

# Can Science Be Trusted? Findings from the Wellcome Global Monitor Report

Imran Khan: Um, before I dive into the results and signed what you've been waiting to hear about, what does it give you? A bit of background on who welcome all and while we've conducted this survey, welcome is the world's second largest a child charitable foundation. We exist to help improve health for everyone by helping great ideas thrive. We fund scientists, we support researchers, we back priority areas, uh, like planetary health, like vaccines, uh, like, uh, improving diversity inclusion in science. Um, but we know that if it's health that we care about, if it's improving health, it's the ultimate goal. If we only care about the science, we're really missing a trick. If we don't think about how that science is perceived, how that site is used, how that site is accessed by the people that we ultimately just a benefit, that we're not fulfilling our responsibility or making the most of our opportunities.

Imran Khan: So that connection between science and the public and health, uh, that's really crucial to, to us and, and, and indeed to our mission. The problem is that most of the research has been done about that connection has largely taken place. In what we call the global, uh, uh, the rich west or the global law. There's tons of studies, uh, play slot here in the US or in the UK or in the European Union, some elsewhere as well. Like Latin America is the barometer there. But we've up until now lack to real global picture of how do people think and feel about science and health. Um, and that's what we wanted to solve. We wanted to say, ah, let's, let's take that snapshot. Let's build that data set so that everyone around the world who can benefit from health, um, we'll hopefully have the chance to do so. Um, I'll start, I'll dive straight into the results.

Imran Khan: I don't know if you, um, you know, but we've had a small issue in the UK over the past few years. Um, it's called Brexit. Um, and one of the questions that's, that's kind of really framed, I think almost all the political debate in the UK in the past year since then has been this question of trust. Who Do people trust? Do they trust experts to, they trust scientists? Where do they go for facts? Um, and it's, I guess it was posed a bit of a crisis of confidence for many institutions and in particular institutions that rely on science and facts and evidence to, to, to achieve what we want to do in the world. So we wanted to, to ask, do people trust scientists and if so, to what extent and where? Um, so we asked people to range of questions. We ask people, do they trust scientists to do their work for the public benefit?

Imran Khan: Do they trust scientists to find the accurate information? Do they trust corporate scientists or academic scientists? More a whole range of different questions about trust and, um, and then we can pose an index out of that and, and uh, and gay people a score of one to four, depending on how they answered the question. And what we found over all around the world, I think is relatively encouraging. That if you look at the people that have moderate to

high levels of trust, it's 72%. So nearly three quarters of people around the world and pretty positive about scientists and the work that scientists do. Um, you may be thinking science is worldwide, but language is a very fragmented and people come from different cultures. How we'll start question perceived and we have the same concern when we were asking the question. So one of the things we did with our partners, Gallup was try to make sure that when we asked this question, people were interpreting roughly the same thing.

Imran Khan: So we gave people a definition of science. Uh, we said that science is the understanding of the world, including of the earth, nature and medicine, that we have some up from observation and testing. And clearly that's an incomplete definition. It doesn't include the idea of science as a process or as an institution or as a community of people. But in the multiple definitions of science, we tested, this is the one that seemed to stick the most and be the most universally understandable. And we did this almost everything in the surveys. So this survey was done in over 140 countries worldwide. Many different languages where they've hundred 40,000 people. And this process of testing how things were perceived before they were answered was crucial to how we, um, how we got the results. Um, obviously the thing that's most interesting is the regional breakdown. Uh, and what we see here is how that pans out across the world.

Imran Khan: You've got that global figured out at the very top. The 18% of people have high trust in science, 54% have a moderate level of trust in science and, and then it breaks down. And you can see that, um, there's an interesting regional breakdowns. So if you look at, for instance, Northern America, 26% of people over a quarter, so the northern Americas, the u s and Canada have high trust in science and um, uh, it's even higher in Central Asia, 30%. And Northern Europe it's 33%. In Australia, New Zealand it's 33, but there are other regions in the world where the figure is much lower. So if you look at the light blue bar, those are the people at least trust in science and Southern Africa. That's 30% central Africa, 32% South America, 30%. So though there is this global good news story, it really isn't a kind of, um, a simple story of saying, right, we can pack up and go home.

Imran Khan: We need to look at where this is happening. Um, interestingly, if you want to know the, the absolute top countries for this in as Pakistan, 54%, five, four send that people had high trust in sites that was the highest in the world. Belgium and ticket Stan, 42 percents a second. We were particularly interested in what happens in countries that invest in sides. So there's a, a UNESCO reports, uh, I think a few years ago that found that 72%, so nearly three quarters of all the scientists in the world live in a big five country, big five being, uh, China, the US, Japan, Russia, or the European Union. So we wanted to know, does trust in these countries trust insight as to, is it different from trusting the rest of the world? Uh, and there's two ways of looking at this. If you look at a high trust figure, if you live in a big five country, 20% of people have high trust in scientists.

Imran Khan: Uh, and if you don't live in the big five country at 17%, so not an appreciable difference. Where we do see a difference is in low trust. So in, in a big five country, only 90% less than one in 10 people report low trust in scientists. But in the rest of the world, that rises to 17%. And of course we see variation from within these big five as well. So we find that in the U S and European Union, a quarter of people have high trust and scientists. But in Japan it's 11% so less than half than maps. Um, but UK, despite the kind of the concerns that I think scientists and in our country have is pretty good. It's one, it's one of the highest in the developed world, 35% of people reporting high trust in scientists. But we wanted to know not just where this variation was but why it might be there.

Imran Khan: Um, so our friends at Gallup constructed a, a regression analysis for us are trying to understand what are the factors that predict high trust or low trust. Um, and I want to show you a little bit of what that found. Um, this is a communications access index. This just ask people, do you have access to the phone or do you have access to the Internet with your access to both? And what we found is that the more likely ours have access to uh, one of these communications technologies, all other things being equal, the higher your trust in scientists work was one of the stronger ones we found on this. We'll science education. So the higher your levels of science education, the more likely you are to trust scientists. And again, that's perhaps an unsurprising, but I think important and reassuring finding and what you see on the left there is that trust and scientists index.

Imran Khan: So the whole range go from a minimum of one to maximum of four. So you can see the, the type of difference that having access to medications has. And it was similar for science education, but I think one of the most fascinating results in the entire survey for me was this one. This is the Gini Index. So if you haven't heard the Gini index, it says a measure of economic inequality within a country. So if you have a low c low gini score, that's towards the left of that you're a country with very little economic inequality. So there's not, as, there's not much difference in the richest and the poorest people in your country. So think of places like Denmark, Sweden and Norway, the Scandinavian countries that are typical of countries on the left there. Um, the companies on the right, think of countries like South Africa, Chile, or the United States, very high levels of inequality between the richest and the poorest in those countries.

Imran Khan: And what we find is that again, all other things being equal, if you live in a more economically unequal country, you're less likely to trust scientists. And this is a finding we found again and again in the survey that while the traditional story about science is that it's a independent from society, it's free of the constraints of the most of what goes on. It's universal. It has no borders, no, no boundaries, their nationality. What we find is that the way people think and feel about science is really heavily influenced by that person and social context in a way that science doesn't necessarily touch. And that'll become more apparent as we go through.

Imran Khan: I should say that a while we, um, uh, while the findings are shared there about trust in scientists, we also asked about trust and health care trusts and hospitals for us in doctors trust in governments and there's a section on there in their port and we have got copies outside if you want to delve into that. And obviously it's online as well if you want take a look. Um, a related question is, is who benefits from science? And again, um, there's an interesting narrative we always have about science that it's one of those universal public guts that saw the work that scientists do benefits everyone everywhere, regardless of who they are or where they're from. Uh, we wanted to see regardless of whether that's true or not, do people think it's true to people feel it's true. Um, so we have two questions. One was, do you think the work that scientists do benefits people like you, and again, globally, there was a really positive result here.

Imran Khan: 69% of people said yes. When we asked that question, over two thirds of people think that the work that scientists do benefits them and only a 20%, one to five say no. Um, but again, the regional variations really interesting here. So Northern America, 83%, that's one of the highest slightly behind a Australia New Zealand with 84% responding. Yes, that was the highest. But again, we've got some regions of the world where significant numbers of people are saying no. The work that scientists do does not benefit people like me. Um, South America was the strongest one there, 39%, nearly one in four p uh, sorry. Nearly 40% of people, uh, saying that the work side is who doesn't benefit. People like me, we have to similar but slightly distinct question. Do you think that the work scientists, scientists do benefits most sun or very few people in our countries?

Imran Khan: This isn't about you. This is about other people in your country. Um, and you can see that global breakdown at the very top there. So 41% people say, most people in my country, uh, about a third say some and 15% say very few people in my country benefit from the world of scientists do. And again, an interesting regional variation where you have um, uh, northern America, Australia, New Zealand, southern Europe, northern Europe, uh, these are the countries where they feel most included in the benefits of science, uh, versus places like South America. Again, over a third of people, 37% of people saying that the work scientists do benefits. Very few people in that region. And when you put these two questions together, this is the picture you get. So if you answer positively to both of those questions, uh, so scientists, the work, the scientists, you benefits people like me and it benefits.

Imran Khan: Most people in my country, we call to a science and DC asked and globally, that's the biggest single group. Um, there are more people like that than anywhere else. Anyone else in the world, over 30 people are enthusiastic about the benefits that science can bring. That's a good story. The bad story is the, is the flip side of that chart on the left. Uh, the skeptics were people who said no to both of those questions. And the excluded were people who said that scientists that science benefits other people in my country but not people like me. Um, and if you put those two together, it's 19% and nearly one in one in five people, one in five people in the world say to us and this, so they, they feel

disenfranchised from science. They feel not included in science. They don't feel the work scientists deep benefits them or the people in their country. And I think, uh, all of those who work in research and work at sites that should be a wakeup call on it should cause us to, I think pause and consider, um, who, who benefits from the work we do it. And why did they feel that way?

Imran Khan: And why is this important? This is another finding. If you're one of those people that think that science, the word scientist who benefits the most people in your country, your six times as likely to have high trust in science than if you think of benefits. Very few. So again, if trust in scientists and something we want to work towards that question, who benefits, where are they, why did they think they benefit and what paths or stopping the benefiting is really crucial. We want to have a special focus on gender. Um, it feels like it's an issue that within the scientific community we're finally grappling with and taking more seriously if we wanted to know how it happened, how it works in the rest of the world, um, on this, so that we didn't ask, uh, peoples, we didn't, we didn't test people's sides knowledge. We didn't give them a science quiz though we didn't have a way of actually testing their scientific knowledge directly. But what we did do was ask them to self report their sites dollars. We wanted to ask them how much do you think you know about science? And what we found was really interesting, the headline finding was that around the world men are 11% more likely to claim they know a lot or some about science than women were.

Imran Khan: Here's the regional breakdown. So globally, the 11% figure is there at the very top. Um, the region that had the biggest gap, the region where men were, mo, mo most likely to have a gap that was actually northern Europe. So where I'm from, men in northern Europe or [inaudible] 17 one 7% more likely to report high science knowledge than women are closely followed by South Asia and East Asia at 16 or 15% the regions will have the lowest gap where Southeast Asia and the Middle East 3%. So almost no gap whatsoever in self reported science knowledge. And of course there's a few potential reasons for this. It could be that perhaps, uh, women are under confident and reporting sites knowledge. It could be men or overconfident and reporting sites knowledge. It could be the men generally do know more about science. And one potential way of testing that is to say is to look at levels of education.

Imran Khan: If men have more sort of science education than women do, that's a problem. But it might be an explanation for why we find that figure. So we tried to test that. Um, and we found that for every type of educational level, men were still more likely to report science knowledge than women wear. So this is broken down by primary, secondary and tertiary education. That gap persist however much education people have. Um, so I'll leave you to, to perhaps have a guess about what the driver for the, uh, the figures if it's not actual levels of scientific knowledge.

Imran Khan: Um, finally, uh, one of the standout bits of the report was attitudes to vaccines. Vaccines have one of those, uh, bits of science and bits technology that almost

everyone in the world is touched by at some point in their lives. It's, it's kind of, it's, it's one of those rare, totally universal touch points with science. We wanted to understand people's perceptions of, and obviously it's also an issue that's had tremendous attention devoted to recently particular terms of vaccine skepticism. Um, it's also a priority area for welcome is one of the areas we're investing quite heavily in as a way to grapple with both emerging and current infectious diseases. So we wanted to understand how it's being perceived. We asked a few questions, we asked do people think vaccines are safe? Do they think they're effective? Do they think they are important for children to have?

Imran Khan: And if there are parent, do they try and make sure that their children are vaccinated? Uh, and here's what we found globally. 79% of people, so they thought vaccines were safe, slightly more. 84% said they think the vaccines are effective, slightly more again, said that they would have their children vaccinated. And while those are encouraging figures, it's important to recognize that for disease like measles, because of the infection dynamics, you actually 95% coverage within a community or a population to ensure that you don't get to potentially lethal outbreaks of disease. So the global picture is encouraging with room for improvement. Um, but again, it's where the regional breakdown comes in that think things get really fascinating. Um, the overall picture of the overall trend do you see from this is that if you live in a high income country, you're less likely to think back into safe, then you can live in a low income country.

Imran Khan: Uh, so the yellow bar is the people that strongly agree with those statements. Dark blue is somewhat agree and then it goes on from there. And we find that the, the regions have that at the highest number of people that strongly agree. Our Eastern Africa, 81% South Asia, 85% western Africa, 75%. The areas where the fuse people strongly agree, um, jump out immediately. You've got eastern Europe, only 37% of the people in Eastern Europe strongly agree. The vaccines are safe. Western New York, it's 36%. Um, if you're interested to know for the u s figures, uh, 48 to four, 8% of people in the UK, uh, sorry, USA, uh, strongly agree that vaccines are safe and an additional 24%. Somewhat agree. Um, if you wanted to know which of the countries that stand out most here, here are those three questions. The three primary questions broken down by the top five, uh, disagrees for each of those.

Imran Khan: Um, I think one of the most standout figures and the entire survey for me is that very first one, France at the top, one third of people in France disagree with the statement that vaccines are safe. One in three in Gabon, it's 26%. Togo, 25, Russia, 24 and Switzerland still 22% disagreeing with their statements either strongly or somewhat. Um, again, we've got a number of countries. There were surprisingly hives for us proportions of people are disagreeing that, that things are safe and effective and important the children to have on the side. These are the countries where the opposite was true, where the highest number of people said that they thought vaccine for safe, effective and important children's have Bangladesh, 97% Egypt nights, 10% agreed with vaccine to safe Rwanda. 99%

agree that vaccines are effective. And a number of countries where almost everyone agrees that vaccines report for children to have.

Imran Khan: Um, while we're on this though to instinct, uh, things that came out of Rwanda is one of the countries that jumps out on this, uh, finding 90, 99% agree that effective it was the top score in another one of the questions we asked, we asked questions about do people have confidence in the healthcare system? And the underscore, the 97%, 97% of Brandon's, uh, have confidence. The healthcare system, there's only seven countries worldwide that height and seven, they'll have higher than 90, 90%. Uh, and Rwanda with the highest of them all. And it's also, uh, an outlier on this, uh, uh, school here. France was the highest score on disagrees with vaccines. It was also the country in the world has the most negative sentiment about the likely impact of cites technology on jobs. It was the only country in the world where more than half of people in our country, uh, thought signs that have a net negative effect on jobs in their local area.

Imran Khan: So they're seeing a lot of the connections between the different questions we ask here. Just to wrap up and to bring us back to the beginning where we started, I want to finish on trust view. Overriding trend on vaccines is this one about if you live in a high income country, you've got less trust in vaccines and if you live in a lower income country, but there are some trends that run contrary to that. Uh, we found that if you have more trust in your government, you're more likely to trust vaccines. If you have more trust in your health care system, you're more likely to trust vaccines. And if you have more trust in scientists, you're also more likely to trust vaccines. So these are our country's broken down by their economic levels. So we've got low income on the left and high income countries on the rights and the charts show the perceived levels of vaccine safety within those countries.

Imran Khan: And what we find is that the more you trust scientists, if you have a high level of trust in scientists are scalable, you're more likely to agree that vaccines are safe and that relationship is strongest in high income countries like the one we're in now. Um, so trust doesn't exist in a vacuum and size doesn't exist in a vacuum. What we found through this report is that those linkages, there's interlinks between how people feel about sites and vaccines and governments and their personal economic situation. Um, and that's one of the core findings. I've only scratched the surface. We asked about a whole bunch of stuff, which I have not had time to mention here. We asked about people's religiosity and whether they think their religion disagrees with science, and if so, who do they believe? We asked people about their confidence, uh, and the impact of technology on jobs. We asked about whether they trust the traditional healers or doctors more. We asked about whether they lived in a city or the countryside and how that affected their response and broken down by age. We hope you'll tear into the data. We've released all of it publicly so you can pick a copy's outside, you can go on the website, you can go into the datasets and construct analyses and tell us what you



Imran Khan: find. Um, but what we hope is that this will be a wake up call for the whole of the research community to, to look again at the relationship between science and society and recognize that if we want like welcome, um, to improve health rule and we see signs of root for doing that, we need to engage with the site and we need to look at how these links work in practice. Thank you

Speaker 3: [inaudible]

Imran Khan: and I'm getting by Olga and the rest of our panel up for the panel discussion.

Olga Khazan: Thanks everyone so much for coming and thank you so much for that awesome presentation. Um, so, uh, you just heard from Imran Khan from the welcome, the welcome trust. Um, and I'm also joined by Mark Dybul from Georgetown University and Mary Woolley from Research America. Um, and I was looking through these slides last night on my computer in my little hotel room and I was going, wow, like audibly every few minutes because some of the, these are really, really astounding and they have such huge repercussions for measles, which is surging in the u s and so many other issues of, of a Po in public health. Um, so I want to just dive into some of your findings. Um, can you kind of go into the income component a little bit more because it looks like, so the Gini Coefficient, which is how, how an equal a country is that, um, it seems like it causes less trust in science, but then it looks like some really high income countries like France, uh, don't have a lot of trust in vaccines. So what's going on there?

Imran Khan: It's, it's really fascinating again, and what we see is that, um, the different trends running often run in opposite directions. So again, the vaccines one is a really interesting example of that where the, the global overall trend is that, um, higher income countries have less trust in vaccine safety. And we can talk about what the reasons why that might be. In a, my personal theory, it's the complacency effect that because we live in countries that have successfully wiped out these diseases, we just don't see the other effects as much. Uh, and therefore perhaps for cats how important vaccines are. Um, but within the overall trend, we also see some one countervailing ones that within that group of high income countries, the countries that have higher trust in scientists also have high trust in vaccines. Um, so an interesting example of that is Japan. So we saw her in the, in the results of the big five countries, Japan had the lowest level of trust in scientists.

Imran Khan: Only 11% of Japanese people, uh, had a strong trust in scientists. And Japan also stood out as one of those countries that has the lowest confidence in vaccines. So, um, with all of the stats in the survey and all of the trends, that kind of a caveat, I'd always gave his all other things being equal. So all of the things being equal here is the effect. See, based on these different things, economics is really fascinating. So we found a couple of issues where, um, your economic status within a country really colors your perspectives as we found that if you're struggling to get by versus living comfortably, you have lower trust in scientists.



Um, we also found the same with health care. So people are struggling to get by within the countries, have low confidence in the healthcare systems and interestingly, those preserved across all types of countries. So basically poor people in rich countries have, roughly speaking the same level of competence in the healthcare system as poor people in poor countries. And Converse is true for Richard People. Uh, which might not be the thing you'd initially suspect.

Olga Khazan: Hmm. That's so interesting. You mentioned complacency. And it's also interesting that the, correct me if I'm wrong, but the countries that have a lot of trust in vaccines still are, uh, countries in Africa where maybe they've seen some of the diseases that are preventable by vaccination, you know, within their lifetime. But in the U S it's been awhile since we've seen, you know, measles kind of being widespread. So

Imran Khan: absolutely. Um, and I guess, you know, against the completion, it's important to recognize that, um, the specters on vaccines and things like that, tinned skepticism, vaccine hesitancy, they're not the only, um, uh, issue to bear in mind when it comes to a vaccine take up. We've got everything from kind of the efficacy of healthcare systems to conflict zones in all this kind of stuff I should say in the audience. We've got Heidi lost and he runs the, um, the vaccine confidence project, um, who, who looks this kind of stuff as well. And if you're into this kind of stuff, I'd really recommend looking at the vaccine contents project. We used some of their questions in our survey and, and gets the heart of, of, of what you're asking about.

Olga Khazan: Right. Well, and, and marry that ties into some of your research where your organization found that trust in vaccines is actually going down. Is that just in the u s or is that

Mary Woolley: in our, so I'm from research America and we're a nonprofit alliance of, of patient groups, industry, academic institution and scientific societies. And one of the things we do is commission public opinion surveys. So we've seen some alarming trends over the last 10 years, uh, with 10% or more decline on, uh, the responses to questions like, um, uh, would you say that vaccines are very important to the health of society? And we've seen that gone down from 80% to 70% over a 10 year period. And this is us only it's stress. Um, we've also seen a alarming decline in the percentage decreased 16 percentage point decrease in those seeing, they feel that that vaccines have personally benefited them from 75% to 59%. And I remember when we had the 75% finding, we thought, why isn't this a hundred percent, but now it's just cratering. Um, and this is by the way, this is from 2008 to 2018 so it's before the surge in measles has gotten so much attention in this country. Um, it still is a relative to their, is a relatively high level, although it's declined also. And the percent that say it's important for parents to vaccinate their children. Um, and that's at 71% right now, but 10 years ago it was 82%.

Olga Khazan: Hmm. Is there any, I mean this is a question for anyone, but is there any insight into what's driving that? Is it just that discredited Wakefield paper, um, from a few years ago or is it, is it something else? Is that something in the media? I don't know. It's, yeah, what's happening? I'll

Mary Woolley: just give a few thoughts because we've clearly been very concerned about this and talk to many experts and others who are working on this. So it gets combination of a lot of things. I think what the Wakefield effect definitely part of that, another one is declining in the u s now is declining trust and confidence in our healthcare system. Um, and uh, also an overall decline in respect for what we sometimes think of as elite institutions. This is outweighed I might say. However, in the positive side, uh, there has been no diminution in the trust and confidence that people say they have in scientists, the people, not the institutions people. And that's part of the reason why we feel so strongly that the best messengers to try to quell some doubts and change these statistics if you will, and keep us all healthy. Uh, a really, uh, it lies in the hands and the abilities of the science community itself to overcome some cultural resistance.

Mary Woolley: That's long been true in the science community to do more, to engage the public and by the science community. I also want to include, um, the physician, the healthcare community physicians and nurses because we also know from surveys we've commissioned that only 38% of the public believe that they're receiving enough information from doctors specifically about vaccinations. And that just seems like almost impossible to believe, but it's, um, apparently the case. And so we've got to get a lot more people in and around the health care system engaged, including, um, engaging with people who we sometimes describe as skeptics. It's so ironic to me that we can be critical as scientists of people who are skeptics because scientists are trained to be skeptical, you know, and it's okay to ask questions. Actually that's a way we can really connect effectively with people who don't have science training is to say, yeah, let's,

Mark Dybul: let's talk about it. Let's ask those questions, get them out there and find answers. Yeah.

Olga Khazan: What is sort of the right tone to take, cause I think I was saying this you earlier, but it seems often like, um, people who are, are worried about vaccines who are resistant. Um, the more you kind of insist that your way is the right way and science has says, you know, that this is the right schedule, sometimes that causes even more reactants and you've been more pushback. So what's, what's the kind of balance there between kind of being a supportive and encouraging but also, you know, conveying the truth. Okay.

Mark Dybul: So maybe I can comment on this act shot. Yeah, most of my work has been in Africa in low income settings and I'm not at all surprised by the Rwandan data and I'm also not surprised by data, um, that show Gini Coefficient lead to lack of competent. I would say that all of this conversation, um, relates to something that I see a lot in health and I've been working in the same villages literally for

20 years is we've lost the ability to engage communities. We are becoming such a top heavy institutionally driven, uh, approach to health in particular. But I think more generally that there's no real engagement of people in the communities. And we've almost created a, a professional group of communities and civil society that actually are no longer connected to the communities either. Unless you get into a community and really talk with people, you don't act, you're not going to succeed.

Mark Dybul: Um, and, and it's people who don't have access to things that also start questioning. I would also say that the communities will solve it. I firmly believe that there's any single delivery problem though the community somewhere has assault. Um, we just need to get down there and talk with them. Uh, and for example, I was recently in, that's what teeny I'm going back to. It's former Swazi land. They renamed themselves. We all thought male circumcision was going to work there. They were gonna drive male circumcision as are going to reduce the HIV infection dramatically. And the strategy was to get the king is very powerful there to say that that should be done. And everyone in the villages would do it because the king said it. Total failure. Hm. So reason. I was in one in the villages and I asked them, they said, well, the king actually you didn't say, um, you should, it was in his swat in Swat. Yes. Swat. The, so the people, the white people who paid for the programs weren't, uh, didn't understand what he was saying. He didn't say, you should get circumcised. He said, they have told me to tell you

Olga Khazan: you should.

Mark Dybul: And then the village worker says, I was never going to circumcise anyone because I thought it would increase sexual activity, but we think we can just tell people that, you know, if a lie, if a study says something will work, we can just tell everyone and they'll do it. If you don't get into the communities, we're going to fail. And David Brooks, he's speaking later. I is very eloquent on this. We need to from globalization

Imran Khan: or localization, but connect them because you can actually connect to global global knowledge to local engagement. But we've totally lost

Mark Dybul: the local engagement piece. And if we don't get that back, the risk, even in low incomes, even in Rwanda, Rwanda has community healthcare workers in every village talking to people all the time doing that. The data don't surprise me at all. Wherever you have those strong community based activities you implement and you implement well wherever you don't, you fail. And that's true in the United States and Europe as much as it is true in Swat team.

Imran Khan: Okay. Can I, can I build on that by saying that, um, I think it's a good question. Kind of how do we say, how do we get the message to the right way and who's the right person to get the message? But as important as the messages, I think what the data shows is that it's the relationship and the trust that's perhaps

even more important that people have the same level of information and knowledge about, let's say vaccines, but because of how much they trust their governments, their scientists, their health care institutions, how they perceive and take on that knowledge is different. So we find that in different countries that we find that, I think for instance, in the US and in Germany, it tends to be if you've got a college level of education, you're more likely to believe the facts into safe. But in other countries, uh, like for instance, Israel and Iran and Belgium, the opposite's true more educated people of lower trust in vaccines. So clearly it's not just about knowledge, it's not just about the message. It's about how that kind of sense of trust and confidence works. Well.

Mark Dybul: And I just, I just wanted to follow up on that market. Is, is it, um, community health workers? Are they probably the best form of that that you've seen? Are there other way that we give that local level? We keep doing that. We have health and health behavior. Some of the worst people for that or health professionals because, um, you know, we tend to tell nurses are a lot better than doctors, community healthcare workers are better, the nurses. But I'm not sure quite why Evan Hansen keeps coming up on our screen. Dan, uh, subliminal, we shall see it. I don't know. But, um, it really, and this is, uh, this is why the community is so important because what will drive behavior in each community is remarkably different. So if you go from one municipality and that's what you need to the next you municipality, you can get there in 45 minutes.

Mark Dybul: What drives decision making is entirely different. And if you don't actually understand who people listen to, who, who are the influencers in that community, you will fail. And if we all think there's a one approach and we will, you know, will we just need to find the right program and repeated everywhere. It's never going to work. And we know this, we've kind of hit a wall on, on where we are with, with progress in health and getting new technologies to it, to people in communities. The delay is enormous and some of it's regulatory, but a lot of it is just resistance because we don't engage where we need to engage. And so what, who you need to engage the community will be very different in one country, let alone across countries. The issue is getting there and focusing on that week. I really, we've totally lost that. We have totally lost our ability, spending resources on it, engaging in it. We've totally lost it. And if, unless we start focusing on that, we will fail over and over and over again. And this is not unique to help. This is true of pretty much everything.

Olga Khazan: And as you mentioned, so in Belgium you said the more educated you are, the more likely you are to not trust vaccines are the, yeah. So that is super interesting to me because how much of that is like, uh, reminding people that vaccines are great and how much of that is reminding people that like, jade eggs are not great? Like how much of it is like is like, should we be focusing on debunking pseudo science as opposed to, you know, propping up science? Um,

Imran Khan: it's, I think it's difficult to get that kind of global message on that. Okay. Again, to build on the theme we've just been talking about.

Mary Woolley: Yeah,

Imran Khan: I think we need some more worry more about the relationships and less about the information since my, my personal example of this is climate change. So if I think about the reason why I think climate change exists is not because I've looked at the atmospheric data myself and can analyze this, not that I've dug out the ice cores in the Arctic and look at how atmospheric changed over time, is that I trust science. I trust scientists, I trust the people. I believe I trust this process. Um, and that's what really shapes my kind of, um, sense towards an issue like climate change or vaccines or GM or whatever it might be. Um, so yes, for some communities we need to make sure that we're able to answer questions, are able to get the right information out there. We're able to counter this inflammation. Um, but if we forget that, how people perceive that information will be hugely colored by things like that, economic status, their religion, uh, their sense of security, that sense of confidence and then government and the military and the rest of their context. Um, we're, we're going to miss out. You know, when people wake up in the morning, the first thing they think about apart from me isn't science, right? They think about, you know, feeding their kids are going to work or what's going on with the neighbors next door. Um, and if we don't remember that assigned to institutions that people are messy and there are other things going on, uh, we're, we're going to run into problems.

Mark Dybul: And something Mary said is very important in that is the trust in institutions is going down. But the trust in individual people is not and you need to know who the people are.

Mary Woolley: And to that point, and mark and everybody, uh, it's just so surprising to so many people, myself included still after all these years that, um, the ability of Americans to name a living scientist or a place where science is conducted. So astonishing. Lee Loaf. So the question is, can you give me the name of a living scientist? You know, yes or no and um, purse. The percent of us, um, the percent of people who can name a living scientist is 20, 20%, one in five and some of the people they name are dead, which is just, that's the way it goes. If we don't have to keep track, keep score of every single person, but that percentage hasn't changed for almost 30 years despite so many efforts by so many people to try to do a better job of connecting by putting a human face on science. Um, even more shocking really is this pretty simple question.

Mary Woolley: Can you give me the name of someplace, any place where medical or health research is conducted any place? Only 33% or one in three of Americans can give any name of any place. And again, that hasn't changed for a quarter of a century plus and people don't know and this is only of course us relevant, but um, people, 75% of the people in this country don't realize that research is

taking place in all 50 states. That has political ramifications, but it also is just an indication of how distant people feel from scientists of all kinds and particularly medical and health scientists, which is the, the group that we focus on and trying to help those scientists stop talking in the first person in visible tents and start connecting. Right. But which is what I think we all are saying. Make those connections.

Olga Khazan: Well I want to um, open it up to questions from the audience. I believe we have Mike runners, so raise your hand. I think I saw a gentleman in the blue shirt right there first.

Mark Dybul: Thank you so much. My name's Aaron Bartz. I direct the Aspen Institute of Science and Society Program. I am really interested in the nuance of communication and also how to make sure that the wrong people are not getting strong voices. And I'd like to hear the moderators of you about this on the journalistic front. I was astounded in the past week to see headlines like what do these 11 actors think about vaccines? Why is that a phenomenon? I make sure that the right voices, as Mary was saying, scientists and biomedical workers are having a platform or what mark was saying, the right community leaders in the villages have the right voice

Olga Khazan: say, how do we amplify better voices? SORTA quiet. The ones that might not say, oh yeah. Do you guys have any thoughts on that?

Imran Khan: I wish I had a straight forward answer to that. I think that, you know, if it was simple as getting certain people's shuts up, don't, we probably wouldn't be head facing this. Um, I would say that. So another question keeps coming up is, is the answer to this mandatory vaccination is the answer to this perhaps. Um, you know, maps, see them criminal, uh, legislation proposed, preventing people talking negatively about vaccines. And I think that that feels very tempting, both sides of that. But again, one of the examples that comes to mind for me is Japan where, um, a lot of the recent drop off as I understand it in competence about vaccines is due to the HPV vaccine where there was a scare story there. So this is interesting. You know, over here we've got Wakefield and then an RN. In the UK it's the same, but in France it's influenza.

Imran Khan: In Japan, it's HPV, you get different scares desks, scare stories in different places. Um, but in Japan, the government actually changed their position on HPV and they bow to public pressure. They didn't follow the science and they changed the guidelines on the HPV vaccine. Um, and that shows me that even when you have regulations that are based in science, ultimately public opinion, public pressure, public discourse council have an impact. So, even if there is a kind of an easy win to say, Oh, let's just get that actor to shut up. If we don't carry on doing the work of engaging with people and making sure that, that, that trusting scientists, healthcare institutions and other people that are sending positive messages and then we risk getting back to square one. So I don't have an obvious answer about how to get,

Mark Dybul: I heard the question a little bit differently and in fact, those regulations can drive people even worse off and having a worse view. I heard it more where's the responsibility of how we're covering things. So if, if, if, because we're, since we need sensationalism and if we have 11 actors, you know, who's kids have a very low risk of getting a disease, um, and that's who we highlight, that's a problem. But that where's the responsibility for, you know, which were I would say we're losing to theirs. There we have less and less sense of responsibility of what do we say and how do we say it. Um, because we do, we will have failures. There's no question, then we'll have scientific failures that we're going on. The science by its nature will have failure. Um, and there will be side effects to products. Inevitably A, we used to joke and pharmacology, there are two effects.

Mark Dybul: Every drug, the know those that are known and those are unknown. I mean, we don't know until you're in millions of people literally. So these are going to have them. And how do we responsibly deal with that? And I think it's a fair question of what were the responsibility among journalism and journalists, uh, are because that's where a lot of people get their public information. Now. There are a lot of other ways to do it too. And then when do you do about Facebook and you know, social media and other mechanisms as well. Uh, but I think it's a very valid question. How do we get, how do we understand and reach the right people? Um, and, and where's the responsibility from journalism? Um, I think that's a, I, I heard the question that was, that's what you were asking. Yeah. Yeah. I mean mean we could be here all day

Olga Khazan: of like get me started on journalism. But I mean, you know, it's, it's hard because sometimes you, you don't know whether you're highlighting something or reporting on it and it's sometimes really hard to draw that distinction. And it's something we struggle with every day and some websites and a in news outlets are better at it than others. So I don't know what, which one had the like 11 actors slideshow or whatever. But I mean, we try not to do that. There are lots of countries in the world you press that still have high competence and vaccines.

Mary Woolley: And I think for the, you know, looking further out, it would be very useful when we're educating journalists and there's no lack of students applying to journalism schools these days. Yeah, it's a lot of interest in journalism is changing, but there's a lot of interest in being part of it. So in journalism schools, I think there should be some exposure to some opportunity to learn how to report on science. Um, and there's always going to be issues. One way or another that come up that involved science and very few journalism schools today have that kind of exposure. Similarly in medical schools and in, um, science post, um, postbaccalaureate science programs. There's almost no exposure at all to how journalism will always be part of the, the larger public frame and the public context of, of the work of a scientist and a, it's time for that too.



Olga Khazan: Yeah. Next question. Um, oh, sorry, go ahead. Yeah,

Speaker 7: I wonder if you think that a part of the issue may also be, um, when people don't have explanations for why bad things are happening and are and that science can't answer and they'd be looking for explanations when they feel a loss of control. A, for example, I was formally a state health commissioner and some of the most tense meetings we had were with, uh, parents of children with autism where they wanted explanations from us about what was happening with their children. Why couldn't we, if we had the scientific answers, explain things like that works, blame the prevalence of other illnesses for which we don't fully understand it. Do you think that that's part of the issue that people have perhaps had an unrealistic expectations that science should be answering questions and if they can that needs people make perhaps need to come up with alternative perspectives on what's happening? Right.

Mary Woolley: Well, I do, I'll jump into that. I think that the science community and also the medical community has over time kind of set itself up as having all the answers, um, to, um, to ill effect. You know, it's the, it's not confidence and come comfortably to, uh, especially, uh, medical professionals to say, I don't know, um, or two scientists for that matter. You know, it's just kind of counter to all the, um, uh, to their training and to the way they are recognized by their peers. Um, so a little more humility would go a long way, again, over the long haul. That doesn't solve the immediate problem of the parent or a patient, an adult patient who wants answers, but some empathy and listening rather than in some way making people feel terrible that they don't understand something that you do understand what you may or may not understand. Um, we, we do have a ways to go on that. It's a real issue.

Mark Dybul: And one of the problems that you've seen over and over again as you're pointing out is the narrative you can spend if you don't get the answers pretty bad. Like, you know, HIV was a CIA plot, for example. Um, um, which was a prevalent, still is actually a prevalent figure in some places. And the more we can explain in a humble way why we don't know, um, and what we're trying to do, but also drawing in the right people who can influence in a way that it's very difficult that for the person that they're not trusting at the moment, um, uh, to, to be the person that has to answer that question.

Speaker 3: Um, my question is, are you in [inaudible]? My name is Vicki wore on and represent the Mashantucket Pequot tribal nation. In your report, where are you able to segment indigenous populations by any means?

Imran Khan: Um, I'm not sure. I don't think we would have done say for most countries we had a sample of a thousand people, uh, that some countries like India or in China we had bigger samples. Uh, that sample of a thousand is usually big enough to segment by gender, age, educational level. It's probably not big enough to effectively segregate by um, smaller populations side. Don't think we do have that data. Sorry.

Speaker 3: Yeah.

Imran Khan: But I should say that all of the data is publicly available on our website. If you do want to dig into any of the segments that we haven't, uh, either reported at ourselves or I have not presented, we would love more people to look at that. Perhaps compare with other datasets, let us know what they are finding. We'd love to help you apply those results.

Speaker 3: Yeah.

Speaker 8: Hi, my name is Victoria Maizes and I direct the Andrew Weil Center for integrative medicine. And I have two questions. One is, um, one of the challenges is this enormous polarity. Um, I will say as an integrative medicine physician, I'm absolutely pro vaccine, but they also have enormous empathy for families as you mentioned, where there's a child with autism, regressive, autism, something has triggered that. And vaccine is one possibility. And I think for us to have this absolute, um, stance on vaccines can never ever be a contributor is not helpful. We need some kind of middle ground for children who have horrific illnesses at rates in which didn't exist when I first became a physician. And the second thing is, is that I, we really need to be a little bit more, um, honest that vaccines are not all the same. There's no question that, uh, haemophilus influenza B, which prevents meningitis. When I was a resident, I regularly admitted kids with meningitis who ended up with brain damage. That doesn't happen anymore because of the Hib vaccine. Fabulous measles vaccine, incredibly important. But you know, chicken pox vaccine, HPV vaccine, it's a little harder to make the public health case that those are absolutely as important. And yet we have this very black and white stance on it.

Mary Woolley: Hmm.

Imran Khan: I think I'd say that the site, the overwhelming scientific consensus is that vaccines are safe and one of our most successful historic tools in eliminating some diseases. And the fact that we have concern about the idea of vaccines as a technology, um, that can sort of safety concern, spreading risk, undermining. I lost the good work that's been done. What I agree with you is this, if we don't have more empathy, if we don't listen to people, if people who have those concerns about whether it's a, uh, a condition like autism or vaccines as a technology, and if we don't make them feel that actually scientists care about professionals care about those concerns, then we're going to keep having the same debate over and over. Um, so I agree. You know, it's a number of comments have been made. That feeling of the idea that scientists care about what I'm saying, they care about what's happening to my children and that that colors their response to and colors that work. We have to get to that place and it's not going to be done just by repeating the message to the side that vaccines are safe.

Mary Woolley: Yeah, go ahead. I'm Denise Diani and I am here. I work with public television. I'm here because I do believe journalism and media has a role in this. Um, and not to be pessimistic about it, but I think probably the only trust statistics that are probably lower than what you're talking about now or the trust statistics about journalism and media. No, Congress's lower.

Speaker 8: Well look, thank you. Thank you. And I will say we held with media is still has a role

Mary Woolley: typically high trust level, but a lot of journalism as we know does not. So I think while I personally support that we have a role in that it's unimportant educational mechanism. I think we have a bigger problem because I think the conflict we're faced, you know, the circumstances were facing, have to do with the lack of trust in fact based information of all kinds and not be political, kind of a post truth era. So I appreciate what you're saying about community, but I don't know what other tools we can deploy given what's going on right now. And again, I think we will keep on fighting as journalists and you'll keep on fitness, health practitioners, but I not to be pessimistic, I've been doing this for a long time and it feels tougher than ever.

Speaker 8: I guess the question is how do we advance the message when people don't trust the messenger him? So I don't

Imran Khan: think it's necessarily fair to say that interest in messenger in that yes, people might have low trust in politics. I know trust in the media, but if you ask them, do you trust the Guardian or do use with Fox News or do you trust Donald Trump producers? Jeremy Corbyn, you might have very high responses. So although the kind of the mutual politics and establishment and they have lower trust politicians and media outlets still have the capacity to Drummond to generate tremendous levels of confidence and trust and a sense of community and amongst their, um, their audience. Um, so I think yes, there is a kind of a concern that on paths that consider it's been there ever since. Media in politics were first invented however many thousand years ago. But I do think we should kind of give up hope and say these can't be important tools for advancing, uh, where we are in terms of the public discourse on sites and health.

Olga Khazan: We have time for like one more question. All right.

Speaker 9: Joshua [inaudible], George, the family business in academics. Can you comment in the use of politics? Government including ours, use of community health workers have vaccines for political gain and intelligence in the case of a ladder.

Imran Khan: Sorry, I didn't quite catch the question. Repeat that. Sorry.

Speaker 9: You use of vaccines and politics and community health workers to gather intelligence lead into mistrust for vaccines among governor. Oh, the government sends the YCS classes in third world countries.

Olga Khazan: You're saying the, uh, how rumors about vaccines spread in third world countries? Great job. Yes. Oh, right. Yeah, that's a good question. Yeah. Yeah. How has that impacted things?

Imran Khan: Yeah. Yeah. So, um, this isn't something we looked at directly in the report but are, you know, have heard of examples of, for instance in Pakistan where, um, vaccine programs were used as cover to try and obtain evidence on bin Laden Taliban. And again, that's an example of how, um, the trust in vaccines is not simply related to how safe vaccines are. There's a whole host of other effects going on there. And if we don't, as a community of science of health organizations understand those effects and understand how they make people feel, and if we only stick to this constant, this message that the science is all this important, uh, we're going to fail. So I think that's a really important example to raise.

Mark Dybul: I think it gets back to understanding people. And I think this is a common theme here. There's, you know, there's lack of competence in institutions, but there's lack, there is strong competence in people and at different levels, uh, their competence in certain leaders, there's competence and uh, um, uh, different sectors leaders. And there's a lot of confidence that the community level, we had the same problem in Africa with HIV. Um, the question to your point was why is there so much more HIV in Africa than there is in other parts of the world? And we couldn't answer that question. And so people came up with theories and one was through vaccinations. The CIA is spreading to kill, to kill off Africa. Uh, that was a very prevalent thing. But if you didn't get into the community and work with the community and understand who could counteract those, that those theories, you couldn't win.

Mark Dybul: And that means involving churches and, and, and the moms and, and, and looking at the community leaders and a meant understanding in each kit. And Ethiopia was working with the coffee ceremony. Um, we used to do all that stuff. We used to understand that if you don't understand the community who can't succeed, we've kind of lost all that in the last 15 years. We've reverted back to a more paternalistic, we know the answers. The communities don't. We're just going to tell him what to do and it's going to happen. And, and you know, all these great new technologies that are coming are not going to get anywhere because they're going to keep hitting these walls if we don't fundamentally change and start shift back to the community, understand the community, empower the community, spend money there. And that's where I think, you know, again, what the David Brooks has been talking about.

Mark Dybul: Globalization is great ideas, sharing of ideas very. If it's not localized, if it's not brought to the local level, the lack of belief in the institutions is going to stop a lot of stuff, not just vaccines and not just healthcare. It's going to fundamental around education. It's fundamental around climate change. It's fundamental around technology. You know, France linking science, which they, you didn't specify hell signs to them, right? They're thinking about losing jobs because of

science. You know that that was a huge, that was, there weren't talking about hell signs. They were talking about optimization, right? So we have to, we really have to understand and if we don't make a ship pretty soon and we keep relying on old mechanisms to solve the problems, we're not, we're going to be in deep, deep. We are in deep trouble. We're not going to get out of it.

Mary Woolley: I like the, I think that's, yeah, I agree. We all do. I think that's, that's kind of the next step of this really rich database that you have put together, you and your colleagues to put together and run a new, and I were talking about that earlier is you know, what's the actionable next steps? You know, we could spend the rest of the time and Aspen talking about those. I'm sure with many people in this audience. Yeah, it's really important that that work get done.

Imran Khan: I know I just finished by saying two final things. One is we spend a lot of time talking about vaccines today. I just want to give one last call out to the vaccine competence project. He really looked up Heidi Lawson and the audience. I did that. If you want to just wait people, if she's genuinely the World Expo on all of this stuff. So if you're interested in wanting to know more about how we can yeah.

Mary Woolley: [inaudible]

Imran Khan: you and talk to Heidi or look at the work of the vaccine competence project. And secondly, just remind you that we have to report on line. You can delve into that genuinely said probably less than 1% of what's in the report, the full data sets. They would love you to look at the infographics unlike the data yourself compared with other datasets, fun stuff that we haven't found and tell us what stories are there and hopefully to gather as a global science and research community, we can ensure that this data gets translated into better health outcomes for everyone.

Olga Khazan: Thank you all so much for coming. Um, if you guys want, um, I just want to the, the the website, correct me if I'm wrong. [welcome.ac.uk](http://welcome.ac.uk) forward slash monitor, is that right? Okay. And then [Research.america.org](http://Research.america.org) for Mary's stuff. If you guys want to dig into that, thank you so much for, for coming to the first session.