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Can We Trust COVID-19 Research?

The COVID-19 pandemic has inspired an unprecedented amount of healthcare-related research in various fields, from drug and vaccine development to epidemiological modelling. Preprints abound, but some warn about the dangers of releasing research without proper verification.

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"I am impressed by how quickly the scientific community has put together a lot of work, and has collaborated on making the results open – that hadn't happen so much in the past," says Prof. Andy Tatem, Professor of Spatial Demography and Epidemiology at University of Southampton, in his interview in the upcoming *HealthManagement.org The Journal* special issue, *COVID-19 Care Continuum*.

The concerns, however, are growing about the quality of such 'accelerated' research studies. " One usually would not recommend therapy unless the benefit reaches statistical certainty in two prospective randomized controlled studies. However, we do not have years to wait for these studies, we are forced to act on best evidence, but in some cases the evidence is less than actionable," Kevin Kavanagh and Lindsay Calderon write in *Infection Control Today*. In their piece, they provide examples of how initial favourable reports on the effectiveness on certain COVID-19 treatments, such as hydroxychloroquine, angiotensin converting enzyme inhibitors (ACEi) or angiotensin receptor blockers (ARB), have not been confirmed by consequent studies. "In the new reality of making decisions with limited and incomplete data, it is important that decision makers and scientists are free from biases," they conclude, warning against carelessness "in both reporting and interpreting messaging, including the results of unconfirmed research."

This viewpoint is further supported by Alex London and Jonathan Kimmelman in their article in *Science*. They argue that global crises are no excuse for lowering scientific standards, even if the situation may demand exceptions to the usually high standards of research for science to become feasible. The authors expose three problematic assumptions. The first is that evidence now, regardless of its validity, seems preferable to more-demanding studies with only potential benefits. The second is that key features of rigorous research (eg randomisation or placebo comparators) conflict with clinicians' care obligations. The third is that research organisation and design is exercised at researchers and sponsors' broad discretion.

The authors outline five criteria of quality research: importance; rigorous design; analytical integrity; complete, prompt and consistent reporting of trials; and feasibility. They stress that research and public health stakeholders have a responsibility to evaluate and triage studies that fail to meet these criteria.

At the same time, Prof. Tatem believes that currently it is the responsibility of the scientific community to highlight and point out problems with preprints. "I do see a lot of that happening on social media and news articles – when something has a bit of a headline, but the study hadn't been reviewed and there are major problems with it. I am hopeful there is a kind of self-correction mechanism in that, but it is still a concern as spreading unverified information can be dangerous."

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