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>> SANDRO GALEA: Good afternoon, good evening, or good morning, everybody. Welcome. My name is Sandro Galea. I have the privilege of serving as Dean of the Boston University School of Public Health. And on behalf of our school, welcome to today's Public Health Conversation. These events are meant as spaces where we come together to discuss the ideas that shape a healthier world. Through a process of speech, debate, and a generative exchange of ideas, we aim to sharpen our approach to building such a world. We are guided by speakers who work with us towards a deeper understanding of what matters most to the creation of healthy populations.

Thank you to all of our participants for joining today's conversation. A particular thank you to our Dean's Office and communications team, without whose efforts these would not take place. And thank you to our co-host, the Boston University College of Communication.

Today we are going to discuss public health communication in a changing world, new technologies, fast-paced media environment and the rise of misinformation pose challenges for our ability to communicate effectively with the public. Disseminating accurate information, earning and keeping the public's trust, and creating a big-tent movement to promote better health for all means reflecting, always, on how we can communicate better. I look forward to doing so today.

I am delighted to introduce our moderator, my good friend and colleague, Dr. Mariette DiChristina, Dean of Boston University's College of Communication and a Professor of the Practice in journalism. Before arriving at Boston University in 2009, Dean DiChristina was the first female Editor-in-Chief and Executive Vice President of Scientific American, as well as the Executive Vice President Magazines Division, of its publisher, Springer Nature. In that capacity, she also oversaw the journalists for the journal Nature's magazine as well as the Nature Research custom content and publishing groups.

As an elected fellow of the American Association for the Advancement of Science, she serves on the Advisory Committee of Climate Crossroads for National Academies of Science, Engineering, and Medicine; on the Practice and Science Civic Science Advisory Committee for the Civic Science Fellows

program. I now turn it over to you.

>> MARIETTE DICHRISTINA: Thank you, Dean Galea, for that introduction. It is my pleasure to be moderating today's discussion. Communication moves at the speed of trust. I'm really looking forward to learning more about that and other things from our esteemed panelists. I'd now like to introduce our speakers for this program.

First, we are going to hear from Joan Donovan, an Assistant Professor of Journalism and Emerging Media Studies at Boston University's College of Communication. Dr. Donovan is a sociologist of knowledge, who examines Internet and technology systems, online extremism, media manipulation, and disinformation campaigns.

Prior to joining Boston University, Dr. Donovan was the Research Director at the Shorenstein Center on Media Politics and Public Policy, where she led a world-class lab addressing media manipulation and disinformation's impact on public health, national security, and global politics.

Next, we will turn to Stefanie Friedhoff, co-founder and co-director of the Information Futures Lab, Professor of the Practice, and Senior Director of Strategy and innovation at the Brown University School of Public Health. She is a leading media communications and global health strategist and an expert at knowledge translation, information creation, and verification. From July 2022 to May 2023, Professor Friedhoff served as Senior Policy Advisor on the White House COVID-19 Response Team, focusing on population information needs, health equity, community engagement, and medical countermeasure uptake.

Then, we will hear from Matthew Kreuter, the Kahn Family Professor of Public Health at the Brown School of Washington University in St. Louis. As Founder and Senior Scientist of the Health Communication Research Laboratory, Dr. Kreuter and his team partner with national and community organizations to develop and evaluate a wide range of health communications programs to address health disparities and improve the lives and health of low-income Americans.

Finally, we will hear from Khadidiatou Ndiaye, Associate Teaching Professor in the Department of Prevention and Community Health at George Washington University Milken Institute School of Public Health. Dr. Ndiaye also serves as the Director of the Public Health Communication and Marketing program. Her research centers on culture, global health, and behavior change communication.

I'm really excited to learn from each of you. Thank you so much. Dr. Donovan, over to you.

>> JOAN DONOVAN: Thank you, Dean DiChristina, I appreciate it. And hello, everybody. I see there's 358 people on the call, which is pretty miraculous. I hope that you're sitting down somewhere, drinking a coffee and enjoying yourself.

As Dean DiChristina said that I'm a sociologist by training, but I also care very deeply about information integrity, particularly questions that are life-or-death. And what we've noticed over the years is there's been a major shift in how people search for health information, the kind of health information that they're willing to share, and then, the kinds of medical misinformation or conspiracy theories that bring them into what we might call rabbit holes or echo chambers that are driven by the way in which technology is designed.

So, when I study a problem like medical misinformation, I'm looking at A, B, C, D -- actors, behavior, content, and design.

And we can't leave out the design of our communication systems because culture, politics, public health is all downstream of infrastructure. So, we've had a major change, and we're starting to see it reflected in Gen Z, of people who have a wealth of knowledge at their fingertips; and yet, even if they are given the facts, they are choosing to either not get vaccinated or they're choosing other health alternatives that are really framed as alternatives here. And they're trusting different people. Part of it has to do with the medical system itself in the U.S. It is hard to get a doctor. It's hard to activate health insurance. There are all these premiums and prices. So, even when people were trying to get the vaccine, they were being inundated with hoaxes and scams saying, you know, the vaccine costs money, or pay $20 to get in line for the vaccine.

So, what we noticed was that media manipulators and disinformers weren't hacking anything, but they were utilizing social media infrastructure to spread lies, some of them financially profitable, other times profitable in terms of the clout or the network power that they would use.

We also shouldn't be that surprised that in the middle of a pandemic, it becomes politically expedient to pretend as if the cure is already here; for instance, hydroxychloroquine, or in the case of Ivermectin, it's a cure, but usually not used in humans. So, what's important to understand here is that when people are sharing healthy misinformation, they're by and large sharing because they care about people around them. They think, well, we don't have enough information, and of course, there was an immense data void in the pandemic about where Coronavirus came from, what it was doing to human bodies, you know. Talk about trust in communication moving at slow speeds. Slow science in there, and it really slows down. But that doesn't stop media manipulators and disinformers from, essentially, taking up all of the oxygen online and pushing very corrosive and damaging ideas, and oftentimes, twisting news stories, like when Hank Aaron passed away, there was a big blowup about an RFK tweet about Hank Aaron dying of the vaccine. At the time, Twitter chose not to take that tweet down, and it's still up. But even the family of Hank Aaron couldn't correct the record.

And we've seen this in the past with things that are not health-related, like Obama's country of birth. So, what is essentially being sold here -- and this is my last point -- is that when people are going online in an information-seeking mode, we need to have much better communication around what we know, what we don't know, and what the public health implications are.

I have started to think about and starting to work through a campaign where we would start to use dot-med or dot-health in the same way that we use dot-gov and dot-edu. I think, you know, when we have trusted domains, they tend to perform pretty well. People know that it's a university when they're on dot-edu. They know it's a government or a town website when they're on dot-gov. How do we make sure that they know they're getting public health information or they know that they're at a clinic's website by shoring up some of the more important institutions online?

And one of the things that drives a lot of this medical misinformation isn't just that people are sharing because they care about each other, but also that there is a deep mistrust of media, of politicians, and that deep mistrust has been earned over the years. And so, what's at odds here is the way in which

they are trusting certain influencers or people that are consistently giving them "forbidden knowledge," that is conspiracists that say, come back tomorrow because we have a bombshell about the Biden White House or we have a bombshell about the CDC. That's a rhetorical strategy, and we've seen it used over and over again. And I will answer those questions in the chat as we move on here. Thank you.

>> MARIETTE DICHRISTINA: Thank you very much. It is interesting to hear about the ecosystem and how platforms can be hijacked by bad actors or even politicians with particular points to be made, and that there is deep mistrust in the populous for many reasons over time. And going forward, when the public is in information-seeking mode, we need more approaches, including the intriguing idea of the dot-med to project trustworthy platforms. So, having said that, thank you again. I'd like to turn it over next to Professor Friedhoff.

>> STEFANIE FRIEDHOFF: Well, thank you so much, Joan, for getting us started in such a terrific way, and to Dean Galea and DiChristina for having us today for this important conversation. So much already what you mentioned, Joan, already resonates, and I feel a little bit like you've laid the perfect groundwork. I'm going to try to summarize and drill deeper on some of the things that you've shared.

And I'm a journalist by training, so I'm going to make it four key misconceptions that people have about all of this and what we need to do to overcome them and make progress on better connecting people with the information and the health information that they need, both to live healthy lives and participate in society.

So, number one is people think we live in a misinformation crisis. But as Joan has just shared, we don't. We live in an information crisis. So, to build a little bit on what was already shared, technology is rapidly changing how we consume information and where we consume information is rapidly changing. AI is just the latest piece of this. And there are very few guardrails as we're trying to navigate this moment. That also means there's exponential growth, and we've seen this again with AI right now, that our information spaces are exploding with information. Way fewer gatekeepers. In the pandemic, we had all this experimentation with labelling and taking. All of that has gone away at this point. And because none of this is this guy here, that means people are increasingly more confused, have more information needs, and are more vulnerable to misinformation and negative health outcomes, as Joan has also shared.

So, that is why we really need to, yes, focus on understanding misinformation. And again, I want to point out that Joan is the leading -- one of the leading researchers on this, because she does such deep, case-based work. It does not help us to know all of the misinformation is out there if we don't understand how it resonates with people and why, and that is why we want to understand people's concerns, questions, and confusion more broadly. And that is actually the part of the information ecosystem where we can make a lot of change and have a lot of impact.

So, I wanted to share a little bit about one pilot we just did in South Florida with Spanish-speaking diaspora communities. We worked with 25 community leaders. And in just six weeks, over 500 questions from the community were brought forward that they wanted answers to. What are these types of questions? How do I

get a mammogram in south Florida if I'm underinsured? How much can a landlord raise the rent in Florida? We all know there's a housing crisis going on in the country, and it's playing out in communities, and people have these information needs. Is it true there's no plastic in the clouds? So, news in different snippets that people hear everywhere. They have questions about that. Do I really need another COVID vaccine? Lots of COVID vaccine questions, obviously, always.

And then, a key question that came up, every week, actually, is the 2024 election still happening? Alexa says the 2024 election is not happening. So, this is where we can see where and how misinformation is particularly impacting communities. And I'm sure Dr. Kreuter will talk more about that, because he's doing exceptional work on this more broadly.

So, number 2: Quality information is freely accessible to all. It is not. And it's a key part of what we need to understand about where and how our information ecosystems are broken. We are an extremely diverse country and community, and at the same time, our information ecosystem is not made for that diversity. There's so many barriers. So, in our work with communities and, next to Florida, we've worked in many cities in the United States, we find that information often lacks appropriate language and cultural cues; is designed solely for high-speed Internet access; is behind a paywall; it's not in the right language; it's not in the places where people actually spend their time to get information. It's not designed for people with varying levels of literacies. So, if you come from a country that, you know, doesn't have health insurance or, which the health care system works very differently from the one we have here, you have a lot of questions, and the information that's out there is not necessarily helping you with that.

And then, of course, the information too often is delivered by messengers that people don't trust or only a little, as Joan has also shared. So, especially for this community here, information is a social determinant of health, and we need to acknowledge and treat it as such, and we need to understand that information inequities are real.

Number 3: If only people had all the facts, things would be different. Probably not. Why? Because relationships trump facts every time. And what's so interesting about this is that we continue to perpetuate outdated communications models, and we continue to ignore the actual behavioral sciences on how people engage with information. So, too much of public health communication, especially from authorities, is top-down and linearized, based on traditional ideas about expertise, and something that we call the deficit model, which means, I'm the expert, I have all the answers. I'm ready to deliver them all to you so you can listen and take it in. There are no feedback loops, and more facts are the answer. And we've seen this play out over and over again in the pandemic with people just screaming at each other, right? Who had the better facts.

Of course, the ecosystem that relive in, this dynamic, it's organized, it's participatory. Expertise comes from experience. It comes from many different places, and it should, I would argue. People feel they're heard and they have agency. And there's that recognition that humans have an emotional relationship with information. That is a core thing that we as experts and as journalists need to understand. So, I was so excited about this seminar, in part because I'm a journalist by training. I do work in public health. It brings all these

communities together, so I had to make this slide for journalists, because everything I just shared is also true for too much of our journalism.

We have a news voice. The facts come first. Engagement means getting people to consume our content. And we're not in the spaces where people discuss and try to make sense of the news. We drop the story. We maybe engage on social media. And then, when people start discussing it, we're mostly gone. And again, this happens in an environment that's built for storytelling, where relationships come first, where engagement is shared through experiences and identities, and people feel they're heard and understood.

Here's just one quick example of that. When Nicki Minaj heard during the pandemic that she had to get vaccinated to go to the Met Gala, she posted on Twitter, hmm, I'm thinking about this, vaccines, don't know yet. And Kevin M. Kruse, who is a fantastic historian at Princeton, and I'm not calling him out here. This is just one example of something we've seen so much, but terrific expert, right? All the good things. He's part of the team book, everything.

But what is he passing here? “Your own research? Do you have a team of scientists running clinical trials out of your spare bedroom?” That's condescending. That's not how you have a conversation. That's not how you engage anybody in wanting to learn more or feeling confident about engaging with science.

Now, of course, the amazing Kizzy, who is one of the co-inventors of the science behind the Moderna vaccine posts: "I empathize with this sentiment. I want every single person to get vaccinated out of their own informed will, and I'm here if you want to chat or I could be your Met date." So, empathy and humor. This is how we need to engage.

Four, and last one. We need better dissemination strategies to get the right public health messages to people. I would love for us to all strike the word "dissemination" from our vocabulary. We need to engage. These are not one-way streets. We don't need better dissemination strategies. We need to build infrastructures of trust. So, what do I mean by that? Too often in public health, we show up when we want something. During the pandemic, all of a sudden, we wanted people to get vaccinated, and we started moving into communities who have a lot of other issues, who have, you know, all kinds of health concerns that, for them, were much more prominent than the risk that came from COVID.

What we do to build infrastructures of trust has to start with listening. And when we do that, we also need to equip and empower the trusted messengers that are already in our communities. We need to build new communications infrastructures at the local level. We worked in five cities in the United States with low-wage communities of color for over a year. And while the vaccinations across the country were going down, through this ground-level, engaged work, vaccinations in those communities kept going up, and that is because we didn't start with the vaccine. We embedded the vaccine. We asked people, how does the vaccine fit into your life? Those are the questions that we need to ask as we think about the public health goals, again, that come from authorities and other people versus the health goals that the communities have that we should be focusing on.

So, we need to be where the people are. These are just two examples from our pilot in Florida, where we experimented with

being on WhatsApp with very short, short messages that could help answer these questions that the community had shared with us. And of course, I can't help but showing how the "Washington Post" is currently trying to do some of this engagement better on TikTok. Love that “We're a newspaper still” at the bottom. So, you know, change is under way.

We need to stop leaving the sense-making to the bad actors. This is really important. And you know, for the sake of time, I won't talk too much about this example, but there's still, for example, this outdated thinking that you can drop a difficult news story on a Friday. It actually has the opposite effect, because what do people do on a Friday afternoon? They have time to be on social media. They have time to have discussion. This was a difficult moment for the CDC to communicate about a potential risk for the COVID bi-valiant vaccines and they passed it through access journalism, which also needs to stop. And by 5:00 p.m., the Twitter spaces were full of discussions about it.

So, by following these 12 steps, we lay them out. I shared the link here on the buildingvaccinedemand.org. These don't just apply to vaccines. They apply broadly. But we have a playbook for what we need to do, and it needs to focus on building these new local information infrastructures, using story-telling and accepting that people have a relationship with information that's emotional, and building strong relationships, regardless of the individual issue that we're trying to talk about at any specific point in time. That's how I think we can build a better future for both our information spaces and for public health communications. Thank you.

>> MARIETTE DICHRISTINA: Thank you so much, Dr. Friedhoff, for those fantastic insights. We heard more about how information technology is advancing rapidly, how we need more focus on people's genuine concerns, which was a fantastic theme, and that there are so many public information barriers. Dr. Friedhoff also talked about the old model of information deficit now that doesn't work and mechanisms by which we can build infrastructures of trust. I'm really looking forward to discussing those a bit more.

Now, let's turn to Dr. Kreuter. Thanks very much.

>> MATTHEW KREUTER: Well, Stefanie and Joan, thank you very much for really teeing up what I'm going to talk about here. We tried very hard to apply much of the sort of wisdom and insights that you've shared already. I'm going to talk about what we believe was the first local system in the U.S. to monitor and respond to inaccurate health information, and just as importantly, to promote accurate health information in communities. And this is a system that has been up for almost three years now, and it's called iHeard.

Just a quick origin story. It's January 2021. Vaccines, COVID vaccines, have arrived in St. Louis, and I get a call from Spring Schmidt, who is the acting health director for St. Louis County, who shares with me that her frontline workers across the county are being inundated with claims that they're not quite sure how to respond to about the vaccine. They sound like they're false, and they're kind of crazy, but they don't have any way in the moment to respond to those, to counter those.

And on that call, we set up what would become iHeard, a way of very routinely monitoring what folks in our community are hearing, and then putting accurate information in the hands of existing organizations that have wide reach, particularly to vulnerable populations.

The model I'm going to describe has been, I think, really well received and successful, so much so that our funders at the National Institutes of Health have expanded it. It is now in five states, and at the end of this month, we will announce four additional states that are joining. So, it's starting to look like what could be, you know, both a set, a collection of local systems, but aggregated up to a national system.

I'm just going to talk through what the parts of this iHeard system are and how it works. It starts with a survey. Every Saturday at 2:00 p.m., we send a mobile phone survey to about 200 St. Louis residents. And across those five states, this week that survey will go to 630-plus community members. And the survey is very simple and short. It takes less than three minutes to complete. And it asks people, in the last seven days, have you heard -- and then fills in the blank with a particular health claim. Could be accurate, could be inaccurate. And if they have heard of it, we want to know where they heard of it, and we want to know the extent to which they believed it. And that's it. That's the survey.

We get the answers to that survey within 48 hours. So, yesterday at 2:00 p.m., I got a report that summarized what people were hearing across these five states, and prioritizing based upon kind of some algorithms that we've created, what are the greatest opportunities or the biggest threats from an information standpoint in those communities. The response rate across all of these has been 88% or higher for almost three years.

If you're curious, our panel members look like this. So, it's intentionally a very diverse sample of adults. And just to give you a sense of what that survey asks, this is the survey that is going out this week. And so, the items that I've flagged in red here are ones that are inaccurate claims. The ones that are green are accurate claims. And then, there are some where we're just looking for, you know, sort of opinions and what people know and what they've heard. But you can see -- I'm not going to read these -- that a wide range of health topics are addressed, and it's not just COVID as we started out, and it's not just misinformation, either.

So, what do we do with that information once we get it? We do three things with it. First is we put it on a public-facing dashboard. So, each community has a dashboard and there is a national dashboard that will launch in the next five days. And on the dashboard, a couple of things can be accessed. You can see what the responses are. So, this is the St. Louis dashboard. And for example, you can see here that this is the week-by-week trend of whether people know about the CDC guidelines being updated around staying home during COVID, and it gradually increased over the first four weeks, at which point about half of people in St. Louis had heard about the change. And now it's in decline.

You can also click not just on the data, but to get the accurate responses. So, this is a response to a claim that we're tracking, that people who got vaccinated for COVID can't donate blood. And here is an accurate information that frontline workers can use, should they hear this. And if you click through the tabs, you can see more detailed explanation and evidence around that, including the sources for it.

The second thing we do is we put out an alert. And so, each Thursday, an alert focusing on the most important health information issue in each of those communities is pushed out in

St. Louis to about 150 community organizational partners across sectors -- health care, public health, education, social services -- so that they are aware of what is circulating and they have answers that they can share with their staff.

And the third thing that we do is we create digital assets, digital social media assets, and we give these to trusted local messengers and all of those organizations that I just showed you, so that they can amplify this information and reach populations and clients that we couldn't possibly reach, you know, from our central source. And of course, we're tracking all of this.

The way this works, oftentimes, is illustrated in this slide. The asset on the left is what we sent out, or the first of several. And on the right is how a local health department took those, rebranded those, and then shared those through their social media accounts, reaching tens of thousands of community members in St. Louis.

Just to wrap up here. And I'm really excited to have a discussion that follows and see what questions you might have. But just a couple of high-level points about what we're learning. First of all, it's absolutely feasible to do this. Yes, we have resources, but it can be done. We've been surveying people every week for almost three years. They will respond. We can turn around and create assets in a matter of days.

Secondly, partners use it. They use the information assets that we provide. It's very well established that in public health practice, but also across community-based organizations, communication capacity is pretty limited. And so, it's not likely that most organizations could do this on their own. So, having a central source be able to create community-driven, data-driven resources that are locally relevant is useful.

Secondly, as we've expanded across the country and in different population subgroups, it's abundantly clear that the health priorities -- what people know, what they don't know, what they're not sure about, what they believe -- varies a lot. It varies from place to place, and it varies from subgroup to subgroup.

And then, lastly -- and this was a point that I thought Stefanie made really well -- having infrastructure in place allows rapid response. And I would just give the example that, I would say probably, at least twice a month, something happens on a Friday that is really consequential in terms of health information. We are able to put that on the survey that goes out the following day at 2:00 p.m., have answers 48 hours later and be responding to it the following week. That's infrastructure that we have not traditionally had in place in public health, and it gives us an opportunity to at least be more competitive in the information marketplace of ideas.

Thanks, again, to our NIH CEAL Alliance partners who support this work, and thanks to everybody for attending today.

>> MARIETTE DICHRISTINA: Thank you so much, Dr. Kreuter. That was wonderful to learn about. Five states already using iHeard and the ways community members are being engaged weekly through their mobile phone systems that so many of us are using those. And I appreciated the shared range of responses and the variability per community. I think that was -- the fact that you are listening is very present in that and very clear, and that people are using it is terrific to see. Thank you so much. And I can't wait to probe a little bit more about that in a minute.

But now, let's -- and so, thank you again. Now let's turn

to Dr. Ndiaye. I'm looking forward to learning from you.

>> KHADIDIATOU NDIAYE: Hello. Hi, everyone. Thank you. I'm tempted to just, what Dr. Friedhoff said, kind of sign off on some of the things that Dr. Friedhoff said also are resonating, but I will talk to you about some of these same ideas. I think it's speaking to the fact that we're able to share the same information or conversion information is really speaking to where the needs are when it comes to Public Health Communication and Marketing.

So, what I'm going to do is spend some time reflecting and kind of addressing the idea, talking about the idea of lessons learned, looking back a little bit if we're unpacking public health communication in the post-COVID context, and then looking ahead, finishing by looking ahead and thinking about some of these, what are some of the directions, in terms of where this work is going.

So, looking back, I say that with a sense of, with a little bit of reticence, because one of the things that we do learn from this process is the idea that we, every time there is a public health issue or a public health emergency, we do our lessons, but we seem to not learn those lessons. So, we seem to fall on the wayside by the time we reach the next one.

So, some of these areas or some of these lessons that we're talking about are not new. These are things that we've kind of learned as we went through different public health events and different public health emergencies. So, they're not new. They're not exhaustive. And I think it's also important to think that all of these things are intertwined. When we're talking about misinformation, we're talking about communicating with different populations, those things are intertwined. And there is still some level of unpacking public health communication in this era that still needs to be done and there still needs to be a lot to be learned.

But I will start by talking about communicating effectively across populations. And one thing that comes to mind that is important to consider is the fact that understanding culture and context remain critical. This is not new. This is something that we've known for a while. But it is important that we learn ways, we continue to learn ways to speak and create messages in ways that resonate with the different contexts and communities that we work with. And as a part of this process, it is important for us to be able to really adopt an ecological lens. Even if we're interested in individual behavior, to kind of understand the policies, the communities, the relationships that are impacting this individual behavior.

And then, to go back to what Dr. Friedhoff and Dr. Kreuter was saying, we've approached health communication for a long time as putting information out. And one thing that has become very clear is the need for us to be bi-directional and listening. So, it is as much about putting information out as it is about taking information in.

So, part of this process, one of the things we have to learn to do is to listen and to be able to react in relatively quick time, as opposed to just making sure that we put messages out there. So, the concept of listening is becoming more and more important. And we're thinking health communication and messaging in a bi-directional approach is something that's also important.

I think it is also important to learn the lessons related to what do we mean by being truly inclusive in our approach? So,

one thing that has been already shared by the panelists that's important to consider is the fact that understanding community trust is a process. We're not going to barge into a community when there is an event and get their buy-in or get their trust. So, this is a process that needs to happen. And as we approach public health communication work, a lot of the work, you need to be approaching it with the goal of -- in the planning process of bridging the gap between communities and health systems.

So, to one extent, when we're planning, we're thinking about what needs to be done at the systems perspective, but we also have some engagement in the community before we actually need them to be. So, that's how one of the things that's important.

And one of the models that I have here is from the Health Communication Capacity Collaborative that talks about to what extent, when we think about vision and planning, we have to include this bridge between the health system and communities. And what that translates into is being able to co-create messaging with the communities. What does this information ecosystem that some of the panelists spoke about, what do they look like? And to what extent can we create and co-create messaging using existing ways, existing information sources and information pathways, that are existing in the community?

And along those lines, it's also important for us to think about expanding cultural knowledge base. One thing that has already been said is the fact that we tend to rely on traditional theoretical approaches that have worked when we are -- that do not necessarily first include this bi-directional approach, but also does not allow us to really dig in into what does it mean, what cultural knowledge means.

So, for instance, a few years back, a few colleagues and I were working on exploring what do communication theories look in outside of this western setting? If you were to think about, what are the contribution of African communication theories? What are the contribution of Asian communication theories? How can we incorporate that in the knowledge base, in the cultural knowledge base as we design messaging? So, it is important to really think about that.

With that information in mind, I think another important lesson is this how do we think about addressing misinformation. And this is in line with what my colleagues have already spoken. So, I wanted to share this definition because I think it goes back -- there is a point that I would like to highlight. So, I'll give you a few minutes, a few seconds to read it.

So, when we define misinformation in health context, based on, again, this is something that Krishna and Thompson did by reviewing the literature, the health communication literature, and they talk about it in terms of the acceptance of false and scientifically inaccurate information. Data is useful, despite exposure to scientifically accurate data, in the absence of accurate information, and within historical and contextual legacy. I think this is sometimes, this conversation about information management and misinformation is lacking this last part, the part C, which is the historical or contextual legacies. Communities tend to bring false information, or misinformation festers in communities because there have been some -- there were some legacy, some contextual, historical legacy that is creating, that is the reason why there is mistrust already. So, it is important for us to understand that this misinformation doesn't occur in a vacuum. There are some

precedents that are facilitating the propagation of information, and it is important for us to consider that and take that into account.

So, what does it mean in terms of how do we go about doing this? There's been great ways to address this that have been brought up. And I think it's about building health literacy. But beyond building health literacy, it's also important to think about public health literacy. Do people understand what public health does? Do they understand how -- have they seen transparency in the process of sharing information, when only the information that we have is not complete? I think -- I couldn't remember who said that, but this is something that resonated. Someone -- it may have been Dr. Fauci that talked about how, when public health works, it is an inconvenience. So, to what extent do we have people -- do people understand the assessment of risk? And do we facilitate the understanding of that?

Are we able to address uncertainty and information vacuum? So, Dr. Kreuter was talking about the fact that you have consequential information that is happening it. To what extent are we able to respond? And it goes back to the example of the iHeard program that was just presented, where do we have information with an information strategy? Another thing that was done as a part of a response to Ebola, was something particular. TheySay was the name of the program, and it involves using text messaging to be able to share rumors that people have heard about Ebola in that case, and then being able to then have accurate messaging being shared to community members, but also to journalists as well.

So, as a part of this communication planning and health communication planning, it is important for us to incorporate information management. And along those lines, being able to address things like rumor refutation strategies.

With that said, I want to talk about a few things as we look ahead, and I'm sure we're going to have an opportunity to discuss further in the Q&A. First, the importance of dynamic and social listening in different ways have been presented, and I'm glad that we're able to see some example how this is done in this panel. But also, there is some interesting research in trying to -- and this may be related to health literacy -- but also using theories like inoculation theory to be able to get to preemptive refutation. To what extent are people exposed -- are people prepared for the exposure to misinformation, and so that they are able to better respond to it?

And are we also using tools, an innovative tool, to be able to amplify accurate health messaging? For instance, one of the examples, WHO has started using a Health Alert Chatbots. It's an example of to what extent are we able to amplify accurate health messaging. So, in a study that we did with my colleague, Dr. Evans, on using social media to encourage health care worker vaccination in Nigeria, one of the things that came up was, some of the social influencers who were a part of the campaign talking about, we cannot fight misinformation as much, but one of the things that we can do through our social media is to what extent are we amplifying some of these accurate messages?

Also, if we think about addressing these issues that we have put forth, it's important for us to also build evidence on leveraging digital health. And what that means is understanding, for instance, what is the right mix of digital and interpersonal channels? So, to what extent are we thinking about using social

media, but also using community media, and what is the right balance of doing and being able to do that.

Also, building evidence for innovative tools. So, there has been new research using AI for segmenting, and also understanding the use -- and this goes back to using social media -- the use of influencers and micro influencers as a way to be able to share information, health information, and then being able to also, again, get some information back through this bi-directional approach. So, those are just some thoughts that I wanted to share as a starting point, and then I'm looking forward to discussing further. Thank you.

>> MARIETTE DICHRISTINA: Thank you so much. It was wonderful to learn from you about reflecting on the lessons learned in communication, understanding culture remains critical, being bi-directional, and listening, being inclusive when we do so, and understanding and building on community trust well ahead of any event.

And I love the point about co-creating messaging. It seems to me, when people are integrated directly into solving a problem, they're much more likely to trust the solutions that come out of it, incorporating that knowledge base, and also this idea that you just spoke about, building health literacy and approaches, including the listening with dynamic social listening, but also these notions of debunking, and you mentioned inoculating or sometimes called prebunking, which are also very interesting. So, thank you. Thank you so much, Dr. Ndiaye. I want to thank all of our speakers for their presentations, which have been fascinating and really built productively on each other.

We're now going to move into our moderated discussion with all of our speakers. And as a reminder, I'll be turning to audience questions about 20 minutes or so from now, when we have about 20 minutes to go. And if you would, please do submit your questions in the Q&A box, which is at the bottom of your screen, to make sure that I see them, rather than the chat, because the chat has a lot of other things in it as well. I don't want to miss your great questions, and there are a bunch of them in there now.

So, I'd like to suggest the speakers -- I'm going to ask at least one question of each of you, and then maybe others can add to the answers as you may see fit. But because Professor Donovan started us off, I'd like to go to her first, if that's all right.

Dr. Donovan, I was thinking about the dot-med idea and various challenges of social platforms. And something we haven't spoken about too much yet that I would like to start with is, what should policy leaders be thinking about or doing when it comes to managing these platforms, which are really shaping our ecosystem? Could you speak to that a little? Then I would welcome any further thoughts from other speakers as well.

>> JOAN DONOVAN: Yeah. I think, you know, one of the big challenges right now is looking at the larger information ecosystem and understanding who really benefits from a place where expertise is hard to get, that search engines are optimized for whatever is, quote/unquote, fresh and relevant, rather than knowledge. And so, we don't have spaces and places online that are dedicated to what I call TALK -- timely, accurate, local knowledge. That's what people are seeking when they're looking for news, especially when they go online and something piques their interest. You know, we used to talk about

this in an international context as having the right to truth, in that it is -- some information is life-or-death, but also, some cultural information keeps coming back as somehow been invented or embellished. I'm thinking here about Holocaust denial. So, on every platform, there's Holocaust denial.

But if you were to Google five-six years ago, "did the Holocaust happen?" You would get whatever is fresh and relevant on the net about the Holocaust, which is usually a bunch of Holocaust denial, because who's going to wake up every day and just remind the Internet that the Holocaust happened? And in some ways, also true around, you have this anti-vaccination movement that really revs up in the early '90s and becomes very, very powerful and persuasive online, but you don't have people coming out every day online and being like, yeah, vaccines are a pretty good idea, I'm really glad I don't have Polio. So, we're kind of unmatched in terms of advocates for the truth and then people who are advocates for the kind of, you know, conspiracy or distrust of social institutions. All of this stuff kind of coexists on social media.

Whereas, you know, there are places and spaces where we do keep rarefied information like libraries. They're going to tell you very quickly what's fiction and not fiction, right? That's, like, right at the top. And so, I do think, if we brought a librarian's mindset to public health information online, and we did build out these structures that helped people understand, oh, I'm on a dot-med or a dot-health website, that means that an institution or an agency has verified the ownership, they verified the address, they verified other information that would tell me that I'm on this hospital or this clinic's website.

Some of the most persistent health misinformation online has had to do with women's reproductive health. And right now, where women have lost, by and large, the right to their own reproductive health -- which is also a right to technology -- we do have the right as humans to use technology, especially life-saving technology like abortion services. So, it's really important that we understand that the Internet has become our default setting for thinking about and learning about social issues, but the Internet, and especially social media, has no relationship to truth. It's just information that has been failed to be monetized in other ways. That's what you get from a search engine. That's why you don't get up-to-the-minute or great news, because news is expensive. It's why you don't get scientific papers when you Google for information, because that's also behind paywalls, because it's expensive to generate and distribute that kind of knowledge. Which means to say, we need to bring our institutions into the Internet, but in a very importantly separate way from just trying to get social media to do better. Because what we've learned about these companies is anything that is fast and cheap, they are going to do it if it makes them money.

>> MARIETTE DICHRISTINA: Thank you, Dr. Donovan. I think the dot-med idea that you suggested may be one way to bring people into -- bring institutions into the Internet spaces in a separate way and in, perhaps, a more thoughtful one than current social platforms allow.

I'd like to probe a little bit more into Dr. Friedhoff's suggestion that she shared with us around how do we go about building infrastructures of trust. And, actually, all of you spoke about that on one level or another. And specifically, Dr. Friedhoff, are there any models you might suggest that we

think people are additionally doing a good job? I liked heard about iHeard from Dr. Kreuter, but you know, are there places where those infrastructures are coming into place that maybe give us some hope?

>> STEFANIE FRIEDHOFF: I shall try. Thank you for the question. Maybe one place to start was that, when I was at the White House, I spent a lot of time trying to explain to people the need for this and why it is so important, and the system that Dr. Kreuter has built and is expanding and is funded by the CDC and the National Institutes of Health I think is a really good example. There are many other examples.

One way we can think about this is that through a public health lens, in this pandemic, we have briefly overcome a lot of these barriers by investing a lot of money, but also by working really closely at the local level with community organizations who then came together and connected. So, one way we think about this is that at the local level, community organizations are your early warning system, and that is true for both information inequities and challenges and general inequities and challenges. So, by listening and having relationships at the local level, we could say, oh, wait, paid sick leave is a challenge for people to actually get to their vaccination appointment, or you know, you can fill in any of the many examples. But it's an early way for us to understand, okay, where are the barriers and what is going on here?

And again, this point has been stressed, but we can't stress it enough -- the disinformation ecosystem immediately and quickly harvests on those barriers and failures, especially also with what Dr. Ndiaye laid out with respect to historical sentiments and so forth.

So, in terms of what we need to build, we see a change in journalism to understand a sort of back to the roots of community journalism and being more engaged. Our ethnic newsrooms right now are playing a leadership role on this, in building relationships within their communities to become the voices for and communicate around these information needs.

Within the journalism world, we can start talking about, we have a misunderstanding that award-winning accountability journalism is somehow more glorious than service journalism, when service journalism is actually where the business model is, and we're seeing examples of that today.

At the same time, we need to overcome these barriers of, A, being comfortable of working more closely with community, and also being comfortable working more closely across the ecosystem, because we cannot all do it. You know, like, not each newsroom can do it all, so we need these partners.

And then, when you start thinking about these partnerships, community organizations, obviously, also have their own channels for online and offline communication. But what they struggle with and ask for help with is, like, like Stefanie, I know the cultural communications piece, but I don't know if there's plastic in clouds or not, right? How am I supposed to know that? So, what we can build is another learning that we have from the pandemic is that we saw experts spring into action in the pandemic. And they have been -- most people are not aware, but there have been these informal networks where we were all on the backend on Google Docs, like, oh, wait, this just came out. Myocarditis and vaccines, what do we think of this? What is the evidence? So, that troubleshooting, people volunteered their time to do that.

We need to create more formal ways for those who do want to volunteer their expertise to do that, like, every once in a while. Also, then, it's less disruptive for family and everything else. So, this is not about creating another thing from scratch. There's a lot of things already there, but at the local level, they're not connected.

So, we do trainings with community health workers, for example, who are already information navigators. They help people navigate information all the time. Again, and then this is true for, in our pilot in Florida, we had, you know, a hairdresser. There's a whole important body of work from Dr. Stephen Thomas in Maryland around how barbershops have become engaged and are now CDC certified health promoters, so they can actually get paid through Medicare and Medicaid, right, be reimbursed for some of this work. So, there's a lot of hope in terms of how we can connect the local ecosystem.

We just need to put our lens on to say, wait, there's actually an information crisis, and information is a social determinant of health, and we can connect these dots and these people around, A, who does the verification part. So, that's where journalists are great. Journalists are better than most people in, both, getting to the verification part and then contextualizing the evidence. Then, you need to actually put it into communication behavioral science's best practices.

Again, what I talked about with the deficit model ignores communication science's best practices. So, we know how to engage people, right? You use all of that. And you do the cultural -- people would say things to us, like no, no, you can't put in a UN source because nobody trusts the UN. That information you can only have at the local level, and you need those partnerships in order to know all of these different things. So, I hope that wasn't too much at a time, but that's how we think about building these local ecosystems, because a lot of this is already there. We just need to connect the dots.

>> MARIETTE DICHRISTINA: Thank you so much. And continuing on the theme of local ecosystems, I'd like to ask one follow-up from Dr. Kreuter as well. There's a lot of this in the Q&A, which I'm going to come to in a few minutes, everybody. And by the way, thank you for your great questions. Keep bringing them. We'll get to as many as we can.

But Dr. Kreuter, you talked about the communities and the growth, potential growth of additional members of iHeard. And I think there was a lot of enthusiasm for what you've already accomplished. I wondered what -- well, for the folks on the Q&A, a lot of folks, people have asked, how does somebody get to be part of it, if they're already a trusted group? Do they contact you? How does that work? But what I'm curious is, have you seen bad actors trying to disrupt what you're doing?

>> MATTHEW KREUTER: We have not. And, hopefully, we won't, after this widely attended talk. But on the first part of the question, yeah, shoot us an email. We're very open to and excited about exploring different ways in which this can be implemented in communities. And I would just say that we've had a lot of interesting conversations. There's no one model. There's not a particular scale at which it has to happen. And so, we'd be delighted to talk with you, if you're interested.

Can I weigh in on the infrastructure of trust question before, Stefanie, which I thought was really good. I was reflecting on how I think we've tried to address that with the iHeard system. And part of it is, obviously, the community

surveys. And we actually refer to that as community listening infrastructure. That's what we call it. And that's not trivial. I mean, every single panel member here talked about the importance of listening as an expression of trust, an interest in what you're hearing.

I would add that, in addition to asking people about, you know, have they heard specific health claims, every single week we ask people, what else are you hearing? And every week, we get 10% to 20% of those panel members who tell us something. That's an incredibly valuable source of information for our environmental scan team. So, we have an environmental scan team, obviously, that's, you know, trying to detect what's out there. But hearing from people in the community what they're hearing is immensely valuable.

Then, the other way that I think trying to build an infrastructure of trust is by thinking about our network of community partners as trusted local messengers and distributors. It doesn't have to come from us. It shouldn't come from us. And I think what we saw during the pandemic was that a lot of public health voices, high-level state and local public health voices, like, those voices got old really fast for a lot of people. They were no longer effective. And so, having many different organizations in communities with many different interests and stakeholders I think increases the likelihood that folks you know and trust are sharing this information that can help facilitate community conversation. So, super important, I think, to have that.

>> MARIETTE DICHRISTINA: Thank you. Much appreciated. And Dr. Ndiaye, I'd also like to follow up on -- and then I'll go to audience questions in just a couple of minutes -- on building health literacy, which was something that you mentioned as one of the series of things that you mentioned. But I thought it might be a prompt for a question. I would invite you, and then, of course, the other panelists as well, to talk about, who needs to learn what and where in the ecosystem? So, there are those of us in communities. There are public health professionals. There are policy leaders. There are journalists. Can we make some recommendations about what sorts of things we should be aware of so that we may be more public health literate?

>> KHADIDIATOU NDIAYE: Thank you. I would say that we all need to learn. Maybe one of the things is the different, the level of learning is something that would be different when it comes to what we want policymakers to run through the community. But even if we're thinking about it in schools, I think this is something that maybe starting in terms of the conversation.

And to me, it wasn't just about information and health, it was also about public health literacy. Do people understand what public health is about? Do they understand what it does and how, it's not an exact science. And as we're facing with any major health issues, we don't have all of the answers, and that's okay. And how do we present that information. So, I do think that there is learning there, health literacy learning at all levels.

And part of what we have to do is, to one extent, we have to be better at messaging for different audiences and being able to share health literacy and being able to create health literacy curriculum that speak to these different communities and different audiences that we work with.

>> MARIETTE DICHRISTINA: Would anyone like to add to that? Maybe you're looking, Stefanie, like you'd like to.

>> STEFANIE FRIEDHOFF: Yeah, I'll just add. We need to embrace the micro learning that happens on social media all the time. And we talk a lot and see, and for all the right reasons, about all the bad content that is out there, but there is a tremendous amount of good content also out there, especially told from personal perspectives.

After the fire in Haiti, I remember coming down in our household, "The New York Times" is in print on the table because we're old. And my 18-year-old reads the story about how climate change led to the fire, and she's like, "Oh, my God, don't they know anything about, you know, what went on here and how communities have been repressed?" And she had an amazing understanding of the historic and socially cultural drivers of what had led to this moment that went way past what was in "The New York Times" story. And we had multiple conversations about it after. But I think paying attention to, you know -- it's not just a long story that teaches people things. And think about how we all as human beings learn. We learn in bits and pieces. And embracing the micro learning that can be out there I think is a key piece that we keep missing, and that is why, you know, our youth spends time on TikTok and learns a lot in these types of places. But let's also remember, our government is not on TikTok because Congress banned the CDC and other people who actually have important and useful information cannot be on these platforms.

So, you asked earlier about policy solutions. That's a really important question. And what we should not do is further stymie how our experts can engage in these spaces.

>> KHADIDIATOU NDIAYE: Can I add quickly? When we're talking about, also going back to trust in infrastructure, to me, it's also about making sure that we have people who are part of these communities, to have them a seat at the table, but also really listen to them, so they are not the interns who are sharing some information, but they definitely have a seat at the table and they're part of the decision-making process.

>> MARIETTE DICHRISTINA: Thank you. Well, we're at that time where we're going to turn to questions from the audience. There are a lot of them. There are great questions. I'm going to try to do justice to as many as we can. One of them might be a quick follow-up on the point about engaging communities, but specific to the authorities on health, such as the CDC, the FDA, and so on. And the question was: How can authorities like that start to win over the trust of people who don't believe in their work? They're not ingrained in the communities. Are there some approaches they can take? Would anybody care to take a whack at that one?

>> MATTHEW KREUTER: This isn't a direct response to that, but a few weeks back, a month ago, when CDC did announce its updated guidelines around staying at home when you're sick with COVID. We actually added a little mini poll on iHeard, and we asked people if they had heard about this change, and then we explained the change, and we asked whether it made them trust CDC more or less or it didn't change how they trusted CDC. Overwhelmingly, it didn't change how people trusted CDC. But for those who did change -- and it was about 20% of people -- there were some interesting differences.

So, it made men trust CDC more. It made women who said they changed, it was more likely to say they trusted CDC less. So, I mean, that suggested to me that part of it is, like, where did you begin? Like, what were your priors about this policy and

this organization?

But I think what that illustrates is not so much how can they regain trust but that trust is moveable, at least in some subgroup of the population.

>> MARIETTE DICHRISTINA: Dr. Kreuter, I'd like to stick with you for a minute as sort of a follow-on question to the point you were just making, and a couple audience members have asked it. When you're sharing with people false claims through, you know, iHeard, how do you mitigate the risks of maybe inadvertently legitimizing something or people getting confused? And I know you've addressed this, but maybe to expand on that.

>> MATTHEW KREUTER: It was a super big concern for us. And so, what happens is, when you answer a question, "Have you heard X in the last seven days?" Regardless of your response, the next thing that appears on the screen is short, accurate information, like, what we know right now about this. So, we would never make one of those claims without providing the accurate information.

Now, we've also analyzed this pretty carefully to see whether those little follow-up, you know, accurate information items move people from one week to the next. And the short answer is they don't move them very much. Not surprisingly, the people who are most likely to change from week to week are those who were uncertain to begin with. They were sort of on the fence. They didn't definitely believe something was true or definitely believe it was false; they just didn't know. But those people move in about equal proportion towards inaccurate or towards accurate understanding of claims. So, it doesn't look like it's doing any harm, nor does it look like it's having some overwhelming beneficial effect on the panel members.

I would just close with, you know, this was another question in the chat. It's a panel, so we're reaching out to the same people each week. It's entirely possible that some of them don't even stop to read the little accurate statements anymore. They sort of get the hang of it and they know. So, it's possible that that may not be a meaningful exposure one way or the other.

>> MARIETTE DICHRISTINA: I also -- there's another good question in the -- well, there are many good questions. Another good one I'd like to toss out to our wonderful panelists today, which is, how can we as public health leaders and practitioners help our citizens be comfortable with uncertainty and change, as scientific evidence evolves? In other words, for them to think of it as a feature, not a bug, that things, recommendations may change. Any thoughts on that?

>> MATTHEW KREUTER: Yeah, acknowledge it, for sure. Acknowledge uncertainty. You know, here's what we know, here's what we don't know. I don't think we were particularly good at that during the pandemic. And we should be transparent about those things.

>> STEFANIE FRIEDHOFF: Yeah, I actually in preparation for this went back to look up the literature and see what our latest understanding is of all of this in general. Because, like, from my experiences throughout the pandemic, I've often felt that the overassurance by authorities was really painful and has a lot of negative impact, and at the same time, people aren't stupid, and we all have uncertainties in our lives, so, this, like, overblown fear of people can't handle uncertainty I think is actually not necessarily what some of the questions are about.

Now, we all -- now, people don't like change, right, and uncertainty in general creates an adverse reaction, but not in all cases. So, we can do a better job understanding that. But

more importantly, you know, communicating the I don't knows is a key important factor. And then, communicating with authenticity. So, to your earlier question, I think what authorities need to learn is to overcome the stale voice and the, like, official speak, and communicate with authenticity. And there's two examples of folks who do that really well right now. One is Kody Kinsley, the Secretary of Health in North Carolina. It is a MasterClass for how to engage with the public. And the other is Demetre Daskalakis, the head of the National Center for Influenza and Respiratory Disease at the CDC, who was the monkeypox lead. But those are just two examples for folks who can communicate and engage with communities in ways that we rarely see, and that should be, you know, the feature, not the exception.

>> MARIETTE DICHRISTINA: Thank you. Also, acknowledging what we don't know, I hope this doesn't make folks uncomfortable, but a good question here. We've been talking a lot about existing platforms, and you know, some new efforts, like iHeard. But how do you anticipate technologies that are coming along, like this fairly recent still emergence of generative AI, which we've touched on already in this discussion -- how might they shape or reshape the landscape of public health communication and misinformation, and what should we be doing to prepare to deal with that? Joan, I wonder if this is --

>> KHADIDIATOU NDIAYE: I would say that avoiding it is not an option anymore. So, that's one thing. And to just kind of say we don't want to engage in anything that has to do with AI is not an option, either. So, I think part of it is learning, for us, who are not very familiar, in the way how AI works, for it's learning a little bit more, and then understanding how this can be used.

So, for instance, one of the examples I had of studies, looking ahead, really talked about how they can be very useful in segmenting and being able to tailor messaging to different based on needs and based on questions that people have. So, I think there's still a lot of learning to be done, but I think one thing that's clear is it cannot be ignored.

>> MARIETTE DICHRISTINA: There were many -- I'm sorry, please go ahead, Dr. Friedhoff.

>> STEFANIE FRIEDHOFF: I want to hear from Joan, also. And I don't want to take up too much space. But I think we need to understand -- and Joan touched on that little bit -- things are going to change dramatically in the next five years. We're thinking about Google? Google is the past. Alexa, right? Alexa says the 2024 election isn't happening. How does that even happen? And you know, personal robots; information that comes from the fridge, right? What AI is doing, it is powering together with, again, like the development of devices, it is going to change where we get our information. And again, another way -- we're focused on the phone right now in social media. This will go into, right, into all our living spaces in a fundamental way. And we need to invest in the sciences to understand what that actually means in terms of, right, we have these behavior change models and communication. Who gets to decide what information goes where? There's so many questions here that are really urgent for us to think about and to address.

And the key point is, communities and people are not currently part of the planning for all of this, the design. So,

Joan called out the design. Design is so important. The designs are being made by businesses. They're not being made by authorities or government, and they're not being made by the people, and that's a real challenge that we need to think about.

>> JOAN DONOVAN: Yeah. You know, I'm -- as we head, you know, diving head first into the shallow pond of AI. Currently, the hype that we are going through is capturing the attention of a lot of decision-makers at institutions. They're wondering, you know, how do I get more labor out of less people? The same things that sold, you know, car manufacturers on autonomous workplaces in the '60s is the same thing that's -- it's the same rhetoric driving AI and this question of, you know, you don't even need a communications department if you have AI, you know. These technologies are always going to come to us in these moments where they want to magically make it seem like they can fix all of the problems of media manipulation, misinformation, you know, even in terms of child's health and well-being, they're talking about AI as personalized tutors. But again, AI has no relationship to the truth. AI, as it's designed, is pulling data from Reddit and Wikipedia, and then everything else that's been posted on the Internet.

What's interesting is information that is behind paywalls then are not in AI, or information that is in news, information that's from some of our most reputable publishing houses like MIT Press, that is not in these models.

Another thing I think we need to worry about this day in age is the way in which we talk about technology, especially as it pertains to the question of community. YouTube was content to tell us that the entire, you know, 2 billion users of YouTube are the community. That's not how community works. We also know that younger people have lived through this moment of their lives where they should have been very social, living through it in a very isolated way and reaching out through digitally mediated technologies, and we're not going back from that. So, 5-year-olds that got iPads during the pandemic are staying online, and they're not leaving.

So, what does it all mean? Well, it means we need really strict policy around data collection. We also need new laws around biometric information privacy, which currently, I think, only Illinois has. Any kind of deep fake that's made out of your face or your voice, that information is yours and yours alone. It's the same thing as copying genetic information or a fingerprint, which is to say that I think there are ways in which we've allowed technology companies to get away with so many things because we assume we live in a world without policy; but rather, I challenge us all to think about technology as the policy until we get laws that change or protect consumers. Which is all to say that public health communication is a rarefied challenge, because what we care about in terms of public health communication is that people are making informed and consensual decisions about the medicines they take in. We are better off as a society if we have critical thinkers, especially people who are willing to question, you know, why would I trust big pharma, why would I trust this, you know, why would I trust that?

And unfortunately, if you start by doing the research online, you're likely more to run into misinformation than facts because of the design of the system. And so, you know, I think as we move forward as a field in terms of public health, that the best way to go forward is to think about, well, what are the

infrastructures that need to be built, that allow us to pull together different kinds of information and remain up to date -- pun intended, for all you nerds out there that love a good medical database joke. You know. But I think that that kind of information does need to be available to patients as they're thinking about navigating complex health territories.

I also think another thing needs to happen transparently, especially in the U.S., which is, these insurance companies, they will fight not to pay for anything. One of the big problems with the pandemic is that very few poor people knew the vaccine was free, right? If they had known the vaccine wasn't going to cost them any money and that by getting it, they weren't going to get charged. You know, some doctors were charging a facility fee, so you go in and then you have to pay the $150 or whatever just to get the shot, not knowing that they could just go to the local pharmacy to get the shot.

I do think that when people realize the extent to which government or others have really foregone some kinds of profits or some kinds of, even some kinds of clinical trials, it's because of the expediency of the demand or the expediency of the crisis. So, there are points where it's important for science to be slow and laborious, and then there are points like this pandemic or the AIDS crisis, where we need to be more responsive to people.

>> MARIETTE DICHRISTINA: Thank you. I know we're almost out of time, but I'd like to try to squeeze in one -- it's probably big and unfair of me -- a question. But it's an election year. We have two political parties in the U.S., at least, that are a little different how they look at scientific research and information. Any advice for how to approach the next months' conversation? Any last words on that score?

>> JOAN DONOVAN: Well, I'm worried about 2024. What we know about these platform companies is they've laid off immense amount of research staff as well as trust and safety staff. They are no longer at least publicly committed to news-sharing, especially Meta that owns Facebook. They own the news in Canada, after there was some policy put in place where news that were being -- news that was being distributed over platforms needed to be -- these platform companies had to pay into a public fund for journalism.

Threads has made a commitment that they are going to serve less political information, but they're not banning political ads, so that's a very strange setup there, which means that political information is going to come at you at a premium, which is to say, as best you can, you know, watch the local news. Generally, they do a pretty good job of cutting through the BS. And be prepared to argue for the truth. I mean, now more than ever, truth needs an advocate, and I think that one of the things we can do is utilize our own social media profiles as a way to be a newsstand for one another and to focus on curating our own content in a way that will help others in our families and networks get the best of us in terms of the way we share information.

>> MARIETTE DICHRISTINA: Thanks so much, Joan. I'm sorry, we're just about out of time, but I thought that was a nice note to end on, of both concern and hope, and that some of it, at least, is in our hands. I'd like to pass it back to Dean Galea with my thanks.

>> SANDRO GALEA: Well, first of all, thank you, Dean DiChristina. Thank you to all four of our panelists. What a

terrific conversation. It's very hard to summarize a conversation like this, but I will perhaps end quoting Dr. Donovan, that truth needs an advocate. I thought that was a lovely turn of phrase. These conversations are meant to be conversations, and I think this one excelled both in terms of seeing the number of questions from the audience, but also the conversation the audience was having amongst itself and with some of the panelists. And I think that reflects how much of interest this topic is to all of us today and how much we all recognize that there really can be no effort to thinking about how to best mold the health of the public going forward without wrapping our brain around how we communicate. And if there's one field in public health that is really emerging as a field that's fluid right now, it's health communication. So, really, to have these panelists who are at the forefront of thinking about this joining us today is a real privilege. Thank you again to the panelists. Thank you to our hosts and translators and everybody in the audience. Everybody have a wonderful afternoon, evening, or morning, wherever you are. Take good care.

(Session concluded at 2:30 p.m. ET)