



Bioethical Considerations in Perioperative Orthopedic Medicine

37

Seth A. Waldman, Douglas S. T. Green,
and C. Ronald MacKenzie

Objectives

- To understand the basic concepts of bioethics and their importance in perioperative decision-making
- To examine common ethical problems that arise in the perioperative setting
- To apply a bioethics framework to selected issues, including informed consent, competency, capacity, and refusal of care
- To present an approach to the initial management of these problems, including when consultation with a clinical bioethicist is appropriate

Key Points

- Surgical patients are a vulnerable population, and it is critical that perioperative clinicians consider principles of bioethics in the decision-making process.
- Surgical patients are particularly vulnerable when they are also the subjects of clinical research, and deserve special protection during this time.
- Understanding the core principles of bioethics is a helpful guide to the clinician during perioperative decision-making.

- Perioperative clinicians need to have a clear understanding of competency, capacity, and the nature of informed consent.
- It is part of the professional duty of all clinicians to understand when care violates the basic principles of bioethics and to actively intervene to correct it.

Introduction

A study of perioperative medicine raises many issues which are central to bioethics. This chapter reviews the important ethical challenges which arise in this clinical setting, beginning with a summary of the fundamental concepts which guide bioethical analysis.

Basic Concepts of Bioethics

Morality refers to the set of behaviors that govern how one should act – how human character should be expressed in a given set of circumstances [1]. In the setting of good and bad character, and behaviors which are right and wrong, ethics answers the question “what ought to be done?” [2]. Bioethics is the study of how principles of morality are used to guide decision-making in medicine. As a medical discipline it arose in lockstep, indeed an inseparable companion, with the technological advancements in medicine.

Defining which actions are good or bad seems at first a subjective assessment, about which most might feel that they “know it when [they] see it” [3]. From a philosophical perspective, however, there are several ways to develop a consensus not only about how we feel, but why. Two leading approaches are known as consequentialism and deontology [4]. Consequentialists judge the rightness or the wrongness of

S. A. Waldman (✉)
Division of Pain Management, Department of Anesthesiology,
Hospital for Special Surgery, Weill Cornell Medicine,
New York, NY, USA
e-mail: waldmans@hss.edu

D. S. T. Green
Department of Anesthesiology, Hospital for Special Surgery,
Weill Cornell Medicine, New York, NY, USA

C. R. MacKenzie
Departments of Rheumatology and Medicine the Hospital for
Special Surgery Weill Cornell Medicine, New York, NY, USA

Table 37.1 Basic principles of medical ethics

| | |
|----------------|---|
| Autonomy | Respect for autonomous decision-making |
| Nonmaleficence | Avoidance of harm |
| Beneficence | Prevention of harm |
| Justice | Fair distribution of benefits, risk, and cost |

Data from Beauchamp and Childress [4]

an action by its outcome. An action would be considered as right if it resulted in the best outcome to the largest number of people. For example, using the logic of a consequentialist, breaching patient confidentiality would be justified if the overall benefits outweigh the harms. In contrast, deontology holds that regardless of the outcome, certain actions are inherently right or wrong, and that the right action should always be chosen. According to this point of view, for example, the breaching of patient confidentiality is simply wrong and never the appropriate choice, regardless of the circumstances. When faced with a difficult decision, clinicians may employ a hybrid approach melding both conceptions to varying degrees.

Owing to their complexity, the ethical challenges arising in modern medicine have incited the development of a third, principle-based approach to ethical analysis. The core elements (principles) that comprise this approach are shown in Table 37.1. Founded on four principles – autonomy, beneficence, nonmaleficence, and justice – this construction for clinical decision-making has become enormously influential in the practice of medical ethics [4].

Beneficence

Beneficence is the act of doing what is good and right, and is predicated on the intent of the clinician to always strive for the best interest of their patient. While making the right choice can be built into an algorithm or checklist, it is important to explicitly state that intending to be good is an essential quality of the clinician.

Nonmaleficence

While nonmaleficence is a corollary of beneficence, it is not the same thing. A maleficent act is one which is wrong, evil, or results in intentional harm. To act with nonmaleficence is to strive never to have a wrong intent, and to the extent possible minimize unintentional harm.

Justice

In bioethics, justice refers to the equal distribution of risks, benefits, or resources across a population. The application of justice means, for example, that the trial of a new drug should not be performed in a population which cannot have access to the drug after its development.

Autonomy

Respect for the autonomy of the individual implies that the clinician will strive not only to act in accordance with their

patient's wishes, but to promote them as much as possible. Protecting the autonomy of the patient may also include recognizing when they lack the capacity or competence to act in their own best interest and implementing safeguards which guide decision-making in such situations.

Professional Duty

All professionals are engaged in a social contract which provides them with certain privileges not granted to the lay public (such as the ability to self-regulate training and practice), with the understanding that they must exercise them in an ethical way. As professionals, clinicians have a fiduciary responsibility to act in the interests of their patient, which is distinct from the commitment to beneficence and nonmaleficence.

Capacity and Competency

Capacity and competence are fluid concepts which can change throughout the perioperative period, in the critical care unit, and with exposure to anesthetic and pain medication. Related but distinct concepts it is important to remember that consent implies the patient understands the risks, benefits, and alternatives of treatment (including refusal) and agrees to proceed. However, the patient must have the capacity to decide, thus consent does not exist without the capacity to give it [5].

A person can be said to have the capacity to make decisions when they demonstrate they understand the proposed treatment; appreciate their current situation and what may happen if treatment is refused; can explain their choice with reason; and are able to communicate. The clinician can better assess the patient's capacity by asking them questions in such a way as to encourage them to imagine and verbalize the alternatives [6].

Capacity is often used synonymously with competence; however, there is a real distinction for the clinician. Evaluating capacity is clearly within the capabilities of the clinician; however, determining competence is a legal determination more properly made by a court [7].

When a person is unable to make decisions for him- or herself, a surrogate can be designated to act as the patient's representative, and make decisions based on their understanding of the patient's wishes. The anticipation of such circumstances is important and involves the use of an advanced directive (also called a durable power of attorney for health-care or healthcare proxy), which gives legal decision-making power to a surrogate of the patient's choice during a period of incapacity.

Vulnerable Populations

A vulnerable population could be considered any group with an increased risk for harm based in their inherent characteristics when compared to others in similar circumstances.

As such they deserve additional protection [8]. Examples include people who are disadvantaged by such factors as poverty, ethnic background, or by gender discrimination; people with cognitive or behavioral problems such as dementia or serious psychiatric illness; and those with chronic physical problems requiring extensive support.

Common Ethical Problems That Arise in the Perioperative Setting

Informed Consent

To the moral philosopher, the concept of autonomy is a reference to personal self-governance. To respect someone as an autonomous agent, one must recognize the person's capacities and perspective, including his or her right to hold certain views, make choices, and take actions based on personal beliefs. It is important not to conflate autonomy with other related concepts such as voluntariness, privacy, or freedom to choose which are sometimes associated with informed consent in the literature. In the clinical environment, informed consent is a necessary legal requirement for the initiation of therapy. It is part of the clinician's professional responsibility to have an understanding of autonomy and informed consent, and be able to engage with patients in a way that incorporates that understanding. It is critical to remember that the consent form and informed consent are not the same thing. An informed consent discussion is necessary, and while a signed document is often expected, it is only a record of that process.

When obtaining informed consent, the clinician is responsible for explaining – in language that the patient can understand – the nature of their condition, its natural history if left untreated, recommendations for treatment, and the potential risks and benefits of that treatment. This can be a complicated task given the logistics of a busy operative practice, especially when confronted with many patient factors, including language proficiency, education level, religious and social mores, and the effects of the patient's medical condition and its treatment [9].

Capacity, Competency, and Advanced Directives

For patients to be able to give their consent to a procedure they must have the capacity to understand the issues at hand. Clinicians often confuse the terms Capacity and Competency. Competence is typically considered a legal term and, as such, may differ by jurisdiction. Competence is determined by a court of law and is, hopefully, not a part of routine patient care. Capacity is a medical term that addresses a patient's

ability to understand. When the capacity of a patient comes into question, the determination of capacity is made by the doctors caring for the patient. Often this will be done by requesting a consultation from a psychiatrist. Having a psychiatric evaluation can also be of significant additional help in determining if depression is having an undue influence on a patient's decisions regarding their care.

Determinations of capacity are perhaps best seen as assessing the following: Can the patient understand the proposed treatment or care options? Can the patient apply that information to the particular context? Is the patient able to consider the decision in light of their personal beliefs and values? Can the patient clearly communicate these choices? [10, 11]. Capacity is considered fluid and may change quickly, especially in sick patients. It is decision-specific with easy decisions requiring less capacity than complex ones.

When patients have diminished capacity it sometimes becomes necessary for others to make decisions for them. There are many ways that this can be accomplished while protecting the autonomy of those made vulnerable by lack of capacity. When there is an appointed healthcare proxy, the patient has already decided who will make decisions. In circumstances when no formal proxy declaration has been made, one must turn to the patient's family. Typically, surrogate decisions should be made according to the following order of authority: considered first are decisions based on the known preferences of the patient. When those are not known for the particular circumstance, a decision based on substituted judgment (i.e., what the surrogate believes is most consistent with the beliefs and values of the patient) is next in order. Finally, when these standards cannot be applied (e.g., when a patient never had capacity or when there is no one who knows what their preferences or beliefs were), it is appropriate to use a best interest standard, which attempts to guide decision-making based on what choices a reasonable person would make. These concepts about surrogate decision-making seem appropriate and sound. Our culture and legal system are comfortable with them. Nonetheless there is research calling into question a number of these tenants suggesting that, as people age or face significant illness and confront their mortality, they can gain new insight and change their minds [12, 13].

Patients can plan for such decision-making through the invocation of an Advance Directive and Living Wills. Further the appointment of a healthcare proxy can facilitate surrogate decision-making and help assure that a patient's personal values are protected. Advanced directives and Do Not Resuscitate (DNR) in the perioperative period and in the setting of anesthesia and surgery need particular scrutiny. The recommendations for how best to provide care for these patients have evolved over recent decades, and perioperative healthcare teams should be aware of the current recommendations [14].

Resuscitation procedures and anesthesia procedures have much in common. When a patient with a DNR order is to have

surgery, that patient is simultaneously making a positive request for care while asserting a negative right to be left alone [15]. He or she wants anesthesia, but just does not want to be resuscitated if he or she suffers a mortal event. Many people with DNR orders see resuscitation as a potential road to prolonged suffering, with little hope of weaning from a ventilator, or to a life with a serious neurological deficit. Furthermore, they often do not see a problem or conflict arising from their requests. In contrast, the healthcare team may foresee major confusing problems [16]. Fully appreciating how DNR requests avoid unnecessary suffering, members of the healthcare team do not want to cause the patient's death by being limited in their capacity to respond to unforeseeable but easily reversible problems (such as the need to secure the airway or to give vasopressors or antiarrhythmic agents), frequently encountered in even routine circumstances. Thus, anesthesiologists want to be able to care for patients without having their hands tied.

There are also many other problems that can arise that are not easily foreseeable. An episode of rapid atrial fibrillation or supraventricular tachycardia causing profound hypotension can revert to normal sinus rhythm on its own even in a patient who proscribed defibrillation or cardioversion. Such a problem left untreated for just a few minutes could cause the patient to suffer precisely the outcome (alive but neurologically profoundly damaged) that he or she wanted to avoid by forbidding resuscitation.

In previous decades the most common way of resolving these conflicting imperatives was to temporarily "suspend" the DNR order before going to the operating room. Yet such automatic practices do not fully address the concerns and rights of these patients. While many healthcare teams still do this, the practice is contrary to current guidelines and against the law in some jurisdictions. The current guidelines of the American Society of Anesthesiologists and the American College of Surgeons recommend a reconsideration of DNR orders before surgery [17, 18].

The ASA guidelines suggest the following three approaches:

"1. Full Attempt at Resuscitation:

The patient or designated surrogate may request the full suspension of existing directives during the anesthetic and immediate postoperative period, thereby consenting to the use of any resuscitation procedures that may be appropriate to treat clinical events that occur during this time."

"2. Limited Attempt at Resuscitation Defined with Regard to Specific Procedures:

The patient or designated surrogate may elect to continue to refuse certain specific resuscitation procedures (for example, chest compressions, defibrillation, or tracheal intubation). The anesthesiologist should inform the patient or designated surrogate about which procedures are essential to the success of the anesthesia and the proposed procedure and which procedures are not essential and may be refused." (Depending on the type of anesthesia or surgery, certain procedures may not be necessary. For example, intubation may not be needed for monitored anes-

thesia care, and vasopressors may not be needed for a slowly dosed epidural.)

"3. Limited Attempt at Resuscitation Defined with Regard to the Patient's Goals and Values:

The patient or designated surrogate may allow the anesthesiologist and surgical team to use clinical judgment in determining which resuscitation procedures are appropriate in the context of the situation and the patient's stated goals and values. For example, some patients may want full resuscitation procedures to be used to manage adverse clinical events that are believed to be quickly and easily reversible but to refrain from treatment for conditions that are likely to result in permanent sequelae, such as neurologic impairment or unwanted dependence upon life-sustaining technology."¹

In instances when a patient does not want a full reversal of their DNR status, the last of these options is preferred. When DNR status has been changed for the perioperative period, it is appropriate to maintain the changes until after discharge from the Post Anesthesia Care Unit.

Clinical Ethics Consultation

Making decision in the context of modern medicine's complexities is often challenging with ethical issues arising in virtually any clinical setting. A partial list of the challenges where clinical ethics consultation might be needed is shown in Box 37.1.

Box 37.1 Reasons for Perioperative Ethics Consultation

- Informed consent
- Confidentiality
- Decisional capacity
- Surrogate decision-making
- Refusal of treatment
- Clarifying the goals of care
- Conflict concerning discharge
- Medical futility
- Withdrawing or withholding care
- End-of-life decision-making, palliative care
- Demands for non-indicated medical care
- Truth-telling
- Family conflict or conflicts among team members
- Religious objections to treatment
- Protection of vulnerable populations
- Duality of purpose (intersection of clinical care with a second purpose, e.g., research, product development)

¹Excerpted with permission of the American Society of Anesthesiologists from Ref. [17]. A copy of the full text can be obtained from ASA, 1061 American Lane, Schaumburg, IL 60173-4973, or online at www.asagq.org.

The goal of ethics consultation has been described as follows: to “support informed, deliberative decision making on the part of patients, families, physicians, and the health care team. By helping to clarify ethical issues and values, facilitating discussion, and providing expertise and educational resources, ethics consultants promote respect for the values, needs, and interests of all participants, especially when there is disagreement or uncertainty about treatment decisions” [19]. A simple rule guides the need for ethics consultation: if you think you need one, you probably do.

Ethics consultations may be carried out by a full committee, a small team, or an individual consultant. Although more unwieldy and difficult to mobilize, the ethics committee format has the advantages of the diverse perspectives of an interdisciplinary group of individuals with backgrounds in medicine, nursing, social work, and the clergy; representatives of the lay community are often added to help ensure the deliberations include the patient’s perspective. Specific rules of engagement that apply to ethics consultation have been enumerated by the American Medical Association [19]:

1. To balance the concerns of all stakeholders, focusing on protecting the patient’s needs and values.
2. To serve as advisors and educators rather than decision-makers.
3. Patients should be informed when an ethics consultation has been requested. Whether or not the patient or their family chose to participate should be respected.
4. The rights and privacy of all participants must be insured (i.e., preservation of confidentiality).
5. Those who perform ethic consultation should have appropriate expertise or training.
6. Policies and procedures governing ethics consultation services must be in keeping with medical staff bylaws, including accountability and documentation standards.
7. Ensure that all stakeholders have timely access to ethics consultation.²

Hospital-based ethics committees may play a number of important roles among which include establishing patient prognosis, educating both patients and caregivers, and the development of hospital policy; its most important function is making healthcare-related recommendations in difficult circumstances [20].

²Used with permission of the American Medical Association. American Medical Association. Opinion 10.7.1 Ethics Consultations. AMA Code of Medical Ethics. <https://www.ama-assn.org/delivering-care/ethics/ethics-consultations>. Published 2016. Accessed September 25, 2019. © Copyright American Medical Association 2016. All rights reserved.

Summary

Perioperative medicine is a unique microcosm of clinical care and involves processes designed to safely and efficiently deliver interventional care for specific types of medical condition. Effective implementation of these practices requires the standardization of surgical, medical, nursing care as well as social support. During surgery, perhaps more so than in any other aspect of healthcare, we ask the patient to completely surrender self-control with confidence that a team of individuals will help them overcome a specific disease process. It is an immense investment of trust by the patient and an equally significant acceptance of responsibility by the perioperative team. Systems which balance medical expertise, safety, and efficiency yet respect the individuality of the patient must be developed carefully, monitored, and constantly reassessed. Bioethics provides the best means by which healthcare systems can achieve this goal.

Summary Bullet Points

- Bioethical analysis can be guided by assessing each clinical situation from the perspective of the autonomy of the patient; justice in the provision of care; and the extent to which the clinician’s actions are beneficent and nonmaleficent.
- Clinicians in perioperative medicine should understand issues related to informed consent, capacity, competence, advanced directives, and the right to refuse care.
- Clinicians in perioperative medicine have a professional duty to recognize when care violates the basic principles of bioethics, and to actively intervene to correct it.

Case Study

Refusal of Care and “Do Not Resuscitate” Orders

The patient was a woman in her late 60s with advanced adenocarcinoma of unknown origin, metastatic to her hip producing extreme, unremitting pain. A journalist whose expertise was in healthcare, she had a supportive husband and two adult children, though the latter lived thousands of miles away. With a DNR ordered established she believed she had about 6 months to live; her oncologist thought it was half of that time.

The patient was strongly desirous of undergoing surgery for the relief of pain. She nonetheless did not want to reverse her DNR order as she did not want her life to

be extended in the event of major neurologic injury with surgery. Furthermore, she did not want to be intubated nor to have chest compressions or defibrillation under any circumstances. She was willing to receive medications to support her blood pressure if needed. Indeed her primary goal of surgery was to end her life pain-free and sufficiently cognitively intact to say goodbye to her children in a meaningful way.

She proceeded to surgery with an anesthetic plan of sedation and an epidural with invasive monitoring that included an arterial and a pulmonary artery catheter. The surgeon determined that he would have to cement a hip prosthesis and, in anticipation of potential embolization during seating of the femoral prosthesis, large vent holes were placed in the canal. Despite the gentle seating of the prosthesis, within moments the patient's blood pressure dropped to near zero with flattening of the radial and pulmonary artery catheter waveforms signifying massive embolization. Vasopressors were immediately administered to no effect. With virtually no blood pressure the patient stopped breathing though remained in normal sinus rhythm. Because the duration of episodes of cement reaction such as this is unpredictable, the anesthesiologist feared that doing nothing more could very well leave the patient alive but neurologically damaged, precisely the outcome she wanted most to avoid. Chest compressions were begun, restoring a blood pressure and spontaneous ventilation and allowing for completion of the surgery. Postoperatively, with normal vital signs and breathing spontaneously, the patient did not wake up after arrival in the PACU. With the surgical team emotionally drained and devastated, the anesthesiologist discussed the outcome of surgery with the patient's husband who wept.

By the next morning the patient's mental status and neurological status had normalized and she lived for another 2 months. Her children came to be with her. Her anesthesiologist visited with her at her home where the patient and her family expressed their profound gratitude.

Discussion

This case demonstrates the benefits of allowing the perioperative team to use their best judgment to determine which procedures to use in order to achieve an outcome most consistent with the patient's goals and values. It should also be appreciated for the cautionary tale that it is as the outcome, while optimal under the circumstances, was far from assured. Decisions such as these are, by definition, made in the moment with no promise concerning the outcome. Taking patients to the operating room with a DNR order in force is fraught with moral hazard. No one should underestimate the suffering that poor outcomes can visit upon all involved.

Among the healthcare team, the burdens of poor outcomes in these circumstances are disproportionately borne by the anesthesiologist. It is the anesthesiologist who will make most of the split-second decisions concerning which treatments to pursue or withhold when the patient has chosen a limited resuscitation. If the patient has chosen to limit specific treatments and interventions, it is the anesthetic management (the techniques chosen, the drugs administered, fluids, etc.) that will determine outcomes as conversations pertaining to the limiting of resuscitation typically do not include limitations on surgical procedure. Indeed something as routine as an obstructed airway under sedation during a regional anesthetic can present a moral crisis when it does not respond to the usual simple measures. When such problems arise, moments are pivotal, the needs immediate, the decisions critical, and the consequences monumental. They are circumstances that will be re-lived over and over by providers and the patient's family. Sources of blame (and self-blame) exist on all sides and include not just what was done (or not done), but also a re-visiting of the adequacy of the preoperative counseling with regard to the range of possible outcomes and ultimately the choices made.

Finally the ASA guidelines on DNR in the OR recognize that some anesthesiologists may have views that cannot be reconciled with the limitations that might be imposed and allows for them to withdraw from participation "in a non-judgmental fashion" in a given patient's care. Similar considerations for other members of the team would seem appropriate even if their professional societies have not yet addressed this issue.

References

1. Jones JW, McCullough LB, Richman BW. The ethics of surgical practice: cases, dilemmas, and resolutions. New York: Oxford University Press; 2008.
2. McCullough LB, Jones JW, Brody BA. Surgical ethics. New York: Oxford University Press; 1998.
3. *Jacobellis v. Ohio* (No. 11)378 U.S. 184 (1964).
4. Beauchamp TL, Childress JF. Principles of biomedical ethics. New York: Oxford University Press; 2001.
5. Sessums LL, Zembrzuska H, Jackson JL. Does this patient have medical decision-making capacity? *JAMA*. 2011;306(4):420–7.
6. Appelbaum PS, Grisso T. Assessing patients' capacities to consent to treatment. *N Engl J Med*. 1988;319(25):1635–8.
7. Paterick TJ, Carson GV, Allen MC, Paterick TE. Medical informed consent: general considerations for physicians. *Mayo Clin Proc*. 2008;83(3):313–9.
8. Hurst SA. Vulnerability in research and health care; describing the elephant in the room? *Bioethics*. 2008;22(4):191–202.
9. Pearson SD, Sabin J, Emanuel EJ. No margin, no mission: health care organizations and the quest for ethical excellence. New York: Oxford University Press; 2003.
10. Fins JJ. A palliative ethic of care: clinical wisdom at life's end. Sudbury: Jones and Bartlett Publishers; 2006. p. 110.
11. Tunzi M. Can the patient decide? Evaluating patient capacity in practice. *Am Fam Physician*. 2001;64(2):299–306.

12. Emanuel EJ, Emanuel LL. Proxy decision making for incompetent patients: an ethical and empirical analysis. *JAMA*. 1992;267(15):2067–71.
13. Rid A, Wendler D. Can we improve treatment decision-making for incapacitated patients? *Hastings Cent Rep*. 2010;40(5):36–45.
14. Jackson S. Perioperative do-not-resuscitate orders. *AMA J Ethics*. 2015;17(3):229–35.
15. Nurok M, Green DST, Chisholm MF, Fins JJ, Liguori G. Anesthesiologists' familiarity with the ASA and ACS guidelines on advance directives in the perioperative setting. *J Clin Anesth*. 2014;26(3):174–6.
16. Fins JJ. A palliative ethic of care: clinical wisdom at life's end. Sudbury: Jones and Bartlett Publishers; 2006. p. 189–92.
17. Ethical guidelines for the anesthesia care of patients with do-not-resuscitate orders or other directives that limit treatment committee of origin: ethics (Approved by the ASA House of Delegates on October 17, 2001, last amended on October 16, 2013, and reaffirmed on October 17, 2018).
18. American College of Surgeons. Statement on advance directives by patients: "Do Not Resuscitate" in the operating room. Online January 3, 2014.
19. <https://www.ama-assn.org/delivering-care/ethics/ethics-consultations>.
20. Lo B. Behind closed doors: promises and pitfall on ethics consultation. *N Engl J Med*. 1987;317(1):46–50.