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Medicine, Futures, and the Prevention of Human Extinction

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Abstract

This article draws a parallel between ethical reasons why people alive today have obligations to members of future generations and ethical reasons why physicians have obligations, besides helping improve patients' quality of life, to help some patients confront their own deaths and human extinction. This article argues for the view that many clinicians tend to express—daily, and one patient at a time—ethical values that support human extinction prevention as a project of medicine.

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Extinction as Harm

Despite humanity's extraordinary achievements in science, technology, and medicine, it can be argued that a plethora of unintended consequences of progress have increased the probability of human extinction. The list of existential risks is long and includes nuclear war, climate change, pandemics, and biological terrorism. In addition, lesser risks, when chained together, can compound worries about human extinction.¹ Futurists and many others from a plethora of disciplines and backgrounds believe that the risk of human extinction is substantial.^{2,3,4}

The fields of medicine and futures studies—the holistic analysis of trends to understand continuity and change—can be seen as sharing an interest in preventing human extinction. Physicians take an oath to do no harm. They work to save and improve the quality of their patients' lives, regardless of their patients' demographic identities. Futurists anticipate threats to the well-being of members of future generations, regardless of those people's station in life. They are concerned with the harms that current generations may be imposing on future generations, with the ultimate harm being the extinction of humanity. Physicians showing concern for each individual life is one way to increase humanity's concern for the well-being of future individuals and future generations. Physicians' day-to-day care of individual patients thus can help humanity address the real but seemingly abstract threats to humanity's existence.

The rest of this article explores relationships between the practice and philosophy of medicine, futurism, and the **prevention of human extinction**. We first argue that futurists addressing the death of humanity with policy makers and the public can learn from the medical community's do-no-harm and beneficence principles. We then explore practical recommendations to help both medical and futures communities address human extinction, including what futurists addressing the death of humanity with policy makers and the public can learn from how the medical community helps individuals face death. Finally, we speculate on how the medical and futures communities could collaborate to help humanity deal with the existential threat of long-term, less-than-replacement levels of fertility.

One Patient at a Time

Nonmaleficence. An equivalent of do no harm in futures studies is encouraging current generations to meet their obligations to future generations. In addition to an obligation to prevent human extinction, other obligations include bequeathing sustainable societies and systems of production, protecting the essential nature of what it means to be human, and maintaining options for future generations to explore their own paths through time and space.⁵

However, it has been quite difficult to motivate humanity writ large to seriously consider obligations to future generations in general and threats to human extinction in particular, just as Western medicine still exhibits trouble facing the end of life for an individual.⁶ One substantial barrier is that imagining futures beyond a few years strains human imagination because it is too abstract. Another barrier is that it can create anxieties. Certainly, many become anxious when asked to contemplate their own deaths, much less the death of humanity. Addressing these obligations might also create a worry that the current generation would need to sacrifice income and quality of life for unknowable future individuals at unimaginable points of time. There is thus a need to make obligations to future generations and the risk of human extinction more understandable and concrete.

It can be argued in some cases that doing no harm, one patient at a time, is a strong metaphor for futures concerns that can make them more concrete. Clinicians demonstrate in real time, one patient at a time, what it means to protect life in a way that is both concrete and consistent with the tenet of obligations to future generations. Discussions about concessions (ie, sacrifices) that individuals may need to make to maintain their health and quality of life as they age could also prove to be a strong metaphor for sacrifices that current generations may need to make to meet obligations to future generations as humanity "ages."

Beneficence. Providing care is good and rational. Few would choose to live in a society where they were not provided with care. And helping individuals live full lives is integral to ensuring humanity's full journey through time and space.

In sum, the bottom-up clinicians' approach is sorely needed in tandem with the top-down futures approach to address human extinction because so many aspects of society devalue individual lives and ignore obligations to future generations (eg, wars, climate change denial, gun violence, lack of consumer protections, lack of support for the poor and for human rights). Saving and improving lives through modern medicine contributes to humanity's journey and, perhaps, to the durability of future generations.

Practical Recommendations

There are things that the medical and futures communities can do to address the issue of human extinction.

Educational changes. It is worth exploring whether space could be made in medical school ethics courses to address this issue. Groups affiliated with the medical community, such as Physicians for Social Responsibility, could also advocate for **educational reform**. Conversely, applied futures degree programs and professional training and certification programs could use the “do no harm, one patient at a time” metaphor to help futurists communicate about meeting obligations to future generations. Groups affiliated with the futures community, such as the Association of Professional Futurists, could help advocate for such a change.

Communication changes. It is recommended that both physicians and futurists consider framing communications about human extinction in terms of *descendants*. This recommendation is drawn from the seminal work of John Rawls, who argued that a just society must concern itself with benefits and opportunities afforded to at least the ensuing 2 generations.⁷ For example, the physicians’ charge to do no harm, one patient at a time, can be extended to encompass patients’ children, grandchildren, and further descendants, as a healthy current generation is necessary for humanity to survive into the long-term. Perhaps physicians can respectfully work these ideas into their conversations with their patients at appropriate times in appropriate settings. Conversely, futurists should consider anchoring communications with policy makers and the public around children, grandchildren, and descendants when they are working to help humanity anticipate risks of human extinction. We acknowledge that a great deal of additional thought is needed for physicians and futurists to operationalize these recommendations.

Citizens in our society by and large do not spend enough time thinking about either their own death or the deaths of family members, much less the longevity of humanity. Yet we suggest that everyone owes it to themselves and their families to ponder what death really means and to seek guidance, perhaps from medicine, about how the process may be experienced. Prompting thought and discussion on individuals’ longevity and prospective deaths may help ease the resistance that our society seems to have with making concessions to meet obligations to future generations and reduce the probability of human extinction. Talking more about protecting current generations and their descendants through effective and empathetic health care may help lessen the distance people feel when talking about prospective humans.

Collaborate to Address an Extinction Risk

One extinction risk that has been identified by futurists relates to the worldwide decline in fertility rates. Populations of many countries across the globe have fertility rates that are below the United Nations-defined replacement level of 2.1.⁸ For example, Japan’s is 1.4 and South Korea’s is 1.1, the world’s second lowest.⁹ The global fertility rate in 2021 was 2.3, according to the United Nations,¹⁰ and the Population Reference Bureau’s current estimate of the global fertility rate in 2024 sits at 2.2.¹¹ If the global fertility rate drops below 2.1 and never rebounds, human extinction will surely follow.¹² In the words of philosopher Nick Bostrom, humanity will cease to exist in “a whimper.”³

Futurists have anticipated many major societal impacts of declining fertility rates that fall well short of human extinction. An aging population might be forced to work longer,

as younger generations are not sizable enough to replace them in the workforce. Economic, governmental, and social support might thin without the necessary tax revenue contributed by younger generations. Health care costs associated with aging might strain the already resource-limited medical industry.¹³ Socially and politically, liberalism and creativity might be overshadowed by the views of older generations, who historically have been more conservative and more risk averse.

How to explain the declining birth rate? Some of childbearing age, regardless of fertility, decide they don't want children for any number of reasons. Regarding fertility specifically, however, there are many reasons why fertility rates are dropping.^{14,15} Infertility is related to age, exposure to toxic and endocrine-disrupting chemicals in the environment, and other variables. Some infertility can be addressed by medicine (eg, egg freezing, in vitro fertilization), and futurists, for example, could alert policy makers and clinicians about mid- to long-term consequences of global fertility decline. In turn, some physicians might feel comfortable communicating to, say, patients of childbearing age who want to bear children their own commitment to the well-being of such patients and their descendants.

Summary

Doing no harm is a transcendent ideal for medical and futures communities. Death and the risk of human extinction are 2 very important topics that affect all of us, as well as future generations. While we cannot force people to engage in this discourse, perhaps highlighting its importance and urgency earlier in people's lives might allow them to better prepare for their own deaths and even provoke them to support or contribute to the longevity of humanity.

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