# Three lessons COVID-19 has taught us about Open Access publishing

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This post is part of a six-week series: **Rapid or Rushed?** exploring rapid response publishing in covid times.

As part of the series, there will be a virtual roundtable on Friday 6th November, 1.30pm featuring Professor Joshua Gans (Economics in the Age of COVID-19, MIT Press and Richard Horton (The COVID-19 Catastrophe, Polity Press and Editor of The Lancet). Register here

*COVID-19 has seen an unprecedented focus on research and an acceleration in the availability of its outputs. But this open approach shouldn't be an exception.* ***Robert Kiley,*** *Head of Open Research at Wellcome, outlines three lessons for the pandemic for open research and why we need to move to a world where* ***all*** *research is available to all.*

The COVID-19 pandemic has placed research in the spotlight like never before. Across the sector, researchers and publishers have pulled together to make their research articles and data available at an unprecedented rate.

But this open approach shouldn't be an exception. A sector-wide shift towards open access publishing has begun – now, we need to seize it. Here are three lessons from the pandemic for open research.

## Lesson 1: Traditional publishing models – which lock content behind paywalls – are not fit for purpose.

As a group of US patient and disease advocacy organisations recently stated, "information critical to health should no longer be held hostage by arcane publishing practices".

However, according to a study from Universities UK, 75% of the research literature is only accessible on publication to paying subscribers – even though much of it is funded by the public purse. By limiting access, the full potential of others to build on these research findings and uncover new findings and insights, is denied.

Recognising that restricting access to research findings at a time of a global pandemic was in nobody's interest, more than 50 publishers – including the world's largest publishers Elsevier, Springer-Nature and Wiley – have removed all access controls on

COVID-related content, both current and archival.

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Of course, the question which now begs is that if Open Access is critical to help defeat COVID-19, why not use the same logic to address all the other challenges we face, be that climate change, food security or other diseases? And of course, the only credible answer is that **all** research must be made Open Access.

At Wellcome, we require all research outputs that arise from our funding to be made open access. We believe that this is the most effective way of making sure any findings can be read and built upon.

Our open access policy has been in place for more than 15 years and, in January 2021, will be updated to align with Plan S. This initiative requires all research articles to be published open access, with no embargo, and licensed in ways which facilitate full re-use.

## Lesson 2: Preprints and open publishing platforms have come of age

Throughout this pandemic, researchers have embraced open publishing platforms and preprint servers to share their findings as quickly as possible.

The first article related to COVID-19 was published on the bioRxiv preprint server on 19 January – just 20 days after the Chinese government informed the World Health Organization of 'cases of pneumonia of unknown etiology detected in Wuhan'. As of September 2020, the Europe PMC repository has indexed over 13,000 COVID-19 related preprints. To put this number in context the *total* number of preprints – across all subjects – deposited in bioRxiv in 2019 was 26,535.

In contrast to the traditional publishing model – where it is estimated that the average elapsed time from submission to publication is around 125 days – preprints are typically made publicly accessible within 2 to 5 days of submission, dependent upon the level of screening that a preprint server undertakes.

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This fast-paced publishing relies on the research community buying in and contributing to the process. As preprints, by definition, have not been exposed to a formal peer review process, there will always be some cases where the information presented is not scientifically robust. However, researchers are using their critical skills to expose these articles. The preprint which suggested there were 'uncanny' similarities between COVID-19 and HIV is one example. After being criticised on social media by researchers around the world, it was withdrawn within 48 hours.

Open publishing platforms – such as Wellcome Open Research – have also experienced a spike in submissions. Like preprint servers, submissions are posted after an initial screening (to check the work is scientific, has not been plagiarised, contains access to the relevant data, and adheres to all appropriate ethical standards) and ahead of peer review. However, in contrast to traditional preprint servers, the peer review is undertaken directly on the platform, negating the need for the author to submit to a journal. Peer review reports are published online (alongside the article) along with the identity of the reviewer – making the process fully open and transparent.

All articles published include a data and software availability statement, which ensures that others can access the underlying data (and any code needed to interpret that data). At a time when trust in science is declining – recent polls have found as few as 50% of people in the US are committed to receiving a vaccine for COVID-19 – it is crucial that others can access data to validate the findings. The recent high-profile retractions of articles relating to the efficacy of hydroxychloroquine and blood pressure drugs in the treatment of COVID-19 (published in the Lancet and NEJM respectively) arose because the data on which the findings were based were not made accessible and thus the conclusions drawn could not be validated.

## Lesson 3: We can't predict which research will be useful – so let's make it all open access

It has been very encouraging to see publishers making their COVID-19 content open access. At the time of writing, the Europe PMC repository provides access to over 100,000 full-text articles on this topic.

Crucially, this research has also been made available under licences that explicitly support data mining and machine learning technologies which allows researchers and machines to search for and discover new and unexpected connections. And one group of scientists has created a coronavirus 'knowledgebase' that applies machine learning approaches to large amounts of COVID-19 data as it becomes available.

But the coronavirus crisis has made it clear just how much research intersects. Understanding the mental health implications that arise from the pandemic lockdown, or the efficacy of face masks in reducing viral transmissions, or the effect on cancer survival rates in patients who elect not to go to hospital because of the pandemic, are just some of the almost infinite number of questions researchers will seek to address in the coming years. As such it's difficult to guess which research which will prove most effective in addressing the full societal implications of the COVID19 pandemic.

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Cognisant of this problem some publishers – such as the Royal Society and the Biochemical Society – are going further and making all their content openly available.

However, we need to move to a world where **all** research is available to all. We have

many other huge challenges ahead of us – from climate change to mental health to other infectious diseases. All of them will require researchers working at the cutting edge of their field, with free, unfettered access to the research literature and the underlying data.

COVID-19 has driven us to make great progress in open research publishing. Now, we need to move towards a fully open access world.  This must be one of the lasting legacies of the COVID-19 pandemic.

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*Note: This article gives the views of the authors, and not the position of the LSE Impact Blog, nor of the London School of Economics. Please review our comments policy if you have any concerns on posting a comment below*

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