PANDEMIC
Supermind Activation

Validating, Sharing, & Communicating

SCIENTIFIC INSIGHTS

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community biotechnology

As new scientific insights about the pandemic are generated, how do we ensure they can be effectively validated, confirmed, shared, and communicated to the public and other stakeholders? These insights can span key aspects of virus biology, its impact on human health, and ways in which the virus spreads in a variety of settings and environments. Rapid research, validation, and communication of research to policy makers and the public is crucial for pandemic response. Yet, obstacles toward achieving these goals are myriad, from slowing the spread of misinformation to building and restoring trust between the public and scientists, public health officials, policymakers, the institutions that comprise these, and other stakeholders.

In this chapter, the Supermind proposed strategies and creative ways to:

- communicate clearly to educate the public on verified science;
- engage communities directly to build trust;
- promote evidence-based journalism;
- re-design, re-purpose, or build new institutions that engender public trust;
- share data and incentivize rapid research;
- and rapidly validate and curate scientific insights while removing barriers to access.

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Communicate to the public clearly, consistently, and creatively

To communicate effectively to the public, the Supermind suggested several strategies that borrow from approaches used for other types of information dissemination. For example, when communicating guidance on a behavior change like mask-wearing or social-distancing, it is critical to convey the suggested behavior with a simple rationale that clearly illustrates its benefits and consequences – and to do so repeatedly, consistently, and with a unified voice. Countries that have managed the pandemic effectively thus far have often featured a consistent scientific communicator who engages regularly (at times, daily) with the public, sharing simple and clear guidance. Conversely, conflicting stories from authorities can fuel mistrust among the public, as evidenced, for example, by the confusion and politicization surrounding mask-wearing in the United States. The Supermind further emphasized that communication skills can be as important as research skills for scientists, noting that a range of solutions for pandemic suppression, such as using face coverings, downloading digital contact tracing applications, or taking vaccines, will be ineffective if the public is unable to understand their importance and efficacy and change their behavior or act according to guidance.

The Supermind also proposed strategies for storytelling and other modes of creative communication. Basic storytelling questions should be considered including, for example, "If you could tell the story of this pandemic, what would it be? How could it be changed? What's your ideal ending? How do you see it being accomplished?" While seemingly simple questions, Supermind participants noted that, without a clear story and vision, ideas and plans can fragment. Other modes of storytelling, like television shows, movies, or performative art could also be interlaced with scientific information important for public health.

In recent years, there has been an increase in direct-to-the-public science communication by scientists, or "scicomm." A movement led in large part by women in science, scicomm has used popular media, including Twitter and live events like Story Collider, to convey science in new and compelling ways to the public. While scicomm training has been incorporated in some university degree programs, there remains untapped potential to use this approach as a means of increasing the number and diversity of scientific voices reaching their respective communities with critical scientific information.

Scientific insights could also be creatively and effectively communicated in partnership with data visualization designers. Data visualization design has evolved into a dedicated field study and practice, and experts in this field have become well-versed in interpreting complex data and conveying it clearly through the use of attributes like color, form, motion, and shape. The Supermind proposed creating a platform or community space to facilitate collaboration between researchers and data visualization experts to support the creation of charts, maps, and graphics to better illustrate complex science or public consumption.

Engage communities extensively, and with help from trusted leaders

The Supermind highlighted consistent and coordinated community engagement as a critical strategy for building trust. For example, scientists and public health experts could begin by developing education strategies for trusted leaders to inform their communities. Strategies like connecting effective science communicators with trusted influencers to disseminate messages via social media was also proposed, like the #BeatTheVirus campaign. The Supermind noted that outbreaks in areas where there is little trust in government make such grassroots exercises a necessity, and that empowering people and giving them fact-based evidence can help dispel fear.

Furthermore, community-based participatory research (CBPR) methods directly engaging localized participants could be used to bridge gaps between scientists, policymakers, and the public. CBPR methods incorporate the perspectives, needs, and concerns of community members as policies and interventions are being designed and tested. This allows for and informs careful consideration of normative cultures in different communities when developing science communications, which the Supermind also noted for its importance. Knowing potential sources of resistance in advance and designing solutions to overcome them, while making people feel heard, can improve pandemic response. Doing so has shown to increase the acceptance levels of the community for the ultimate solution or intervention, as evidenced via public participation in environment policy in the Netherlands (Hofman).

The early inclusion of diverse stakeholders, particularly communities who are not typically involved in planning activities, could help to build trust. This could be particularly important for marginalized communities, like, for example, African American, Latinx, and American Indian communities in the United States, who have been disproportionately impacted by the pandemic. Effective resources are more likely to be created through collaboration and community engagement that respects community cultural perspectives and represents their needs and priorities. The global health community has long relied on public engagement events and the use of crowd-sourced media such as cartoons, music, and theater to spread information about best practices and health threats.

The Supermind also highlighted ways in which school systems could help, through their curriculum, to better aid community members and the public to develop media literacy and, in particular, to distinguish between reliable and unreliable sources. Organizations like the “News Literacy Project” have helped teachers with general media literacy, while organizations like “Science in the News” provide models for how scientists can engage directly with their communities to address technical issues in the news. Science curricula could also include more programs on “pandemic sciences” at a young age.

Promote evidence-based journalism

One of the significant challenges of the pandemic has been the rapid cycle and release of unverified, conflicting information. The Supermind noted that telling humanized stories along with scientific facts and stats can help the public absorb the information. One idea was to help media companies establish scientific advisory boards and encourage social media companies to identify proven misinformation and directly combat misinformation bots.

Amongst the scientific community itself, researchers could also be responsible for identifying erroneous or misleading science communication from peers. Previous public awareness campaigns like “See something? Say something” could be applied culturally amongst scientists. The scientific community should also vigorously debunk conspiracy theories, ideally with calm, professional, substantiated, and convincing explanations, potentially working with professional communicators. When engaging with the public, basic tactics could be employed like not repeating or negating a lie - for example, instead of answering, “Is this just like the flu?” with, “This is NOT the flu,” instead use a positive response like, “This is a new and dangerous disease.”

Re-design, re-purpose, or build new institutions that the public can trust

What happens when scientific authorities have their trustworthiness called into question? The Supermind highlighted, in particular, balancing trust in institutions that have traditionally communicated about infectious disease to the public, like the World Health Organization (WHO) and the United States Centers for Disease Control and Prevention (CDC) (Madrigal, Meyer). One route involves reforming the existing institution and redesigning its communication practices, which could include more regular communication. The Supermind noted that, during the 2009 influenza pandemic, the CDC provided regular public communication and for the current pandemic ideally would be engaging with the public on a similarly regular, if not daily, basis.

Another proposed alternative would be to build new institutions or repurpose existing ones to fill the void. For example, a new organization could provide a clearinghouse of vetted and agreed-upon communication, validated by the scientific community, focused exclusively on information dissemination. Universities could also fill the void and reclaim science communication narratives by coordinating closely among labs, departments, and university communications teams to build trust with the public.

Share data and incentivize rapid research

The Supermind highlighted the need to incentivize rapid reproduction of critical research during a pandemic and noted that enabling data-sharing across institutions could help these efforts significantly. Unifying data standards and creating cross-institution agreements could aid the large-scale analyses of complex data sets. Furthermore, removing other competitive barriers could incentivize the broad sharing of clinical trial data, thus potentially accelerating therapeutic and vaccine development processes.

The Supermind also proposed methods for rapidly translating research into meaningful capabilities for clinical and public health availability by developing pre-defined and standardized sets of non-exclusive licensing terms that guarantee fundamental economics and rights to both inventor and commercial entities. Such provisions could fall under a subset of "pandemic emergency powers" that would include funding mechanisms and organizations to support the initial research reproduction phase. By supporting that critical validation, technology de-risking and licensing process, the government would likely catalyze the rapid mobilization of private capital to carry the development process forward. Finally, the Supermind emphasized that equity considerations should be built into all pandemic research funding, given that translational research and other mechanisms to cure disease have historically left vulnerable and marginalized populations most impacted by the virus behind.

Rapidly validate and curate scientific insights while removing barriers to access

The Supermind observed that, during the pandemic, we have seen numerous scientific papers published without the necessary, or usual, rigor – an observation that applies even to top journals. Given the critical role journals play in disseminating ideas and observations, supporting rapid publications is essential but can create an unfortunate compromise of review standards. In order to address these issues, creative incentives, including economic benefits, could be established to reward qualified peer review research and dramatically expand the amount of peer review, thus accelerating the review cycle. This could help in reducing the media exposure of un-validated preprints which can provide undesired amplification of unproven science.

The Supermind also highlighted the critical importance of reproducing key scientific findings. While academia currently incentivizes publishing, such an approach strongly favors novelty over reproducing already-published work. Such reproducibility research could be incentivized with rapid funding to those capable of validating findings, which can also help expand the workforce and create jobs.

Finally, the Supermind proposed creating different types of portals for greater access to scientific research. There could, for example, be a central site unifying COVID-19 research where publication data could be shared quickly, encouraging the reproduction of certain experiments. Artificial Intelligence (AI) and Machine Learning (ML) approaches could be used for curation purposes to group and find linkages between publications in real-time. Such groupings could be curated specifically for certain attributes – for example, research that is more actionable by public health experts and policy makers. To increase access, paywalls for pandemic science and technologies could be removed and journals could be incentivized to share more data openly. Plain-language summaries in addition to abstracts could be required, thus removing technical jargon and enabling lay readers and amateurs better access and ability to understand the latest research. A portal could also be created with free access to information on science-based best practices, which could include proper use and disposal of personal protective equipment (PPE), activities now widely used by the public.

References

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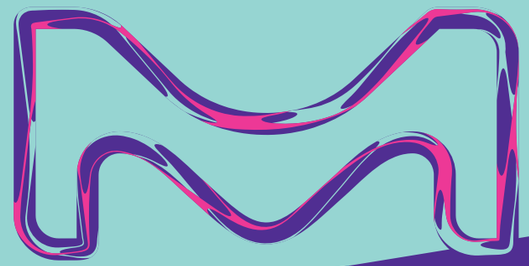

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