanasia has occurred, for example, at least several times on Everest expeditions when unconscious, hypothermic climbers were left to die when conditions made it difficult or impossible to get them down.⁷ The ethical question of what is best for the injured individual almost always comes in direct conflict with other team members' lack of confidence in their (or their medical person's) prognosis and their unwillingness to implement active euthanasia. The lack of certainty about prognosis may sometimes be justified. For example, during a recent disastrous Everest expedition, a physician-climber who was left for dead (active euthanasia was not discussed among team members) survived by eventually making it to camp on his own.

Dilemmas in Wilderness Policies

Ethical decision-making plays a part in policies governing wilderness medicine. The values of beneficence and nonmaleficence make proposed and actual rules for wilderness medical practice untenable. These policies include when to stop searches, prohibition of motorized vehicles in wilderness

areas, no-rescue areas, prohibition of environmental destruction, and restriction of medical providers' roles (see How Much Authority Is Given to Nontrained Personnel?).

When to Stop Searches

Without a body or corpse, it is difficult for managers of wilderness searches to know when to stop searching for someone who is presumed lost. Resource allocation decisions (distributive justice) create the contours of the solution to this kind of ethical dilemma. The parameters include available resources, probability of finding the lost person, danger to searchers, and the likelihood of survivability under existing conditions. An example of such a dilemma occurred near Mount Rainier when a hunter briefly lost consciousness and became separated from his group. Fortunately, he was a strong, heavy man who could draw on fat stores for energy and warmth for several days. His hunting companions immediately began a search, followed by a formal search and rescue by a trained team the next morning. The dilemma was when to stop or pause the search because of bad weather, risk to the searchers, and the probability that the hunter was dead due to a preexisting heart condition. Severe weather did cause the search to be halted after 4 days because of danger to the searchers, but it was to resume the next day after the weather had cleared. Before the search could be resumed, however, the victim found his way to a road, where he encountered a ranger. As this case illustrates, searches will often last beyond the point when the victim is believed to be dead in hopes of finding them alive or at least finding the corpse. It is the search leader's responsibility to continue the search process as long as it is reasonable to do so.⁴

Motorized Vehicle Restrictions and Environmental Protection in Wilderness Areas

A policy occasionally imposed on wilderness medical practice is that of no motorized vehicles in designated wilderness areas. This rule has logical roots but is enforced only intermittently. When it is used to hinder rescue efforts or delay needed medical care, however, it defeats a basic purpose of society: the assurance of citizens' welfare.

A related issue is the basic tenet of wilderness travel that the environment should be left at least as pristine as it was found. Situations arise, however, when preservation of a wilderness area must be weighed against pain and suffering or life and death. Helicopter pads chopped into the forest or a new entryway blasted into a cave are only two examples. The preservation of wilderness areas is an important goal, but so is the preservation of human life and values, and these should not be overridden to reach a symbolic goal. Human life is a priority.

No-Rescue Areas

Perhaps the most pernicious concept proposed to govern wilderness medical care is that of the "no-rescue area," into which adventurers would go with the foreknowledge that no rescue would be available.²⁵ Akin to playing Russian roulette, people entering these wilderness areas would put life and limb at risk while society condoned and presumably enforced a requirement not to assist those in need. All explorers pushing the envelope of what is possible have entered these areas. The first men in space and certainly and Neal Armstrong and Buzz Aldrin knew that rescue from the surface of the moon was not an option. The early mountaineers did not venture above 8,000 meters expecting a rescue if things went bad. Today the space shuttle has a back up plan and climbers have been rescued from the highest altitudes. Is it reasonable to assign areas and adventures where no rescue would be even contemplated or attempted?

Summary

Enjoying the wilderness and being capable and willing to provide care in remote settings fulfills many human desires. The challenges and decisions that sometimes need to be made can call into question one's values and haunt the individual for a long time. Preparing for these situations by thoughtfully selecting medical equipment, seeking out additional skills, and having difficult conversations with participants prior to the trip can be as important as the physical training. Sometimes, in spite of thorough preparation, unforeseeable events still happen, and the decision tools presented in the algorithm in figure 3 can be helpful to the provider and patient.

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<p>MEDICAL INDICATION</p> <ol style="list-style-type: none"> 1. What is the patient’s medical problem? Prognosis? 2. Is the problem acute? Chronic? Critical? Emergent? Reversible? 3. What are the goals of treatment? 4. What are the probabilities of treatment success? 5. What are the plans in case of therapeutic failure? 6. In sum, how can this patient be benefited by medical interventions, and how can harm be avoided? 	<p>PATIENT WISHES</p> <ol style="list-style-type: none"> 1. What has the patient expressed about treatment preferences? 2. Has the patient been informed of benefits and risks, understood, and given consent? 3. Does the patient have decision-making capacity? What is the evidence of incapacity? 4. Has the patient expressed prior preferences, e.g., advance directives? 5. If the patient is incapacitated, who is the appropriate surrogate? Is the surrogate using appropriate standards? 6. Is the patient unwilling or unable to cooperate with medical treatment? If so, why? 7. In sum, is the patient’s right to choose being respected to the best extent possible?
<p>QUALITY OF LIFE</p> <ol style="list-style-type: none"> 1. What are the prospects, with or without treatment, for a return to patient’s normal life? 2. Are there biases that might prejudice the provider’s evaluation of the patient’s quality of life? 3. What physical, mental, or social deficit is the patient likely to experience if treatment succeeds? 4. Is the patient’s present or future condition such that he or she might judge continued life undesirable? 	<p>CONTEXTUAL FEATURES</p> <ol style="list-style-type: none"> 1. SAFETY ISSUES. (In wilderness medicine, these are often the most important considerations.) 2. Are there family issues that might influence treatment decisions? 3. Are there provider (SAR or trip member) issues that might influence treatment decisions? 4. Are there financial and economic factors (evacuation/rescue costs)? 5. Are there problems of allocations of resources? 6. What are the legal implications of treatment decisions? 7. Any provider, organization-related, or institutional conflicts of interest?

Figure 1. The ethical square. SAR, search and rescue.

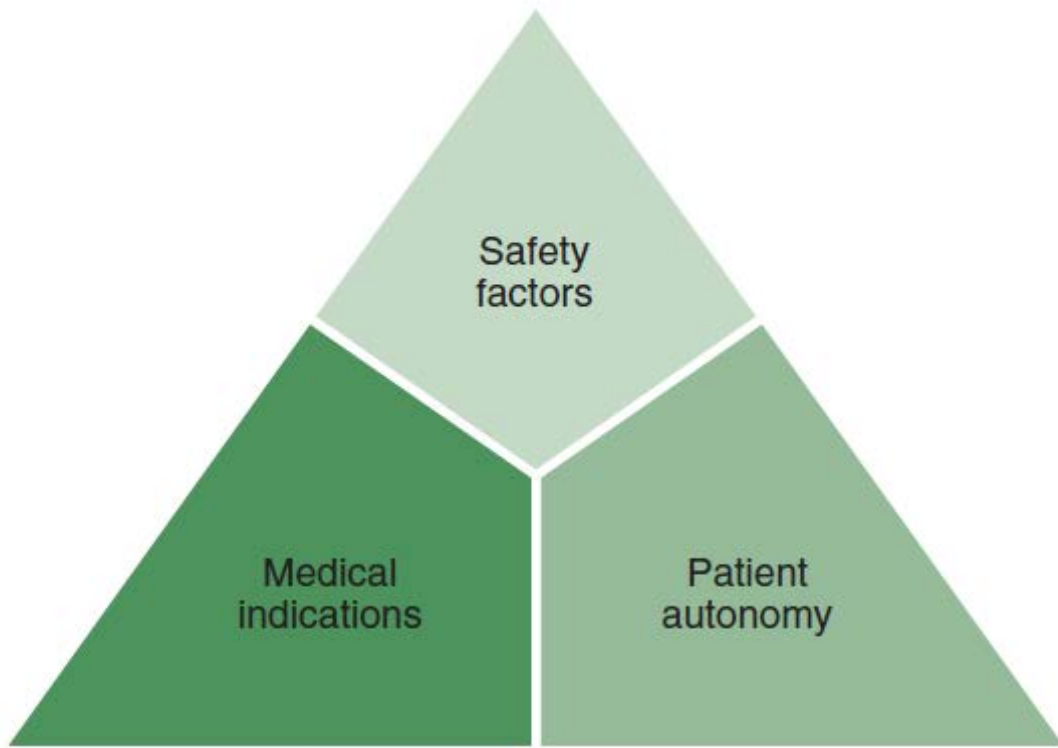


Figure 2. Wilderness medicine's ethical triangle.

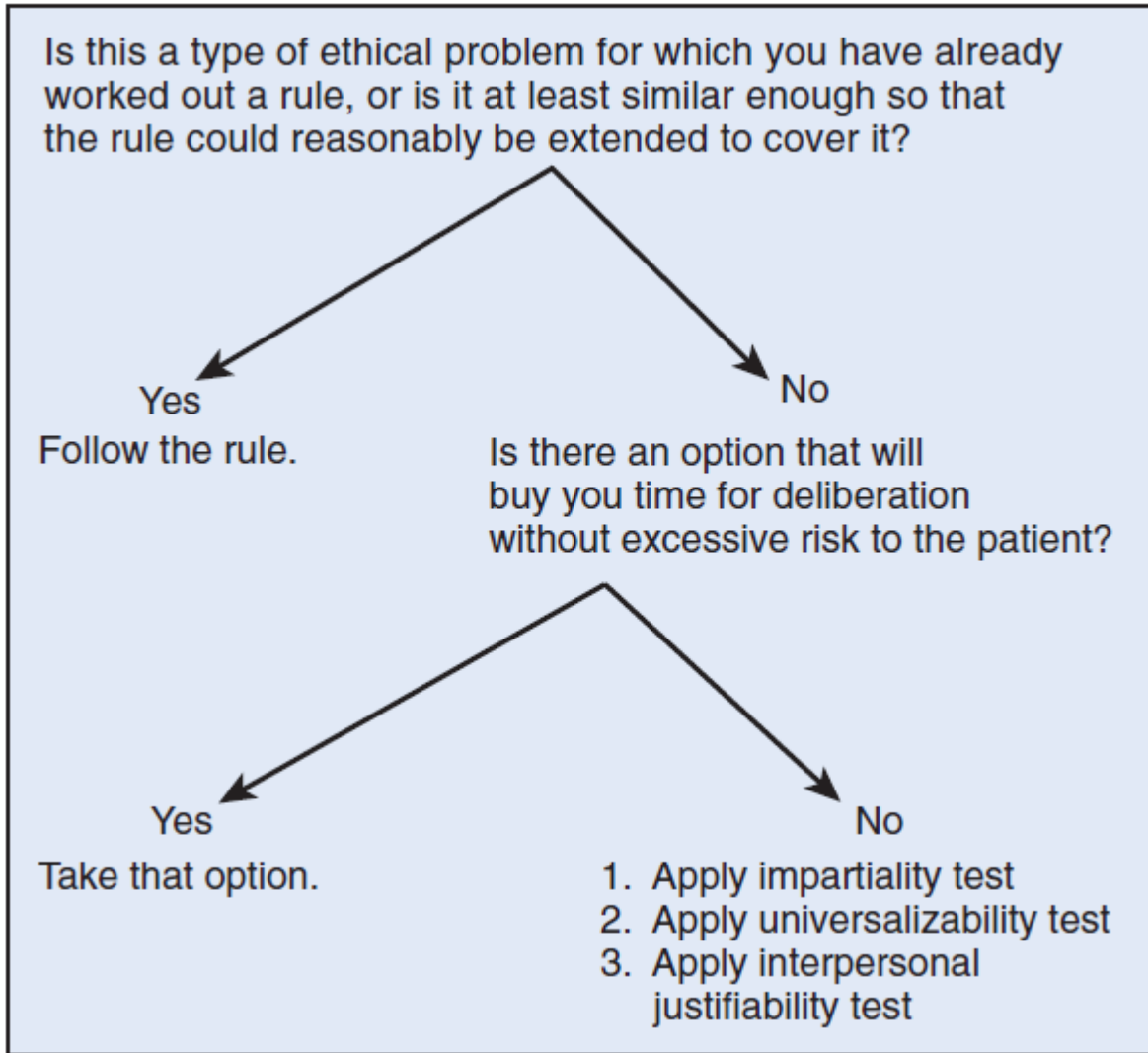


Figure 3. A rapid approach to emergency ethical problems. (Modified from Iseron KV: An approach to ethical problems in emergency medicine. In Iseron KV, Sanders AB, Mathieu D (eds): Ethics in Emergency Medicine, 2nd ed. Tucson, AZ, Galen Press, 1995.)