

# Lockdowns and research: what we lost and what we stand to gain

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The Covid-19 pandemic - and the resulting lockdowns - have had a major impact on research at institutions across the world, and universities in particular.



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Research is one of the pillars of academia. Important discoveries are made, careers are built and the opportunities to train students are virtually unlimited. Research is a way of life for many, their findings being fundamental to progress in all scientific fields which supports a vast range of industries and communities.

One of the consequences of lockdowns brought on by the pandemic is that much research activity has been halted. Researchers have been forced to abandon ongoing projects that, for example, require hands-on laboratory work. This could mean terminating or delaying projects, many of which may have been running for some time. The long term cell culture experiments in which bone formation is studied and the assessment of a particular diet in mice prone to obesity, are just two examples.

Particularly difficult is the termination of animal experiments and the maintenance of animal colonies until a return to work is authorised. Rodents are often used to assess the potential anti-tumour activity of a novel therapeutic agent and likewise, novel anti-retrovirals require extensive preclinical testing before they can be assessed in clinical trials. These and other experiments require time and continuous assessment to determine outcomes.

Experimental programmes like this highlight what may happen in the medical research field, in which solutions to urgent challenges around human health and disease are being sought.

Equally problematic are interruptions in research programmes where data can only be gathered at the time of a particular event. These include field programmes based on seasonal changes, where a year may be lost in having missed one season.

For example, some [South African National Antarctic Programme](#) projects have lost this year's research data as the Agulhas research vessel has been unable to transport researchers and support marine research. Some of that research would have generated key data points in long term (multi-year) projects, and decades-long projects on global climate change, conservation, and environmental impact.

The same is true of numerous agriculture and plant production projects, with substantial impact on food production industries and future food security.

Researchers who use computational techniques to analyse data that is already in existence, such as bioinformatic analysis of genomic data, are able to continue working. But that data had to be produced initially, in laboratories or research stations. And there is always a need to generate new data, as we seek to validate answers and generate new research questions.

To restart these experimental programmes and begin generating new data will take time, considerable expense, and a coordinated effort for researchers, students, suppliers and funders.

## **Knock-on effects**

The stoppages and delays will also affect students whose degrees require research projects to be completed in short time periods. A delay of several months, or perhaps a year, could mean the loss of a year of study, or possibly not completing the degree at all, putting future careers in jeopardy.

Research funders have specific requirements that need to be met to comply with timelines and objectives. This is often a requirement for continued funding. With delays of months or even years, deadlines will not be met and objectives not achieved. Funding agencies generally seem willing to take this into account. But investigator and research assistant salary cuts may be necessary to fund extensions in order to see projects through to completion.

There has been a rapid redirection of resources towards Covid-19-related research, quite understandably. In the long term, this resource reallocation is likely to result in budget cuts in all research areas.

Taking all this into account, we are possibly looking at a ten year legacy of a one year crisis.

## **Opportunities**

The pandemic has stimulated a storm of questions as the world seeks to understand Covid-19 and its causative agent, the SARS-CoV-2 virus. There has been an unprecedented move towards stronger cooperation and collaboration between scientists across the world such as, for example, the [Covid-19 Host Genetics Initiative](#). The drive to collect, analyse and publish data is fierce, as is the need to fast-track clinical trials and vaccine development.

This accentuated trend towards cooperation is not limited to understanding Covid-19. A spirit of compassion and collective gain pervades many research initiatives, often through multi- or trans-disciplinary collaborations.

There has been an [explosion in the quantity of research](#) being conducted on this topic. Close to 10,000 scientific articles have been published on Covid-19 in three months.

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Several important changes in the way research is done and reported have occurred. Approvals from ethics committees and other regulatory authorities are being expedited. Now, it's not necessary to wait for extensive periods – as has been the case before. The time for articles to be accepted and published in journals has been reduced significantly.

This, of course, has to be seen against the backdrop of needing to maintain research standards to ensure that quality is not compromised. The time-honoured system of [peer review](#) is still very important.

## Opening up

Any unnecessary delay in getting going again needs to be avoided. Milestones need to be met, students need to graduate, and the pipeline leading to the development of new products and services needs to be filled. In order to do this, however, safety needs to be ensured and protocols developed to ensure that returning to work does not put people at risk.

All of this is possible with a well thought through strategy. Researchers, students and administrators can use the lessons learned to work smarter and more efficiently, to refocus and prioritise, and to offer new insights into complex global challenges.

We can also use this momentous experience to improve on ways of communicating new information and truths to the global public, thereby generating mutual trust.

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