



Let's Do Better: Public Representations of COVID-19 Science

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COVID science is being both done and circulated at a furious pace. While it is inspiring to see the research community responding so vigorously to the pandemic crisis, all this activity has also created a churning sea of bad data, conflicting results, and exaggerated headlines. With representations of science becoming increasingly polarized, twisted and hyped, there is growing concern that the relevant science is being represented to the public in a manner that may cause confusion, inappropriate expectations, and the erosion of public trust. Here we explore some of the key issues associated with the representations of science in the context of the COVID-19 pandemic. Many of these issues are not new. But the COVID-19 pandemic has placed a spotlight on the biomedical research process and amplified the adverse ramifications of poor public communication. We need to do better. As such, we conclude with ten recommendations aimed at key actors involved in the communication of COVID-19 science, including government, funders, universities, publishers, media and the research communities.

Recommendations

We offer broad recommendations that we believe will have relevance beyond this pandemic.

- 1) The research community—including funding agencies, research institutions, ethics review boards, researchers, and publishers—should prioritize and defend the integrity of the research process. Federal, provincial and institutional research funding agencies, as well as research institutions, should consider how their criteria, incentives and evaluation processes might influence how science is framed and communicated to the public.*
- 2) Researchers should present their work throughout the knowledge creation and translation process in a manner that is measured, position their conclusions in the context of the broader evidence base, and consider the limitations, strengths and weaknesses of the utilized methodologies. Relevant scientific organizations should consider embracing this recommendation as an obligation.*
- 3) Measured and accurate public representations of science are facilitated by transparency about the evidence, data and methods. This requires researchers to deposit data and results, especially of clinical trials, in appropriate publicly accessible repositories (e.g., clinicaltrials.gov).*
- 4) Researchers should monitor how their work (and work relevant to their area of expertise) is represented in the public sphere and, when appropriate, correct public misrepresentation using a range of mediums, including various social media platforms. Researchers should be supported, recognized and incentivized for these kinds of public engagement activities. And, when needed, have access to appropriate training.*

5) The standard of peer review should remain high regardless of external pressures for speed. The research community—such as entities like the CIHR, NSERC, SSHRC, the Council of Canadian Academies, etc.—should work closely with academic publishers to develop strategies to handle peer review during times of crisis. This should be done in a manner that considers ways to improve the sustainability of the peer review process, which currently relies on academics to volunteer their time.

6) Great care should be taken in how research results that haven't been peer reviewed—such as preprints—are represented in the public domain, including emphasizing the preliminary nature of conclusions. Further consideration—by research funding entities, universities, academic journals, scientific associations, etc.—about the place of preprints and how to counter their possible harm on public discourse is required.

7) When issuing press releases or producing publications for the general public, research institutions and individual researchers should not exaggerate the benefits or implications of research, including clinical trials; should put the work in the context of available and accessible evidence, including clinical trial results; and note the limitations of the utilized methodologies. As part of the communication process, researchers and research institutions should consider creating summaries that are accessible to both the general public and the audiences/communities for which the results of the research may be most relevant.

8) Public institutions—such as public health authorities and provincial and federal regulatory bodies—should be transparent about the evidence (and other considerations) used to inform decisions, including an honest assessment of the current state of knowledge and changing nature of science in uncertain times. Public institutions should also avoid dogmatism and be free from political interference in the interpretation and representation of science.

9) The news media (and popular press more broadly) should strive to represent science in as accurate and informative a manner as possible, including not hyping significance of results or the timeframe of translation and not extrapolating the results inappropriately beyond the scope of the study. Journalists should also place research in the context of the existing body of evidence and recognize, *inter alia*, the limits of particular methods and the limited scientific relevance of anecdotes, testimonials and of a single study.

10) Researchers and science communicators must be mindful of the potential of research to be interpreted in a manner that harms individuals, communities, or populations, for example, through shaming, stigma or racism. Communications should be undertaken in partnership with research participants, with their voices included throughout the research process.