

Shots heard round the world: better communication holds the key to increasing vaccine acceptance

One year into the COVID-19 pandemic, governments and health agencies are hyperfocused on mitigation efforts such as masking and physical distancing, as well as vaccine logistics—as they should be. But they continue to ignore, much to everyone’s peril, a parallel, ever-worsening public health crisis: the damage done by the spread of medical mis- and disinformation online.

Todd Wolynn and Chad Hermann

The fear and uncertainty of the past year have brought not just a wave of death and disease, but a whirlwind of confusion, contradiction and conspiracy theories that threaten to erode the success of both new and established vaccine programs. The resulting ‘infodemic’ has created an inability for many people to acknowledge facts, accept evidence-based medicine or value the recommendations and prescriptions that follow from them. This, too, is a real and terrifying threat to world health.

If the pandemic possesses any silver lining, it is that people around the globe bore witness in real time to the horror of a world with a highly infectious lethal disease and no herd immunity. If more than 150 million infections, over 4 million deaths, closed borders, shuttered businesses and devastated economies could not demonstrate the importance and necessity of vaccines... what could?

A tragic but golden opportunity to explain and to unify public sentiment behind the power of immunizations was right in our hands. But we let it slip through our fingers, then watched as it was distorted, deranged and dismembered by a small but vocal minority of science deniers.

Science denialism is not new. And vaccine deniers are as old as Edward Jenner’s smallpox vaccine. But increasing politicization and a rising, almost tectonic distrust of experts in all fields, which have coalesced in a digital age that makes possible the widespread, weaponized control and manipulation of communication, gives them a new and frightening power.

In 2021, simple, reassuring evidence and data are not just unglamorous, they are unprofitable. When every click pays, social media algorithms drive sensational tweets, posts and videos to the tops of our feeds to

generate billions of dollars, pounds, Euros and yen for the companies that own and curate our communication channels.

If it scares, it shares. And when it shares, it turns a profit—both for the social media platforms themselves and for the snake-and-essential-oil-selling fantasists and charlatans who lead the growing antivaccine movement. As facts fall down the pages of our search engine results and disappear altogether from our social media feeds, truth is eroded and reality is distorted, creating a culture of plugged-in, increasingly polarized pawns at a loss for how to work together for the common good—or even to agree on what is good.

A remedy exists, but it requires both an awakening to the problem and a commitment to the solution: action that holds social media platforms accountable for their role in undermining science and vaccine confidence and that harnesses them to build upon the longitudinal relationships people have with their own trusted health care providers.

Studies show that health care providers are among society’s most trusted professionals. Even in an age of runaway medical misinformation and antivaccine nonsense being widespread online, we are still the most influential resource when people make a decision to vaccinate. Because we are steeped in science, are deeply trusted and have direct, intimate access to our patients, we are the ideal antidote and the best hope to clarify both the current public health crisis and the current health communication crisis. We can lead the way out of both this pandemic and this infodemic. But two obstacles stand in our way: the indifference of social media platforms and the diffidence of health care providers. The AI-driven, fantastical-prioritizing social media algorithms are just one part

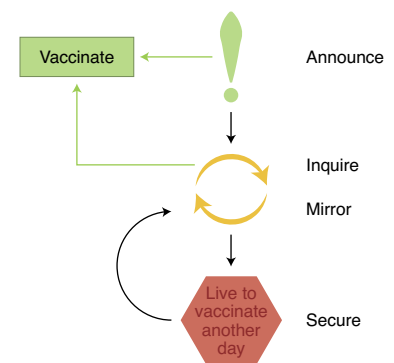
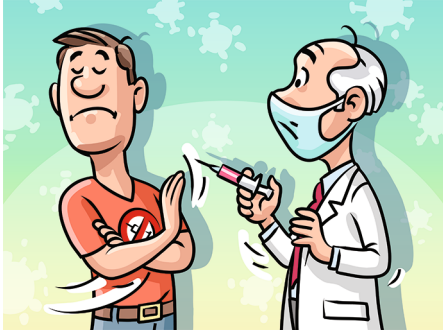


Fig. 1 | The announce, inquire, mirror, secure (AIMS) method for engaging in vaccine conversations. Credit: Adapted from ref. ²

of the problem we face. Before health care providers advocate for any health measure, we self-limit on the basis of the scientific method and evidence-based information. The antivaccine industry is limited only by their imaginations and the speed at which they can type their most outlandish fantasies. Antivaccine disinformation goes viral with alarming regularity, allowing anti-vaxxers to drive the flow and tone of trending stories and conversations, while public health advocates struggle to keep up, and vaccine facts face an ever-more-uphill battle to be seen or heard.

To add insult to injury—or infection, both literally and metaphorically—social media companies turn a blind eye as the antivaccine industry weaponizes their platforms to attack provaccine messaging and to launch a barrage of uncontested, fraudulent reviews that cause real and financially disastrous harm to health care practices willing to speak up and advocate for vaccines.



Credit: Kbeish/DigitalVisionVectors/Getty

They picked on the wrong group

At Kids Plus Pediatrics, our independent practice in Pittsburgh, we experienced one of these potentially devastating attacks firsthand. In August 2017, we produced a 90-second public service announcement on the human papillomavirus (HPV) vaccine as cancer prevention. Three weeks later, our video was shared in a popular antivaccine Facebook group. Less than an hour after that, the attack—insults, invective, disinformation, conspiracy theories, even veiled threats of violence on our Facebook page and Twitter and Instagram feeds, as well as on the Facebook pages of some of our families and followers, on our web site and in our Yelp and Google reviews—began. It lasted eight days, came from anti-vaxxers all around the world and ultimately delivered more than 10,000 comments and more than 100 fraudulent reviews to our digital doorstep.

The attack on our practice was one of the first of its kind. They have continued apace in the following years on health care providers and vaccine advocates around the globe, perhaps most famously [in response to the social media presence of Dr Nicole Baldwin](#), after she made [a quick, engaging TikTok video](#) on the importance of vaccines. All of the attacks are coordinated in real-time and are launched with relentless passion and precision on social media platforms.

The goals of these attacks are simple: to overwhelm and intimidate and thus terrorize into silence and inaction any practice or provider who dares to advocate for vaccines online. The tactics work. We have seen practices, hospitals, even whole hundred-million-dollar health systems, stop posting provaccine information for fear of being attacked. We have talked to physicians whose practices, and therefore livelihoods, suffered in the wake of fraudulent reviews and harm to their online reputations. One small practice saw a 25% reduction in new patients year over year after their Yelp and Google ratings were compromised by fraudulent reviews.

When health care providers and vaccine advocates go silent on social media, they create a vacuum—one that antivaccine voices are only too happy to fill. We spent the years following the attack on our practice helping health care providers fight back and defend themselves (and others) against these kinds of attacks. We created [Shots Heard Round the World](#), a non-profit dedicated to supporting, defending and galvanizing physicians and other vaccine advocates on social media and beyond.

These efforts have been essential not just to protect health care providers and their reputations, but to ensure that good, evidence-based information continues to be shared, posted, filmed and tweeted by trusted experts. There are good data to suggest that vaccine communication works like a vaccine itself: if people see good, evidence-based information first, the lies and conspiracy theories they see are much less likely to affect them. Facts from a trusted health care provider effectively inoculate them against the contagion of disinformation¹.

AIMS and the impact of trust

While health care providers can diagnose and treat disease, one of our most important roles is helping people to make good, healthy choices. Most of the ailments that we treat would be eliminated, or at least significantly delayed, if we could convince more people to eat plant-based diets, exercise regularly and receive the recommended vaccines on time. At our most successful, we are in the practice of influencing behavior.

But health care providers are not the best natural communicators. To reach and reassure the vaccine hesitant, health care providers first need to hear them. We must learn and practice active listening so that we can understand their fears and exhibit empathy for their legitimate questions and concerns. Once we strengthen their trust in us, then we can strengthen their trust in vaccines.

One excellent, science-communication-based methodology for doing this, developed by Dr John Parrish-Sprowl and Dr Angus Thompson, is the AIMS method (announce, inquire, mirror, secure) (Fig. 1)². Providers begin by presumptively **announcing** their vaccine recommendation. Because roughly 75% of patients trust their providers and the evidence-based recommendations that they offer, this is often the only necessary step. But to hear, and then to help, the roughly 23% of vaccine-hesitant patients, the next three steps are key.

When met with concerns about vaccine recommendations, providers openly **inquire** about the specific roots and details of these concerns, make a genuine attempt to

process and comprehend them, and **mirror** those concerns back to hesitant patients, while being careful not to validate any misinformation they may contain. These two steps are critical because they shift the dynamic in the exam room, showing the patient that we hear them, that we understand them and that we do not judge them. If a patient, in the words of Parrish-Sprowl, “feels felt,” a potentially contentious or adversarial exchange becomes a conversation built on trust and mutual respect, and the evidence-based responses to those concerns are much more likely to take hold.

Finally, in a best-case scenario, the provider will **secure** the vaccination. If the patient still defers or declines, the provider-patient relationship remains secure; trust has been strengthened, education offered, and everyone lives to talk, and perhaps to vaccinate, another day.

First, do no harm. Next, send tweet

Even with a methodology as powerful as AIMS, to influence patient behavior on vaccines in an age of social media saturation, health care providers need to exert that influence online as well. If we believe our medical knowledge can, and should, only be imparted one patient at a time, and only within the four walls of our exam rooms, we may as well be riding horses to work and taking payment in livestock.

The sad reality is that we see patients for, at most, a few hours a year. The rest of the time, when those families are not in our offices—and sometimes even when they are—they are online. If we are not engaged and engaging in the digital space, we are effectively abandoning our patients, leaving them ever more vulnerable to mis- and disinformation and to nefarious forces intent on shaping and changing people’s behavior to benefit only themselves.

It is 2021, but for far too many health care providers and their communication, it may as well be 1921. The health care field has contributed to the problem by leaving generations of providers unprepared for the battle at hand. With one or two notable exceptions—[Nationwide Children’s Hospital](#) in Columbus, Ohio, springs immediately to mind—medical schools and residency programs do nothing to train providers to engage their patients and deliver information the way those patients want it: served up daily, and digitally, on their smart devices.

So how do we take back science and protect public health in an age of fake news, alternative facts and the rampant spread of online medical misinformation? First, we hold social media platforms accountable for allowing disinformation to be preferentially ordered and offered

up and for allowing their platforms to be weaponized with fraudulent reviews. We insist that evidence and science be championed and that misinformation, harassment and unhinged conspiracy theories be, if not deplatformed, at least dealgorithmmed and demonetized.

Even if social media platforms rise to the occasion, and even if the COVID vaccines continue to demonstrate such robust and jaw-dropping effectiveness, the recent and explosive (and horrifying) proliferation of antivaccine views is unlikely to subside³. With limited bandwidth and even more limited resources to counter them, it is critical that health care providers scale up

the communication—think locally, tweet globally—and thus the impact of their expertise.

So we must train and support health care providers, both current and rising, first to develop, and then to unleash, their professional virtual voices to best reach their families and their communities, to advocate regularly and passionately for vaccines, and to help all other evidence-based public health measures go viral, using as many social media platforms as they have the time and energy to adopt. If we (and our training institutions) truly want to honor the Hippocratic Oath, we must first do no harm. And then we must go online. □

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Competing interests

The authors declare no competing interests.