

AI for Good: Maximizing AI in Health Communication

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[Betsy Mitchell] Hi, I'm Doctor Betsy Mitchell. Welcome to this episode of Listen Up! Artificial intelligence technology and generative AI have the potential to revolutionize health communication practice, providing an onslaught of solutions in seconds and with just a stroke of a key. While organizations are implementing policies to support the best use of these technologies in the workplace, the on ramp to engagement with AI can feel steep. What applications hold the most promise for health communicators? What are the risks and pitfalls? What digital fluency is needed to meet the moment? Here with me to discuss these important topics is Dr. Annice Kim, who is the senior director of the Center for Communication and Media Impact at RTI International. Dr. Kim has nearly two decades of experience in health communication research and works closely with RTI Center for Data Science and AI to develop new machine learning algorithms, data dashboards and AI tools that can inform and accelerate public health research. Next, I'm pleased to welcome Dr. Amelia Burke-Garcia, director of NORC Center for Health Communications Science. Dr. Burke-Garcia has 20 years of experience in health communications and digital media, and most recently has been examining the role of influencers in health communication as well as in AI opinion leadership, specifically leading the design of what she's calling Health Communication AI. And last, welcome to Robert Jennings, who is the executive director of the National Public Health Information Coalition or NPHIC. With decades of experience leading diverse organizations, Mr. Jennings manages the nation's premier network of public health communicators and is co-developing guidelines for the ethical use of AI in public health communication. Welcome, everyone, thanks so much for joining me today.

[Robert Jennings] Thanks for having us, Betsy.

[Amelia Burke-Garcia] Thanks, Betsy. It's wonderful to be here.

[Annice Kim] Thank you, Betsy. It's a pleasure to be here.

[Betsy Mitchell] Let's start with a level set for our listeners. Artificial intelligence isn't new, is it Annice?

[Annice Kim] It's not, Betsy. AI may actually sound really kind of new agey and futuristic today, but it's in fact something that's been around for quite a bit of time. I think it started back in the 1950s really out of the field of computer science and what researchers were trying to do was essentially create computer systems that can perform tasks that typically require human intelligence. These are tasks that we do every day, like understanding speech, seeing and recognizing images. Maybe making decisions based on information that we have and learning from past experiences and making decisions accordingly.

[Betsy Mitchell] Annice, can you share some everyday examples of AI that our listeners might be familiar with?

[Annice Kim] Yeah, I mean the examples, let's just take what we use every day, right? Siri, Alexa, where they listen to your questions and they give you an answer, they're using AI. Other things that we use on

our phones every day, facial recognition to unlock your phones. We all watch YouTube and Netflix, those systems are making recommendations based on what you viewed in the past, right, and even things like self-driving cars that are always learning based on your behavior. They're all kind of using some form of AI or another. Obviously, what they imagined back in the 1950s versus what this technology is today is much more sophisticated, especially today with a lot of excitement around generative AI. It's just used in our everyday lives, often in ways that we probably are not even noticing.

[Betsy Mitchell] And there's a lot of terminology to grapple with. What do we need to know?

[Annice Kim] Well, I think we use the term AI as a catch all and it kind of is, right? It's the biggest, broadest term and it's really just about like everything that falls under the AI umbrella. I think the most exciting thing that we're hearing about today is what's called generative AI, and generative AI really is a subset of AI. And it's not just based on past content, but what it now can do is it can create new content, new text, new images, even new music, and videos. It's still using and looking at structures and patterns from existing data, but now you can give it prompts and tell it to create new combination of things that didn't exist before. So that's generative AI, and that's probably the subset of AI that's getting the most attention today.

[Betsy Mitchell] Amelia, over to you. As we discussed the rollout spread and uptake of AI and public health, I'm reminded of the relevance of Everett Rogers' diffusion of innovations theory. What insights from this series should we extract here?

[Amelia Burke-Garcia] Yeah, it's a good question, Betsy. And perhaps many of your listeners are already familiar with diffusion of innovations theory, but just to kind of give a high-level overview of it, it essentially theorizes about how new information or new idea spreads and gets adopted throughout a social network. And along the diffusion path there are those who adopt things earlier, early adopters is probably a term folks are familiar with. And then in the middle there are some other stages of adoption, and then of course, there are the laggards, those who tend to adopt things, a little bit later than others. Along this pathway, at any stage there are what are called opinion leaders, and these are powerful and persuasive individuals who can help not just propel the spread of a new idea throughout a session network, but they actually can help these ideas leapfrog over the various stages of adoption. And the reason that they are so powerful and persuasive is because the opinion leaders have what's called prima facie credibility. And that's credibility that is given because of who you are, it is sort of a credibility on the surface. And that credibility comes from the fact that communities see these opinion leaders as both trustworthy and knowledgeable about something. And those characteristics come from the fact that opinion leaders tend to come from the same communities, they tend to be like those communities, and there's time spent there, right? So there's a level of trust going on between opinion leaders and their communities. My work has looked at extending this work around opinion leadership into the digital age. So as social media emerged and the opportunity to have a voice and share opinions and spread information far and wide became more available, the concept of opinion leadership also shifted and moved online. And so there's this large body of work that demonstrates the power of opinion leaders in health promotion programming and then newer work, including my own, shows just how this idea of opinion leadership is emerging into the digital space. And some of my early work has shown that, in fact, they are powerful for disseminating credible evidence-based information in tailored ways. But also they can drive consideration of health behaviors, which is quite powerful for the work that we do.

[Betsy Mitchell] And where do you think public health is on the diffusion curve?

[Amelia Burke-Garcia] So that's a really good question. And I think it's really important to note that the role of public health is to protect the health and well-being of people here in the U.S. and around the world. And in order to do that, we provide evidence-based health information and that process of determining evidence is it's a slower process. So, I think the reality is that we've been slower to adopt innovation, but that's been driven I think in large part by intention to protect and support. That said, we

are living in a wildly different communications and media environment than we've ever been in. And so, I think our field is really being challenged to think differently about how we communicate, how we disseminate information, how we build trust, how we rebuild trust. And those same methods that we've used for decades, those just don't cut it anymore. And so, I think as we really consider how we communicate in this environment, being thoughtful about how we merge our commitment to ethical and evidence-based communication practices with emerging and innovative technologies becomes our biggest question.

[Betsy Mitchell] Back to you Annice. You and your team have researched and have published on the use case for generative AI. Tell us what you've learned.

[Annice Kim] Betsy, this is such an exciting area. We have so many tools now at our disposal to really help us think about how we can do health communication research more quickly than ever before. So, one area that we've been looking at is around content analysis as we know today, the speed and volume at which information, text information is coming at us is so rapid and so vast that really if we can get ahead of what's being posted online, what the latest news reports, what the latest research findings are. It could really help us as a field, do our work more quickly. So, we explored the use of ChatGPT for content analysis in a recent study. What we wanted to find out was whether or not ChatGPT can look at text and extract information and interpret data just as well as trained human coders. So, we looked at about 7,000 different text data, which included social media posts, blog posts, news articles, as well as technical reports. And when we told ChatGPT to do was to look for certain topics and figure out whether or not this particular topic was being discussed in the text, and what do we find? We found that across the board ChatGPT was just as accurate as the trained human coders. They provided the same answers as the human coders did, and about nearly 90% of the task. What's more interesting was that it did it a lot faster, right? So almost 36 times faster. And so, you can imagine that on really long documents like technical reports, this speed efficiency could really be valuable to a project. So that's just one that we're really excited about and that's just an example of a recent publication, and the article is linked in the notes. But we're also looking at some practical applications for other health communication areas as well, particularly in the area of translating health content into plain language.

[Betsy Mitchell] Text simplification tools will provide huge time savings for our health communicators.

[Annice Kim] Yeah, so my colleagues here at RTI, this work was led by Stephanie McInnis, what they did was they took 25 different health materials from web pages, from technical reports, manuscripts, even consent form. And they fed it into ChatGPT and asked it to translate this and rewrite it into more plain language. And then what they did was they looked at the rewritten text that ChatGPT provided, and they looked at it along certain domains like readability score, its accuracy, if whether it followed kind of CDC's clear communication index and what they found was that ChatGPT was able to effectively condense lots of volumes of content into really easy to read, organized sections. They also found that it maintained the meaning of the original content, so it didn't add anything new or misinterpret what was in the original, more formalized text. And they also found that it wrote in more active voice, so their initial results showed a lot of promise. But they did find that there's still some areas for improvement. They found that it could use more help in terms of using more inclusive language, which is going to be increasingly important as we all talked about AI for all. It also found that it needed a little bit more input to make sure it was clearly defining medical and healthcare terminology. And there's a lot of work just in that domain in other fields, and so I'm just really excited about how all of the different tools that different researchers and practitioners are developing for their respective fields can essentially be linked together so that health communicators can be using the latest well-trained data to translate some of this really difficult technical information into plain language so that we can really deliver that kind of personalized content that Amelia was talking about.

[Betsy Mitchell] Amelia, are there any other use cases for generative AI that you'd flag for our listeners?

[Amelia Burke-Garcia] Yeah. I mean, I think in our work, we've seen both the challenge of people using generative AI to create content that is perhaps misleading to participate in research in ways that we've had the experience recently of human respondents to a survey using generative AI to help answer open ended questions. Whether that's to ensure that somebody's response is written well, whether that's to save time, we're sort of unclear as to exactly what's going on there, but it raises really big questions around data quality and how we handle that moving forward as researchers. That said, I think that the flip side is again we're using AI to help detect some of those responses. We're using AI to help craft really interesting, engaging messaging in easier ways. You know, the advent of AI video has really democratized video content creation, which is something that historically is takes more time, is more involved, costs a lot of money. And so, when you've got public health programs who are working on limited dollars some of these tools can be really effective for them to be able to do a better job without having to incur higher costs. So, I think that those are just a couple of examples of where we're seeing some opportunities address again, new challenges that we're encountering in our field.

[Betsy Mitchell] And I understand that using generative AI to generate photos and images still has a ways to go.

[Amelia Burke-Garcia] It does. It's moving very quickly and certainly something that listeners should be aware of is issues relating to copyright. So all of the same things that hold true in terms of use of music, use of imagery, we need to be thoughtful about which tools we're working with and making sure that there's no issues with copyright infringement, but certainly the space is evolving quickly. There's a lot of focus on how we ensure proper use and it's something I would envision we're going to continue to see more of as the technology evolves.

[Betsy Mitchell] Robert, how are you squaring these ideas?

[Robert Jennings] Well, one of the things I do want to point out about this technology, for most of my life, I would never have believed that I could have all of man's or humankind knowledge at my fingertips. But those who are born with computers in their hands just see this as a next logical step, in the evolution of technology. So, you mentioned about the critical thinking, I think that all of us have a responsibility no matter where we entered into this path of this emerging and exploding technology. We all have a responsibility to learn as much as we can about it so we can do good. And so, from my perspective, what humankind has or what the public can learn from this technology is yes, you do have all this information at the tip of your fingers, but you have a responsibility to use it for good.

[Betsy Mitchell] And Annice, as health communication professionals, health communication researchers, we need to be lockstep with our informatics experts as well, correct?

[Annice Kim] 100% agree, Betsy. In my work working with our Center for Data Science and AI here at RTI over the past decade, what I've found was this need to be in constant conversation. This need for digital fluency, where public health researchers such as myself who are not trained in computer science have some basic understanding of what the technology is and what it can and cannot do. So, we need that digital fluency so that we can be in conversation together to create the future that we want and then conversely, we also need to be responsible in terms of sharing our understanding of the nature of the problem, right? Because technologists come to the table with a bunch of hammers, and they need to really understand the complexity of the problems we're trying to solve. So, it's a two-way interaction and I hope that because we all know just a little piece of the pie that that will help us kind of come together and share our collective knowledge to move forward.

[Betsy Mitchell] And a two-way interaction that puts our audiences front and center. I'd like to pivot to some of the potential risks associated with AI and public health. Robert, you co-authored an article on Leveraging AI for Public Health Communication: Opportunities and Risks in the journal Public Health Practice and Management. What did you learn?

[Robert Jennings] Well, the first thing we learned is that developing guidelines for technology that changes in milliseconds is hard. We have grappled with a lot of the challenges and the risks associated with implementing this technology and I want to give a shout out to my co-authors of that article, Connie Moon Sehat and Mark Miller, and what we really found is that these inherent risks in the adoption of this technology is causing health departments to be very cautious and in some cases not even implement it, but the one thing that we know is that AI is not going away. So, we do need some guidelines to help to help us slowly but responsibly and safely integrate this technology. So let me give you what my biggest concern is around the implementation of this technology and then we can get into the specifics. My biggest concern is complacency. This is a tool. We have to remember that AI is simply a tool to help us do our jobs better and faster and more efficiently. If it is not human centered, we run huge risks of eroding public trust and not being able to do our jobs well at all. So, we defeat the purpose of even using this, this new technology. So, I would say always remember that this needs to be human centered and not left to its own devices. There's many tools that we use in our lives that we wouldn't just let go off and do it, do their own things, even the self driving cars we have our hands on the steering wheel in case something goes wrong, right? But in the specific risks, we have the data and security concerns and in public health I don't need to explain that we are responsible for protecting data and the privacy of the public. And then there's a big one that we are concerned with is this whole idea of bias. Now these guidelines are called the Ethical Use of AI and Public Health Communication, and I think at the center of this is this whole idea of exacerbating the biases that already exist in the work that we do in public health. And so we have to be conscious of that and we have to put stopgaps in place that will keep us from continuing to move in that direction, which could continue the discrimination and bias and exacerbate health inequities or health equities. Then we have the lack of transparency and accountability, there is, if we do not let the public know that these tools are being used to help guide us in our work, then we also run the risk of losing that public trust. So, we have to figure out ways in order to make this publicly known, how we're using it, why we're using it, so that we can maintain public trust. My guess is that in the next two to five years or two to three years, everybody's going to be using AI just like we use a calculator, right? So, there won't be any concern about using AI. But today we're all grappling with how to implement it. One of the things that I heard said recently, and I think it's important for us to note is when the social media platforms became public and the usage became pretty prominent and all of a sudden we used to call it new media and now it is the media. When social media platforms came out, there was no discussions about what is it going to look like in three to five years. We just all started using it, we made mistakes, we made you know, progress but now we're kind of trying to go back and fix the things we should have thought about, you know, 10 years ago. But we have an opportunity with AI to be at the forefront of this, so let's think about those risks. Let's address those risks and the guidelines are going to help us set a framework for that.

[Betsy Mitchell] That sounds like great advice. Next, let's look to the future. Amelia, based on your work and research, what innovations are you most excited about?

[Amelia Burke-Garcia] Thanks, Betsy. And I think Robert did a lovely job of sort of outlining like there are a lot of challenges with the space right now, right? And there's a lot to sort of be scared about. But AI is changing how we communicate. It is changing the information we are exposed to. It is challenging us as information consumers to know what's real and what's fake, and that is having real impacts across areas of our life, whether that's health, whether that's knowing what information to believe or not believe. That said, I think both the exciting thing but also the reality of the situation is, as sort of Robert noted, is AI is here to stay and the only way we can tackle what is in front of us, what is currently happening and sort of address some of these challenges that we're seeing and we're experiencing is with AI itself. So, I just want to give you a little sort of context for the number or sort of the scale of health inquiry that we see right now. There are 70,000 health related Google search queries per minute. There are 1 billion searches for health and medical information every day worldwide. And on any given day in the U.S., three times as many people are getting health information online, than through a visit to a provider's office.

[Betsy Mitchell] That's incredible.

[Amelia Burke-Garcia] Yeah, as human communicators, we just can't keep up with this. Like the scale of this and the speed with which this kind of information is being shared and the need for quality evidence-based, tailored information in response to this level of inquiry, as human communicators, we just can't do that. And we can't also do this in a way that is empathetic and tailored to everyone's individual need, perspective, situation, context. It's really hard. But AI can do that. So, as we think about the world we live in, the communications environment we live in, the challenges we're experiencing, it can get overwhelming and it can be really scary. But I think there's an opportunity here and that is to leverage AI for good as public health practitioners and communicators to think about how we integrate AI to help us support and promote the things that we are doing to support people's health and well-being and to both, I think things that Robert and Annice have alluded to, early research suggests that, in fact, AI can be quite powerful in terms of health information dissemination. So just really high-level couple of data points here. But in certain environments, people are preferring AI-provided health information to the same kind of information provided by healthcare providers. And similar to I think what Annice was alluding to before, in some studies, we've seen that AI tools are actually scoring equal to or higher than provider-provided information on measures like empathy and accuracy. So, we're in early days, there is a lot more work to be done to understand this space, but there are early indications that this can be quite a powerful tool in our toolbox when it comes to addressing the challenges we face as health communicators in today's environment. And I want to note just one really important thing here as it relates to ethics, that we need to approach this again with that ethical framework that Robert just outlined in mind, 100%. And I want to pose to the field that doing nothing can sometimes be just as unethical and dangerous as doing something. And so, for us as public health professionals and health communicators, considering how we actively participate in this space now in these early days, as Robert just outlined beautifully, to sort of have a voice and have a seat at the table. And make sure that all of the things that are critical for public health to be successful are integrated in these early tools and models is critical. And that's what we're really focused on at NORC, we're designing what we're calling Health Communication AI and that brings together what we know about digital opinion leadership from my own work and merges it with the technological power of AI to address these challenges. At its core Health Communication AI is a chatbot that can deliver evidence-based health information in tailored and empathetic ways to anyone, anywhere and at anytime, in any language, for any context. But our vision is bigger than just a chatbot. Our vision is a whole new scientific agenda to do exactly what Robert just articulated right, is to begin now to understand how people are interacting with AI, so that we can be evolving as AI evolves and providing people with resources and supports along the way. So, we don't end up not in 20 years into five, you know, in a shorter amount of time with challenges that are exacerbated with people who are struggling with health issues that are potentially new and emerging that we haven't even considered as unintended consequences of engaging with these new technologies. We need to be doing that now so that we can be supporting people into the future.

[Betsy Mitchell] Robert, what are your reactions to that?

[Robert Jennings] I do want to just amplify what Amelia just said about, you know, being at the table with this new technology. My colleagues at NPHIC, this is not going to make our jobs easier, right? It's going to be tougher, but the responsibility and the need for us to guide this technology is so important. So, I don't see it as you know, we can look at it as a way of, you know, your jobs are going to be much easier, you're going to need fewer staff and all of that. No, I think you're going to need more staff, more people that understand this technology. Thankfully, the younger public health communicators coming up are going to be, you know, ingrained in this idea of using AI to communicate. So, I think that the future of public health communications is in good hands as long as we continue to be the driver of that driverless car.

[Betsy Mitchell] And Robert, you've been assessing where the rubber meets the road. NPHIC's helped to convene a work group and is developing, as we've been talking about, the practical guidelines for the ethical use of AI in public health communication. What can you share with us?

[Robert Jennings] So as far as the guidelines, the ethical use of AI in Public Health Communication Guidelines, we should be publishing those guidelines at the end of this year or early 2025, many of your listeners, probably by now have seen our version 1 draft of the guidelines and have provided input to us. So, we're looking to have those guidelines out at early 2025, but I want to point out this is a living, breathing document because as I mentioned earlier, the technology is changing in milliseconds so, so do our guidelines have to match that.

[Betsy Mitchell] And maybe a question for all of you to reflect on what are your thoughts on how these technologies ultimately affect the public that we serve? Robert, what are your thoughts?

[Robert Jennings] Well, my hope is that AI is a tool that helps to bring us more together than apart. I think social media unfortunately has driven a wedge between us in lot of ways. And I think a better understanding by the public of what these tools could mean may help and we don't know but may help in the whole disinformation aspect of how communication is received. So, my hope is that AI is going to be used as Amelia said for good, and that we all become better because of the technology.

[Betsy Mitchell] Amelia final thoughts?

[Amelia Burke-Garcia] I support what Robert and Annice have just shared and just want to amplify like, this is the time to lean in, this is the time to learn. We need to be engaged in this process, this is not the time to run away and think we can avoid this somehow. The stakes are too high, right? The issues we see, how people are making decisions about health based on information that is not relevant to them, not accurate. I think we are seeing some real serious implications of bad use of AI, and I think that we have an opportunity in front of us, one that perhaps feels big and scary, but one that I think is like nothing we've ever seen before and I would encourage us to embrace this as we move forward with guardrails and ethical guidelines like Robert has just articulated. And of course, all consideration for making sure this is a technology or a set of technologies available for all to support and promote all, not just certain voices, in order that we can rebuild and regain trust, but I think that there's an opportunity here and I'm in support of exploring how we can make this a bigger part of our world.

[Betsy Mitchell] Thank you so much everyone. This was a practical and really informative discussion.

[Amelia Burke-Garcia] Thanks so much Betsy, for having us.

[Annice Kim] Thank you, Betsy.

[Robert Jennings] Thank you, Betsy.

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