COVID-19 and algorithmic medical ethics: A Christian perspective

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Abstract
Triage plans which were largely developed in the face of the growing and lethal pandemic betrayed an underlying anthropology which unintentionally neglected to allow for the assignment of potentially limited interventions to underserved and less socially advantaged persons. This neglect is abetted by the structure of US medical delivery that treats medical care as a commercial commodity with an emphasis on high tech rescue medicine as opposed to preventive public health medicine. A Christian anthropology modeled by Karl Barth’s notion of analogia relationis would correct this neglect of the underserved and needy.

Keywords
analogia relationis, COVID-19, Karl Barth, pandemic, theological anthropology, triage ethics

Do not neglect to show hospitality to strangers, for by doing that some have entertained angels without knowing it. (Heb 13:2 NRSV)

For many years in the late twentieth century, Seward Hiltner, then Professor of Pastoral Theology at Princeton Theological Seminary, was a consultant at the renowned Menninger Psychiatric Foundation in Topeka, Kansas. One part of the expansive foundation’s facilities was a state institution for the developmentally disabled and challenged. Hiltner held weekly teaching rounds at this site that included staff physicians and psychiatrists, psychiatric residents, social workers, chaplains, and psychologists. In one of these sessions, a robust discussion about serious birth defects and disabilities developed. Such topics as abortion, eugenics, in vitro interventions, and euthanasia were debated vigorously among the participants with one exception: a hushed Hiltner. Near the end of the session, one of the attending psychiatrists noted that Hiltner was silent but clearly listening to the discussion, and he asked Hiltner for his point of view on the topic. Hiltner hesitated a few moments and then asked a question: “What does it mean to be a child of God?”

I was not in attendance at this meeting in Kansas, but three discussion participants, including Hiltner, confirmed the story. I worked with Hiltner during my graduate studies at Princeton. I am a

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Christian ethicist, specializing in medical ethics, and the impact of the story became relevant with what I saw and experienced in the early and subsequent days of the COVID-19 pandemic. Simply put, what medical ethics has done in response to the pandemic was demonstrate its inability to have moral authority and weight. Without its moral authority or a universal imperative, medical ethics relies on proceduralism and law or local hospital policy.\(^1\) Hiltner’s question is actually about Christians’ moral responsibilities and challenges. As creatures in God’s image, what is the Christian’s calling regarding how to engage one another and the rest of creation? Hiltner’s question is not a facile one. It is a profoundly critical one that asks how Christians may become more personal with those they know and those they need to know more fully.

When a worldwide pandemic was clearly developing in early 2020, The Guardian reported that people were ordering Albert Camus’s allegorical novel *The Plague* in such numbers that the publisher could not keep up with the demand.\(^2\) Camus’s daughter, Catherine, was quoted as saying that the novel brings to mind the question of human responsibility in the face of a crisis, regardless of whether it is political or natural. While Camus’s work is relevant both to the political and pandemic situation, Daniel Defoe’s historical novel *A Journal of the Plague Year* is equally relevant.\(^3\) Although Defoe’s work is fictional (he was merely 4 years old when the plague struck London in 1665), he used widely-available mortality data as well as reflections survivors of the pandemic gave to him. Camus’s and Defoe’s works both depict how persons behave under stress as well as offer an implicit anthropology (the study and the discerning of human life, including its meaning and intention): human survival in the face of mass illness and death is dependent on the need for community, and the good life is dependent upon lives lived collectively.

Christians can view the current COVID-19 pandemic as a stress test of how they understand the human condition and what it means to be human, even a child of God. The pandemic forces the Christian community to ask needed questions about human nature and obligations to one another. Distributive justice is at issue not only in health care but also in the economic and political realms.

When a pandemic was clearly threatening the world, medical ethicists began a process of considering how they might respond to the crisis. In the vast majority of cases of which I was aware, medical ethics concentrated its energies in dusting off and perhaps adjusting triage policies and algorithms developed during previous threatened pandemics such as SARS (severe acute respiratory syndrome, also caused by a coronavirus) in 2002 and H1N1 (swine flu) in 2009. As hospitals (but, importantly, not nursing homes or other non-acute facilities) across the United States anticipated reaching capacity and running out of resources, they began to become buildings of triage. Doctors and administrators made decisions about whom to see and treat, who should be placed in which location, or who would get which medication or other limited resources. All these decisions were to be made on the basis of elaborate algorithms. Just as critically, health care workers also had to anticipate where and how to focus their emotional energies and how to protect themselves in a faltering workforce.

A need will always exist to develop methods to maximize the benefit of sound medical interventions and allocate finite resources, including those people who work in a pandemic workforce. Yet something seems amiss in this focus on triage. As Sheri Fink has noted, triage plans have an implicit

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1. H. Tristram Engelhardt, Jr., “Credentialing Strategically Ambiguous and Heterogeneous Social Skills: The Emperor Without Clothes,” *HEC Forum* 21.3 (2009): 293–306.
2. Kim Willsher, “Albert Camus Novel The Plague Leads Surge of Pestilence Fiction,” *The Guardian*, 28 March 2020, https://www.theguardian.com/books/2020/mar/28/albert-camus-novel-the-plague-la-pestes-pestilence-fiction-coronavirus-lockdown. See Albert Camus, *The Plague* (London: Michael Joseph, 2010).
3. Daniel Defoe, *A Journal of the Plague Year* (New York: Dutton Adult, 1977).
anthropology. They say as much about the human values assumed in their plans as they say about the emergency practice of medicine.⁴

Developing a triage plan to distribute potential limited resources fairly was clearly necessary. Apparent to me, however, first intuitively and later soundly, was that the triage plans had two assumptions: (1) medical care is a commodity in a free market and, relatedly, (2) medicine as practiced in the United States is essentially focused on rescue medicine, highly technical interventions for acute and life-threatening illnesses and injuries. As a result of these assumptions, medical ethics seemed unable to recognize and incorporate who is left out and what is unrecognized. It failed to address the underserved, and it failed to support public health preventive measures. Hiltner’s question resonated within me. What does it mean to be a child of God, and what are our obligations as such? In addition, what are our obligations to the environment which too is God’s creation that God’s children inhabit? Before offering some suggestions in answering these questions, I first outline what medical ethics neglected. I also point to how the implicit anthropology in algorithmic ethics failed to recognize significant portions of God’s creation, which includes humans and the rest of nature.

Below is a more detailed discussion of how algorithmic medicine has unintentionally limited the vision of medical ethics. By way of introduction to that discussion, algorithms are any computation, formula, or statistical way of predicting an illness outcome or what intervention one might use based on an aggregate of data collected from anonymous subjects. The problem is that the predictive or interventional value of the tool is dependent on what subjects are included in the database. For instance, it has been well established that research protocols and treatment algorithms for investigations and treatment of cardiac disease in women are based on data collected almost exclusively on men whose physiology and treatment parameters are different from those of women.⁵ So too is the situation for ethical deliberation on triage decisions using algorithms with a limited or focused database. While useful, algorithms need to be carefully constructed; yet, even with the best of constructions, the personal and the particular are minimized and, accordingly, result in a limited kind of ethics. But ethics ought not be impersonal.

Jeffrey Bishop, a practicing physician and philosopher, seems to agree with the dangers of objectifying the personal. In his important book, The Anticipatory Corpse: Medicine, Power, and the Care of the Dying, Bishop offers a compelling critique of contemporary medicine.⁶ He argues that medicine, in seeking to be a distinctly scientific discipline rather than a moral one incorporating technical expertise, is potentially impoverishing and anti-human. It treats the human more as an object than a subject. This objectification of life (both human and nonhuman lives) is a result of medicine’s reductionist tendency to see the body as a machine, following Claude Bernard’s nineteenth-century influential research on the dead body: the normative body is a machine such that the ill body is either fixed or abandoned or used for spare parts. Beginning in the late eighteenth century, medicine gave up on Aristotelian formal and final causation (what life is in its idealized form and what life is for) and elevated material and efficient causation (the material of out of which something is composed, how to build something). According to Bishop,

the resulting metaphysics of efficient causation allows mastery over the living body as a machine, as dead matter in motion . . . in addition, this medical nominalism allows not only for an exhaustive description of the body in motion but also for an exhaustive description of the body politic.⁷
If one spends any time in a modern ICU, the notion of the human as a machine is clear to see, with machines mimicking bodily parts and organs. Allied with the mechanistic understanding of life, Bishop asserts that statistical medicine (evidence-based medicine) further impoverishes what it means to be alive (or ill). Statistics in medicine became a tool of control and became associated with the power of the state. Bishop ends his book with a provocative conclusion:

It might be that we can learn once again from the places at the margins of contemporary life, at the margins created by liberalism and biopolitics. It might be that we can learn once again not from history—a static past—but from living traditions. It just might be that the practices of religious communities marginalized in modernity and laughed at as unscientific are the source of a humane medicine. Perhaps there, in living traditions informed by a different understanding of space and time, where location and story provide meaningful contexts to offer once again hospitality to the dying and both cura coporis and cura anime, we will find a unity of material function, form, and purpose.

Indeed. Most people go into medicine to care for people who are ill and suffer. Most people who go into medicine will not abandon patients even in the face of inevitable death. Most people go into medicine to join a professional community of service. A Christian evaluation of the goals of medicine will offer a more robust and, if I may, a more humane anthropology. Karl Barth’s notion of analogia relationis is relevant and helpful here. For Barth, analogia relationis is the mode for the relationship between God and humanity known through the revelation of the life of Jesus Christ in history. I argue that Barth’s explication of the analogia relationis offers an anecdote to the depersonalization of algorithmic ethics and mechanistic understandings of the human and, moreover, all of nature. For Christians, having eyes to see means looking for those who are unseen. For Christians, having speech means speaking with those who have not been heard. Doing these acts reveals to Christians what has been given to them in creation, and their obligations are in response to the gift.

Benjamin Durheim provides a helpful insight to the importance of Barth’s theological anthropology as it applies to a vision of the common good:

In order to know anything at all about God, or anything about how we humans may relate to God, we rely on the analogy between the way God relates to Godself on the one hand, and the way God in Christ relates to humanity on the other.

Though humans are imperfect due to the stain of sin and cannot relate to God and humanity by their own power, through the revelation of Jesus Christ humanity is restored to the destiny that all will be covenant partners with God. With the restoration of the relationship with God through Christ, humanity is given the possibility of being persons in relationship with another as well as for one another. To imagine a solitary human without relationships is impossible in Barth’s anthropology. Barth makes this point clearly: to be human is to be in encounter. Encounter is the most basic predicate of human existence. For Barth, relationship and encounter have four elements: looking eye to eye with each other, speaking and hearing with one another, mutually assisting one another, and doing all of this with gladness.
The first element, looking eye to eye with each other, means that encounter must be personal and not at a distance. A statistical description is limited to what is encountered or numbered and is limited to the sample of which comprises that which is considered part of the statistics. For Barth, encounter must be comprised of a sort of intimacy: I and Thou:

We give each other an insight into our being. And as we do this, I am not for myself, but for thee, and Thou for me, so that we have a share and interest in one another. This two-sided openness is the first element of humanity.14

As I suggest later in this essay, algorithmic ethics fails to see completely because its focus is unidirectional and fails to see the reciprocal, or I and Thou, aspect of caring.

The second element, speaking and hearing with one another, is a qualitative enhancement of the first element. Speaking and hearing intensifies the intimacy and the encounter; it takes one another beyond the seeing of one another:

An openness between the I and the Thou, their reciprocal visibility, is only a preparatory stage to their mutual expression and address, so the latter cannot be an end, but only the means to something higher, to fellowship in which the one is not only knowable by the other, but is there for him. . . . We must see and be seen, speak and listen, because to be human we must be prepared to be there for the other.15

This element, too, is lacking in medical ethics.

The third element, mutually assisting one another, qualifies intimate encounter as moving from being with to being for. Here Barth makes the point that being in encounter is consistent with what is truly human in the covenantal relationship with God as exemplified in the life of Jesus Christ:

If the man Jesus, even though He is Himself, is for us in the strictest sense, living for us, accepting responsibility for us, in this respect, acting as the Son of God in the power of the Creator, He differs from us . . . . Correspondence to His being and action consists in the more limited fact that we render mutual assistance. This correspondence is of course necessary.16

Barth alludes to the notion of mutual assistance in his explication of the Parable of the Good Samaritan. He makes the point that a proper reading of the parable is to see oneself not as the Samaritan but as the person in the ditch. The “I” is the one needing the compassion, and all are dependent on the other for assistance. It is always mutual assistance.17

The fourth and final element, doing all with gladness, is what makes the first three elements at all possible. Not hostility or resentment, but neutrality, for Barth, would be the opposite of gladness. “As Christ exhibits gladness in encounter, so must humankind, else it is not true encounter, and so not true humanity.”18 Gladness in mutual caring is not difficult to find in many day-to-day experiences of reciprocal assistance. Many psychologists studying altruistic behavior have noted gladness and wellbeing in persons who have practiced altruistic acts of kindness and aid.19

14. Barth, *Church Dogmatics, III/2*, 251.
15. Barth, *Church Dogmatics, III/2*, 260.
16. Barth, *Church Dogmatics, III/2*, 261–62.
17. Karl Barth, *Church Dogmatics, I/2*, ed. G. W. Bromiley and T. F. Torrance (London: T&T Clark, 2002), 418–19.
18. Durheim, “Human as Encounter,” 10.
19. Stephen G. Post, ed., *Altruism and Health* (Oxford: Oxford University Press, 2007). In addition I have been involved in the organ transplant community for a number of years. I am often humbled and amazed by the gladness and even joy in the face of extreme loss and grief that a family might exhibit in agreeing with the donation of organs after the sudden and unexpected death of a loved one.
So how does the value of the Barthian analogia relationois help in understanding who was not seen, or spoken with, and who gave and received assistance in gladness? Although the methods used for triage of resources in short supply during the pandemic centered on ventilators and although antiviral medications are based on well-established predictive procedures, these methods and procedures unintentionally failed to recognize those others who were not defined within the methodology.

A bit of explanation on how the methodology worked will clarify this caveat. Triage separates those who come to a medical facility in an emergency situation into three categories: those who can be saved but need immediate attention; those who can be saved but can be cared for with intermediate care and can even wait for that care; those who cannot be saved due to the severity of their condition. Those in the first or second category receive scores that predict a survival of their condition based on empirical studies of persons in a similar condition. The most common mechanism for this prediction is the SOFA Score (Sequential Organ Failure Assessment).20 The SOFA methodology has received criticism, however, that it is both color blind and socially blind to underserved populations. Because underserved populations have more health care problems, they are graded by the SOFA system at a disadvantage. When Crisis Standards of Care mechanisms were being prepared, using SOFA, at the beginning of the pandemic, Massachusetts Representative in Congress Ayanna Pressley stated:

We know communities of color are more likely to have comorbidities not because of any genetic predisposition, but due to the legacy of structural racism and inequality that has resulted in unequal access to affordable healthcare, safe and stable housing, and quality schools and employment.21

Having these comorbidities will give these persons a lower score on SOFA, and they will, therefore, be at a disadvantage for receiving life-sustaining and potentially curative therapies. As Meires, McCulloch, and Wright argue, the way to fix the ailing US health care system in its neglect of the needy will be to reignite the human connection, the personal and empathic connection of the practice of medicine as a communal and relational undertaking such that persons see themselves as full-fledged partners in healing.22

The pandemic has disproportionately affected those who have been and are underserved, particularly African Americans, as well as Hispanic populations.23 The social determinants of health that create these disparities include the inability to work from home and the necessity to rely on public transportation. According to many epidemiologists, health care outcomes are associated 70% of the time on social and economic factors. Also, social disparities, such as lack of access to the internet, disadvantages children from attending school in the virtual environment.24 These populations are the unseen that need to be seen. They are also the many who, though unseen, are yet assisting even in the height of the pandemic. Many of these people are the rural farmers producing food, the persons cleaning the rooms of COVID patients in the hospitals, and the low-paid

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20. Fayed Mohamed, et al., “Sequential Organ Failure Assessment (SOFA) Score and Mortality Prediction in Patients with Severe Respiratory Distress Secondary to Covid-19,” Cureus (16 July 2022), https://doi.org/10.7759/cureus.26911.
21. Emily C. Manchanda, et al., “Inequity in Crisis Standards of Care,” New England Journal of Medicine 363.4 (23 July 2020): e16, https://doi.org/10.1056/nejmp2011359.
22. Jennifer Mieres, et al., Reigniting the Human Connection: A Pathway to Diversity, Inclusion, and Health Equity (Charleston: Forbes Books, 2022).
23. Shikha Garg, et al., “Hospitalization Rates and Characteristics of Patients Hospitalized with Laboratory-Confirmed Coronavirus Disease 2019—Covid-Net, 14 States, March 1–30, 2020,” Morbidity and Mortality Weekly Report 69.15 (2020): 458–64.
24. Allyson Kelley, Public Health Evaluation and the Social Determinants of Health (London: Routledge, 2020), 1–18.
attendants in the nursing homes, as well as grocery store workers and those who collect refuse and garbage. As far as SOFA scores are concerned, the unseen need to be seen to account for the disparities within the triage algorithms.

A related problem is US health care delivery, which is not a unified system as it is in most countries with highly developed health care systems. The pandemic has underscored this weakness. One of the most glaring examples was the almost immediate shortage of personal protective equipment (PPE), such as simple and effective face masks and even sophisticated ventilating machines. Because health care is treated as a commodity for purchase, health care organizations must adopt a way to keep their expenses low by using just-in-time purchasing of materials. Just-in-time purchasing meant no ready supply or stockpile of material existed, including masks, gowns, and even oxygen, in part due to a concurrent general global shutdown or slowing of supply chains and the inability to provide the products for the supply chain. In addition, a hospital, regardless whether a profit or not for profit hospital, must deliver well-reimbursed elective services that come with predictable lengths of stay. When hospitals had to cancel these high revenue procedures, they faced significant economic shortfalls forcing furlough of lower salaried employees who were economically disadvantaged in the first place. Rural hospitals that serve the most disadvantaged are the most vulnerable to a drastic reduction of services, and many were actually forced to close entirely.25

Health care economics relies on highly sophisticated and financially lucrative reimbursement associated with what is called “rescue medicine.” Rescue medicine is acute treatment necessary to save lives. With the current mode of US health care delivery, this kind of medical care results in the diminishment of preventive medicine, such as public health interventions, that reduces the need to rescue. This situation further disadvantages many and the unseen, including those in nursing homes and long-term facilities in which the lack of PPE resulted in a disproportionate number of deaths compared to the rest of the population.26

Even God’s wider creation is involved in the current pandemic, as well as previous and future ones. For instance, a hypothesis is that COVID-19 began and spread from a wet market in Wuhan, China. This spread of the virus is an example of Zoonosis, defined as an infection transmitted from a vertebrate animal to the human animal.27 Urbanization and deforestation have increased the real threat of zoonotic disease transmission for which no understanding or treatment exists. Rescue medicine does not concern itself with how the disease came to be. That matter is the purview of disease prevention which, along with public health medicine, takes a minor role in US health care economic distribution.

Concerns about the exploitation and health of the greater environment certainly belongs within the purview of theology. Taking into consideration Barth’s notion of “looking eye to eye,” one might understand it to mean making recognition of the other to speak and mutually assist the other in gladness. Panu Pihkala makes this very point in an essay on eco-theology: “As a theological and Biblical basis, the command to ‘till and keep’ (Gen. 2:15) has been emphasized as the key to stewardship, and usually to explain what is actually meant by dominion (Gen. 1:26).”28 Pihkala asserts a position not unlike that of mid-twentieth-century theologian Joseph Sittler, who presciently made the argument that God created nature and humans with the ability to respond to each other in love.

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25. Hoag Levens, “Already in Fiscal Crisis, Rural Hospitals Face COVID-19,” Leonard Davis Institute of Health Economics, University of Pennsylvania, 1 June 2020, https://ldi.upenn.edu/our-work/research-updates/already-in-fiscal-crisis-rural-hospitals-face-covid-19/.
26. Christopher J. Cronin and William N. Evans, “Nursing Home Quality, Covid-19 Deaths, and Excess Mortality,” Journal of Health Economics 82 (March 2022), https://doi.org/10.1016/j.jhealeco.2022.102592.
27. See “Zoonoses,” World Health Organization, 29 July 2020, https://www.who.int/news-room/fact-sheets/detail/zoonoses.
28. Panu Pihkala, “Recognition and Ecological Theology,” Open Theology 2.1 (2016): 940.
A failure to recognize the reciprocity or mutuality between humans and nature is a failure to follow the will and command of God. Following the command of God (as seen in the history of Jesus who is fully the God who commands as well as fully the human that obeys the command), Sittler claims, “According to its given ecological structure as a place for multiple forms of life . . . in a blunt and verifiable way we are ‘justified’ by grace even in our relation to things of nature.” Likewise, Sittler argues, if humans do not relate lovingly with nature, then the environment displays its condemnation through natural and human suffering. Both current and future pandemics are testimony to this relationship. Analogia relationis must include humankind’s relationship and reciprocity with the environment as well.

What I hope to have suggested in this essay is not only a critique of contemporary bioethics’ shortsightedness, but also a prolegomenon to a Christian bioethics within a dialectical theology as asserted by Karl Barth and others. Barth’s analogia relationis first requires not just humility on humanity’s part, but foremost a confession of humanity’s limitations, a confusing of a temporal thirst of power for God’s own justice. Barth has made it clear: there is but one savior and redeemer, and that is the man Jesus. We humans, though made in the image, are nonetheless through free will fallen and cannot participate in the role except by acknowledging the inheritance of the fruits of Jesus Christ’s works. Through participation in the life of the church, as the body of Christ, and the worship therein, we will participate in the living history of the life of Jesus in the reading and hearing of scripture and in the expression of the Word in preaching and teaching. Hearing the Word cannot be done by ears unopened due to a lack of confession, and doing the Word cannot be accomplished without following the command of God given anew in the Great Commandment as found in the Synoptic Gospels (Matt 22:35-40; Mark 12:28-31; Luke 25:25-28). Only then will the analogia relationis come alive. Repetition of the Gospel in worship and prayer is training in the faith and opens the Christian community to the activity of the analogia relationis. As Stanley Hauerwas has written:

In With the Grain of the Universe: The Church’s Witness and Natural Theology, I began the penultimate chapter, which was entitled “The Witness of Barth’s Church Dogmatics,” with Barth’s statement, or better, his confession, “We can only repeat ourselves.” I suggested that Barth’s observation that he could only repeat himself reflected his discovery that the God who has found us in Christ makes possible finding ourselves within the confusions we call our life. Such a finding is only available through mediation, which requires, just as a musical score may require, repetition if we are to understand its truthful goodness and beauty.

In the repetition of the Gospel in all its forms of media and in the worship of hearing and singing and service, we might come to have open eyes and mutual speech to recognize that which has not been recognized, who yet serve such that we all might have that transcendent felicity that resides in God and our communion with the Godhead. To answer Hiltner’s question with a resounding yes, we know, at first through a glass darkly but then face-to-face, what it means to be a child of God. Only then may we come to develop an alternative to the sour fruit of algorithmic ethics.

Author biography

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29. Joseph Sittler, Essays on Nature and Grace (Minneapolis: Fortress, 1972), 121.
30. Sittler, Essays, 122.
31. Stanley Hauerwas, Fully Alive: The Apocalyptic Humanism of Karl Barth (Charlottesville: University of Virginia Press, 2022), 27.
32. I want to thank my colleague Caroline Anglim for her gracious reading of this essay, and I am thankful for her constructive criticism and suggestions. Of course, any shortcomings in this essay are my own.