

# A Bioethical Perspective for Navigating Moral Dilemmas Amidst the COVID-19 Pandemic

Alexandra M. Dunham, MD 

Travis N. Rieder, PhD 

Casey J. Humbyrd, MD 

## Abstract

The Coronavirus disease 2019 pandemic has been an unprecedented challenge to healthcare systems and clinicians around the globe. As the virus has spread, critical questions arose about how to best deliver health care in emergency situations where material and personnel resources become scarce. Clinicians who excel at caring for the individual patient at the bedside are now being reoriented into a system where they are being asked to see the collective public as their responsibility. As such, the clinical ethics that clinicians are accustomed to practicing are being modified by a framework of public health ethics defined by the presence of a global pandemic. There are many unknowns about Coronavirus disease 2019, which makes it difficult to provide consistent recommendations and guidelines that uniformly apply to all situations. This lack of consensus leads to the clinicians' confusion and distress. Real-life dilemmas about how to allocate resources and provide care in hotspot cities make explicit the need for careful ethical analysis, but the need runs far deeper than that; even when not trading some lives against others, the responsibilities of both individual clinicians and the broader healthcare system are changing in the face of this crisis.

From the Department of Orthopaedic Surgery, The Johns Hopkins University School of Medicine (Dr. Dunham and Dr. Humbyrd), and The Johns Hopkins University, Berman Institute of Bioethics (Dr. Rieder and Dr. Humbyrd), Baltimore MD.

Support by National Institutes of Health grant number T32 AR067708 (Dr. Dunham).

None of the following authors or any immediate family member has received anything of value from or has stock or stock options held in a commercial company or institution related directly or indirectly to the subject of this article: Dr. Dunham, Dr. Rieder, and Dr. Humbyrd.

*J Am Acad Orthop Surg* 2020;00:1-6

DOI: 10.5435/JAAOS-D-20-00371

Copyright 2020 by the American Academy of Orthopaedic Surgeons.

The Coronavirus disease 2019 (COVID-19) pandemic has been an unprecedented challenge to healthcare systems and clinicians around the globe. As the virus spread out of Asia, across Europe and into the United States affecting over a million patients worldwide,<sup>1</sup> critical questions arose about how to best deliver health care in emergency situations where material and personnel resources become scarce.<sup>2-4</sup> Clinicians who excel at caring for the individual patient at the bedside are now being reoriented into a system where they are being asked to see the collective public as their responsibility. As such, the clinical ethics that clinicians are accustomed to practicing are being

modified by a framework of public health ethics defined by the presence of a global pandemic. There are many unknowns about COVID-19, which makes it difficult to provide consistent recommendations and guidelines that uniformly apply to all situations. This lack of consensus leads to the clinicians' confusion and distress. Real-life dilemmas about how to allocate resources and provide care in hotspot cities make explicit the need for careful ethical analysis,<sup>5,6</sup> but the need runs far deeper than that; even when not trading some lives against others, the responsibilities of both individual clinicians and the broader healthcare system are changing in the face of this crisis.

**Table 1****Comparing Themes of Clinical and Public Health Ethical Frameworks**

	Clinical Ethics	Public Health Ethics
Applicable relationship	Clinician—individual patient	Health system, institutions, government—community cohort
Applicable environments	Usual bedside decision-making	Routine preventive measures (eg, vaccine policy) Resource allocation Pandemics
Underpinnings and values	Nonmaleficence Autonomy Patient's best interests	Collective good (efficiency, stewardship) Justice (equity, fairness)
Interventions	Treat or cure existing illness/condition Medical or surgical interventions Trained professionals delivering direct patient care	Prevent illness/condition Promote health and well-being of the cohort Surveillance and tracking  Built environment Policy and law
Useful tools	Shared decision-making Decision aids	Consensus guidelines Independent review committees composed of multiple stakeholders

**Public Health Ethics During a Pandemic**

In a global pandemic, we are challenged to apply a different set of rules to healthcare delivery as we work to manage the evolving, complex dilemmas in care (Table 1). These rules have a different focus than our daily clinical ethics, which focus on what each clinician is called to do for each patient, prioritizing nonmaleficence, autonomy of both patient and clinician, and prominently features shared decision-making.<sup>7</sup> Public health ethics asks what we as a system, institution, or hospital are called to do to serve the needs of the many. The goal of public health ethics is to serve many rather than the individual patient in front of you, and stewardship of resources is key. Yet, there is also a tension in public health ethics: if we only focus on saving as many lives as possible (eg, rationing care based on comorbidities), we will perpetuate disparities because good health is not equally distributed throughout society. For example, increasingly poor health is associated with poverty, lack of education, and

racial minority status.<sup>8,9</sup> Thus, efficiency of resource use must be balanced by considerations of justice—that is, of fair and equitable resource use.

During the COVID-19 crisis, there has been a scarcity of personnel, manufactured materials, machined resources, and perishable resources.<sup>2,10-12</sup> In an effort to maximize availability of healthy personnel, various redeployment schemes have been developed where clinicians may be called to practice in an unfamiliar environment.<sup>13</sup> Personal protective equipment (PPE) shortages have placed frontline workers and the patients they care for in precarious situations.<sup>2,14</sup> A diminishing stockpile and limited production have made perishable resources precious commodities including blood products, sedation and pressor medications, and some antibiotics.<sup>2,11,12</sup> Shortages of ventilators have brought about difficult rationing decisions in some cities.<sup>10,14,15</sup> The formal recommendations to curtail elective surgical procedures is rooted in the current and impending need to allocate this collection of high-demand, high-value resources to surging demands in

critical care required by the presence of COVID-19.<sup>16-18</sup> Understanding the perspective of collective ethics helps the clinician understand system-based decisions. However, a clinician still is called to serve their specific patient and must still apply clinical ethics to everyday practice, which can result in significant distress when institutional restrictions prevent a clinician from doing what they think to be their obligation to a particular patient.

Collective ethics work best within a consensus framework, where governments and hospitals create sound advice on how to allocate resources. If clinicians are forced to allocate resources at the bedside, they betray the values that have dominated their clinical practice. The individual patient-physician relationship is the foundation for bedside clinical ethics.<sup>7</sup> Clinicians serve as advocates for their individual patient, providing them with the resources needed for that specific patient's care, rather than considering the greater cohort's demands. As patients, we want our physicians to advocate for our best interests, and the

patient-physician relationship requires that we think our caregivers will do so. If we are critically anemic, we do not want the physician at the bedside considering whether to transfuse us or another patient at another hospital. The shifted priorities in collective ethics require a level of impartiality and consensus. For this reason, the dilemmas that demand a perspective of collective ethics should be brought to a separate, impartial triaging committee that makes consistently just and equitable decisions based on the consensus values.<sup>19,20</sup>

Current generalized guidelines work to provide a framework for such decision-making. However, the vague nature of these guidelines has caused confusion and permitted substantial variability in interpretation. For example, there are diagnoses and conditions that are generally agreed to be emergencies that require urgent, if not emergent, surgical care—compartment syndrome, knee dislocation with vascular injury, open injuries, cauda equina syndrome, and some acute fractures, to name a few. In the case of hip fractures, studies have consistently shown reduced mortality and morbidity when surgery is performed within 24 hours.<sup>21,22</sup> However, all acute injuries do not need to be surgically addressed with the same urgency, if at all. What about the acute clavicle fracture? The acute ligamentous elbow injury?

In situations of clinical equipoise—that is, where surgical intervention will yield similar results to those of nonoperative treatment—we should choose the path of decreased resource utilization. This is clearly different from usual times, where shared decision-making would instead be pursued to answer the question as to what we ought to do.<sup>23</sup> In the context of a pandemic, surgeons are most knowledgeable about what injuries are equally amenable to nonoperative treatment. For example, according to American College of Surgeons' guidelines, acute Achilles tendon ruptures

fall under a recommendation to “schedule” even under Phase 3 conditions where the recommendation is to also “eliminate elective practice.”<sup>24</sup> Studies have shown equivalent plantar flexion strength and insignificant differences in re-rupture rate with treatment of function rehabilitation compared with operative treatment.<sup>25</sup> In this situation of clinical equipoise, where nonsurgical and operative treatment approach similar outcomes, the principles of stewardship and maximizing benefit for the collective public suggest that an initial approach of nonoperative treatment is the most prudent course, given the scarcity of PPE, sedation medications, and personnel. As the crisis wanes, the ethical landscape will shift again. As times return to a new normal, we will again pursue shared decision-making in situations of clinical equipoise, in contrast to the current model where physicians are determining surgical need.

Applying collective ethical principles regarding operating room allocation is even more complex when we must consider other specialties. How does the urgency of an open fracture compare with that of a symptomatic aortic aneurysm in a stable patient? Or a dialysis patient's malfunctioning fistula in need of revision? Or the oncologic surgery that will treat but not cure the malignancy of a high-risk, immunocompromised patient who may require postoperative intensive care monitoring and extended ventilator use? In situations where direct comparisons are unfair and the metrics for measuring the value of an intervention are relative, an independent surgical review committee should make triaging decisions.<sup>19,20</sup> This removes decision-making from individual physicians who will rightly be advocating for their own patient's best interests. Following recommendations from the American College of Surgeons, an interdisciplinary team with representatives from surgery, anesthesia, and nursing can provide transparent, equitable oversight and act

as steward in the best interest of the patient cohort.<sup>19,20</sup> We would recommend that bioethicists also be considered a valuable addition to the committee. A systematic approach can also help to maximize efficiency; for example, increased use of nerve blocks to prevent the need for intubation equipment and medications and to reduce aerosolization risk.

### Professional Ethics: Duties to Our Patients, Our Families, and Ourselves

Public health ethics require us to take a collectivist approach regarding our obligations to the greater cohort. Does the foregrounding of a pandemic-focused public health ethic likewise require a shift in our professional ethics? What are we, as individual clinicians, morally required to do, given the circumstance? Every clinician has their own set of personal and professional duties and obligations that each come with their own burdens and risks. Is it ethical to expect all clinicians to serve the public during an emergency? The American Medical Association's<sup>26</sup> Code of Medical Ethics Opinions related to physicians' responsibilities in disaster response and preparedness specifies an obligation to respond during disasters. Indeed, specialists, generalists, intensive care unit clinicians, interns, and attendings alike are all called to serve—serve the patients in most need, continue to serve their usual patients, and serve their colleagues.

However, the duty to serve is not endless. Clinicians also have a responsibility to practice safely, protecting their own health to ensure future patients are able to receive care. Special obligations to protect family members are also relevant, particularly when family members have a high risk of poor outcomes, should they contract COVID-19. In a pandemic, this means a duty to provide care in safe working conditions and being stewards

of available PPE. Similarly, healthcare organizations have a responsibility to provide their clinicians with appropriate PPE.

However, for some clinicians, the environment of a pandemic may not be safe at all. There are diagnoses and medical factors (eg, older age, history of heart disease, or immunocompromise) that increase the risk for a clinician to practice and may create a protected class.<sup>27-29</sup> Guidelines regarding work exemption for protected classes are vague and may be unrealistic in some settings. The Centers for Disease Control and Prevention addresses the question of COVID-19 patient care for pregnant healthcare workers by placing the burden on facilities “to consider limiting exposure” to “confirmed or suspected COVID-19, especially during higher risk procedures” but acknowledges challenges of “staffing availability.”<sup>29</sup> The limited staffing ability of many health systems—because of long-standing understaffing or clinician illness—is going to require the use of redeployment strategies. Clinicians will be practicing in the areas outside their usual practice<sup>13</sup>—anesthesia clinicians who have primarily worked in the operating room will be tasked with managing intensive care units; orthopaedic surgeons will be tasked with functioning as floor medical clinicians; and psychiatrists will be tasked with screening patients in the emergency department. Practicing at the edge of one’s competency—or beyond it—will be uncomfortable for clinicians. Does this discomfort represent bad ethics? How can we step up to the challenge to serve during the pandemic but also maintain one of our main ethos of nonmaleficence, “do no harm,” and give patients the good care that they deserve and trust us to deliver?

All clinicians can be part of the COVID-19 response, but all clinicians do not have to do the same job. Usual medical needs such as heart

failure exacerbations and diabetic care still exist. Trauma call and arthritis pains still exist. Not all frontline COVID-19 work is specifically medical in nature. Orthopaedic surgeons have skills that can be uniquely and creatively applied—clinicians can become quickly trained as proficient proceduralists for line access, are familiar with the intricacies of safe prone positioning, and are adept at identifying emergencies such as abdominal compartment syndrome for the patient in shock or axial compartment syndrome for the patient with failed access. Not all responders to the pandemic need to do the frontline COVID-19 work. With the proliferation of telemedicine and electronic medical records, even protected classes can continue general orthopaedic clinical care via virtual clinics or virtual rounds. Musculoskeletal-specific clinics can be repurposed for urgent musculoskeletal care, with non-COVID-19 patients diverted for evaluation and treatment to offload overwhelmed hospitals and emergency departments.

### Challenge to Our Morals Because of Competing Obligations

These changed practices due to the COVID-19 pandemic will inevitably result in many of the following tensions: individual clinical ethics versus public health ethics, best medical practices versus resource scarcity, and expert practice versus practicing at the edge or beyond one’s competencies. These tensions will all generate moral dilemmas, with a high likelihood of causing moral distress. Moral distress occurs when external or internal constraints preclude the performance of an ethically appropriate choice or action.<sup>30,31</sup> Multiple experiences of moral distress can result in moral residue, or a build-up of unresolved conflicts within the

clinician, that makes future scenarios that create moral distress even less tolerable.<sup>30,32</sup> The combination of moral distress atop moral residue can ultimately lead to moral injury, which occurs when individuals are “perpetrating, failing to prevent, or bearing witness to acts that transgress deeply held moral beliefs and expectations.”<sup>33</sup>

Moral dilemmas and moral distress are likely inevitable within a pandemic. We will want to give more units of blood than we are permitted by the blood bank. We will want to consent the patient with an intra-articular distal radius fracture for surgery, but we will instead reduce and splint. We will be unable to practice as we do in normal times.

Yet, moral residue and moral injury need not be similarly inevitable. Resilience can be cultivated as a way to avoid developing moral residue. One simple exercise is to write down three good things that happened during the day before bed at night.<sup>34</sup> Humans are predisposed to remember negative experiences rather than positive ones, and amidst a global pandemic, the negative is likely to drown out the positive, unless there is a deliberate effort to refocus.

We can also work to try to mitigate moral injury. The COVID-19 crisis creates multiple potential risks factors for moral injury.<sup>35</sup> If a clinician is unable to provide unlimited blood products or unable to perform fracture surgery when a patient requests it, it is likely to feel like the perpetration of a wrong, a failure according to one’s moral beliefs about the right way to practice medicine. To minimize or eliminate clinicians feeling that they are violating their moral beliefs, the health system should create protocols and guidelines to direct the allocation of scarce resources wherever possible. This will permit physicians to advocate for their patients, avoid bedside rationing, and still be part of a



system that is working toward the greater good. Furthermore, the health system and government must be transparent with clinicians about the available resources so that the crisis is appropriately framed according to triage principles clinicians are taught during training, rather than a disorderly, ad hoc approach, ensuring that clinicians do not feel that they are part of acts that transgress their “deeply held moral beliefs and expectations.”<sup>33</sup>

## Summary

The goal of this study was not to provide an exhaustive overview of the ethical issues likely to be raised in orthopaedics during the COVID-19 pandemic nor have we sought to solve all of the issues we raised. The fact is, and will remain, that massive public health threats raise difficult ethical challenges that often do not allow for tidy solutions. Instead, our goal was to provide a framework for considering how a global pandemic changes our moral responsibilities.

In nonpandemic environments, clinicians operate within a framework of what we can think of as “standard” clinical ethics. Their duties and responsibilities most often arise from the clinical encounter—a clinician, a patient, and often a family. Pandemic environments, however, bring challenges that can only be addressed by moving to a public health ethics frame. The standard question of what *I* ought to do is modified to what *we*, as a cohort, ought to do. Hospitals, healthcare systems, and governments must make decisions about how resources are allocated. This incorporation of collective obligations does not, however, eliminate individual clinical responsibility but rather has the capacity to change it: the hospital needs more floor medical clinicians, so clinicians inherit a responsibility to step into that role or a fracture that might nor-

mally be treated with surgery is not deemed urgent enough to spend surgical resources on, so surgeons inherit a duty to nonoperatively treat injuries. In all such cases, there is a disconnect between one’s pre-COVID-19 sense of responsibility and the one that is developing now, and that disconnect is likely to cause moral distress, residue, and injury. Our hope is that by identifying this likelihood and the way in which it is a function of changing moral frameworks, we can put ourselves in a better position to mitigate it.

Finally, institutions not only have obligations only to the broader cohort but also to the clinicians serving that cohort. Failure of institutions to meet their duty to provide clinicians with adequate PPE increases the presence of terrible moral dilemmas faced by the individual clinicians. In this way, moral failure begets moral burden; the importance of institutional responsibility to its healthcare workers cannot be overstated. Sufficiently dark days lie ahead from the burden of COVID-19 itself; we must take every opportunity not to increase the difficulty and darkness unnecessarily.

## References

References printed in **bold type** are those published within the past 5 years.

1. US Centers for Disease Control and Prevention: Coronavirus disease 2019 (COVID-19): Situation summary. Available at: <https://www.cdc.gov/coronavirus/2019-ncov/summary.html>. Accessed April 5, 2020.
2. Centers for Disease Control and Prevention: Strategies for optimizing the supply of N95 respirators. Available at: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/respirators-strategy/index.html>. Accessed April 5, 2020.
3. Vergano M, Bertolini G, Giannini A, et al: *Clinical Ethics Recommendations for the Allocation of Intensive Care Treatments, in Exceptional, Resource-Limited Circumstances*. Italian Society of Anesthesia, Analgesia, Resuscitation, and Intensive Care (SIAARTI). Available at: <http://www.siaarti.it/SiteAssets/News/COVID19%20-%20documenti%20SIAARTI/SIAARTI%20-%20Covid-19%20-%20Clinical%20Ethics%20Recommendations.pdf>. Accessed April 5, 2020.
4. Mounk Y: The extraordinary decisions facing Italian doctors. *Atlantic*. March 11, 2020. Available at: <https://www.theatlantic.com/ideas/archive/2020/03/who-gets-hospital-bed/607807>. Accessed April 5, 2020.
5. Thomson J: The trolley problem. *Yale Law J* 1985;94:1395-1415.
6. Thomson J: Turning the trolley. *Philos Public Aff* 2008;36:359-374.
7. Beauchamp TL, Childress JF: *Principles of biomedical ethics*. ed 5. New York, NY, Oxford University Press, 2001.
8. Powers M, Faden R: *Social Justice*. New York, Oxford University Press, 2006.
9. Powers M, Faden R, Saghai Y: Liberty, mill, and the framework of public health ethics. *Public Health Ethics* 2012;5:6-15.
10. Buerhaus PJ, Auerbach DI, Staiger DO: Older clinicians and the surge in novel coronavirus disease 2019 (COVID-19). *JAMA* 2020. doi:10.1001/jama.2020.4978.
11. Johns Hopkins Bloomberg School of Public Health, Center for Health Security: Ventilator stockpiling and availability in the US. Available at: <http://www.centerforhealthsecurity.org/resources/COVID-19/200214-VentilatorAvailability-factsheet.pdf>. Accessed April 5, 2020.
12. Marks P: US Food and Drug Administration, Center for Biologics Evaluation and Research: Coronavirus (COVID-19) update: Blood donations. Available at: <https://www.fda.gov/news-events/press-announcements/coronavirus-covid-19-update-blood-donations>. Accessed April 5, 2020.
13. Sengupta S: With virus surge, dermatologists and orthopedists are drafted for the E.R. *The New York Times*. April 3, 2020. Available at: <https://www.nytimes.com/2020/04/03/nyregion/new-york-coronavirus-doctors.html>. Accessed April 5, 2020.
14. Ranney ML, Griffith V, Jha AK: Critical supply shortages—The need for ventilators and personal protective equipment during the Covid-19 pandemic [published online ahead of print March 25, 2020]. *N Engl J Med* 2020. doi: 10.1056/NEJMp2006141.
15. Truog RD, Mitchell C, Daley GQ: The toughest triage—Allocating ventilators in a pandemic [published online ahead of print March 23, 2020]. *N Engl J Med* 2020. doi: 10.1056/NEJMp2005689.
16. Centers for Medicare & Medicaid Services: CMS releases recommendations on adult

- elective surgeries, non-essential medical, surgical, and dental procedures during COVID-19 response. 2020. Available at: <https://www.cms.gov/newsroom/press-releases/cms-releases-recommendations-adult-elective-surgeries-non-essential-medical-surgical-and-dental>. Accessed April 5, 2020.
17. American College of Surgeons: COVID-19: Elective case triage guidelines for surgical care. Available at: <https://www.facs.org/covid-19/clinical-guidance/elective-case>. Accessed April 5, 2020.
  18. American Academy of Orthopaedic Surgeons: COVID-19: Information for our members. Available at: <https://www.aaos.org/about/covid-19-information-for-our-members/>. Accessed April 5, 2020.
  19. Emanuel EJ, Persad G, Upshur R, et al: Fair allocation of scarce medical resources in the time of Covid-19 [published online ahead of print March 23, 2020]. *N Engl J Med*. 2020. doi: 10.1056/NEJMsb2005114.
  20. American College of Surgeons: Create a surgical review committee for COVID-19-related surgical triage decision making. Available at: <https://www.facs.org/covid-19/clinical-guidance/review-committee>. Accessed April 5, 2020.
  21. Roberts KC, Brox WT: AAOS clinical practice guideline: Management of hip fractures in the elderly. *J Am Acad Orthop Surg* 2015;23:138-140.
  22. Grimes JP, Gregory PM, Noveck H, Butler MS, Carson JL: The effects of time-to-surgery on mortality and morbidity in patients following hip fracture. *Am J Med* 2002;112:702-709.
  23. Claus LE, Humbyrd CJ: Ethics in the setting of clinical equipoise: Achilles tendon rupture in a patient with obesity. *J Bone Joint Surg* 2019;101:e89.
  24. American College of Surgeons: COVID-19 guidelines for triage of orthopaedic patients. Available at: <https://www.facs.org/covid-19/clinical-guidance/elective-case/orthopaedics>. Accessed April 5, 2020.
  25. Soroceanu A, Sidhwa F, Aarabi S, Kaufman A, Glazebrook M: Surgical versus nonsurgical treatment of acute Achilles tendon rupture. *J Bone Joint Surg* 2012; 94A:2136-2143.
  26. American Medical Association: Opinion 8.3. Physicians' responsibilities in disaster response & preparedness. Code of Medical Ethics. Available at: <https://www.ama-assn.org/delivering-care/ethics/physicians-responsibilities-disaster-response-preparedness>. Accessed April 5, 2020.
  27. Zhou F, Yu T, Du R, et al: Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: A retrospective cohort study. *Lancet* 2020;395:1054-1062.
  28. Centers for Disease Control and Prevention: People who are at higher risk for severe illness. Available at: <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-at-higher-risk.html>. Accessed April 5, 2020.
  29. Centers for Disease Control and Prevention: Healthcare professionals: Frequently asked questions and answers. Available at: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/faq.html>. Accessed April 5, 2020.
  30. Epstein EG, Hamric AB: Moral distress, moral residue, and the crescendo effect. *J Clin Ethics* 2009;20:330-342.
  31. Jameton A: *A Nursing Practice: The Ethical Issues*. Englewood Cliffs, NJ, Prentice-Hall, 1984, pp 382.
  32. Dean W, Talbot SG, Caplan A: Clarifying the language of clinician distress. *JAMA* 2020;323:923-924.
  33. Litz BT, Stein N, Delaney E, et al: Moral injury and moral repair in war veterans: A preliminary model and intervention strategy. *Clin Psychol Rev* 2009;29: 695-706.
  34. Rippstein-Leuenberger K, Mauthner O, Bryan Sexton J, Schwendimann R: A qualitative analysis of the Three Good Things intervention in healthcare workers. *BMJ Open* 2017;7:e015826.
  35. Williamson V, Murphy D, Greenberg N: COVID-19 and experiences of moral injury in front-line key workers [published online ahead of print April 2, 2020]. *Occup Med* <https://doi.org/10.1093/occmed/kqaa052>.