

## A recent meeting about the disconnect between scientific and public beliefs points to ways researchers can improve how they communicate with skeptics.

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Recent headlines about measles outbreaks [across the country](#), despite the availability of an effective vaccine, make it hard to escape the feeling that widespread rejection of science is on the rise.

Whether it be climate change debates, vaccine fears, or skepticism of [genetically engineered crops](#), the media is full of stories about those who distrust the conclusions or motivations of the scientific community. And yet, these contemporary hot-button issues are part of a centuries-old discord between science and the public—one that we, as scientists, still struggle to address.

In November 2018, Rutgers Global Health Institute and the New York Academy of Sciences hosted a conference entitled *Science Denial: Lessons and Solutions*, supported in part by the Alfred P. Sloan Foundation. Held at the academy's downtown Manhattan conference center, the meeting brought together concerned scientists with journalists, public health leaders, communications scholars, and science historians to discuss the spread of scientific misinformation and identify meaningful ways to respond to it.

As a scientist and an organizer of this conference, I had walked into the planning of this meeting with my own frustrations and preconceptions about “science denial,” and how to fix it. On the day of the event I cautioned the audience that they should prepare to have their assumptions challenged, because after immersing myself in the field I had thrown all of mine away.

Following a day of conversation with more than 20 expert speakers, six key takeaways emerged from the event:

- **It's not “science denial.”** Yes, this wording is in the name of the event, but we learned over the course of the meeting that labeling someone a “denier” only leads to their re-entrenchment. Plus, few people reject science in its entirety. We are much more likely to encounter individuals who believe in climate change, for example, but choose not to inoculate their children due to vaccine hesitancy. More importantly, we ALL have a tendency to cherry-pick facts that support our beliefs, and eschew those that fail to comport with our motivations, ideologies, or fears. This is not unique to science.
- **Check yourself.** Remember when bloodletting was a thing? For centuries, leading physicians thought that removing a person's blood could treat a wide swath of ailments. As it should, scientific consensus evolves over time as new knowledge is uncovered, so what we perceive as “truth” today may change. On top of that, science is a power structure with its own flaws. It still struggles with diversity, and is full of hierarchies, biases, and norms that are not easily disrupted. Before we engage with those who challenge scientific thinking, we should first answer the following questions for ourselves: What were the motivations behind the research? How well corroborated is the data? What oversight and criticism has it received? And—this may be the most important of all—why do we believe it?
- **Listen first.** To better understand those we seek to convince, we must start by asking the right questions: Where did they get their information? What personal stories shaped their underlying fears or concerns? Storytelling is empirically proven to be more potent than stand-alone data, so we must always remember that their anecdotes may ultimately be far more compelling to them than a simple recitation of scientific facts.

- **Keep it relevant.** When we transition to sharing information, we should present it in a way that is relatable to our target audience and their community. Rather than talking about how climate change is disastrous for polar bears, which most people are not likely to encounter, we can describe ways in which it will affect them immediately. For example, one speaker from northern Wisconsin learned from local winter loggers that the ground was not freezing as much in recent years, causing their machinery to sink in the mud. In addition, we can help our audience arrive at a new understanding by asking them to evaluate the evidence for themselves, so try offering data instead of conclusions.
- **Engender trust.** It is impossible for anyone to sift through all the data in the world ourselves, so people look to reliable messengers, leaders, and peers to filter and interpret relevant knowledge. To be positioned as a voice worth listening to, our best settings are offline, in one-on-one conversations or in community gatherings of people connected by a common thread. But trust cannot be forced. We can help it develop organically out of a natural connection such as a shared religion, neighborhood, or hobby. Alternatively, a “motivating peer influencer,” such as a respected community leader, who already shares your views can help facilitate productive discussions.
- **Remember what you represent.** Scientists should receive more institutional support, training, and career incentives to engage in proactive communication with the public. And when we do speak out, we must remember that we represent not only ourselves, but our institutions, and science as a whole. We should resist the temptation to engage with trolls, or become them ourselves by berating “non-believers.” Ridicule will not foster trust.

It is difficult to hear that we, as scientists, have to check our own biases and language when the “other side” of some debates may not engage in the same good-faith efforts. But it is precisely *because* we are scientists that we must acknowledge our flaws. Research has a troubled history, with the Tuskegee syphilis study as one appalling example among many. Conflicts of interest are still very much an issue within the scientific community. Beyond past and current ethical concerns, the process of science remains a mysterious and occasionally self-contradictory endeavor to much of the population. These are all legitimate issues that must be addressed to allow for a genuine connection between science and the public.

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