Episode: *Ethics Talk: Human-Centered Design and the Sounds of Solidarity*

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[mellow theme music]

TIM 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. While it's obvious once you think about it, many people don't consider the fact that some of the most important features of a patient's health care experience are products of deliberately designed choice architectures from intake forms' layouts to how many steps a nurse has to take to reach an important tool. Though most people might not be aware of the preconditions of what they might think are autonomous decisions, they will likely remember how they felt in a clinical space and how they experienced a specific clinical encounter.

In this episode, we'll bring you two interviews about the design choices that influence how we experience health care systems and spaces. Later, we'll talk with Eve Payor, a multidisciplinary artist, about the importance of effective sound design. Up first, though, we'll talk with John Meyer, a design consultant with experience bringing human-centered design to health care systems. John joins us to discuss how human-centered design can help remove barriers to care and forge solidarity between patients and clinicians. John, thank you so much for being on the podcast with me. [music fades out]

JOHN MEYER: My pleasure.

HOFF: So, your first podcast with us back in November 2017 introduced listeners to human-centered design. Can you please remind our listeners what that is and what it has to do with forging solidarity among patients, clinicians, and the systems in which health services are delivered?

MEYER: Yeah, human-centered design is a discipline that takes a different approach to problem solving than many of the other disciplines that exist in the world, including medicine and engineering. There are, of course, overlaps, but the key ideas behind human-centered design are that we focus on the end user. Now the end user in this case would be these are the people involved in the systems. So, sometimes we'll be looking at the patients. Sometimes we will be looking at the providers, you know, nursing, people in the provider organization. But we do focus on the people and really on their experience in the system. That is the anchor. Human-centered design is used for understanding, to do innovation, to do improvement, process improvement, but the core focus is on the experience of the users.

And I think if you take an analogy—why is experience important—you take an analogy and say, when you go to shop somewhere, the experience is very important to your choice. I think that in a system like this, that the point is that when we have a positive experience in health care, like care efficiency, ease, it opens up a lot of the layers below to a lot of really positive things like trust, positive emotions, and it removes roadblocks and misunderstandings. So, that's why a human-centered design is a way of providing good experience, and that's why it's important.

HOFF: Can you give us an example of how design can influence, either positively or negatively, both caregiving and care receiving experiences?

MEYER: The design of the system can have a tremendous effect on the experience. And I think that the first thing to remember is that the journey of the patient and the experience of the patient is much broader than the part that the provider sees. And I'll say provider in general, you know, members of the provider organization or institution. It's much broader than what the provider sees. People's experience starts, and their journey with a particular concern starts, before they ever contact the provider. And so, it's important to keep that right frame in mind.

My own personal experience that happened in the last few years is that I needed to renew a colonoscopy. And although I think I can report that everything went well when I was in the hospital, it took me years to actually sign up because my doctor sent me a reminder that I needed this, and then they told me I had to fill out a form. They sent me an 18-page form which was very generic and wanted to know a lot of things, including questions that they should have the answer to, like who gave you your last colonoscopy? What was the name of the doctor? This really broke down a lot of trust, and I was hesitant to fill it out. In the end, they called me up and took the history over the phone, but we went through a number of iterations on this. In fact, at one point they called me up and said, "Just call us and we'll schedule you." And then I called them, and they said, "Wait. Which office do you see? Oh, no, no. That's only for our other office. You have to fill out the form." So, right there they were telling me that [chuckling] unless I complied and filled out this form, that they wouldn't serve me. They wouldn't give me a colonoscopy, wouldn't give me care. And indeed, it was not necessary because both they were doing it differently at the other office, and because they eventually were able to do the intake without that form.

I think what it did was it, you know, I was hesitant because I didn't want to answer the questions wrong. But just a little change, like a line on the form that would've said, "Do the best you can. We'll follow up if it's important," that might have made all the difference in the world. Instead, it was a test. It was a test that I could not pass. And so, I think that health care often comes across as setting up hurdles for patients before they're allowed into the system. So, I think that the point is that don't expect that your patients will get through it. Patients already invest quite a bit in using the health care system. They are willing to do work. We saw that in our research. The issue is that when you push everybody very far, some will drop out, or some will have care delayed.

HOFF: Hmm. So, can you help our listeners appreciate how you use behavioral science to inform your design and consulting work in health care?

MEYER: Behavioral science is really a separate field from human-centered design, but they overlap quite a bit. And I practice in an area that combines both of these. So, human-centered design is attempting to make a better experience, make things easier, easier to accomplish. Behavioral science is about decisions. It's about decision making within the journey. And with behavioral science, then, one considers the internal mechanisms and the emotions quite a bit, as well as only what the experience is. So, it brings an internal dimension to the understanding of the behavior.

There are a few principles that are really important in behavioral science. These are some things when you're trying to get someone to accomplish a journey like go through and get care, use a system, there are a couple of things that keep coming up again and again.

One of them that's very important is the principle of goal alignment. People are able to use a system better when they believe that the system and their goals are aligned. And what's important here is that the patients have goals that often the health care system and health care providers doesn't necessarily work to uncover. There's this assumed, oh, well, you're here, you're sick, you want some treatment. But there was a doctor at the health system that I worked with that said, "Until we've taken care of a patient's fears, we haven't really treated their problem." And he gave the example that you can tell someone, "Your cancer test was negative," but until you've dealt with the patient's fear of having cancer, you haven't really helped them.

Another principle is decision confidence. And I think as people go through, as patients go through difficult situations, they need some reinforcement that they're doing the right thing because otherwise, the system comes across as one hurdle after another. And they can become fatigued, and they can, they wear out. It breaks down their ability to cope. Coping potential is a very important idea in behavioral science. And all of, these two lead to an idea called ancient intent. The worst thing is when you're in a, a patient could be in a system and then suddenly feels like the system doesn't have their best interests at heart.

I'd like to tell you a little story about that we heard in our research about a patient. He was a young man, part-time employed in an economically depressed area. And he had a job actually with an entity connected to the health system, but he wasn't making much money and didn't have much money. And they told him he needed a test, that it was very, very important. Something very bad could be wrong with him. Now, he never told us what this was. He had the test, and he had to pay $200, which to him was a lot of money. And afterwards, they told him, "Oh, the test is negative. Come back in two years and have the test again." So, he heard nothing new, and he heard that they wanted $200 more of his money. And the quote that just rings in my head all the time that he told us, he said, "Health care has no value." That was his impression coming away from this.

So, it's really important how we frame what we tell the patients. By telling him, "You know what? We thought this was important. It's really good that you had a test because there was a risk of something very serious being wrong. The good news is the test shows you don't have that," that would've been very, very, a very different experience for him. That would have bolstered his decision confidence and his trust, and it would've aligned with his goals.

And I think that while a lot of behavioral science is something that probably your grandmother already knows and could advise you on about being good to people, sometimes we get caught up in being a part of the system and forget to attend to the feelings and emotions of people. And the behavioral science work is a disciplined way of examining that and reminding us that that's important.

HOFF: So, you've gone over a couple of ways in which poor design can introduce barriers, can lead to the misalignment of goals and maybe the miscommunication of intent. How does a well-designed system, first of all, what does that look like? And secondly, how does that help lead to positive outcomes for both patients and health care professionals?

MEYER: So, I think in a well-designed system—And I'd like to add that I know a lot of clinicians do it very well. They are very, very attuned to the emotions of their patients. I think things like listening is very important—I think that the well-designed system, though, does start and consider the entire journey of the patient. And I think that's probably one of the areas where health care falls down now. And I have to add that I'm speaking primarily

about medical office care. The situation does look somewhat different in acute care. It definitely looks different in care of extreme ailments like cancer. But I think in health care in general, with medical office care, the thing to remember is that people do come in with goals.

And at one system that I worked with, we examined the journey, and we found that one of the first things patients do is they set their objectives before they call the call center. And we said that they've already set their goals and expectations. And this was shocking to the health system because they felt that their job was to help set expectations. And in reality, what they were doing was putting themselves in conflict with the already set expectations of the patients. So, a well-designed health system would try to uncover what those goals and expectations are and attend to those as well as to the clinical nature. And it's difficult to do. I think physicians have a difficult job because they are trying to make clinical assessments. So, they're using different types of inquiry. So, sometimes they have to be very attuned to the decision tree for diagnosis, and then sometimes they also have to listen. And so, I think the well-designed system allows people to express those goals. Frequently, you'll have in a provider's office, an assistant or a PA come in first and do an assessment. In the old days, this was a nurse. This is a good thing. I think layers of building understanding can be very effective.

The other thing I think is technology. I think understanding that once we provide a technological solution, it doesn't necessarily meet the patient's needs. I think that a lot of health systems put technology out there with electronic medical records, these various charts you log into, and sometimes that works quite well for some people. Those are often put out there in one form that meets the needs of the system but doesn't always meet the needs of the patient. And we found that even people who use technology well may have difficulty remembering passwords, things like that. So, providing, in technology, providing multiple ways for people to gain access to the system. Any given patient may want multiple technological avenues. Sometimes they're going to want to speak to a person. Sometimes they may want to just check a result quickly on an EMR site, and they will have different preferences. So, there's no one size fits all, and allowing for that is part of a well-designed system.

HOFF: So, what should health professions students and trainees know about their roles in identifying poor behavioral design and perhaps helping implement designs that encourage rather than discourage connection with patients?

MEYER: So, I think one of the key conclusions of a project that my colleagues and I did was that health care providers, what business are they in? And we struggled with this. We were wondering, are we in the business of treating illness? Are we in the business of providing health, of wellness? And we came up with, we realized—and I have to credit one of my colleagues with this—she realized that we are in the trust business in health care. So, trust is a critical theme that runs through everything, and all of the behavioral science leads to the theme of trust. So, at every interaction that a health system, whether it's a person, whether it's a physician or a nurse in the room with the patient, or whether it's filling out a form or the electronic medical record, every interaction is going to either build trust, or it's going to break down trust. And so, the question I think that all of the listeners should take away is for everything that I do, am I building trust, or am I breaking it down? Am I diminishing it in some way? And I'd say adjust your behavior based on that.

And this is very important because most of health occurs outside of the office, right? We think of health care professionals, I think, may sometimes have a bias that their job occurs

in the exam room, in the clinic room. But even at a regular office visit, a doctor will provide, prescribe a medication. The patient almost never takes the medication in the office. [mellow music returns] So, there are many decisions to be made. There's a journey, there's a context, there are emotions, and all of those will easily override the advice of the physician if there's not trust.

HOFF: John, thank you for your time on the podcast today and for sharing your insights into well-designed health care systems.

MEYER: You're very welcome.

HOFF: Despite abundant research on health implications of excess noise in health care spaces, the roles that soundscapes can play in health care quality tend to be neglected by researchers and designers. The beeping monitor that's supposed to signal something important to nearby professionals is really only heard by the patient in bed who might be desperately trying to sleep. As noise pollution in health care spaces worsens, we need to be paying closer clinical and ethical attention to soundscapes' roles in patients' experiences and in patients' outcomes. With us now is Eve Payor, a multidisciplinary artist whose soundwalks project offers some interesting and important insights about what it means to draw upon sound to promote healing and to facilitate solidarity among patients and clinicians. Eve, thank you for being on the podcast. [music fades out]

EVE PAYOR: Thank you so much for allowing me time to share this information with your listeners.

HOFF: It's our pleasure, really. As I just mentioned, your soundwalks project highlights some important and often neglected aspects of good health care space design, namely effective sound design. Can you tell our listeners a little bit more about that project?

PAYOR: Well, a soundwalk in its most basic form is a silent, contemplative walk in an environment to heighten listening awareness, a moment to tune in and feel the sounds around us. It's really a sensory experience. The practice of a soundwalk was formalized in the 1970s by composer and Professor R Murray Schafer to give his students a clean slate before they started composing by considering the myriad of other sources that make up the soundtrack of our life. It then transformed into a way to understand the ecology of our environments, humans included.

So, when I lead a group on a soundwalk, the first effect on the participants is slowing down and releasing tension, consciously taking time to relax into the present, and turning our attention to the sense of hearing. So, even though we may think that only our ears are listening, our whole body picks up vibrations. And this is how the physics of sound waves work: vibrations moving through a medium and interacting with everything it crosses. So, when it comes to our bodies and our experience of a space or a location, vibrations resonate with us for good or for bad.

And I love how you mentioned sound facilitating solidarity among people. A health care setting should be designed for healing. We want people to get better, right? And this is the common goal for both physicians and patients. If we think about this as a sensory experience, humans are better able to stay positive and cope with the stresses of sickness if our surroundings make us feel more relaxed. The world is already a hectic place with industrial noise and digital devices vying for our attention. There must be spaces that allow us to mentally and physically slow down to allow time and space to heal. And this goes for

health care workers as well, which is something I'm starting to see become a priority for hospitals and clinics.

HOFF: You're certainly right that the world is a hectic place, and health care spaces are certainly no different. A repeated complaint of patients in health care settings is the constant noise from beeping monitors to pages over PA systems. So, how does the concept of soundscape ecology help us understand effective sound design in health care settings?

PAYOR: I really believe that this is the future: using technology to our advantage instead of allowing it to become unwanted noise in our environment. Soundscape ecology typically focuses on outdoor environments by listening and analyzing natural sounds and the noise created by humans to understand things like habitat loss, climate change, and wildlife communication. However, the concepts of listening to the entirety of the sounds around us and its effects is the same indoors. Sound design and acoustics are vitally important for architecture, city planning, and interior design.

I'd like to give an example of a magnificently innovative project that was established in a hospital in England. Musician and producer Brian Eno, whom your listeners may know as the father of ambient music, was commissioned by British surgeon Robin Turner to build a quiet room in the Montefiore Hospital in East Sussex. This surgeon became familiar with Eno's work when he brought his mother-in-law, who is normally very fidgety, to a concert of Eno's music. And he said, "Although she is normally very hyperactive and restless, she sat through the concert calmly for two full hours, which is unheard of." It was proof that this type of sound and music has a calming effect on people.

The Quiet Room installation is the first of its kind in the world. The doctors at that hospital have gone on to examine physiological changes to people while in the room, such as pulse, blood pressure, and cortisol levels. There was qualitative evidence during the first week of its installation when a cancer patient told the doctors how wonderful it was and that he wanted a copy of that room in his home. Dr Turner said, "The scientist in me says it's not very scientific, but the human in me makes it all worthwhile."

What's even more interesting than tranquil music in hospital settings is that natural sounds have a profound effect on well-being. Writer Florence Williams has a stellar book called *The Nature Fix*, where she documents numerous scientific studies about using natural white noise to help patients sleep and allow brainwave patterns to calm from beta to alpha. This can be accomplished using recorded sounds of ocean waves, waterfalls, forest streams, or light wind through the trees. She states that, "Noise may well be the most pervasive pollutant in America." I have heard it goes further than that since the World Health Organization warns that the burden of disease is from noise, noting that it can affect cardiovascular disease, hearing impairment, cognitive impairment, heightened cortisol level, and sleep disturbances.

Another of my mentors, Dr Bernie Krause, a renowned soundscape artist and bioacoustician, has collected evidence that humans need the healing effects from natural sounds that were much more dominant prior to the Industrial Revolution, saying, "We're denying ourselves an experience that is essential to our spiritual and psychological health, a source of rooted wisdom that we simply cannot acquire from other aspects of our modern lives."

So, whether it be natural sounds or tranquil music, sound creates ambiance and a sensory experience for everyone, even those who are hearing impaired because it resonates with us on a deep level, and it should be a major consideration when designing or renovating health care spaces. I see technologies like VR and AI being a way to deliver soothing sounds to patients, but also more intention with interior design and allowing access to outdoor spaces for relaxation or even bringing the outdoors inside. The intersection of arts, science, and technology will help make this a reality. It's really a cross-collaborative endeavor.

HOFF: Are there any other past or upcoming collaborations with health care professionals or organizations that you've done through Atlantic Center for the Arts?

PAYOR: Absolutely. Atlantic Center for the Arts has worked in the field of arts and wellness for over a decade, connecting the arts and creative thinking to the health of our community. In soundscapes specifically, we were commissioned by the Center for Health & Wellbeing in Winter Park, Florida to design a series of audio recorded soundwalks, which helped people continue this practice during the stay-at-home restrictions of the pandemic. And we also have used soundscape recordings at our local nursing home and rehabilitation center, Ocean View, allowing residents to paint while listening to natural sounds. There were so many interesting stories and drawings that came out of that session. It really opened up the elders to a lively conversation. Lots of great memories and laughter.

And Atlantic Center for the Arts recently received a grant to work with English artist and inventor Justin Wiggan for a project called Memory Tones, where we worked with individuals from our blind community to create an audio jingle of their memorable photographs. This is done using a color chart that converts to musical notes. The participants can use these jingles as a reminder of their memory and listen to them when they feel stressed, sad, or just want to remember that moment. The results of this pilot project will be used by the Sense charity in the UK to advance their work in mental health for the blind community. The staff of Atlantic Center is always finding new and creative uses for sound.

HOFF: [chuckles] It certainly sounds like it. So, what should students and clinicians know about why soundscapes should be carefully considered in health service delivery spaces and perhaps their own roles in promoting effective sound design?

PAYOR: Well, the most important is the knowledge that sound waves are simply vibration, and they affect every part of our body. If you think about it in terms of neuroscience, music has been proven to activate the deepest parts of our brains. The hippocampus, it has the power to awaken long-term memory in people with dementia. And sound has the power to alter our brainwave patterns and allow the parasympathetic nervous system to engage. Relaxation assists recovery. That is the main goal in healing. And in my work with Atlantic Center for the Arts, I've seen people show greater empathy and caring for others and the environment after going on a soundwalk or sitting and listening to the ocean, for example. These kinds of sensory experiences connect us and remind us of our humanity. They allow us to stay positive and seek comfort in others. Reimagining sound design in a health care setting will take us to a new level of innovation that promotes a high quality of life and a more compassionate community. It's a big calling, but one that is already taking place. And I'm optimistic for the future. [mellow theme music returns]

HOFF: Eve, thank you so much for your time on the podcast today and for sharing this important work.

PAYOR: It was my pleasure. I really appreciate you allowing me the time to share about this exciting subject because it's really in our hands. The future is now.

HOFF: That's our episode for this month. Thanks to John Meyer and Eve Payor for joining us. Music was by the Blue Dot Sessions. To read our full issue this month, head to our site, JournalofEthics.org, and for all of our latest news and updates, follow us on Twitter @JournalofEthics. A new episode of *Ethics Teaching and Learning* will drop on the 15th. And we'll be back with another episode of *Ethics Talk* next month on *Segregation in Academic Health Centers*. Talk to you then.