

ISOJ 2021: Day 2, Panel

Facing the 'infodemic:' How journalists covering COVID-19 can fight mis/disinformation

Chair: [Maryn McKenna](#), *journalist, author and senior fellow*, Emory University's Center for the Study of Human Health

- [Joan Donovan](#), *research director*, Shorenstein Center on Media, Politics & Public Policy at Harvard University
 - [Heidi Larson](#), *director*, The Vaccine Confidence Project at the London
 - [Jessica Malaty Rivera](#), *science communication lead*, The COVID Tracking Project
 - [Brandy Zadrozny](#), *reporter*, NBC News
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Mallary Tenore Hello and welcome, everyone. I'm so glad that you're here today, and I hope that you're enjoying ISOJ so far. Before we get started with our next panel, I wanted to share a few notes and also give a special thanks to the Knight Foundation and Google News Initiative for sponsoring this year's ISOJ. I want to remind everyone that we do have simultaneous interpretations in Spanish thanks to support from Univision Noticias. So if you're tuning in via Zoom, you can click on the interpretation globe in the bottom right hand corner of the screen, select the Spanish channel, and then you can tune into the Spanish interpretation. And if at any point you have trouble with Zoom, any technical issues, you can always tune in via YouTube in both Spanish and English. So we'll post those YouTube links in the chat so you can easily access them. So I'm very excited about our next panel, which is titled Facing the Infodemic: How Journalists Covering COVID-19 Can Fight Misinformation and Disinformation. And this panel will feature a fascinating discussion with five journalists who have been at the forefront of COVID-related coverage and research. The session will be led by Maryn McKenna, journalist, author and senior fellow at Emory University's Center for the Study of Human Health. Maryn actually just finished teaching a massive open online course for the Knight Center, which is the organization that hosts ISOJ. And this multilingual course was focused on helping journalists cover the COVID-19 vaccines, and it ended up reaching over 4,100 people from 160 countries, so we will soon be posting a self-directed version of this course in English, Spanish, Portuguese and French, as well as other languages most likely, thanks to UNESCO. So anyone can access those at any point once they're published, and you can visit journalismcourses.org in the coming weeks to find those self directed courses. So now I would like to turn the conversation over to Maryn McKenna, who will be leading today's discussion. Thanks so much for being here with us today, Maryn.

Maryn McKenna Hello, attendees. Welcome to this panel in the International Symposium on Online Journalism, addressing one of the most important challenges facing journalism today. I'm Maryn McKenna. I'm a science journalist, and author, and science writing professor, and I'm your moderator for this panel, which will explore how to detect, combat, and counterprogram against the enormous amount of misinformation and disinformation that's swamping every channel in which we try to reach our readers and viewers. False information is nothing new, of course, and confirming when things are accurate and true is one of our bedrock tasks as journalists. But it's hard to think of another time in my working lifetime, at least, in which misinfo and disinfo have been so overwhelming. Fear of a new disease, the destabilizing impact of protective isolation, malicious and nationalistic weaponization of information, propagandistic profit seeking, and the multiplier effect of

social media have created a maelstrom that we have to find our way through. This maelstrom is so intense that the United Nations terms it an infodemic. Last year, when the pandemic was just getting going, the agency UNESCO estimated that 40% of social media posts about COVID came from unreliable sources. 42% of tweets related to COVID were produced by bots, and millions of Facebook posts per month contained false information. These panelists will help us find our way through this thicket. Their bios are in the program. I encourage you to take a look. In the interest of time, I'm not going to recite them, but let me just introduce them briefly in the order in which they're going to speak. We'll hear from Brandy Zadrozny, senior reporter at NBC News. Jessica Malaty Rivera, the science communication lead for the COVID Tracking Project. Heidi Larson, the director of the Vaccine Confidence Project at the London School of Hygiene and Tropical Medicine, and Joan Donovan, research director of the Shorenstein Center on Media, Politics and Public Policy at the Harvard Kennedy School. We'll begin with each of them speaking briefly to what they have experienced this past year in their professional practice and their research, and encountering the pandemic and its storm of mis and disinformation. Following that, I'll guide a conversation among the four of them. And then we'll turn to your questions, and I encourage you to enter your questions at any time in the Q&A slot. You do not need to wait for the audience's portion of the panel to begin. So that's enough for me. And let's begin by hearing from our panelists. Brandy, will you launch us off, please?

Brandy Zadrozny Sure, hello. So I have been reporting on the Internet for about eight years. I started reporting on health misinformation in 2018. Eight in ten people online use the Internet to search for health information. And that is probably a far outdated figure at this point. The number is probably much bigger. But thanks to bad actors on social media, a lot of what people are seeing when they look up that health information is pretty terrible. Stuff like ginger, not chemotherapy, will cure your cancer. Stuff like vaccines causes autism, vaccines causes SIDS. It really runs the gamut. So I have some slides to show, and I'm going to try to do that now. Yes.

OK, so I had spent the last couple of years following a network of misinformers. These are conspiracy theorists, antivaxxers, supplement peddlers. All of these folks, following them around the Internet. And this is actually what my beat looked like in 2019. You can see it really is wide ranging. Parents trying to find a cure for their children's autism. Vaccination advocates having a hard time battling social media's algorithm. Women who were looking for the best way to deliver children and having sometimes disastrous effects when they are getting pulled into echo chambers. And so this is what it looked like in 2019. And then, you know, the pandemic happened. And early, early, early in 2020, when we still didn't really know whether COVID would reach the U.S., we did know for sure that domestic actors were going to capitalize on it. This slide is my first, I think my first, COVID story I wrote. It's in January 2020, and it really tells the story of how clout chasers, and these are like wannabe influencers on social media, they're using Instagram and TikTok, and they were really, really early at latching on to COVID news in order to go viral. It's in the interest of chasing these larger audiences on social media. The posts that they were sharing were really misleading. They were sharing unverified, sometimes clearly false information about COVID, and it was really, really moving on social. Some of the accounts were only a few days old, and they had already reached millions of views. They were at the top of search results for almost every brand of social media. When you first looked for COVID, you found just all of this junk, and they were doing it with this mix of fear mongering and racial stereotyping. And what this story for me was, it was really the canary in the coal mine. It showed for me just how unprepared the WHO, the Centers for Disease Control and Prevention, public health advocates, but more than that, social media companies, how just unprepared they were to deal with this moment, this information vacuum.

And then what we saw over the next few months was other bad actors, so we start to see the misinformation shift. And we saw other actors want to capitalize on that. And so these are antivaxxers, far right politicians like Tom Cotton, eventually the president, were utilizing this vacuum to push their own agendas. So we really sought to tell that story. And the way that we did that was at the very beginning, we made a very clear line about what our role was. Right. We were not fact checkers. We were not debunkers. Instead, my mission was to sort of pull back the curtain on the people spreading disinformation, the tactics they used, and the platforms, how the platforms profited from the spread. And then finally, the toll. Of course, those lies take on individuals and communities. This story now is about the video the Plandemic, and Plandemic was this very glossy documentary style video that was just clear misinformation throughout the whole 30 minutes. It was this discredited doctor saying stuff like that going to the beach will cure your coronavirus. And COVID-19 is actually not so bad, downplaying the severity. It was clearly false, but it was so false that a fact check was almost impossible. And so we wanted to talk about and we wanted to discover how this video was flying, and sort of why it was flying? And what we also wanted to do was highlight the fact that it was bringing together an audience and a group of people who are pushing it who were from really disparate communities online, anti-vaccine groups, QAnon followers, far-right extremist. And they were all coming together to push this misinformation, and this is the beginning of that sort of camaraderie and that cross-fertilization.

Then as the year went on, we saw it move in to even more political sphere, this misinformation, and this was really kicked off with the America's Frontline Doctors videos for us. And this is when a group of people in white coats got together at the base of the Supreme Court steps, and they said a lot of incorrect things about hydroxychloroquine and, again, the severity of COVID, that it wasn't that bad. And we could have fact checked that, but it made more sense for us to say why is this spreading? And it was spreading because it was sparsely attended. There were only like three or four people actually there, but it was broadcast on Breitbart News, live streamed, over 20 million people saw it. And then as we reported, we found out that it was actually backed by a political Tea Party movement, the same group that is partly responsible for convening people at the Capitol. So we can see how all of these are connected, political extremism and health misinformation. So that's just a really brief look into our year of chasing this increasingly political and dangerous health misinformation.

Maryn McKenna Brandy, thanks so much for that glimpse into what your year was like. You made a couple of really interesting points that I'm going to jump on as soon as we have our conversation together, the five of us. But for now, I'm going to bring in Jessica Malaty Rivera, who is a science communication lead for the all volunteer COVID Tracking Project, which walked into the problem of COVID data when the U.S. government was not fulfilling that responsibility. Jessica, please tell us your thoughts about misinfo and disinfo and what your experience was.

Jessica Malaty Rivera Gladly. Hi, everyone, my name is Jessica Malaty Rivera. My background is actually in emerging infectious diseases, and I worked for a number of years, many years ago, on pandemic prediction and modeling. So we are very much living the scenario in which my colleagues 10 years plus ago at Georgetown were working hard to prevent and also to predict. And so I will say that folks who have my very specialized background of emerging infectious diseases know that when you have an outbreak of a pathogen, you can almost certainly guarantee that there's going to be an outbreak of bad information too. An infodemic comes hand in hand with epidemics and pandemics, and

that has been the case since the beginning of time. We can trace it back to even when the smallpox vaccine was derived, and folks were spreading information that if you got the smallpox vaccine, that you would turn into a cow because of how it was derived from the cow pox virus. So this is something that comes at no surprise for those of us who have been in this space for a long time. And what was probably the most concerning was we called it kind of early in 2020, that at some point we expected a vaccine to be part of the arsenal in responding to this pandemic, and what we were seeing was not just years of defunding public health and defunding things like bio surveillance, there was just the overall lack of prioritization of science communication. And what we mean by science communication is bringing the science that is behind those closed doors in laboratories, at universities and research institutes and making it across that last mile to everybody, making sure that it is not losing its relevance, that it's not being misinterpreted, that it's not intentionally being manipulated to create narratives that are not true to the science. And that has been a persistent problem in COVID-19 and COVID-19 data. The work that we did at the COVID Tracking Project, was essentially aggregating state and local territory data for cases, hospitalizations, deaths, etc. And we were just compiling that in a public place because it wasn't available. And what we were doing was also training folks on how to be better readers, and understanders and consumers of this data. So while science communication is explaining things and breaking it down, it's also intended to build people up to increase science and data literacy so that people can become more discerning when they see headlines.

And Maryn and I have talked about this at length where if you are limited to character counts and tweets, it's very tempting to write something pithy that could potentially lead to logical fallacies like correlation and causation, which is a persistent problem we've seen in the vaccine space, where people will take individual events that are not connected, put them in a headline, put them in a tweet, put them in a meme, put them on social media. And the damage control from something as small as 140 characters can take years and years to unpack. Now, one of the things that I did early on in the pandemic was I actually took to Instagram to do some science, one on ones, because a lot of my friends who knew my background were asking me what is herd immunity? How does a virus replicate? And I started doing some basic explanations. Right around the time when Pandemic actually came out, I'm so glad that Brandy mentioned that, because that was really when I took down a lot of the kind of gratuitously bad misinformation that was being circulated without any kind of care to fact check. And I have often said this whole year that social media is wonderful and horrible at the same time. It's wonderful in that we are now seeing it becomes a place for people to receive credible information, receive credible data. But what I was also seeing was that it was just too easy to share bad information. Again, that's not a new insight. But because the journalism space was so saturated with so much information, and inundated with information that they probably weren't looking at like preprint, for instance, we were seeing a lot of people fall into a lot of logical fallacy traps that were very preventable. So in the process of also doing this data explanation for COVID Tracking Project, we were also sending out signals of, "Hey, let's avoid this thing." Or, "Hey, big newsroom. This is not how you interpret that thing." Or, "Let's be very clear on how we identify our charts and our legends, and making sure that it's really clear that when you are saying these things, people can't draw this meaning." I will say that there is a persistent conspiracy right now about the death toll of COVID-19 that can be traced back to a chart that was on the CDC website that was not properly labeled, and the fact that we are still dealing with people who don't believe that over 550,000 people have died of COVID-19 shows us just how much work we have to do to better communicate, to better illustrate, to better visualize data and science. I am mindful of time, and I feel like I'm right around

there. But I could go on for a long time, and I'm looking forward to talking about this more with the panel.

Maryn McKenna Jessica, thanks so much. Your prediction that something was going to go bad, that there be an outbreak of misinformation just as there is an outbreak of disease, is just chilling. And I know I'll want to talk more about it if we knew that was coming, how could we have prepared better? But for now, I want to bring in Dr. Heidi Larson. There are few people in the world who are better equipped to talk about the misinformation and disinformation, particularly around vaccine campaigns, than Dr. Larson, who is founding director of the Vaccine Confidence Project at the London School of Hygiene and Tropical Medicine. Dr. Larson. Please take it away.

Heidi Larson Thanks very much. I really appreciate the last two speakers. I founded the Vaccine Confidence Project about 11 years ago now. I had been UNICEF's lead on communications and strategies for new vaccines around the world and saw this, this was 2000 to 2005, this emerging trend, epidemic, of more and more people questioning and refusing vaccines in pretty remote corners of the world. And it wasn't anything that was in the news. But then I would come back to my office in New York at the UNICEF headquarters, and I would get phone calls from people there about, "Oh, is UNICEF giving only measles vaccines because there is a problem with the MMR vaccine." And I said, "Actually they just can't afford the MMR vaccine." But then I realized there was something brewing here, and that's when I left to set up the vaccine confidence project to try to understand what was driving all this.

We don't have any magic answers, but we have a much better sense of the scope and scale of it around the world. And then it changes. I just did an editorial in science called *The Volatility of Vaccine Confidence*, and it's really like political opinion polling. I mean, 10, 20 years ago, vaccine sentiments were pretty stable. And you knew who the groups of persistent refusers were for either religious, or philosophical reasons, or a marginalized group. That's out the window. There's no stability. There are some groups that we see have persistent issues. But then you get these whole different trends, things changing all the time. And it was against this background of 10, almost 20 years, of studying this phenomena that was growing, and then came COVID. In 2018, I had written a piece which probably in sync with Jessica, saying the next pandemic threat will be viral misinformation. And it was just the pace of things spreading was really worrisome.

One of the things that we're interested in looking at also is the global spread of these issues. The U.S., we've started doing initially more online news media monitoring 11 years ago because the social space was not as ubiquitous as it is now. Now we're doing both the online news as well as social media monitoring in about 200 languages. It's really the speed that these things are happening. Hank Aaron after being a champion for the Black community, getting his public COVID vaccine, and then dying later. I think it was two weeks later even and at 86, in his sleep, and within less than 24 hours of his death being announced, I had tweets forwarded to me from Nigeria. "Oh, did you hear he had this vaccine and dropped dead immediately?" That was what was going on around Nigeria. This was within 24 hours. And we see these spreads, and from our network, for instance, in Africa, they say the fountain comes from the U.S., but then it gets repurposed, reframed, reshaped and then moves along. And the worrying thing is, well, one, that it's misinformation. Sometimes I'm concerned that there's a disproportionate attention to fact checking and misinformation because it's like clipping off the head of a weed, so to speak, and letting the roots keep growing because there's deep, deep emotions behind these pieces of misinformation. And some of it is quite accidental, accidentally shared. And some

of it is, as we heard from Brandy and Maryn in the introduction, purposeful by bad actors, as they say, who just want to disrupt. But I think what's concerning sometimes is just looking at that information and not what's driving it. And not looking at the fertile ground that's allowing it to keep flowing. We need both. We absolutely need the fact checking and correction. I mean, I was looking back to, as we heard earlier, about the old cow images in the 1800s. And we saw recently, in Time, the UK version of Time, there was a white jacket and a chimp like the AstraZeneca vaccine, which is from chimp adenoviruses, was turning people into chimpanzees. I have one slide that I teach with that shows the cow. I mean that people getting smallpox vaccine turning into cows, and then 200 years later, the chimpanzee.

But equally, as was already mentioned, the fake news, even the term misinformation, is on some of these old 1800s etchings. So this is not new, but what is, as you've all said, it's the scope and scale of it. It's the intent behind it. It's the motive. And I think that's a really important thing to be looking at. Is this intentional or not? Because I get concerned that there's a polarization going on, that anything that is not pro is anti. And there's a lot of mistaken information. And people get judged when in fact they were quite, I mean, it seemed plausible to them, they would forward it on, and then not intend to send it to the million people that for whatever reason it gets sent out to. So I think there's different tactics that we're going to need in addition to the fact checking and the important kind of correcting. But I think when we take things down, we need to make sure that space is filled. Because if we do a lot, I'm in regular dialog with social media platforms, because there's a limit to when do you know when to take something down or when it's ambiguous. And I think that we really need to look at sometimes what else is going on, and why people are believing something. And sometimes it's because there's a plausible story, and we need to give an alternative, positive, accurate story. And one of the things we're doing with our social media is not being confrontational with it, because I think we all know that you don't kind of directly confront and risk amplifying negative information, but use that to inform where we need the positive stories. Because what it says is that people are looking for that. They're looking for an answer. And in the context of COVID, looking for answers more than ever. Hyper uncertainty, constantly changing environment. The latest one, and then I'll wrap up, is in Africa. They got shipments of these vaccines that have an expiry date on the month of April 15. And many of these countries were going to be burning 60,000 and another shipment of 19,000. They were about to destroy all these vaccines. when they heard from WHO, "Don't do that. Actually, they didn't really mean April 15. You can do it for longer." How do you explain that? So it's a lot about coming up with a plausible reason, so it doesn't look like it's a lot of confusing science, but actually there's a reason for it. Thanks. Sorry to ramble on.

Maryn McKenna I appreciate all of your comments so much. And there's so much in what you said about the people's need for reassurance, about the deep emotions they feel around some of the things that are going on. And also as several other people have said, that we could have predicted this problem of mis and disinformation. In fact, it sounds like you did predict it several years ago in an op-ed. So these are all things that we're going to talk about in a few minutes. But first, I want to turn to our last speaker, Dr. Joan Donovan, research director of the Shorenstein Center on Media, Politics and Public Policy at the Harvard Kennedy School. Implicit, I think, in what the others have been talking about is that this is not just accidental, that this problem of mis and disinformation exists within an ecosystem of information and data. And I don't think there's anyone that I would trust more than you to understand this 30,000-foot view of what the platforms and the actors are here in this problem, so please talk to us about that.

Joan Donovan Well, thank you so much for having me, and it's just truly a pleasure to get to talk at ISOJ again. I'm just wishing we were all in the same room. I want to talk about things in the minute because right now we're going through another information crisis related to the pandemic, where there are two trending topics on Twitter that are currently being gamed by different networks of motivated misinformers. One related to the CDC relaxing guidelines about vaccinated people in public. Of course, no one's going to be able to tell the difference between someone who's been vaccinated or not. But now we're going to have to contend with different maskless publics. At the same time, another trending topic is related to Mr. Joe Rogan, who is a Spotify podcast host. He used to be a very prolific YouTuber, and of course, many people probably remember him from the days of him convincing people to eat bugs on his TV show Fear Factor. That all being said, I think that one of the biggest challenges of our time, and this is something that I testified in front of the Senate about this morning, is how do we handle medical misinformation at scale when we have people who use whatever breaking news is happening, it doesn't necessarily have to be COVID related, in order to generate clout, clicks, revenue. The environment that we have built with social media is one in which it heavily favors, including giving a first mover advantage to people who are willing to use misinformation or dangerous speculation in order to drive profit or incentivize certain kinds of political discussions and outcomes.

And then downstream of that, you have essentially the last 20 years of net public as well as social media. Even going back to Friendster and MySpace, you have networks of people that were early adopters, that were anti-vaccination activists that really have a 20 year advantage on everybody else. Most of us are just trying to get information. Most of us are not producing misinformation. But we might get caught up in a misinformation campaign because we share this kind of advice just in case. We share it because we're afraid someone else hasn't seen it. And we've seen time and time again throughout the pandemic that the way in which this happened usually involves some kind of speculation or maybe even it's a kernel of truth. You know, like when we had the J&J pause. And then that turns into an opportunity for misinformers and manipulators to drive a wedge issue and to really move public conversation. This stuff that we study at the Shorenstein Center in particular, and you can look at it on mediamanipulation.org Is related to how media manipulation campaigns are formed, how they then get spread across the web, who responds to them, that is the most crucial aspect of a misinformation campaign and really is the determinant as to whether millions of people see it or not, is does it break out of the networks of people that already believe it and reach audiences at scale? Usually that requires a politician, or a journalist, or a celebrity, or somebody else to act as an amplifier. Or an algorithm, to act as an amplifier because if you can make things trend or get them into recommendation systems, then certainly many more people are going to see them.

As we study this, though, we look also at mitigation. What kinds of things work? And it seems like with the medical misinformation that we are really trying a lot of different things, including labeling and takedowns. But what we lack isn't necessarily just a plan to counter misinformation. We do not have a coherent strategy for delivering timely, local, relevant and accurate information to the public, which is by and large what we need to have, especially as people are trying to figure out how to get the vaccine. So if you're Googling something, for instance, like where to get vaccinated and you search for that, you're likely in many instances across social media or in Google Search not to just encounter information that you're seeking, but also to encounter this misinformation.

And then lastly, we look at the adaptations of persistent manipulators. That is, if this is truly an industry, which it is now, we see these small networks of people that are highly

motivated, adapting to any rules that platform companies create. Platform companies are always going to make rules that are very limited in scope, of course. In some instances there's jokes about if you were to change the algorithm at Twitter, all the lights would go off, which is to say that it's fundamental and interconnected to the product. And tweaking is not going to win the day these days, especially around tweaking the technology. We actually need to have a whole of society approach to grappling with misinformation at scale. I'll point you to mediamanipulation.org, if I can figure out how to work the chat function. We have a report out called *Mitigating Medical Misinformation: A Whole of Society Approach to Countering Spam, Scams and Hoaxes*. A couple of the pages in here, I think are going to be relevant for anybody listening that's a journalist or a public health professional, which is to say that we have a decision making matrix about how do you evaluate misinformation, how do you evaluate its spread? And then who do you call in to help when you want to counter something, when you've made the determination that it has in fact reached enough people, that there needs to be a public health sector response to a mis and disinformation campaign? I say that all with the huge caveats that the way in which we study these problems often is intimately tied to the solution set that we come up with, which is to say that we need a lot more information about exactly what Professor Larson was talking about, on what basis are people making determinations about "I don't necessarily need to trust the vaccine in order to get it." Right? And so what is that tipping point, or what is that thing that people are hearing, or is it repetition that they're hearing the same thing a lot that makes them think I should or shouldn't get vaccinated? And then we have to match that with the actual supply of the vaccine because you can't really have a true refusal if the product was never on offer anyway. And so those are some of my opening comments and also big thanks to Brandy over the last year and more. Brandy has really helped me stay ahead of the curve in terms of figuring out exactly where misinformation is going to land next. And so very thankful for all she does and all the journalists on this beat who deserve a vacation.

Maryn McKenna Joan, thank you so much for those comments. You have said such just fascinating and provocative things, and I have so many questions. But now the five of us are going to talk together. So if the moderators can bring everybody back onto the screen, I am going to launch some questions at all of you based on some of the things that you said. I have a lengthy spreadsheet here already. And then audience, after about 20 minutes, we will attend to your questions as well. We can see them in the chat. We are reading them already. If you have any questions that occurred to you as the four panelists were talking, go ahead and put them in. If anything occurs to you as a result of the things we say now, go ahead and put them in. There is no point at which it is too late to ask a question.

So the first thing that I want to ask is that several of you said, starting with Brandy, that it was predictable that there was going to be some effort at mis and disinfo around this pandemic. Brandy, you said you knew from the start that domestic actors would try to capitalize on this. Jessica, you said it is predictable that when there's an outbreak of disease, there will be an outbreak of misinformation to follow it. So I'll get in a moment to the question that Joan posed of what do we build? But how could we, for any of you, how could we have been better prepared if we knew that this was coming? Maybe, Heidi, you could start because you did write that op-ed a couple of years ago predicting that viral misinformation would be a problem in a pandemic. What would you have wanted to see happen?

Heidi Larson Well, I think there was a lot of assumptions in the public health community that it would be so bad that people would finally wake up to the value of vaccines. In fact, I

think there's a lot of hopeful thinking in the public health community that facts will reign, that the science will win in the end, but not putting that energy behind it to make that happen. So the thing that I would have liked to see is more effort on the side of the public health community and science community to go where people are, to start to already build those relationships, and start to engage people, and get followings. But a lot of health authorities, it's already a stretch to send a poignant reminder with SMS. That's their digital health. And there are some younger emerging and others scientists and doctors who are starting to engage more. But I had seen some study recently in the last few days of health care professionals, and I think 10% had any kind of social media account. Not that they need to take on all the communication, but somehow without waiting for a pandemic to do it, just to start already building networks. Because they're trusted figures. And if they can start engaging in where people are, and there's been a huge anxiety about going into that messy, emotional space where actually the public is living. So I think figuring out ways to make that landscape a little more full of better and more compelling good science and not leaving it a desert to be inhabited could have helped.

Maryn McKenna So I really want to get in a moment to this question of the deep emotion that underlies the ways that some people at least respond to misinformation and disinfo. But first to what you just said. I mean, I think what I just heard you say is that public health discovered that hope is not a strategy. That hoping that people will embrace facts is what turned out not to be sufficient. Joan, I see you nodding. Maybe it's your turn.

Joan Donovan Yeah, no. And I think hope is not a strategy, but very thankful for people like Jessica who go out and get the data right. The issue is, is that to have evidence based practice, you actually can't rely on just monitoring the Internet for what's out there. It just doesn't work. And especially when we talk about narrative mapping. The narrative wheather on social media is always going to be blustery and cold. Right. Which is to say that there's also a problem with the way in which we imagine influencers being the problem solvers for the deficit of public health messaging. It just doesn't work that way. Really trying to understand data wise at this point, is it the case that maybe it's the first message that somebody receives that's the most important? And if that sets the tone, then everything that comes after it might not matter proportionally if that first message is so caustic and toxic. And so there's a lot of ways in which we have to take a step back. But because of the tools that we have that are all about monitoring social media. And they're really tools that are built for brand insights. They're not actually tools that are built for understanding sociologically what's happening. Anyway, my main gripe here is that we're trying to tackle a problem before we understand it, especially something as novel and as new as social media. It's only been around a decade. We don't need to abide by the rules as they're set by these social media companies. We actually need to think a lot more deeply and use other mechanisms like journalism to tell the tale. The other one last problem, of course, with journalism is that the really good journalism is expensive. It's not just expensive to produce, but the good stuff is often hidden behind paywalls. And then the bullshit circulates for free. And who ends up paying for all that? Public health officials, academic researchers, philanthropists, journalists. I mean, the costs become endless because of the way the system is designed. But I'd love to get to the bottom of that one question, which is like, what is it that's really animating people's hesitancy? And as you know, Professor Larson is saying, if it is truly volatile, then how do we adapt socially to handle those headwinds? Anyway, I'm mixing metaphors now, so I'll go on.

Maryn McKenna So, I mean, there's two things to what you said that I want to comment on super briefly, and then I'm going to keep guiding the conversation. The first is that it really is true that this is the first social media pandemic. Right? Neither Facebook, nor

Twitter, nor smartphones existed in 2003 for SARS. All of those were around in the 2009 H1N1 flu, but they'd really just kind of gotten started. Certainly they were particularly mobile social media was influential in Ebola in 2014 in West Africa, but that was relatively geographically limited. And so here we are really in the first global social media pandemic and apparently failing at the challenges of that. The other is that, I'm not to make a pun about virility, but I'm fascinated that you're sort of presenting us with really a biological metaphor, that the first message that anyone gets kind of occupies their receptor. And it's very difficult to get that dislodged.

Joan Donovan I'll say one thing about that just quickly, which is like related to pre-bunking, which is that if you want someone to kind of be stopped in their tracks, we see this a lot with criminals who get on and say, "You know, you're going to hear that I Venmo'd these teenage girls this amount of money for this exact service." And what they're doing is planting in your mind the expectation. And then when the information arrives to you, you're like, "Yeah, he was right. They are trying to persecute him." The same thing is happening with these viral messages about the vitality of COVID and whatnot. But yeah, but I don't know, and that's the point is to be able to admit what you don't know and try to find those answers. That's what makes research exciting.

Maryn McKenna So this question of debunking or prebunking. Brandy, I want to go to you, because one of the things you said was that you made a deliberate, you collectively, the network, made a deliberate editorial choice not to be fact checkers and bunkers, but rather to sort of pull back the curtain on the mechanism. Can you talk about that a bit about why you thought that was not a good investment of your efforts? And did you think about pre-bunking as an alternative?

Brandy Zadrozny So what guided our sort of editorial judgment when it comes to health misinformation from 2018 and the measles outbreak in Samoa and the Pacific Northwest all the way to COVID was this idea of a tipping point. And people much smarter than I talk about this all the time with misinformation about when something is worth covering, when we're not just doing more harm than good by putting this thought in people's mind and making them go search for it. Right. But something happened with the pandemic, which really laid bare for me two things. One, is that there were the same actors who tended to come up time and time again. So we had seen this happen a lot like politically like with political disinformation agents like Jacob Wall, if you're familiar with him, that were for a time, just too small time to really write about. Del Bigtree for the High Wire. Should we really promote this guy? But what our thinking was, is that these are serial misinformers, and we want to put them on the public's radar so that when you see a new doc from RFK and these small time actors, that you make a click in your head about like, "Oh, I know this guy. This guy is the guy who is out in California yelling at reopened protests. Oh, OK." And that's sort of like something in your mind, because I feel like through my coverage I've learned that people need a sort of character to hold on to and say, "I don't trust that person." Instead of like, "I don't trust that information" because that's a lot harder, especially when it's about a disease, or about science, or about an immunization, or immunology or whatever. Those are complicated processes. I can show you somebody who's untrustworthy and makes millions of dollars doing untrustworthy work and that everybody can understand. But the second thing was with the Plandemic video about when we should cover something, for us that really highlighted it. We had seen the Plandemic video sort of being teased on anti-vaccination forums. And I remember saying to my editor, like, "Please don't make me cover this. It's so stupid. This woman has been around the anti-vaccination movement for years trying to make a name for herself with, like, crazy conspiracy theories. Like this is exactly the kind of person we don't want to

propel to the mainstream." And then social media proved me to be an idiot because we are no longer gatekeepers in the same way that mainstream media once were. People are going around, and so it was to the point where, like my mom and like editors in the newsroom, like their parents and their aunts were like, "What is this pandemic video?" And by the time that we actually had a really good piece of journalism to put out on this woman, Judy Mikovits and the documentary maker in this particular video, it was too late. It had already been seen by millions and millions of people, was already cemented in people's minds. And so that makes us want to, and what we do now, is when we see something bubbling, I start to write. So by the time that I'm like, this is actually going to take off, we have a piece ready to go. RFK Jr. just put out this new doc on vaccines targeting the African-American community, Black, indigenous people of color. And we saw like a thing saying "coming soon" for it. And I got with a writer that works for NBC BLK, our Black vertical. And then we sort of got together and wrote an article that was done fully baked and just waited for it to come out. And the second it did, the second he said, "Click on this link, and it's ready," we had something first. So any time anybody Googled that, they saw our article first. And that's what we try to do. We try to do not just pre-bunking, but front loading, the educational term, front loading with information that gives people a frame of reference for what they're seeing.

Maryn McKenna So I want to put a pin in this idea of we know who at least some of the bad actors are because some of the members of the audience are asking questions about prominent people in their areas or countries who are known to be helping with the spread of disinformation, and how do they combat that? But I want to go back to Jessica because I'm thinking that at the COVID Tracking Project, you had a unique perch in which to see both the arrival of epidemic data and the arrival of misinformation and disinformation kind of marching together. And I would love to hear, as you saw that what were some of the insights that you came up with about what should people who should have been putting out good messages, what should they have been doing that you did not see happen?

Jessica Malaty Rivera Right. I agree with so many of the things that my fellow panelists have said. And I would want to start by saying there is a science to science communication. It's kind of like what Brandy said. It's the discernment of knowing what things to breathe more oxygen into, and what things to say these are so fringe, so outlandish, that they truly will not have any traction. And sometimes discerning that is really difficult. So I would never say you are an idiot, Brandy. I just think that Plandemic was unusually wild in that regard. But I will say that our efforts to, at least on social media with regard to that as a quick tangent, did cause a news network that was intending to air it on public television to cancel that because of the outcry from a number of people who were in the science community who said this is outrageous. So sometimes it does work to have the kind of collective social media say, "We don't want this." But that said, the things that we were seeing, and that's partially why I was saying that if we continue on the debunking role, it'll just be whack a mole forever. You'll never get ahead of it. You'll constantly just be putting out tiny fires, but there's like a giant forest fire behind the scenes. And instead it's the front loading. It's the pre-bunking. It's the increasing science data literacy by setting good practices. Right. So for us, when we were getting feedback from newsrooms and even from individual data users to say, can you do this with the chart? Can the chart also say this? It got better through this kind of call and response relationship that we had with our data users. So that when people were able to see either a four-panel chart that was talking about cases, death tests, etc. in a jurisdiction or nation wide, it had the totality of the evidence. Right. There wasn't something that you could say, "Oh, I'm going to connect these two things and say one of them is causing the other trend line." It was a full picture, and we wanted that to be the case with every piece of data visualization

that we created, every piece of content that we created. That on its own, it couldn't be manipulated. Now, granted, that doesn't stop a bad actor from actually turning it into something that it's not. But at least we know that the kind of diligence is there, that the caveats are there, the disclaimers are there. And then we actually multiple times wrote exhaustive warnings of when you see these trend lines happen, this is probably not what's happening. When you see this, pause before you correlate it to that. People would always say, "OK, but what about states who had mask mandates the whole time, and their COVID case numbers were down?" But then you're like, "OK, let's take ten steps back. Right. Let's look at all of the figures and understand that in order to make a discerning choice here, a judgment here. You have to understand that all of these are pieces of a puzzle." And to train people to look at data comprehensively was helping them understand what they were seeing in headlines throughout the pandemic.

And I still think that we're seeing this kind of overreliance on certain calculations to kind of diagnose how bad the pandemic is going. I would say one like constant thorn in my side is the obsession with test positivity as a way to say, "Oh, there's this many people testing positive out of this many tests." Well, the fact of the matter is, we've never tested enough, ever. And because of that, that metric is fundamentally flawed because it's not sufficient in its volume. It's also not equally comparable. Right. So I feel like when we look at some of the claims that people will make about data and claims that people will make about public health threats in general, if you take another 10 steps back, you'll see that so many of these claims are truly unoriginal. Right? This happens all the time with flu. This happens all the time with measles outbreaks. Right. And so many of the claims and the convictions that folks will have from the contrarian side is copy paste from anti-vax playbooks. It's not actually truly based on anything in data. And I think you'll be speaking and communicating in vain if you think that you can out-data somebody with facts. Because at the end of the day, it is a fundamental misunderstanding of data with the intention of creating a narrative that just isn't there. Right. It's not based on logic. You're going to talk yourself blue in the face if you're trying to tell them that's not how you read this, because there's something very much underlying in that issue. And I also want to add the fact that when RFK announced that thing about the vaccines in the Black community, as a woman of color, I was extremely triggered by that because I have seen a very sinister and intentional plan to misinform people of color in the United States and people from overseas in other countries. And you see this in every language you can imagine just translated. Like mRNA vaccines alter your DNA. You can Google that in every language, and there's definitely social media content that says the same thing. Right. And that is because it is just so viral. Right. It is just so pervasive. It travels so much faster, and if we're not inoculating people with the kind of tools of this is how you actually understand these things, that's how you communicate these things, and visualize these things, it's just whack a mole forever.

Maryn McKenna That's an amazing phrase. So thank you for that. I swear I'm going to get a tattoo of that. So I love what you just said, Jessica, about how you were sort of strength testing or force testing the things that you were putting out at the COVID Tracking Project. And what I want to ask, and this is probably going to be my last question and then I'll bounce off you some of the questions from the audience, which there are many more than we can get to, I'm sorry, everyone, is so what's our toolkit? Joan, you talked about this challenge of we need to understand first that medical misinformation is being spread at scale. And second, that the people who who are doing it, some of them at least, have made a profession of this. They've been doing this for decades, and journalists who think they are just going up against an individual person who's passing along something that they're auntie put in the family group is fundamentally deluded about exactly what they're

up against. So what should we be building, and who are the right people to do this? Joan, I'll start with you.

Joan Donovan Yeah. So there's a really great BuzzFeed article from last week and a follow up on Monday. We can use the insights from this to talk about anti-vaccination activists, but the journalism from Craig Silverman, Jane and Ryan, is really about what Facebook knew about how a movement like "stop this steal" was growing, and essentially that their internal mechanisms for spotting the problem, tracking it, and then deciphering, and taking action on it are toggled for last year's news, basically, which was that there was a lot of inauthentic activity online. But if you had modeled your interventions on something like the anti-vax movement that has a very rich and densely networked across platform infrastructure, then you would be able to start from there to build from the ground up. How do you understand certain influencers and certain account administrators will use the tools that are just baked into social media, maybe with a little bit of advertising technology like HootSuite, everything's off the shelf, in order to invite people in mass to these groups, in order to make sure that these things break out of echo chambers? And then also, you know, one thing they do really well is they give people a sense of purpose. People become motivated sharers because they think they're doing something about the problem, and in the pandemic, we all feel so powerless. I'll tell you, I hate working in my house. I live at work, and I get to now go out to get away from this. But the problem is, the reasons why we see movements do so well online is because they do give people a sense of purpose and meaning. And so it's not just enough to combat this with facts. We actually have to look at who are the people making money or deriving more network attention, and then root out those folks much earlier on before they do start to scale and become much bigger than they are. And you don't see this happening on every platform. That's the other thing is that we have a couple of platforms that are really reticent to say what it is they actually do, who their customers are, and what they care about. But you just don't see this scale happening on a place like Snapchat. You don't see it happening in a place like Twitch as much. And on Reddit, Reddit has built up systems that allow people to attack content, which makes it a little bit more easy to decipher. But at the end of the day, tactically, you know, we're going to have to take a whole of society approach. It's going to take journalists talking with public health professionals, talking with technologists, talking with policymakers. And even academics are going to have to kind of draw a line in the sand and say, you know, this kind of amplification is dangerous to the health of our society.

Maryn McKenna So this is a good time to move to some of the audience questions because they are asking questions about some of the things that you're saying. And I think this also goes to what you're talking about in terms of that identification and feeling of belonging and contributing to a cause also goes to the point that Heidi made about that these messages have a deep emotional resonance for people for whatever reason. So a number of the audience members are asking us how do they combat mis and disinfo when it's being spread by someone who's socially or politically important, whether it's the president of a country, or a major celebrity, or someone, as in the example you gave Joan, someone who has an unbelievably massive social media following? What are strategies for disentangling the sense of belonging people feel with those figures from the messages that those figures are putting out? I will let any of you take this.

Jessica Malaty Rivera I would say that I think de-platforming is a really important tool that social media groups can use, and I think that as social media groups are playing catch up on some of these bad actors who have huge platforms, the removal of pages like the Del Bigtree, and RFK Jr., and Sherri Tenpenny on Instagram, that those are meaningful changes. Now, it is kind of like cutting the head off the dragon and realizing there's actually

a bunch of heads underneath because they have so many different people who amplify the message. It does at least create some trust in the sense that when people are calling out the main drivers of this, that you can believe that it's actually connected to somebody who is not trustworthy, who is not an expert. Right. And I think that so many of the tone of so many of those messages do come off as truth-telling, and freedom fighting, and liberty obsessed kind of like martyrdom. But when you actually take down the people who are doing it, and liberties aren't being eliminated, and people's lives are not being lost as a result, it kind of reinforces the message that these are not trustworthy sources. I also think that calling them out in even academia is really powerful, too. So I actually contributed to a paper not too long ago that was written shortly after President Trump's comments on disinfectants and UV lights. And we did a Google search trend study on what people were looking at after his remarks. And we saw a noticeable spike in people looking up bleach, disinfectants, UV light, etc.. We also got publicly available data from Poison Control across the country, and we had an actual spike in public poisoning that happened because of people's search trends, based on comments that were made by the president at a press conference. So that actually does a lot, even in the academic sense, to say we have data to validate that this is a harmful thing to say, and that this causes public perception and public trust to shift. And we can measure it and publish about it.

Maryn McKenna Does anybody else want to answer this question?

Heidi Larson Well, I do think, getting back to your point earlier about the ecosystem of information. While the amplification problem is very much a social media issue, these guys go offline and big time. I mean, these movies, whether it's facts or Plandemic or whatever, they're in theaters. They're doing bus tours. I mean, Wakefield was like on the steps of town hall in Warsaw. He was in naturopathy conferences with 20,000 people. I mean, these guys have their networks and amplify them in other spaces. And I think it was a few years ago, the repertoire of the UN High Commission of Human Rights was concerned about governments putting these restrictions on, or calling for restrictions on social media, just because of the precedent where authoritarian states could use it, like Modi is right now and others. But one of the things they did say in that report was also any restrictions you put on one medium needs to be across all media. It's different. But I think what's happening is, as someone had mentioned earlier, they're constantly rejigging their strategies to kind of get around whatever restriction there is. So turning statements into questions which are much harder. "Do you know the risks?" Rather than saying, you know, "Don't take that vaccine. It'll kill you." Because they know now that it will be taken down. But if they say, "Do you know what's really in a vaccine?" So instilling doubt and questioning, which makes it much harder to kind of undermine it. It's a bit of a side comment.

Maryn McKenna This goes back to the point that Joan made in her remarks, which is that, again, that mis and disinformation are professionalized. That these are people who have done this for a long time, who have refined their strategies, who are remarkably creative and nimble, and multifarious. There are a lot of them both sort of true believers, and people who think they're helping. So a question that a couple of people are asking in the chat is, is this a workforce issue? Do we need not just a toolkit in journalism to figure out how best to respond based on evidence, but do we actually need people to help? Do we need a rapid reaction response force the way the CDC has the epidemic intelligence service to go to actual outbreaks?

So Brandy, what if when you saw this surging as something you'd have to cover, if you could turn this problem over to someone else? What would that look like?

Brandy Zadrozny I'm really good at pointing out problems. I'm less good at finding solutions. I mean, I think journalism has a part to play, of course, but so much of this really lays at the feet of a few very powerful people. The problem is like, yes, social media platforms have done a really great job like last summer of finally saying, "Oh, no, you're going to have to stop. You can't plan militia activity on our platforms and stuff like that." But like just the anti-vax coalition, when we look at like Del Bigtree is no longer allowed on Instagram, but he's still on Facebook. And they always do this sort of piecemeal thing where they say, they have since 2018 said, "OK, now we're not going to let them buy ads." Anti-vaxxers buy ads. And then in a few months they said, "OK, well, now we're not going to let anti-vaxxers be as algorithmically promoted as they were. So we're going to reduce it." And reduce it to what? They wouldn't tell us. And then, OK, the next couple of months, "Now we're going to do this little thing." And they did so much, little by little, by little by little. What it did was just sort of scare the biggest actors enough to make sure that they had really fortified their army with their followers and made up this like digital army, basically, of anti-vaccination soldiers. And so now we don't see the top-down disinformation as much anymore. We aren't seeing that. We're seeing sort of low level misinformation pour through individual stories about like what happened when their grandmother's boyfriend got the vaccinem and then he croaked and he died. And we're seeing story after story after story like that. And so, like, how do you even combat that problem? You could give me an army of people, whatever unit you wanted to, journalistically, and like there's no way to combat that force. And so, like in my mind, like even the concept of that question, like, what do journalists need more of? We always need more journalists, but we journalism won't fix this. It just won't. I'm sorry.

Jessica Malaty Rivera This is what I was referring to about the government, like not prioritizing science communication. Ohmar Right. A journalist wrote a great article basically criticizing Operation Warp Speed and saying we spent billions of dollars on the actual manufacturing and research of these vaccines and zero on the communication about them. And that is what we need to get vaccines across that last mile. It's making vaccines turn into vaccinations, which actually save lives, and it's communicating throughout the process so that trust wasn't lost in things like the speed of the clinical trials, and things like how to report on adverse events. If there was as much money or even just some money contributed from the federal government on vaccine communication throughout Operation Warp Speed, sending out public messages that were digital and not digital that could have been translated into numbers of languages, and in barbershops, and in community centers and in people's homes, we could have anticipated so many of the things that happened because people were just watching for the first time clinical research happen when they were never really even looking in that direction.

Maryn McKenna So I do just want to ask, I'm sorry to sound so wonky, but Joan you raised the responsibility of the platforms in your remarks. And the platforms obviously or regulation of platforms and hauling them in front of Congress and so forth is being discussed for other reasons. Is this a regulation issue?

Joan Donovan It's definitely a structure issue. One of the things that we have to get right, I think is the metaphor by which we identify the problem. And for me, when I talk about misinformation at scale, I'm really thinking about regulatory history related to second hand smoke. You actually had to invent the concept of second hand smoke in order to get action on it, to get people to stop blaming individual smokers, and get at the problem in the structures, and then change actually the constitution of our public space. You no longer can smoke in airports or in school. And I mean, I tell my students you could smoke in

classrooms, and they're like, "That's crazy." I'm like, "No, you could smoke at the grocery store. Like it was normal." Until it wasn't, right? And this is where we're at with misinformation at scale is that you have these systems that are really easy to engineer, especially because the most prolific stuff just tends to be the most outrageous. And if it comes from somebody who has some marginal following, it can scale very quickly. And so the solutions have to be structural, and they have to be place based and tailored to the cultures in situ, in which the vaccine misinformation is operating, and what wedge issues it's attaching itself to. And how the actual design of social media, if we were to consider the Internet a human right, and were to try to build a public interest Internet that basically put at its core community safety and access to accurate information, you would have something entirely different. Instead, you kind of have a very cheapo version of what technology is capable of because it's profitable. And eventually, the problem is going to become so complicated that you'll see some of these companies just move on to something else because they're not necessarily modeled on any like higher order mission. You can see it in the way that Dorsey and Zuckerberg talk is that they want to go into banking. That's where they're headed next. This is a smash and grab on journalism and on our society, and then they'll be bankers. And just like Wells Fargo was once just a humble messaging company. And that to me is the really scary part, is that we don't actually know what we're dealing with, and we don't have the right metaphors to work with the problem.

Maryn McKenna So your characterization of this as being like second hand smoke just made my head explode. I hope that didn't happen on camera. Because that unpacks so much. Because there was smoking education in schools and kids were told to go home and guilt their parents about not smoking. And when you saw someone smoking inside a building, you felt empowered as a member of society to go up and scold them or give them the side eye because they were endangering someone else. And the idea that the sort of intellectual pollution of mis and disinformation is as dangerous as physical pollution was and is worthy of that same kind of full court press approach from every actor. That's really fascinating. Heidi, I just want to ask you quickly, because you have been in the researching vaccination attitudes for so long. What does that characterization feel like to you, or does it feel like it would give sort of a fresh, I don't want to use the word platform, a fresh jumping off space for activism against anti-vaccine messaging?

Heidi Larson Well, I totally agree with John that we need a quantum shift. I mean, this needs to be deep. It needs to be structural. I think a lot of it, I mean, just the sheer amplification factor behind the screen, let people say what they say, but just cut them off at the don't let it go to a billion people or whatever. And then it contains it just by that alone. But I do think that it's a little more complicated than, I totally I love the metaphor of the smoking just as an example of how you can have a social change health behavior, it's a little more complicated because there's so much ambiguity. And a lot of these things, and that's part of the problem, because of this emotional ambiguity and the complexity of all this. But I think it's appalling, it's criminal, the lack of investment in communication of any sort in vaccines. When we had the first six vaccines in the 80s, there was a huge investment in engagement and communications around the world. We got like rates going from like only 20% of the world having vaccinations to like 80. But there was a massive, massive investment in communications. I wrote something with John Hopkins when I was in UNICEF like 15 years ago. Why invest in communication for immunizations? And we used a bunch of case studies. It was simple then. We didn't have what we have now, and they still weren't investing. I can't tell you the the lack of funding in this space. We run on the heels, I mean I'm in an academic institution, so I get cheap labor. Excuse me for saying, but people are doing it because their incentive is that they get to research, they get

to write things. But it's shocking. And what the public funding agencies say is we don't want to go there. It's too toxic.

Maryn McKenna So I see everybody moving in their chairs like they want to say something more about this. And I'm so sorry, but I have to cut us off because we are at the end of our slot. So much has been said. This was such a rich conversation. I wish we could keep going. Thank you all so much, Brandy Zadronzy, Jessica Malaty Rivera, Dr. Heidi Larson, Dr. Joan Donovan. I'm Maryn McKenna, thank you all so much here in the symposium and on YouTube for watching this incredibly provocative and enriching discussion about the problem of mis and disinformation in COVID. Thank you.

Mallory Tenore Thank you so, so much. That was indeed very provoking and such a rich conversation. I found myself just jotting down a lot of notes and highlights from it. So really appreciate your insights, Maryn, Jessica, Joan, Heidi and Brandy. And I did see to that Twitter was abuzz with lots of quotable highlights from the panel, so I can tell that it really resonated with our audience as well. And this is a panel that I think journalists will want to turn to as an ongoing resource in the coming months as they continue grappling with the infodemic. So as a reminder to everyone, we are streaming all sessions to ISOJ YouTube channel, so you'll be able to access the recording from this panel and all other ISOJ sessions on that ISOJ YouTube page. And we'll soon post the recordings on ISOJ as well.

So we do have a break now before our next session, which will feature five researchers who contributed to this year's peer reviewed ISOJ research journal. And the panel will focus on journalism's evolution, including algorithms and misinformation, and it starts at 4:00 p.m. Central Standard Time. So between now and then, we encourage you to tune into our Wonder room, where you can have private or group conversations with other ISOJ'ers and speakers, and we'll be dropping a link to the Wonder room in the chat. So you're welcome to go there right after this session. And we'll also provide a link to our ISOJ Spotify playlist, which features music from Austin, the live music capital of the world. So with that, we hope that you'll chat with other ISOJ'ers in the Wonder room, listen to that Spotify playlist and join us back here at 4:00 p.m. Central Standard Time for our next and last panel of the day. Thank you so much, everyone.