



The Nation's Health Podcast transcript

S26, EP8 Putting public health first in AI: What every practitioner should know

LEAL-NETO: If we are not using this properly, if we are not understanding what that output from a model means in real life and how that would affect people's life in this sense, we are just going that direction in using AI in the wrong way and just creating more harms in the society about that.

From the American Public Health Association, I'm Sophia Meador and this is The Nation's Health Podcast.

Artificial intelligence is rapidly becoming part of the public health landscape — from helping professionals analyze information and streamline routine tasks to shaping how health agencies and researchers approach their work.

As AI becomes embedded in the field, public health practitioners are questioning how this technology will change their work, and even if AI can take away their jobs.

So today, the podcast joined by an expert on this topic to discuss what public health professionals should know about AI, how the technology could change the public health workforce, why public health expertise matters in AI, and what educators, students and current practitioners can do to keep up with the rapidly changing field.

Hello, everyone. I'm Onicio Leal-Neto, I'm assistant research professor at the College of Public Health, University of Arizona.

In the college, I led AI for Public Health initiative, and also the Public Health in AI summer school, where we are trying to incorporate, and to introduce — in a more crucial way — the conversation about the importance of AI in the field of public health.

Onicio, it is so great to have you on The Nation's Health Podcast today.

To start off, I'm curious to hear you talk about how AI is being used in public health. Are we primarily talking about generative AI tools, such as ChatGPT and Claude, that can help practitioners understand information, answer questions and generate content, or are we seeing AI being integrated more directly into public health systems?

Yeah, so it's a, it's a good way to start. The utilization of artificial intelligence and machine learning in the field of public health is not something that's new. We can look at our folks

from biostatistics, for example, and they are using machine learning models since always, right?

But we do need to recognize this shift when generative AI tools became more popular — back in November 2022, specifically. So from there, I believe that people in public health, people that work in public health agencies, county health departments, these kinds of environments, they are seeing the benefits of adopt to help them in maximizing their performance on their workplaces, for example.

So, I've heard you talk before about a technology-first approach to AI versus a public health-first approach. Can you break down what those two mean and how they're different?

Absolutely. So imagine that for a long, long time we were always waiting from our colleagues from other areas, from computer science, from data science, from areas that work with the engineering those kinds of systems. We were waiting for them to tell us what to do with this kind of technology and trying to help us in our routine.

The problem is because when you are doing this kind of activity with a tool that was not developed considering the context of public health, it's very easy to bring a context blindness in this purpose, or even to not recognize a critical thinking gap for the people that made those kinds of tools. And ultimately, those kinds of gaps could bring, could just like expand the inequalities on the decisions that were made by a machine and that have some kind of impact in, in health outcomes.

So the thing that I believe is instead of looking at this movement of technology-first, instead of doing like that, we should aim for public health-first, where we can start from the domains of public health and then reach the technologies as instruments, not as destinations.

We have the hammer. Let's find the nails, and in that case, public health would be merely nail, right? But at the moment that we switch this game and start with public health domains, and then reaching AI as an instrument, not as destination, we are able to start like changing the perspective of people and even changing the impact that this can actually create.

I'm curious. Do you have any examples of how we've used a public health-first approach to solve an issue in public health?

Absolutely. So imagine that for several years, people at county health departments or even people in the research environment that work with public health — they were limited in doing several different kinds of activities because they didn't have the knowledge, like the background, the repertoire of doing something that they need to ask for help for a computer scientist. For example, like working with multimodality of data, extracting knowledge or even like creating these specific databases or datasets from documents that

were handwritten, for example. Or even prototyping stuff, right, like building software pieces.

So this was not impossible, but expensive, and very time consuming prior to generative AI movement. But nowadays, we are just unlocking different kinds of applications without the need of learning things from scratch, like without the need of, for example, learning how to code some software to accomplish some task in the public health routine.

So I've been seeing this kind of utilization in different kinds of environments related to public health. And colleagues on those positions they are very excited to see the new capacities and capabilities they are bringing to their workplaces to, to these purposes.

Onicio, I know from a previous conversation we've had that you've argued that AI needs to become a competency for public health practitioners. So, what do you think an entry-level public health professional should know when entering the workforce?

You know, I think the very first thing that entry-level professionals needs to consider is to be sensitive, to understand and to acknowledge — and to have to exercise this, this kind of self-awareness about what are the tasks that are consuming my time that could be automated. Because at the moment that they recognize those tasks and start doing those tasks with AI, they are freeing up time and creativity to do things that people with public health background should do.

So this critical thinking that's based on public health domains that they learn during their training, these should be activated somehow. And I think AI tools can help us to achieve this sort of application about everything that we learn during our training and we are not anymore spending time with tests that could be automatized.

So as you talk about automatization...one thing I hear from a lot of people across fields is a fear that AI will be replacing workers as we're automizing AI more.

So, do you think AI ultimately will mean fewer public health jobs, or do you think it will create different a different kind of public health workforce?

This conversation comes and goes all the time. It's back and forth of different concepts. So pretty much every other month, there is an evidence saying that AI is taking our jobs or AI are not taking our job, and it's really uncertainty I would say; however, the evidence that is standing now is AI is just increasing the employment chances and rates.

Because AI is just unlocking new positions or new kinds of tests or new paradigms to be challenged. Even in public health field, I think — and I'm seeing with the job market offerings, I see just good opportunity for public health professionals, especially because historically public health field is underfunded. And this reflects in the salary range that public health professionals earn. But now, big tech industry are trying to leverage the conversation about population health and they will not get that conversation in a proper

way if you are if they are not inviting public health people to participate in that conversation.

But it's important for public health people to get familiarity with the tools and with the instruments that tech industry used to do. Right now, you can find a lot of job offerings that are around public health or population health or health strategies, and these people are requiring public health backgrounds, but also familiarity or literacy, or even fluency in artificial intelligence and machine learning approaches.

So I really think that this is a game change in the job market, and schools need to be prepared about that because we are facing a gap already of like the recent generation of public health professionals. They were not prepared with those skill sets, and the industry is leading this, this kind of profile.

Until you have public health people occupying those positions, they are just occupying by people that have nothing to do with public health, and that's one of the risks that we can see.

I think that's super interesting, and I'm wondering if you can go more into what a public health perspective brings to the AI industry that might otherwise be missing, and what could be at stake if that perspective isn't there.

I used to collaborate a lot with folks from computer science, like software engineers and people like that, and I can tell you that these people, for obvious reasons, they don't have any kind of training about social determinants of health; or about health equity; or about health behavior; or epidemiology. So how come these people are taking decisions or are fine turning models that will be applied to public health challenges and problems, if they don't have this kind of understanding?

Public health is something that you don't learn only by reading books. You need to have experience. You need to have practice. So this makes completely difference in the way that that job position is shaping the professional.

And unfortunately, and again for obvious reasons, a computer scientist they don't have this kind of capability. So the public health professionals with their background they are bringing this to the game to the table to be discussing the things that actually matter most in, in the impacts or the effects of generative AI in the other technologies for public health matters.

Onicio, you work in academia. How have you observed how instructors are incorporating AI into their classroom? Do you think the academia field is comfortable with this technology yet?

Unfortunately, not. I think we are like public health schools in general, we are not doing a good work in this sense. We are not preparing properly our students, the next generation of

students, and this is not good because again, industry is eager to fill those positions with people from public health, but until they find those people, they are filling with other kinds of capacities in this sense.

So I'm not blaming only the schools because we need to prepare instructors. So instructors need to be aware about what are the roles of AI in the classroom. Students need to understand their role as a learning aid, but instructors need to understand the role of AI as a teaching aid as well because at the moment that you provide to your students a completely different experience for their, for their learning outcomes by using AI tools for doing that, you are just like preparing better those students to understand that reality and even to adopt those kinds of tools.

I've seen a lot of people from public health being reluctant in the adoption of AI under the argument that 'hey, AI is harming the environment.' And although this is a fair concern, the problem is not AI. The problem is the data centers. If you are concerned with the data centers, then it's good thing. But let's be coherent. If you are concerned about data centers, also be mindful about your favorite show on Netflix because this is also harm the environment by these purposes because they are in data centers. Or your FaceTime with video conversation, this is also creating some level of burden in the environment because of data centers.

So I think the thing is, at the moment that we are just blaming and complaining about AI in public health without addressing the crucial aspects of it, we are just delaying the progress — we are just delaying the adoption and the game change in that. Again, industry, the market, the job market—they are needing those kinds of professionals.

And just to complement this topic, I believe there is another conversation happening at the same time, which is AI as a subject of study by public health people. Right now we are facing information as a health determinant, or even the digital determinants of health. And in both situations, we have AI playing a crucial role in those conversations, are we bringing these conversations to the classroom? Are we developing the critical thinking our students to be able to argue and to debate these kinds of topics?

Just a few number of schools across the U.S. are doing this thing and I'm happy to say that here at University of Arizona, we are taking this topic very seriously and we are pushing hard to offer this formal training for our students across different programs from our college. And I know that other institutions in, in a few other cities all over the U.S. they are trying to, to do similar things, but the majority of those schools they are not entering this conversation in the proper way yet.

So I hear what you're saying that we are not where we need to be in academia to really properly train students. But I can also wonder what are people that have been in the public health practice for 20-30 years supposed to do when they have never had any education on this?

Do you have any advice for what public health professionals should be doing to catch up now, as this is increasingly a part of the field?

Yeah, so this is another serious problem because we can forget about our current workforce. We need to streamline process for these people to get up to speed in this conversation.

Short training programs like summer institutes, summer schools, micro credentials. Those are tools that can try to get these people to speak in these discussions. Maybe one of the advantages about talking to the current workforce is because they know the use cases, they know the applications already. Maybe they don't know the tools, but at the moment that they are exposed to the tools, to the utility of a generative AI system, maybe they can find these capabilities way faster than an entry-level professional in this sense.

So we should not forget about the current workforce because they deserve attention, and academia and other institutions that provide this kind of training, they need to be aware in trying to streamline these processes for making sure that makes no sense. We are if we are just preparing the next generation of professionals and forgetting about the ones that are there already because people have been results or people's health have been results about the way that they are managing those kinds of tools and technologies.

In general, even outside of public health, there are just a ton of worries about AI, from taking jobs away to replacing human connection, all the way to AI doomsday. And I bring that all up just to say I think this is a tough topic for people to think about, especially as AI is becoming more embedded in our everyday lives.

So, Onicio, as someone who works closely with AI, how does this technology make you feel about the future, and how it could change the public health field? What are the biggest risks that you're watching for, and what do you feel most optimistic about in its future?

This, this is a problem that goes beyond public health as you mentioned. Several other areas are trying to understand, 'Hey, AI can be a machine to automate inequalities across different sectors in the society.' And this is a real risk in public health as well.

So imagine AI serving a purpose of increasing these health disparities instead of reducing them. If we are not using this properly, if we are not understanding what that output from a model means in real life and how that would affect people's life in this sense, we are just going that direction in using AI in the wrong way and just creating more harms in the society about that.

There are three books that I could share with the audience that brings these discussions sometimes within health area or public health, sometimes outside of this area, but can be applied applicable directly to, to our public health discussion. So the first book is "Automating Inequality" from Virginia Eubanks. The second book is a classical one from

Cathy O'Neill, the “Weapons of Math Destruction.” And the final book is “Unmasking AI” by Joy Buolamwini.

The ethical concerns, the responsibility-ization is this is something that's happening in several areas. But I believe that in public health we have a special flavor on that because we are all the time trying to mitigate the health disparities and if we are not bringing this kind of perception or perspective in the AI conversation towards health disparities, we are just like avoiding the, the elephant in the room.

This has been a fascinating discussion. Is there a place listeners can go for more information on AI in public health practice?

Absolutely, the website of our AI for public health initiative is [Publichealth.arizona.edu/ai](https://publichealth.arizona.edu/ai). So there you can find different kinds of resources, including a free course about public health and artificial intelligence that we just launched last month, so it's free for everyone. So it's a perfect instrument for those that want to start their journey in understanding the utilization of AI in the public health environment.

A big thank-you to Onicio for joining us on the podcast today. The book recommendations from this episode will be listed in the show notes.

For more on harnessing AI for public health, check out our three-part series from The Nation's Health, available online at TheNationsHealth.org. There, you can also find coverage of how data centers are impacting public health.