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Risk Communication in an Anti-Science World

What works when evidence isn't enough

A Links Global thought leadership article by M. Sanchez, founder of Links Global, a communications firm working at the intersection of trust science, narrative design, and civic engagement. Part of the Links Global article series: High-Stakes Communications Practice. Drawn from 25 years of field practice and evidence-based research in strategic communication, public engagement, and institutional trust.

In Brief

When people reject scientific guidance, the reflex is to explain the science better. The evidence says that reflex often fails, and sometimes backfires. This article is precise about what "anti-science" actually is, honest about what the research shows, and specific about the approaches that work when institutional distrust, not missing information, is the real problem.

For most of the history of public health and emergency management, the central challenge of risk communication was assumed to be an information problem. People make poor decisions in the face of risk because they lack accurate information, or because they have been exposed to inaccurate information, or because accurate information has been communicated in ways that are too technical, too dense, or too inaccessible for general audiences to act on.

The solution, correspondingly, was framed as an information solution: develop clearer messages, choose better channels, make scientific evidence more accessible, correct misinformation more rapidly, trust the evidence to do the work of persuasion.

This framework produced an extraordinary body of knowledge about how to communicate risk effectively. We understand, in considerable detail, how to frame probability information for non-technical audiences, how to use narrative and exemplars to make statistical risk psychologically real, how to sequence information to support decision-making under uncertainty, and how to design messages that motivate protective action without triggering paralyzing fear.

We know all of this. And in the current environment (characterized by widespread scientific skepticism, institutional distrust, identity-protective cognition, and information ecosystems that actively amplify anti-scientific narratives) it is not enough.

This is not a counsel of despair. It is a diagnostic finding. The problem of risk communication in an anti-science world is not primarily an information problem. It is a trust problem. And trust problems require a different set of tools, a different theory of change, and a different theory of what risk communication is actually for.

The Anti-Science Landscape, What It Actually Is

Before diagnosing the communication problem, it is worth being precise about what "anti-science" actually means in the current environment, because the term is often used in ways that obscure more than they clarify.

Most people described as anti-science are not, in any meaningful philosophical sense, anti-science. They are not opposed to the idea of systematic empirical inquiry, controlled experimentation, or evidence-based reasoning. What they are opposed to, and often with genuine grievances rooted in real experience, is the authority of scientific institutions: the claim that credentialed experts and their institutional affiliates should be trusted to define the facts, set the parameters of acceptable public discourse, and prescribe action, without adequate accountability to the communities whose lives those prescriptions affect.

This distinction matters enormously for risk communication practice. A communication strategy designed to overcome irrationality, to substitute accurate information for false belief through the right messaging, will fail systematically when the actual problem is institutional distrust. The audience is not irrational. They are applying a rational defensive prior to institutional sources that, in their experience or in the experience of communities they identify with, have not earned the trust being requested.

The Tuskegee study is the most cited example in this context, and it is cited so frequently that it has become almost a cliché. But the underlying dynamic it represents is not a historical anomaly. Communities that have experienced medical research exploitation, environmental racism, disaster recovery inequity, or the systematic dismissal of their health concerns by credentialed professionals have empirical grounds for their skepticism. Their distrust of scientific authority is not a cognitive failure. It is a learned response to institutional behavior.

Risk communication that does not grapple honestly with this (that treats scientific skepticism as a problem of misinformation to be corrected rather than as a response to institutional conduct to be addressed) will continue to produce the results the field has been producing: technically sound messages, delivered through credible channels, received by audiences who have every reason not to trust the source.

What the Evidence Actually Shows About Risk Communication Effectiveness

The literature on risk communication effectiveness is more sobering than most practitioners acknowledge in professional settings.

A meta-analysis of fear appeals, one of the most studied approaches to risk communication (127 articles and more than 27,000 participants), found that fear appeals produce a modest positive effect on attitudes, intentions, and behavior, with larger effects when the message also builds a sense of efficacy. The analysis did not test institutional trust, but it is plausible that low trust attenuates the effect. The conditions that most attenuate effectiveness are, predictably, conditions of low institutional trust and high prior resistance.

Research on vaccination communication has documented the backfire effect in specific populations, most clearly in a randomized trial published in Pediatrics in which correcting the MMR-autism myth reduced the misperception but lowered intent to vaccinate among the parents with the least favorable attitudes toward vaccines. The trial did not test why, but the pattern is consistent with hesitancy rooted in distrust rather than in a specific factual misunderstanding. More recent research has refined these findings, suggesting that backfire effects are less universal than early studies indicated but remain meaningful in high-distrust subpopulations.

Research on climate risk communication has documented the role of identity-protective cognition: the tendency for people to process risk information in ways that protect their identity commitments rather than in ways that optimize accurate assessment of evidence. In politically polarized environments, providing more evidence for climate risk to skeptical audiences can, in some conditions, produce more entrenched skepticism rather than more accurate risk perception (Kahan and colleagues found that greater science literacy and numeracy were associated with more, not less, cultural polarization on climate risk), because the evidence is received as further confirmation of the cultural and political identity threat that climate communication has come to represent.

None of this suggests that risk communication is futile. What it suggests is that risk communication effectiveness is heavily mediated by the trust relationship between the communicating institution and the receiving audience, and that in damaged trust environments, the standard approaches consistently underperform, sometimes dramatically.

What Doesn't Work, and Why

Three approaches dominate current risk communication practice. All three have documented problems in low-trust environments that the field has been slow to fully absorb.

The deficit model. The assumption that scientific skepticism is primarily a product of missing or incorrect information, that providing more and better information will reduce skepticism, remains the dominant intuition in public health and risk communication practice. It is also the approach with the weakest evidence base for effectiveness in high-distrust populations. The deficit model treats skepticism as an information gap and responds with information provision. When skepticism is rooted in institutional distrust rather than factual deficit, information provision from the distrusted institution does not close the gap. It often widens it, by confirming the audience's expectation that the institution is trying to manage their beliefs.

The messenger approach. In response to the limitations of the deficit model, the field developed a more sophisticated approach: if the institution's voice is distrusted, use trusted messengers. Peer communicators, community health workers, faith leaders, local celebrities: voices from within the community rather than from the institution. This is a genuine improvement and often produces better results than institutional messaging. But it has a specific failure mode: when it is implemented as a strategy rather than as a relationship, trusted messengers become institutional proxies rather than independent voices, and audiences, who are often quite perceptive about the difference, respond accordingly. A trusted messenger who is clearly carrying institutional talking points loses the credibility that made them worth using in the first place.

The narrative approach. Narrative risk communication (using stories, exemplars, and personal testimonials rather than statistical evidence) has a strong evidence base in general populations and remains valuable. But narrative approaches have a specific vulnerability in politically and culturally charged risk domains: the narrative can be re-received through a prior that interprets it as emotional manipulation. "They're using stories because their evidence isn't strong enough" is a response that sophisticated skeptics produce regularly and that institutional communicators are frequently unprepared for.

What Works, and Why It Works

Effective risk communication in low-trust, anti-scientific environments has four characteristics that distinguish it from the standard approach.

It starts with the trust relationship, not the risk message. The most consistently effective risk communications in high-distrust environments begin not with the risk itself but with explicit acknowledgment of the institutional history that has produced the distrust. This is not an apology strategy: it is a trust-condition strategy. When a communicating institution explicitly names the reasons a community might have for skepticism, validates the experiential basis of that skepticism, and acknowledges its own institutional contribution to the conditions being named, it signals something

different from the institutions that have previously approached the community with deficit-model messaging: it signals that this communication begins from a different premise. That signal is often the prerequisite for any other content to be received.

It uses independent verification rather than institutional assertion. In high-distrust environments, institutional claims about risk, however accurate and however well-sourced, are received through a prior that positions the institution as a biased actor. Independent verification (third-party evidence accessible to adversarially motivated scrutiny, produced by actors who are genuinely independent from the institution) carries a fundamentally different quality of claim. Risk communicators who invest in building independent evidence infrastructure before they need to make claims during a crisis or campaign have a different set of tools available than those who rely on institutional authority to carry their evidence.

It works through existing trust networks rather than around them. The trust networks through which communities process risk information (neighborhood associations, faith communities, peer social networks, cultural organizations, local health workers embedded in the community rather than deployed into it) are not simply messenger channels. They are the epistemic infrastructure through which communities collectively evaluate whether an institutional claim is receivable. Risk communication that understands these networks, works with them genuinely rather than instrumentally, and respects their independent right to disagree and raise concerns is substantially more effective than risk communication that identifies trusted messengers and delivers institutional content through them.

It is honest about uncertainty. Experimental work suggests that acknowledging uncertainty does not appear to erode trust in the source and may help sustain it, though evidence of a gain in credibility is mixed; it is also one of the most consistently violated practices in institutional risk communication. The institutional instinct to project confidence, to close down uncertainty in public communication because uncertainty seems like weakness, is precisely backwards in low-trust environments. Audiences who have experienced institutions projecting false confidence before have learned to treat projected confidence as a credibility signal in reverse. The communicator who says “here is what we know, here is what we don’t know, and here is how we will tell you when we learn more” is more credible, in most low-trust contexts, than the one who presents a unified front of institutional certainty.

The Deeper Problem the Field Needs to Name

There is a reason risk communication in anti-science environments is so difficult, and it is not primarily a communication reason. It is an institutional reason.

Scientific and public health institutions have, in many communities and over extended periods, contributed to the conditions that now limit their risk communication effectiveness. Not always through malice, often through the accumulated effects of institutional cultures that prioritized internal credibility

over community accountability, that dismissed community concerns that were not framed in the language of peer-reviewed evidence, and that treated the communication of scientific findings as fundamentally a one-way transmission process rather than a genuine dialogue.

The communities that most distrust public health and scientific institutions are frequently the communities that have the most legitimate grounds for that distrust. And risk communication strategies that treat the distrust as an audience problem, a failure of scientific literacy or rational thinking to be remedied through better messaging, miss the most important lever available: the institutional behavioral change that would, over time, give scientific and public health institutions the credibility with these communities that their evidence alone cannot supply.

This is not a communication solution. It is a governance solution, a policy solution, and an institutional culture solution that has communication implications. Risk communicators who cannot make this case (who treat the science communication problem as solvable through better messaging in the absence of institutional behavioral change) are working with one hand tied behind their back.

The most effective risk communication in anti-science environments is the long arc: the patient, consistent work of rebuilding institutional credibility through behavior that earns it, so that when the risk communication moment arrives (when the outbreak happens, when the environmental threat materializes, when the public health emergency is declared) the institutional voice has a reservoir of earned trust to draw on.

That work is harder than message testing. It takes longer than a campaign. And it is the only approach with a genuine evidence base for effectiveness in the environments where risk communication is most urgently needed.

Where This Fits

The trust-condition strategy described here is the practical core of the ERA™ white paper, which explains why correction fails in defensive environments and what works instead. The Links Global Trust Audit™ reads the condition; Behavior Change Communication in an Oppositional World continues the argument.

Schedule a conversation with Links Global: www.linksglobal.org

Sources

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