

2:40

all right well I think we should go ahead and get started um I want to welcome everybody to Medicine Grand rounds today on this

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first day of November today I'm very excited to have a topic that many people have expressed interest

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in hearing more about which is medical misinformation clearly one of the you

3:00

know real challenges I think of the last several years and something that has moved to the Forefront of many of our

3:06

thoughts so we have a fantastic guest who is going to speak to us about this Dr David

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scales is a physician and medical sociologist at Weill Cornell medicine and he's the chief medical officer at

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kritika critica critica and NGO focused on building scientific literacy

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um his PhD dissertation examined the global governance of infectious disease and he completed a postdoc at healthmap.org at Harvard Medical School

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and spatial epidemiology he then completed a primary care Internal Medicine Residency at Cambridge Health

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Alliance and he practices as a hospitalist his current research however focuses on medical communication in clinical and

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online settings including understanding how to address misinformation within digital communities his work seeks to

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emphasize how structural factors affect our information environments to allow misinformation to propagate and

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misconceptions to persist he leverages qualitative and quantitative methods to address

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misinformation training infidemiologists to build covid-19 vaccine confidence in

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online communities with community-oriented motivational interviewing he's written about applying models of epidemic disease surveillance

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and responses that Guide to the problem of misinformation and he served as a consultant to the office of the Surgeon General on the topic of the impact of

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covid-19 misinformation during that pandemic in his spare time he enjoys learning and speaking different

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languages biking playing water polo and reading with his two-year-old son all

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awesome things so Dr scales David thank you so much for joining us today and I'm

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really looking forward to hearing you shed some light on this conundrum

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thank you Wendy it's an honor to be here I'm looking forward to talking to you all this is obviously a very large topic

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so I just hope to kind of provide a little bit of the framework and some examples that might um assist in some of

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your thinking as you guys are working with patients and inevitably encountering patients that

5:00

um that have uh perspectives that might be informed by misinformation so my talk

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today is called the toxins we carry and I'm going to go into why I specifically talk about why are we talking about

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toxins tackling medical misinformation Beyond covid-19 vaccine hesitancy

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so just to disclose so I'm a consultant for the office of the Surgeon General

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and CMO for critica as Wendy mentioned um critica is an NGO we're primarily

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funded through the Robert Johnson Foundation uh just also want to acknowledge the people that I work with so Jack and

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Sarah Gorman who started critica um Dr BK titanji who some of you might know uh from the Department of

5:40

infectious diseases at Emory um Tyler Starks is a major collaborator at Hunter our info demologists

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um our collaborator at the Annenberg School of communication at the University of Pennsylvania Kathleen Hall Jamison and of course our Founders the

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Robert Johnson Foundation so what are we going to talk about today

6:00

so first we're going to try to get on the same page about what are we talking about when we talk about misinformation

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then I'm going to try to describe to you how we have moved how our information ecosystem has moved from the need for

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traditional types of of message-based communication to more networked health

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communication and how message-based to environmental models of information

Health can shape the way that we think

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about how we can address this problem and then specifically how we can

operationalize I this information

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environment framework to broadly address medical misinformation even at the point of care which I know might sound

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overwhelming but I'm hoping by the end of this talk you might be in agreement with me

that we as clinicians have a

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role to play even if a lot of the problems in our kind of misinformation uh kind of infodemic as it were are

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structural so to start with so this is a a figure

7:01

that looks at information disorder on a spectrum from false to kind of things

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that have an intent to harm and the Spectrum runs from misinformation all the way to disinformation and Mal

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information and what determines where you are on that spectrum is often related to the motives behind why

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someone is repeating or sharing information so because we often don't know someone's

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motives I tend to prefer the term misinformation which is information that

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has a false connection or is misleading um because if we don't know someone's

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intentions I can't claim that it's disinformation or mal information um if you look at the bottom of the

7:43

screen you'll see BS lies and manipulation essentially as a shorthand way to think about this

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um if this is something that's interesting to you I recommend the book on BS um which the actually written out not

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just the initials by Harry Frankfurt um where he defines BS essentially his true or false statements unconnected to

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a concern for the truth which I think when we think about how information spreads online I think that term

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actually captures a lot of it so you will hear me use the term misinformation

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um but please keep in mind that it could also include disinformation of Mal information depending on the intent of

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those that are spreading the information um and we've all seen this I like to

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point out this article I brainwashed myself with the Internet by Brandy zadrosney because you know number one

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this isn't necessarily all about covet and it's not necessarily about Internal Medicine there's misinformation that of

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medical consequence in many different topics in every corner of the internet this is an unfortunate very unfortunate

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um report that zidrozny published and published just before the pandemic and I

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like to use this as an example to show that like while a lot of us kind of came to consciousness of this problem and the

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scale of this problem with the pandemic this is a problem that predated the pandemic and in my specific trajectory

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here was uh when I worked as a reporter and I started to see reports about uh

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things that seemed like misinformation you might you guys might have heard about goop um and making unsubstantiated

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claims about the health impact of its vaginal eggs uh you might have read things about Lyme

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disease and so in some of the reporting that I did for WBUR I spent a lot of time

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um in both online and physical communities with people who believe that they are suffering from a manifestation

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of of what they would term as chronic lyme disease um uh talking to providers that provides

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services along this Paradigm and patients who are suffering from symptoms

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um that they attribute to chronic lyme disease and the thing that I say about this is it's clear that they're suffering but it's less clear to me what

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they're suffering from and this is a transnational phenomenon some of the research that I did

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um in reporting took me to France where I looked at a similar manifestation of the transnationality of misinformation

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about Lyme disease and some of the challenges in trying to address this so my own Pathway to misinformation came

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essentially from that experience as well as the experiences that I've had

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um as a hospital medicine attending I had one patient a 29 year old woman with crohn's disease who had anal fistulas

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uncontrolled Crohn's uh bright red blood per rectum but multiple admits over

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serious months for inability to tolerate po while she was refusing biologic

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therapy and persistently asking for tpn even though she really didn't meet

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indications for it because she wasn't really on the fullest extent of her treatment

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there was another patient that I had was 58 year old woman who actually had a diagnosis of ehlers-danlos she had

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actually gone to the farthest reached and gone to Johns Hopkins so she could meet with geneticists who'd actually

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test her for ehlers-danlos and presented with multiple admissions secondary to shortness of breath acute on chronic

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lymphedema and she had diastolic congestive heart failure the challenge with both of these

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patients was the how they insisted almost every single one of their sisters

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symptoms was related to the specific disease that they were presenting with

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um and um and some of the resistance that I faced as a provider in trying to

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persuade them to accept a standard of care treatments this is this is not

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uncommon I mean I think we can see manifestations of medical misinformation even outside of covid outside of the

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pandemic we see this with the gospel of Wellness this is a book by Rina Rafael that was um just published in September

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we also see this in the phenomenon that social scientists describe as contested

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illnesses now these are illnesses around which there is a um a a lot of

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uncertainty to give an example of a content of contested illnesses these are things like chronic lyme diseases I

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mentioned um irritable bowel syndrome um uh inflammatory bowel disease ehlers

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donmos myalgia encephalomyelitis formerly called chronic fatigue syndrome Gulf War syndrome Mast Cell Activation

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Syndrome and even long covid I think as clinicians we can all think about you know we might have in our mind kind of

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patients that we might have seen with one or more of these these illnesses and

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found ourselves in some sort of impasse some sort of disagreement where our

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perspective on the illness was different than theirs and the thing that I like to say about this is like like all

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misinformation there are kernels of Truth and with almost all of these

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diseases there is there is a degree of scientific consensus you know with chronic lyme disease there is a

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discussion about we all know about Lyme disease itself there's a increasing recognition of what's called

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post-treatment Lyme disease syndrome which has very specific criteria long covid we're starting to see specific

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criteria as well there I'm the issue with contested illness is is that in at

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times sometimes the illness itself is contested whether or not Physicians actually believe it exists is in

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question but there's usually a kernel of Truth where we can agree that there is some sort of disease that exists then there's

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a large penumbra around that consensus where there's a lot of uncertainty and

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in this uncertainty there's uh advocacy networks of online patient groups that

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are sharing information and sharing essentially defining what constitutes the facts for the

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disease and I met I talk about this because my patient with ehlers-danlos syndrome had clearly spent a lot of time

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in these networks and and was convinced that pretty much all of her symptoms were related specifically to Euler's

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Dominos syndrome and the challenge that I had as a physician is I didn't know there's a lot of

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uncertainty a lot of what she was suggesting was in this penumbra of uncertainty but I'm going to talk a

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little bit later about how I approach patients like this to try to get to a

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little bit more of a detour where we can start to move forward um even if we disagree about

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um or feel different degrees of certainty with regard to uh aspects of

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their illness there's a lot of ways where we can find agreement and move forward on a treatment plan

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first let's talk a little bit how we got here and some of the Frameworks for how we might address this problem writ large

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and then dive into the clinical aspects so how did we get here so first is the

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idea that uh as many of you have probably been taught if you've spent time in the laboratory that good science

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speaks for itself good scientists basically publish their papers and then then just let the scientific discussion

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happen but in our current information ecosystem science doesn't speak for itself science happens at the speed of a

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tweet um there's a number of preprints that have gone viral on Twitter there's a

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number of uh you know aspects where one specific study gets taken out of context

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or cherry-picked and Amplified in certain settings and becomes from the perspective of people that are in

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certain disease communities um uh a scientific fact so this process of how scientific facts become

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essentially socially mediated to become facts it has changed in the setting of

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our current information ecosystem and I would say science hasn't really caught up with that

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this is also amidst an overall media environment where there's declining influence of traditional media

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structures this is due to a long history of deregulation Financial crippling of

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newspapers due to the internet due to social media and also declining the influence of both television and radio

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this is in the context of a rise of these New Media structures and various

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different incentives for engagement this leads to a situation where there's misinformation or even positive

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misinformation has the potential to spread at unprecedented speed and scale

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and for those who are interested I highly recommend this book Network propaganda by uh Yochai Benkler and his

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colleagues it's about politics um but what I would say is specifically chapter 11 isn't about politics at all

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it's about exactly what we're talking about here with regard to the structures that have facilitated in an environment

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that allows misinformation to spread virally

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so what does this look like for health communication so health communication

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for a long time has been message based where there's a lot of thought and time

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and energy that goes into crafting the message that's because scientists are trying to kind of understand what the

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facts are they're communicating to you know scientific advisory panels who are synthesizing some of the data publishing

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in scientific journals and pre-prints um that information gets aggregated by

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public health practitioners who are trying to decide kind of what public policy should look like based on the science and we are also doing this as

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healthcare workers and clinicians but then some of these messages they need to get transmitted to the public so Public

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Health practitioners were often in the past leveraging media and journalists this through they would do this through

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relationships they might have had with reporters through press conferences and ultimately it would reach the public but

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this isn't really how health communication is happening anymore and we saw this during the pandemic

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there's a certain manifestation of networked health communication where in

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a lot of environments online in particular all of these stakeholders are communicating with each other now to be

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clear I'm not trying to argue that message-based communication doesn't exist at all or isn't important but the

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relative proportion the relative importance of message-based communication in the Walter Cronkite era

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versus now I think we can all agree that there's been a pretty significant shift in terms of the importance relative to

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where people are getting a lot of their information of Health consequence so what is this networked health

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communication mean so this means that I I like the quotation that that uh

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young and Miller uh wrote about here but they say today's media users experience decentralized

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interpersonal horizontal networked politically relevant communication every

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day now it's decentralized because no one really controls the narrative it's

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interpersonal because a lot of this is based on the individual contacts that we have with other people whether that's

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someone that we know personally like our friends and family or the fact that I can follow LeBron James on Twitter

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um the influence is not determined by expertise it's determined essentially by

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engagement attention the number of followers that you might have this tends to prioritize uh Communications that

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leverage emotions over rationality so this also manifests as a horizontal

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Network where it's non-hierarchical expertise doesn't nearly matter doesn't

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matter nearly as much as some of the other factors that we've talked about um this makes information not in this

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message-based top-down type of structure but messages travel from one person to the other

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its networks because net nested groups of individuals and communities are sharing information especially those

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that have shared identities or shared values or some sense of however they Define community rather than some sort

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of uh experts bestowing their knowledge upon the public and it's politically relevant I think

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this is really important because um you know as we talk about health-based information that's often

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what what social scientists would call an ethic perspective that's the perspective of of Outsiders of people

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like us as Healthcare Providers but from within the communities themselves kind

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of what what social scientists would call the emic perspective a lot of times these aren't health

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issues at all these are political issues if we're talking about abortion if we're talking about vaccination

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to a lot of people that's not a health issue it's a religious one it's a value-based one or it's or it's a

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political one about their expressions of free speech and that's an important thing for us to recognize is even the framing of what

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types of issues these are are these health issues or are these something else is something that experts don't

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necessarily have a monopoly on in terms of that framing

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so what does this mean practically speaking so I'd like to show this

21:01

network map because this is this is a specific example so let's go back this

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is uh this is California Circa 2015 2016 and this is a network map of Twitter

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conversations um from uh people talking about vaccines and a specific State Bill State Bill 277

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that was designed to prove to essentially end personal belief exemptions from vaccination

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so what you see here you see clusters of different essentially interest groups talking to each other on Twitter

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so the orange group at the bottom that's autism um these are people who are specifically

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talking about autism and its relationship to vaccines and each bubble there represents essentially a Twitter

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user that that bubble is a node and the size of that node is the number of followers that they have and the

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connections between each node are essentially how often they are speaking to or linking to one another including a

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uh you know both specific connections with a at someone in their tweets or if

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they're following so if orange is autism we can also see pink is specifically a

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community focused around anti-vaccine the blue is the medical Freedom

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Community this is also about the time that there was a the tea party uh

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contingent of political activists was very active and that's the teal over on the right and that somewhat tiny

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Community Way On The Fringe that doesn't really seem to have much connections to anyone else is actually the the public

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health Pro vaccine community but I like to show this figure um because this is this is the problem

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that public health has um in communication about information of

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Health consequence is already networked and yet public health communication our medical communication of consequence is

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not networked we are still very much in a message-based paradigm um that falls victim to the Field of

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Dreams fallacy the idea that if you build it they will come but we need to uh switch our approach to a more

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networked type of of communication so we've seen this this isn't just about

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vaccines there's some other papers that look at the network structures looking at discussions around Ebola the vaccines

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but in a slightly different framework in zika and I apologize for the for the quality of these images the images are

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of poor quality in the papers themselves but uh just describing them briefly these are essentially

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um maps of the different stakeholders that are having discussions about these issues with yellow tending to be more

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mainstream type media um blue tending to be a little bit more kind of uh user created green tends to

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be essentially very medically oriented and the Oren sorry not the orange the um

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the magenta is uh the Public Health Community and similar to the previous slide you can see that the public health

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discussions are not really integrated into the network off to the periphery and relatively small

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um compared to the larger discussion at hand this is you know this is

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challenging these Network maps are trying to capture what I think a lot of people feel when they're in an online

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space but I will say I think that the empirical science behind these these Network Maps still leaves a lot to be

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desired for us to kind of feel conclusively uh feel uh rigorous in our conclusions that we can draw from them

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but the thing that I do like to say is I think it's pretty clear that public health tends to be on the periphery of

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these networked discussions so I've spoken previously about how we

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can start to see uh this problem writ large of information of Health

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consequence um being spread and affecting people's behaviors and perspectives

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um this has been described by the World Health Organization as an infodemic as an overabundance of information and I've

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spoken about this previously um I in an article talking about um how we can perceive this as uh

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essentially the same mechanisms and the same manifestations as we perceive of infectious diseases

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communicable diseases ultimately communicate and if we can understand kind of the connections in these

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metaphors and what type of uh of window this gives us into our type our response

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to this I think that's an important thing that we can take away because we can do surveillance on misinformation we

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can do diagnosis we can do responses we can also be working on prevention

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so but I would argue that this model is insufficient because you know when we think about our Public Health we can

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think about the fact that you know uh 150 years ago there were constant

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epidemics all the time it took a certain amount of Sanitation it took a certain amount of getting toxins and

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pathogens under control before we could really start to focus on an outbreak oriented approach we first had to start

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with the sanitary and a hygiene-based approach so this so environmental

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thinking is is one that I'm not the first one to kind of talk about this metaphor Whitney Phillips who's a

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Communications professor at Syracuse University has written a number of pieces about this including this piece in Columbia journalism review talking

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about the toxins we carry and I think it's an important perspective because it helps us shift from a message based to

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an environment-based model of information health and it also helps us recognize that the

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goal here is not to completely eradicate kind of our information ecosystem of

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misinformation that's impossible just just like it's impossible to eradicate

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our entire um world of toxins um the goal is really to render

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misinformation as harmless as possible and there's a lot we can take from an environmental health framework to do

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that now environmental health Frameworks are complicated so similar to an infectious

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disease framework we're not necessarily trying to adapt everything we're not trying to figure out the r naught of

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every bit of misinformation similarly there's aspects of uh you know

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environmental health and toxicology that can apply to what we're talking about here but we're not necessarily going to

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try to dive in at this level let's just step back uh kind of a main

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tenet of Toxicology which is the idea that dose makes the poison uh anyone

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who's worked as a hospitalist on an internal medicine board has uh has seen patients who have come in with with

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essentially water toxicity with hyponatremia we the the dose is what

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makes the poison caffeine can be poisonous at certain Doses and sodium fluoroacetate also known as 1080 which

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is can be a very harmful inhibitor of the of the Krebs cycle and metabolic components of our body

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um it requires much less um for it to become toxic and so when we think about toxicology we

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can start to think about the factors that are really important there's individual variability medical conditions genetics age gender but

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there's a number of aspects that go into the dose as well kind of the duration of exposure the amount the concentration

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the route that we ingested orally or was it just on our skin how much did we absorb the frequency of exposure when it

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comes to certain things like aflatoxins we can think about that as well all of these things are come together

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and produce toxicity both individual and population levels

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we can also think about things that are positive like you know uh Access to

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Health Services access to a healthy environment um access to Geographic locations that

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help mitigate some of these environmental toxins and from what we're talking about access to technology

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from an environmental health framework and I like to think about asthma that we know that there's individual variability

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in terms of who gets asthma based on genetics certain medical conditions or the allostatic load that someone has

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essentially been immersed in during their life course there's also kind of

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the need to minimize toxic exposures the dose of certain things like pollutants

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the duration that people are exposed to them the frequency and the toxicity and

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then we also know that it's important to maximize exposure to healthy environments access to healthcare access

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to information access to environments where people can live without asthma triggers and these are things related to

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location do they have access to Green spaces do they have the mobility to get there but also aspects relating to

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certain social and structural determinants of Health to know whether or not people are able to afford things like humidifiers or do they live in

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public housing where mold exists and no one's really taken care of the uh of a

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lot of problems that exist in in certain types of housing so we can adapt this framework towards

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information environments as well because there's a lot of psychological literature that's looking at individual

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predispositions in terms of Personality some of the cultural values that are associated with belief and

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misinformation there's a term that I really don't like but it's common in the literature about cognitive sophistication there's also just the

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individual agency that people have in terms of their media consumption habits we can also minimize toxic exposures and

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what does this mean from a misinformation perspective but how do we get in our information we know that

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certain types of information are stickier than others right if if you read something on a CDC website that

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takes work that's harder to remember than if you watch it in a tick tock video so the dose that's required to remember

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something you don't have to read it as many times if you're just watching it as a video versus if you're reading kind of

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up to date or a CDC website so the duration the frequency and there are

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certain memes um that tend to be more toxic our collaborators at Annenberg School of

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communication Kathleen Hall Jamison and the factcheck.org group are have some preliminary data to suggest that certain

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uh memes about the vaccines tend to be more toxic and spread with more

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frequency and are stickier psychologically and those those include misinformation about the vaccines

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changing your DNA and your genetic makeup those are memes about uh vaccines

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affecting fertility and those are aspects comparing how a claiming falsely

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that the vaccines are more dangerous than covid itself and then finally we can maximize

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exposure to healthy information environments this means access to high quality information both in trying to

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help incentivize healthier media consumption habits but also structural

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factors to ensure that people have access to these things to ensure that algorithms are promoting high quality

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information over the more toxic information and then this is also an issue of

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healthcare access promoting access to health care and trusted experts survey

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after survey shows that that people trust their primary care physicians but if they can't access their primary care

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physicians they're getting information from more accessible sources and this is very important when we come when we

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start thinking about overall information environments so when we start to apply this model to

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things that we can do we can think about this from a sanitary perspective there's certain prevention uh techniques that we

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can that we can think about that are really important because I as we know like we didn't really get kind of

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epidemics of food safety under control until we made food safer and had a lot more regulations around food until we

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kind of started working on making sure our water was clean taking off the pump handle as as Jon Snow is famous for and

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then also you know including antibiotics and vaccines then we started to be able to work towards a an epidemic uh focused

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model rather than everything seeming like a constant epidemic which is a little bit what it feels like now if

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you're working in the misinformation space so this means doing things like trying to reduce kind of other algorithmic

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approaches that help people convince brainwash themselves with the internet trying to avoid epistemic bubbles in

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Echo Chambers this also means a building media literacy and digital literacy so

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that people can use these tools but not necessarily be sucked on rabbit holes that make you start to believe that the

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Earth is flat this is also a particular focus on marginalized populations who have very

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Real historic reasons to mistrust the government or mistrust kind of common

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sources of trust trusted information um and and try to make sure that that

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distrust cannot be leveraged to further so distrust an excellent example of this is the Nation of Islam who does who is

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very stridently anti-vaccine and has done a lot of work even partnering with

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Children's Health defense to create anti-vaccine materials specifically targeting black communities in the

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United States on the basis of very real medical mistrust from a long history of

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racial discrimination so there's a lot that we can do on this front as well and then finally ultimately there needs to be a lot of

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content moderation this is going to be an essential component going forward

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some of this has started to happen already where the National Academy of Medicine has come out with a report identifying credible sources of health

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information on digital platforms and has developed some principles and these principles are actually being

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incorporated into algorithms on YouTube so that it prioritizes information coming from the most credible sources

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this is a start I would say this is necessary but very likely insufficient to start to get our hand around this

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problem but as with any kind of environmental approach there's we're going to need a

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conglomerate just a piecemeal approach attacking this from a number of different angles

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there's also aspects on the response side and what I mean by that is trying

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to maximize exposure to healthy information this is a little bit of some of the work that we do with our

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infectious disease epidemiologists there's also an argument that I make for screening for information environments

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at the point of care like we do for other social determinants of Health and then briefly I'll go into a little

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bit of discussion of you know some things that we can do as clinicians um what are some of the response

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strategies that we can have and obviously I'm not going to be able to go into that into too much depth but hopefully just to cover briefly that

35:50

here so I mentioned earlier about how networked health communication uh puts

35:56

all the stakeholders in the same room this can lead to a lot of miscommunication and misunderstanding because a word used in one environment a

36:04

word like septic for example means a something else in amongst other communities and I think we saw this with

36:11

the pandemic when people were talking about a micron being mild and it was arguably mild from an epidemiological

36:17

population Health perspective but then people interpreted that as well it's going to be mild if an individual gets

36:23

hit and that was clearly not necessarily the case um our infectious disease epidemiologists we see them as

36:30

working in this space and I our infectious disease epidemiologists we see essentially as the field epidemiologists for infectious disease

36:36

response where they are engaging kind of on a as a part-time part of their time

36:43

being kind of community embedded working in online communities as Liaisons between experts who have the information

36:51

and their community they are doing community oriented motivational interviewing which is an

36:57

adaptation of motivational interviewing that we are engaging in to adapt it to these online community spaces

37:04

because motivational interviewing there's a lot of uh a lot of Empirical research showing that this is often some

37:09

of the best ways to engage people to understand where they are on the spectrum of behavior change and if they

37:15

are in a stage where you can engage them then working with them to understand kind of the barriers to resistance

37:22

we also argue that infidemiologists are probably going to be most effective if they have a network where they can share

37:28

information with other infidemiologists about what misinformation is circulating in their communities so they can share

37:34

kind of effective responses to it and also share it up the hierarchy within the Public Health Community so that

37:41

people higher up the chain kind of can leverage resources necessary to try to

37:46

help Tamp down on epidemics of misinformation that seem to be essentially going viral

37:53

so who could be an infidemiologist we argue essentially any healthcare worker could community health workers GPS NPS

37:59

Public Health Department officials Specialists societies we've been working with the American physical society and

38:07

we've been working with um uh the American Board of internal medicine as well

38:12

um trusted Community leaders and potentially Someone Like You

38:18

so if this would be interesting to you please don't hesitate to get in touch we see our infidemiologists essentially

38:25

as mediators in this network's communication space translators ambassadors kind of there's a number of

38:31

different ways that you can think about the work that they do but essentially trying to help make sure that uh these

38:37

conversations in these in these Chambers where everyone is talking to each other to help make sure that misunderstandings

38:43

don't happen nearly as frequently so we we also make the argument that

38:49

it's important to screen for information environments at the point of care so these include questions like where do

38:55

you get your health information so the patient I had with ehlers-danlos syndrome this is a question I put to her

39:01

specifically and she walked me through kind of where she got a lot of her health information and it it revealed that she was getting

39:07

a lot of her health information from people that she thought very highly of because they had won this award or that

39:14

award or worked at some famous Medical Center um and what I did is I walked her

39:20

through kind of some of their profiles on quackwatch.com to show them show her

39:25

that that I I understand that you see these are trusted sources but but I'm I'm worried that some of the information

39:31

they they are promulgating might not actually be in your best interests so we

39:36

can ask questions about where do you get your health information how do you saw how do you decide what or who is

39:42

trustworthy how do you sort between good and bad information we as Physicians we don't just have

39:48

knowledge right because people can get Knowledge from Google what we have is we have a framework for making kind of

39:55

clinical decisions and our clinical decision making framework of pre-test probability likelihood ratio and

40:01

post-test probability is something that in the work that I've done with communities that uh that are suffering

40:09

from contested illnesses this is often one of the biggest misunderstandings that I find is that there's a certain

40:15

illusory truth effect by hearing things over and over and over in the epistemic

40:20

bubbles that they are sometimes existing in in these disease communities where they are sharing a lot of this

40:26

information um and it just gets absorbed it's not necessarily a conscious process of I'm

40:32

now going to believe this information but this is something that we as Physicians try to be very careful about

40:37

to decide between a good and a bad paper that is published in the medical journal that's something that we're trained to

40:43

do and this is something that we can have conversations with our patients not necessarily to go in depth on kind of

40:49

you know Journal Review or inviting them to journal clubs but just to to help them understand that that there is a

40:57

difference between a good or a bad paper and that's an important aspect of of information literacy and science

41:03

literacy so the goal ultimately in some of these conversations is to understand someone's

41:09

individual predisposition their exposure to toxic information and their access to

41:14

high quality health information and I do make the case this is not something that every provider needs to do with every

41:19

patient just like you know if you're working as a provider in a primary care clinic you might not necessarily have

41:25

the time to ask someone about their alcohol content but the people that you're working with the nurse or the M.A

41:30

might might screen for that and let you know when it turns out your patient who you might not have suspected is is

41:37

drinking 30 to 40 beers a week that's the kind of thing that you would want to know and then you put it on your list as

41:43

something to intervene in this is also something that we can start to do at the point of care and I talk a little bit

41:48

more about this in this commentary so what are some of the techniques that

41:54

you can use for communicating on contentious issues because they think this is something that is worrisome for

41:59

providers so first the evidence for motivational interviewing is very strong

42:05

um it the empirical evidence is primarily in the in the vaccine hesitancy space but there started to be

42:11

more and more uh a empirical uh papers to study this in other contexts related

42:17

to misinformation there's also the argument that we should acknowledge complexity and Nuance that's

42:23

usually something that our patients understand too and we can retain trust

42:28

even about extremely contentious political issues by emphasizing our role as a clinician

42:35

trying to work with the patient to figure out what's best for them in their unique circumstances this is what helps

42:42

us leverage the trust that people have in their providers and for more work on this you can read some of the work

42:48

that's done by our node gun Yar at the University of Sherbrooke he's done a lot of work on motivational interviewing and

42:53

vaccine hesitancy and Lisa Martin who's an OB GYN at Michigan who's done a lot of work not all of it published but a

43:00

lot of work looking at how providers can talk about the contentious issue of abortion even in situations where it

43:08

seems highly polarized so one other approach that the World

43:14

Health Organization has advocated is specifically trying to understand some of the uh structures that people use in

43:22

science denial techniques and um patients that come into our clinics I think often not necessarily because they

43:29

are science denialists but because they are in circles where they're reading information online getting information

43:36

from what might be dubious sources there's a certain amount of adoption of some of these techniques and so we hear

43:43

them in the clinic and in clinical settings even if people don't necessarily recognize that these are

43:48

common anti-science tropes but we can start to hear them because you know

43:53

people say things like you know I prefer natural products or Farmers just out to make money monkey pox isn't a big deal

44:01

sometimes people say that or you know I heard the diabetes you know it's more the the medications are more dangerous

44:07

than the disease medications don't work for me government just wants to control you people get horrible side effects

44:14

Gates is trying to track you and we can put these into categories where people are often worried about seeing larger

44:20

picture maybe it's the threat of disease maybe it's the idea that there might be Alternatives trust the effectiveness of

44:28

certain things and safety and we can put these concerns that they have in these

44:33

larger bucket categories and try to address those specific categories but

44:38

first we also need to identify the technique in which they're saying these uh concerns these can be things like

44:45

conspiracy theories sometimes there's selectivity cherry picking certain papers that kind of lean them towards a

44:52

specific perspective fake experts this is something that we often find in the anti-vaccine space with Wakefield is

44:59

probably the the best example then there's also misrepresentation and false logic this is where our our role

45:07

as Physicians can help in the way that we think through clinical decision making we can walk people through our

45:12

thinking and see that there's a certain amount of false logic there's also sometimes impossible expectations

45:18

um I think I see we've seen this a lot with the vaccines where people talk about oh the vaccines don't work

45:24

um where the expectation was that that the vaccines were going to stop covid in its tracks and and covid wasn't going to

45:31

be an issue anymore it's like well they've saved many many lives um uh just because they're not super

45:38

effective at blocking all transmission does not necessarily mean that that they are um uh they have failed so if we

45:47

choose a response to the technique and we choose a response to the topic this helps us design our answer

45:54

now there's obviously there's a lot more on this this is just a a very broad overview of some of the the tricks and

46:01

techniques that you can use in clinical settings more of this has gone into kind of in the report that the World Health

46:07

Organization wrote in their from their European office on best practice guidance on responding to vocal vaccine

46:13

deniers in public we have found this to be helpful not just for vocal vaccine

46:18

deniers in public but often in discussing misinformation in general even about other topics that have no

46:24

relationship to vaccine and even in one-on-one conversations so just to recap

46:31

our goal today was to to Define misinformation was to talk about how we we can move from message based to

46:37

networked health communication and how this requires moving from message based to environmental models of

46:44

information health and how ultimately this I think this can help us operationalize an information

46:51

environment framework to broadly address medical misinformation point of care

46:57

um with that um I I put my email address on screen I'd be more than happy to continue this

47:04

this discussion um with folks that want to get in touch and um I look forward to your questions

47:13

great thank you so much um and everybody feel free to put questions in the chat or raise your hand

47:19

if you um if you wish um Dr Del Rio I see you're hand raised

47:24

go ahead and unmute yeah thank you David that was great I mean my only question to you is you know your your premise is

47:31

almost like we Physicians are not spreading misinformation which is a solution when in fact we're frequently I

47:37

mean there's a group of Physicians not many but they're out there who are actually spreading this information who are the ones that are fueling this and

47:45

many of them have been uh you know they've been sanctioned by the awards the abim is looking into what else to do

47:51

but but I think we need to talk about what how to deal with colleagues that are that are spreading this information

47:56

and how what's the best approach there I completely agree

48:02

um I know uh the American Board of internal medicine and a number of other Medical Specialties have been talking about

48:09

um essentially revoking uh diplomats from very egregious spreaders of this information so that's one thing that's

48:15

been talked about um I also I've been there's a piece that I'm working on trying to publish right

48:21

now that is talking about kind of when I mentioned how we got here there's a certain sociological aspect of how how

48:29

scientific facts are created and that tends to be a socially mediated process I think one of the things that we're

48:34

finding is a lot of Physicians are engaging in in debates and discussion on social media that are completely

48:41

legitimate scientific debates but the problem is those debates because they're happening in public can very easily get

48:48

co-opted by political actors and I think one of the things that we need to do as a profession is

48:56

recognize when the debate that we're having is happening in public because that is not necessarily

49:01

something like well debate is super important for science having having a debate in public about

49:08

scientific topics that are extremely uncertain and highly politicized does not necessarily lead to increased trust

49:14

in science and I would argue tends to increase uh misunderstandings and misinformation and is very easy for

49:22

someone a scientist that's just trying to have a scientific debate to be co-opted by political actors

49:28

I agree 100 thank you no agree as well um communicating Nuance

49:34

is something that I think that's really um difficult for the public to understand often at least seeing this in

49:41

my own family um Dr law yeah thank you Wendy and thank you Carlos I think you guys set me up well

49:47

for my question David thanks for being here um there you know as Physicians and

49:52

scientists there will always be uncertainty um and I find that many times the areas

49:58

not only of nuance but especially uncertainty are the places where misinformation really takes hold

50:05

um autism is a great example where I think families are looking for answers about what caused this problem and I

50:12

think we in the scientific Community can't answer that yet similarly in the early phases of the pandemic there was

50:20

so much unknown and uncertainty that we as a scientific Community didn't have scientific answers to and that then

50:27

leads to the um that that offers the opportunity for misinformation to really take hold so I'd love for you to speak a

50:34

little bit if you could on how you might recommend that we discuss the concept of

50:40

uncertainty with patients um perhaps in a way to help them help

50:46

build relationships where we can continue to have conversations about misinformation

50:52

um thanks for that question that this is a topic that I'd love to talk about because I think this is a crucial factor

50:59

that is not always addressed when we're thinking about why misinformation spreads and what we need to do to

51:05

counteract it the sociological literature on this is is mixed there's a

51:10

lot of different factions on this um briefly I'll just tell you about one

51:15

so uh so hofstede he was a sociologist in the 60s that looked at

51:20

um business cultures at IBM and he kind of separated cultural values that came out of

51:27

um the the the hundreds almost 100 000 surveys that he did across 50 different

51:32

countries to separate out different cultural values um these are things like power distance

51:37

how important are hierarchies um uncertainty avoidance which we can think of essentially as a tolerance for

51:43

ambiguity and other aspects some of which sound really dated he talked about like masculinity femininity which sound

51:49

weird to us now but you could essentially think of as as a little bit of a you know stiff upper lip culture

51:55

versus a nurturing culture and there's a number of others uh there's a lot of other kind of cultural Frameworks

52:01

Schwartz has one there's a lot of other people that have different Frameworks but I like hofsted's because the

52:06

uncertainty avoidance in power distance have come up in a lot of of medical studies so mostly in Europe though and

52:14

this is actually have been shown to be extremely important when it comes to antibiotic decision making because

52:20

based on surveys that they've been doing for well over 20 years countries that have high rates of

52:27

uncertainty avoidance and high power distance have higher rates of antibiotic

52:32

prescribing antibiotic seeking Behavior by patients and antibiotic resistance

52:38

and the scary thing is this stuff is deep it generally kind of tracks along the Protestant Catholic line between

52:44

northern Europe being a lot more a lot more comfortable with uncertainty and having flatter hierarchies in southern

52:50

Europe having a much more hour distance kind of more rigid hierarchies and much

52:56

less tolerance of uncertainty now the challenge with this is if you're doing any sort of you know Behavior change

53:03

modification around antibiotic prescribing you need to be taking these

53:08

cultural factors into account there's also been some fantastic work that looks at these cultural differences between

53:14

Medical Specialties looking at how surgery tends to be on the spectrum of uncertainty avoidance and so it tends to

53:20

not follow antibiotic guidelines on the perspective of of both the uncertainty

53:26

avoidance and the relatively Rigid power hierarchies Within surgery asmita

53:32

sharani is a woman who who has written about these and I put

53:38

her name in the chat she's at University College London um so there's been a lot more social

53:45

science work on uh on this specifically at the intersection of antibiotic

53:51

prescribing but I think we can extrapolate to see that this is a larger problem in medicine in general and it's

53:56

a cultural one and so it's not necessarily the easiest to address one of the things that I try to do is in

54:05

situations where I recognize there might be some uncertainty uh differences in terms of uncertainty tolerance between

54:11

my tolerance for uncertainty and my patience tolerance for uncertainty I usually try to find some way to offer

54:19

certainty even if that's certainty of process where someone walks into a clinic with with you know saying that

54:26

they have Lyme disease and they're coming with you know a a three inch binder of all the tests that they've had

54:32

previously and I I and a lot of of clear anxiety about their disease I don't

54:38

necessarily I try to be careful to not dismiss them as just being anxious or kind of having medically unexplained

54:45

symptoms but but they're kind of can't be reassured there's a lot of pejorative terms that are in the medical literature

54:51

for this type of essentially what I would argue is a discrepancy between the physician's tolerance of uncertainty and

54:57

the patient's tolerance for uncertainty and then I start to work with them to try to essentially walk them through

55:02

what I'm going to do to make sure that I look under every stone and I am going to

55:07

be I'm going to know your chart better than anybody else and that doesn't mean that I'm going to find an answer but it

55:12

does mean that that we're going to talk to everyone that we need to talk to to try to get as close to an answer as we

55:18

can in some situations patients find that comforting in other situations not

55:23

having that diagnosis is still very discomfoting for patients um and that's something that we can we

55:29

can work with but at least we've done what we could to try to find as much certainty as possible yeah thanks I think that term certainty

55:36

of process is helpful and I we I think we've definitely all seen that at least

55:41

if we can't provide the scientific answer a certainty of process and and

55:46

and building trust through that um is is one Avenue to pursue yeah thank you so much
55:53

there are several great questions in the chat that we won't have time to get to all of so
this is going to be sort of

55:58

the rapid fire round um so um our residents are asking a couple of things

56:04

um do you have any guidance you talked really about the infodemiologists being what I
almost call what I think of as

56:10

trusted Messengers uh do guidance though on how to approach medical mistrust from
56:15

marginalized groups when you're at the bedside you don't have that Community person
that is there to sort of help you

56:21

and um also from them um uh so not only at the bedside but

56:28

then how about with open notes and the communication of uncertainty there sure

56:33

thanks I'll actually start with the open Notes question because the short answer that I
would say is I don't know how

56:39

this is going to affect um what I would say is so you know Facebook instituted its share
button in

56:45

about 2011 2012 and that turned information consumers into information producers
right and we only started to

56:53

see the knock-on effects of that well after that Twitter introduced its retweet button
around the same time so

56:59

it completely changed the network architecture of how information was transmitted
what we've seen is open Notes is relatively new what impact this

57:07

is going to have I can't be certain but I'm concerned because it's it's changing the
network architecture of how

57:13

information is transmitted um and so I think we're we have yet to see the full impact of
what OpenNotes is

57:18

going to be doing um on the question of um how we can kind of engage a lot of

57:26

the work that I've done with Muslim communities um I've before the pandemic hit I I did

57:31

a lot of global Health work a lot of work with refugees and a lot of that work um when I
would be working with Muslim

57:37

communities and found myself at an impasse I would I would often ask directly I would say is there someone

57:45

that you trust that you talk to about some of the medical decisions that you make sometimes that was another family

57:50

member sometimes that was in Imam and I would say would it be possible to bring them into this conversation and and

57:57

usually I find that a very helpful uh place to go it's not always possible

58:03

um it depends on kind of the level of trust that you have kind of at that time this is something that's definitely easier if you have an ongoing

58:08

relationship with a patient than as a hospitalist but it's something that I I try to ask that question directly and it

58:15

and acknowledge the fact that like they have reasons not to trust me they just met me but let's try to have a

58:21

conversation and bring the people who influence you into the room so we can at least kind of put all of our information

58:26

on the table and and try to discuss how we're going to make this decision is this going to be a values-based decision

58:33

is this going to be essentially an identity based one or is this one that we're going to make with the best evidence that we have available

58:39

because that's my job I can bring the evidence to Bear but sometimes you need the values person in the room

58:46

that's a that's a really nice thought um we are at the top of the hour and so I think we have to close sorry doctors

58:53

Dressler and Henry who also had fantastic questions um in the chat but thank you so much Dr

58:58

scales this was a a really interesting sort of approach dive into thinking

59:04

about this problem of misinformation I I'm afraid we'll never get the genie back in the bottle but uh but it at

59:11

least gave us some ways to think about um moving forward

59:16

thanks again for having me it was a pleasure to be here please don't hesitate to get in touch if you have any questions

59:21

great thank you