

### Case study

#### Trade-offs in publishing preprints

SOURCE: Molldrem, S., Hussain, M. I., & Smith, A. K. (2021). Open science, COVID-19, and the news: Exploring controversies in the circulation of early SARS-CoV-2 genomic epidemiology research. *Global Public Health*, 1-14.

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In 2020, a team of genomic epidemiologists led by Bette Korber posted a preprint titled "Spike mutation pipeline reveals the emergence of a more transmissible form of SARS-CoV-2" on the bioRxiv repository. A preprint is a version of a research paper that is posted and shared publicly by researchers before it has undergone formal peer review and been published in a scientific journal. Preprints are usually shared on preprint servers, which are online platforms specifically designed for this purpose.

The story regarding the preprint was immediately featured in the *Los Angeles Times*. Molldrem et al. in their analysis of the events write about this publication: "Originally, the headline was 'A mutant coronavirus has emerged, even more contagious than the original, study says'. Within hours, the headline was changed to the less-sensational 'Scientists say a now-dominant strain of the coronavirus appears more contagious than original'; the following day, it was modified to read 'Scientists say a now-dominant strain of the coronavirus could be more contagious than original.'"

Vartabedian, the journalist who wrote the article, conducted interviews with members of the research team and several experts. He even cited first author's Bette Korber Facebook post:

'we see a mutated form of the virus very rapidly emerging, and over the month of March becoming the dominant pandemic form...When viruses with this mutation enter a population, they rapidly begin to take over the local epidemic, thus they are more transmissible.'

Afterwards Vartabedian wrote, including a quote from the preprint:

'D614G is increasing in frequency at an alarming rate, indicating a fitness advantage relative to the original Wuhan strain that enables more rapid spread,' the study said. Still unknown is whether this mutant virus could account for regional variations in how hard COVID-19 is hitting different parts of the world.'

Molldrem et al. in their analysis of the events write: "Vartabedian's inclusion of the qualifying phrase '*Still unknown is whether*' before suggesting the possibility of a SARS-CoV-2 evolutionary trajectory toward greater transmissibility by region is deceptive rhetoric. It presents a hypothetical, putting forward the possibility of an alternative outcome without making it sufficiently clear that there was not yet evidence to say that the alternative outcome (in this case, SARS-CoV-2 evolution toward greater transmissibility by region) was actually occurring."

Molldrem et al. state that this case shows several problems. First, it validates concerns within the scientific community that preprints frequently receive media coverage similar to fully peer-reviewed papers. Furthermore, it demonstrates that preprints have a potential to influence scientific landscape and society. Lastly, it illustrates how a journalist's

interpretation can overly sensationalize and misrepresent preliminary conclusions, especially in situations where expert opinions are uncertain, divergent, and perplexing.

### Questions for discussion:

- 1) What are the potential benefits of publishing preprints? What are the potential risks?
- 2) How to minimise the potential risks caused by publishing preprints?
- 3) How to minimize risks of misrepresentation of preprints in media?

