Episode: *Ethics Talk: "Why Health Care Still Matters in the Face of Humanity's End"*

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[low, dramatic theme music]

[00:00:04] HOFF: Welcome to *Ethics Talk*, the *American Medical Association Journal of Ethics* podcast on ethics in health and health care. I'm your host, Tim Hoff. When the world is ending, what should clinicians do? This and other related questions underlie existential health care ethics, the topic of this month's theme issue.

There's no shortage of potential threats to humanity. Some are familiar, like critical resource depletion and weapons of mass destruction proliferation, and some less familiar, like planetary-scale anthropogenic disequilibrium of Earth systems or dual-use technology applications. Health professions and health professionals, both as individuals and collectives, must orient themselves and those they serve to the threats that undermine humanity's survival.

Joining us on this episode are two clinicians working to engage other health professionals and the public on key threats to humanity. Later, we'll hear from Dr Farah Hussain, the director of Planetary Health at the University of Pennsylvania, about how health professions education can help orient future health professionals to their roles in identifying and responding to harms caused by climate change. But first, we're joined by Dr Joe Hodgkin, an attending hospitalist physician at Massachusetts General Hospital and an instructor in medicine at Harvard Medical School. Dr Hodgkin is co-chair for Nuclear Disarmament of the Greater Boston chapter of Physicians for Social Responsibility, and he is a member of International Physicians for the Prevention of Nuclear War. He's here to discuss why clinicians have an obligation to advocate against the creation and use of nuclear weapons. Dr Hodgkin, thank you so much for being here.

DR JOSEPH HODGKIN: Thank you so much for having me. [music fades]

[00:01:53] HOFF: So let's start broad, because I imagine many of our listeners might be unfamiliar with the organizations that I mentioned at the beginning of this podcast. How and when did clinician-advocates establish Physicians for Social Responsibility?

HODGKIN: Yeah, so I'm so happy to talk about this topic, I think, not only because it's a great story, but also because the story of this movement really helps debunk one of the fundamental assumptions that I think a lot of people have, which is that, yes, this is a serious problem, but it's far away, and it's beyond my reach, and there's nothing I can do about it. So, the history of this movement really kind of shows that a grassroots movement led by doctors and scientists is extremely effective at getting nuclear

weapons dismantled and otherwise addressed. So, Physicians for Social Responsibility was founded in the early 1960s. At that time, the United States was still doing atmospheric nuclear weapons testing in the Nevada Test Site. And some research studies, specifically the St Louis Baby Tooth Study based out of Missouri, showed that these tests were being blown by the jet stream and depositing nuclear fallout all throughout the continental US, and that there was radioactive strontium-90 in children's baby teeth in all 48 lower states that could only have gotten there because of nuclear testing. So PSR was founded and was part of the movement in the '60s when everyone's mind was on nuclear weapons. This is before, during, and after the 1963 Cuban Missile Crisis. And the message that we should not be doing atmospheric weapons testing got to the administration. John F. Kennedy helped lead the world in signing the Partial Test Ban Treaty, which banned nuclear weapons testing everywhere except underground. So that's really where this movement got started, but its greatest successes were later on.

[00:03:51] In the 1980s, there was a major escalation in the arms race, during the Reagan administration, and the PSR and similar doctor and scientist movements were really at the forefront of a massive grassroots response. This was one of the biggest social movements of the time. There were a million people in a rally for the nuclear freeze in Central Park in 1982. And at this time also, our international network was founded. So IPPNW, International Physicians for the Prevention of Nuclear War, won the 1985 Nobel Peace Prize for work that we would call Track Two diplomacy. So that's diplomacy done by people who aren't diplomats, also called citizen diplomacy, or in this case, scientific diplomacy.

The idea was that doctors from the US met with Russian physicians and reached some—or Soviet physicians at that time—reached some basic consensus about the need to stop the arms race and reverse it, and then relayed their recommendations to their respective governments and media and populace. And this was really instrumental in changing the minds of both Reagan and Gorbachev. This movement was responsible for some major media, including *The Day After*, which was a made-for-TV movie showing what the effects of nuclear war would look like. Reagan wrote in his diary that the movie depressed him and changed his mind. And this led to Reagan and Gorbachev meeting, agreeing on arms reduction, the Intermediate-Range Nuclear Forces Treaty, and they actually almost agreed at their 1986 conference in Reykjavik to completely abolish nuclear weapons and completely disarm, but those talks fell through.

[00:05:33] And I think what a lot of listeners probably won't know is that we're really, since the 2010s, in a major third wave of this movement. Given the dangers of recent years, more and more citizens around the world, doctors, scientists are speaking out about the threat of nuclear weapons. This has led, among other things, to the 2017 Treaty on the Prohibition of Nuclear Weapons, a move to make nuclear weapons illegal under international law. Nine countries in the world have nuclear weapons; more than 180 don't. And most of those countries don't want there to be nuclear weapons in the world. And so, 120 countries voted to pass that treaty in the United Nations General Assembly in 2017. That work got our partner ICAN, the International Campaign to Abolish Nuclear Weapons, the 2017 Nobel Peace Prize. So there's a lot of work going

on, although it's under-covered in the media. And it's a great history, and it shows that we can do this.

[00:06:33] HOFF: Yeah, it does seem like there's an oddly low amount of coverage, given that extinction via nuclear war is a problem for everyone. And at the risk of saying something a little bit too obvious here, nuclear war has immediately apparent negative health effects, but it's worth canvassing some of them now. I think there's an image of nuclear war in the popular imagination where everything is simply obliterated in an instant. So, could you offer some examples of the most compelling connections among nuclear proliferation, nuclear war, and diminished human health that listeners might not think of?

HODGKIN: Yeah, absolutely. So in 1983, the WHO said that there is no greater threat to public health than nuclear weapons, and it's really still true today. So we know that there are 12,000 nuclear weapons in the world today. About 90 percent of them are in the hands of the US and Russia. Most of these, or many of these, weapons are on the order of tens to hundreds of times more powerful than the weapons dropped on Hiroshima and Nagasaki. Many are on hair-trigger alert. That is a launch on warning system. And we know that there are many conflicts around the world that put us in high danger of these weapons being used: conflicts in Ukraine, tensions over Taiwan, the Korean Peninsula, the Middle East, and of course, there was a hot war last week between India and Pakistan, which are both nuclear armed states. So yes, the health and humanitarian impacts of nuclear war need to be at the center of this conversation.

So, when a nuclear weapon is detonated, at the epicenter, the temperatures reach millions of degrees hotter than the surface of the sun. Everything near the epicenter is vaporized. This is followed by a blast and shock wave that sweeps all buildings aside, destroys everything in its path. Any humans in the way have to deal with those blunt and penetrating trauma. And then the whole area coalesces into a firestorm, which destroys, which burns everything and consumes all the oxygen. And if this is happening in the context of a nuclear war, we're talking about destruction of transportation infrastructure, electricity, health care infrastructure, water, sewage, collapse of the economy, epidemic, disease, starvation. And that's actually not even the whole story.

[00:08:41] So the further problem is that there's climate modeling that was first done in the 1980s, but there's a lot more evidence now showing that those findings are valid and even worse than we thought, that in a nuclear war, when nuclear weapons are used on population centers, there's so much black soot lofted into the upper atmosphere that global precipitation and temperatures drop and crops fail, and we have widespread starvation. So there was a paper in 2022 in *Nature Food* modeling the effects on global agriculture and fisheries showing that in a so-called limited nuclear war between India and Pakistan, using—and I'm using scare quotes here—"only" a hundred or hundreds of weapons and "only" of Hiroshima and Nagasaki yields, we could see starvation of one to two billion of the eight billion people on Earth, while a broader exchange between the US and Russia or NATO and Russia could lead to the starvation of as many as five billion of the eight billion people on Earth. So, this is really the biggest threat to public

health. This is something that we should all be talking about and something we should all be focused on.

[00:09:55] HOFF: Yeah, I think your response there forecasts some of the justification for calling specifically on health professionals to help respond to existential threats to human health like nuclear proliferation. But could you please expand on why groups like Physicians for Social Responsibility see that as the case, see us as justified in singling out the obligations that health professionals have?

HODGKIN: Great, yes. So I think I want to kind of take a step back because I'm often asked questions in this kind of frame about why should we be focused on this issue, or why is this relevant to me? Or the way it's often asked to me is, "Wow! What an interesting and esoteric topic. How on earth did you get involved in this?" And I think we need to take a step back and think a little bit about where that question is coming from. Because back in the 1960s or the 1980s—the periods I was talking about—when everyone was thinking about nuclear weapons and the nuclear threat and everyone was worried about it, those questions would be kind of incoherent. [laughs] And so, we have to ask ourself, well, what has changed? If we have a lot of evidence that there's a lot of risk of nuclear war right now, and the situation is probably as dangerous or more dangerous than it was then, what has changed historically or in terms of our media or our social psychology that this issue is taboo or not discussed? Or we push it out of mind, and it can be thought of something that only some people are interested in, versus something that is an urgent thing that we all need to be concerned about. So, I guess that's my initial kind of response to try to problematize the question a little bit.

[00:11:44] But taking a step back and thinking about clinicians and health care professionals specifically, if a nuclear weapon is used, we will be expected to be first responders. And we have done that before, right? So, one of the activists I know, Mitchie Takeuchi in Japan, her grandfather, Ken Takeuchi, was the, was a physician in a leadership position at the hospital in Hiroshima responding to the bombing there. But under current conditions, there's basically no meaningful response that we're going to be able to provide. These weapons, if detonated on a city, are likely to destroy all the hospitals and kill many of the health care professionals. And so, the conclusion we can draw here is that we need a preventative health frame. Because we don't have a meaningful clinical response, we need to be engaging in preventative health. And so, we need to be speaking out about the threat of nuclear weapons and about the necessity for nuclear disarmament and nuclear abolition.

I guess the other reason, another reason why we could see ourselves as obligated, is because we have all this evidence historically that our voices have made a difference, right? The treaties that we've achieved, the 80 percent reduction in nuclear weapons that've been achieved in the past 40 years, this is due to grassroots activism led by doctors and scientists. And so, because we know that our voice works, I think that also makes us responsible.

[00:13:23] HOFF: Despite those successes at a policy and governmental level, health professions students and trainees, those who in the future will be leading the way to

make these policy and regulatory changes, likely see policy governing the creation and use of nuclear weapons as far beyond their own spheres of influence. But what might you say to those students and trainees who might not see existential threats to human health as something about which they have special duties to care?

HODGKIN: Yeah, I think that we've had, I've had a very sort of exciting year on that front in terms of how do we connect folks who are starting out in their careers, who are trainees, just learning the ropes in medicine to diplomats who are making decisions about nuclear weapons and nuclear disarmament? In my work, one of the things that we do is work at the United Nations trying to support and further the treaties that govern nuclear weapons, specifically the 1968 Treaty on the Non-Proliferation of Nuclear Weapons and the 2017 Treaty on the Prohibition of Nuclear Weapons. The United Nations, the member states for these treaties meet almost every year, every couple years, and these are opportunities for medical students to come down to the UN.

And I put out a call to students at my institution, at Harvard, this winter, and we actually had eight Harvard medical students come down to the UN headquarters in New York just in March for the third meeting of state parties for the Treaty on the Prohibition of Nuclear Weapons. They were able to meet medical student activists from other countries who were in town to participate in the work. They were able to meet diplomats. They were able to hear the diplomats speaking on the UN General Assembly floor. They were able to hear experts in nuclear war testifying to the diplomats and engage in side events where various different civil society groups and diplomats were working out the details about some of the specifics of the treaty. So I think that there are many opportunities for health care professionals to feel a concrete connection, to be part of this and to be able to do something about it. And I also wanted to give a shout-out to my coauthors on the article that we had in the Journal. I've got three brilliant medical students: Ghee Rye Lee, Trey Hale, and Devin Kellis, who helped me write the article. [low, dramatic theme music returns]

[00:15:52] HOFF: Dr Hodgkin, thank you so much for your time on the podcast and for sharing your expertise with us.

HODGKIN: Thank you so much. It's been a pleasure.

[00:16:01] HOFF: The health of the planet is directly related to the health of humans. As Earth continues to warm as a result of climate change, increased pollution, more regular natural disasters such as wildfires and tornadoes, and higher incidence of disease borne from reduced biodiversity all threaten the health of humans. Dr Farrah Hussain, associate professor of clinical medicine at the Perelman School of Medicine at the University of Pennsylvania, directs the Planetary Health curriculum, which seeks to orient future health professionals to these challenges and prepare them to respond to the needs of their patients and their patients' communities. Dr Hussain, thank you for joining us.

DR FARRAH HUSSAIN: Thanks for inviting me. [music fades]

[00:16:44] HOFF: The Planetary Health curricula integrates information about how environmental changes can affect patient health into existing health professions curricula. For instance, students studying pulmonology might learn about how industrial pollution or wildfires generate fine particulate matter that compromises air quality and that such conditions then exacerbate illnesses like asthma or COPD. How else should planetary health intersect with health professions curricula?

HUSSAIN: I think there are so many examples to draw from to highlight the ways in which disease pathophysiology is affected by planetary health, and I think it's really important that this information is included in curricula at all levels of training and practice because if you're like me, you might never have been taught about this in medical school. But I think you highlighted a great example with particulate matter and pollution affecting lung disease. But a few other examples could be things like mortality related to extreme weather, or if we wanted to just focus on one type of extreme weather, we could talk a lot about extreme heat. We're seeing so many more patients affected by dehydration, heat stroke. And this doesn't just affect populations we might traditionally think about, like small children and the elderly, but we're seeing more young, healthy adults come into the hospital with complications from extreme heat after they've been, for example, training for a summer sport outside, or if they're agricultural workers working outside for long hours in the heat as well. And then sort of on the flip side, if we think about extreme precipitation and flooding, for example, this can also put patients at risk in the short term from things like water-borne pathogens that can cause diarrheal illnesses, for example, or in the long term, might place patients at risk for things like mold exposure if the damage done in the flooding event isn't properly addressed.

[00:18:48] But I think that the fact of the matter is that planetary health can affect basically every aspect of human health in some way, shape, or form, and it really doesn't matter what specialty you work in. But I do fully recognize that it's not easy to incorporate some of this material into educational curricula because there's so much other information that we have to learn during training and maintain during practice. But I think if we approach it in a little bit more of a bite-sized way, even something like a single slide highlighting the link between temperature, pollution, and hospital admissions for COPD and asthma exacerbations, that could be enough. I think as long as planetary health really serves as a through line or a theme that comes up time and again, I think that's enough for learners to recognize its significance and hopefully seek out more information that piques their interest in the future.

[00:19:42] HOFF: I'm glad you brought up the importance of thinking of affected populations whose burden might not be the most readily apparent. One way that manifests is that the burdens of environmental degradation and hazards can be felt by all, but they are disproportionately borne in marginalized communities, and often in insidious ways that are hard to track. How should clinicians and health care organizations help mitigate environmental harms inequitably borne more by some and less by others?

HUSSAIN: I think that's a great question and being aware of how some patient populations are disproportionately affected is incredibly important. Since my focus is

medical education, I think highlighting these disparities for our learners is step one, for sure. But from a more practical sense, I think that one of the best things we can do as providers is to be aware of what resources are available for our patients. So, some great examples out there of local resources that providers might not be aware of could be things like heat lines that open up during an extreme heat event. Or maybe providers can have maps with cooling or heating centers marked on them available in their offices. Or things like local programs that increase outreach to vulnerable patients, for example, those with housing insecurity, when an extreme weather event is on the horizon could be helpful as well. Or even just educating and engaging with community leaders like teachers or coaches about the risks of air pollution when kids are outside all day. I have a colleague who's an adolescent medicine physician who tries to prescribe air filters for his patients who have severe asthma and frequent exacerbations who might not otherwise be able to afford them. So I think there's a lot of ways that we can advocate for our patients, especially our more vulnerable populations, but sometimes it does require a little bit of creativity, shall we say.

[00:21:41] HOFF: Yeah, engaging on the local level seems like a really effective way to reach out to the patients that you work with, but some of these environmental hazards are so large in scope that they require similarly large-scale national responses. So how should health professionals engage with national policymakers to help craft these types of responses?

HUSSAIN: It's a great question and something that I'm still trying to get better at as well. So, I hate to be a broken record here, but I think one of the most important ways that physicians can help craft more wide-scale change is by being well educated ourselves about planetary health. I feel like sometimes in medicine we can feel quite siloed, but there's a lot of people across the country doing amazing work in this sphere, and all of those people could help you get involved. And I think there's a lot of opportunities through our medical societies and conferences, which can provide more formal opportunities for learning and collaboration and potentially some built-in opportunities to advocate at the national level as well. So, for example, the Medical Society Consortium on Climate and Health has a yearly conference that usually concludes with an opportunity to go to Capitol Hill and visit with members of Congress.

But I think, like you said, even though it's great to get involved at the national level if you can, it's equally, if not more, important to recognize kind of how much impact you can have at the local level, too, so things like getting involved in city councils, for example. This past year, some of our students and colleagues put together a hearing for our city council on plans for tree planting. But you can really make an impact, I think, at the local level, by holding your officials accountable and making sure that they're hearing your concerns, that they perhaps can then bring to kind of a larger audience in the end. Or if you're really passionate about this and you have the opportunity, you could even run for office yourself. I think advocating for change in your local community can really have far-reaching implications that sometimes we underestimate.

[00:23:55] HOFF: I want to look briefly, before we end, at the flip side of the coin, so to speak. In addition to environmental causes of illness, another focus of the Planetary

Health curricula is how health systems themselves add to environmental hazards. So, what should health professions students and trainees know about health systems waste streams, for example, and how they can help reduce the environmental impact of health care as an industry?

HUSSAIN: Yeah, there are so many ways that the health care sector has significant environmental impacts. So, across the world, the health care sector is responsible for, I believe, about 5 percent of global greenhouse gas emissions. But here in the States, our health care sector is responsible for about 8 percent of our greenhouse gas emissions, which is obviously a huge proportion. But I think it can be helpful to think about emissions by scope. So, scope one is direct emissions from a facility; scope two is indirect emissions, for example, through purchased electricity; and scope three is kind of everything else, like the supply chain and waste streams and everything in the middle. So, a huge step a hospital or health care system could take is to ensure, for example, that their electricity comes from renewable sources. But for a more kind of boots-on-the-ground perspective, ensuring that the companies where we get our supplies from have sustainable practices can be really important.

[00:25:20] And since you brought up the example of waste, there's a lot of ways we can mitigate our impact by reducing the amount of waste we produce. As you may already know, red bag waste, or biohazardous waste, is often incinerated, which can release harmful pollutants and particulate matter into the air. Or it might be autoclaved and then stored, but there's significant emissions associated with trucking it from facility to facility. So if we produce less, we emit less. Or if we think about food waste, which hospitals can generate a ton of from our cafeterias to the patient trays that might go uneaten, often, all of that is simply thrown away, but perhaps could be composted instead. And I'm not a surgeon, but some of my surgical colleagues are working on ways to improve waste in the OR from things like personalizing instrument trays to using reusable supplies instead of single-use plastics whenever possible, or getting rid of desflurane in the operating room, which is a very potent greenhouse gas. So all of these can have a really huge impact, I think, especially when the health care system or health care sector as a whole is really working together to address an issue. But these are just a few examples. And I think there's some great organizations out there like Practice Green Health, which can really guide hospitals and health care systems towards more sustainable practices in a more sort of meaningful, and honestly, more often than not, a cost-effective way. [theme music returns]

[00:26:58] HOFF: Dr Hussain, thank you so much for your time on the podcast today and thanks for sharing your expertise.

HUSSAIN: Thank you for having me.

HOFF: That's all for this episode of *Ethics Talk*. Thanks to Drs Hodgkin and Hussain for joining us. Music was by the Blue Dot Sessions. To read the full issue on Existential Health Care Ethics for free, visit our site, journalofethics.org. Find us on Bluesky @amajournalofethics for all of our latest news and updates. And we'll be back next

month with an episode on Screening Children for Structural Drivers of Health. Talk to you then.