



Impact of COVID-19 on research

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The coronavirus (COVID-19) has changed our normal way of life and with that our previous way of carrying out research. The World Health Organization and the UK have declared it a "high consequence infectious disease". In the UK alone, it has so far claimed more than 41,000 lives, while over half a million lives have been lost globally. The effects of the lockdown have had unprecedented financial implications for even the most robust economies. In a bid to reduce the mass scale of fiscal deficits, big institutions have taken steps to restructure how funding is utilized while focusing on public health-related projects to combat COVID-19.

Understandably, the National Institute for Health Research (NIHR) funding is being prioritized for COVID-19 at present in an attempt to find potential treatments for the virus. NIHR's manifesto is to improve the health and wealth of the nation through research. Currently, this aim is rightly focused on the global pandemic efforts but will gradually flow back into all areas of healthcare. NIHR has recently strongly supported orthopaedic research.^{1–8} COVID-19 has significantly affected current clinical trials, including those that were intended to commence. It has delayed the progression of trials, i.e. trial recruitment, data collection, monitoring patients, and providing supervised treatment such as physiotherapy. Potentially, it may also create confounding factors in some studies, and some of the early benefits of interventions could be lost due to patients not being able to attend hospitals during the lockdown.

It is important also to consider the extent the impact of COVID-19 has had on individual trials, and whether patient outcomes would be negatively affected when compared to those who had treatment on either side of the pandemic. Most research laboratories have been closed while the staff have been redeployed to help with COVID-19

trials, which has further compounded the aforementioned factors. Clinical research nurses have recruited over 60,000 patients to COVID-19 studies already, which is a fantastic achievement in such a short space of time. Over 400 COVID-19 related studies have been submitted to the NIHR and 33 are now active.

The wholesale and abrupt mass cancellation of elective work has stopped the recruitment of new patients into orthopaedic trials and may result in long-term adverse effects on future recruitment. Patients may be reluctant to attend hospitals frequently due to COVID-19 related fears. Research studies run on tightly funded schedules, and the sudden halt has prompted some stakeholders to inform Principal Investigators of their intention to reduce their budgets for the year 2020 to 2021. Cancer Research UK announced cutting funding to existing trials by 10% while cutting funding to its national network of centres by 20%.⁹ There will be repercussions from the redundancies of experienced staff, which will inevitably affect the completion of ongoing research projects - some trials may be abandoned altogether. One of the five core NIHR workstreams is to collaborate with charities and industry to improve research. We may have to rely on this stream even more in the near future to help fund research, although many charities have been hit hard during this pandemic. Industry has funded a number of important clinical studies over the past few years,^{10–13} and we need to engage with them even more proactively in future.

It is vital that solutions and strategic plans are established to get ahead of the curve so that we can sustain and continue to spearhead essential research in orthopaedics. The NIHR has developed a 'Restart Framework', which has allowed a phased reopening of research centres and the running of some clinical trials.¹⁴ Patient safety has been of

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paramount importance through the use of COVID-19 clean sites and self-isolation periods before treatments are given. Research teams must make sure strict policies are in place for highlighting and treating all patients showing signs of COVID-19 as quickly and effectively as possible. COVID-19 teams within hospitals will have to provide track and trace processes when the inevitable positive cases occur in research settings. National advisory groups and local leaders are prioritizing COVID-19 studies and trials still viable following this period.

Setting up virtual data collection sites and making changes to the existing infrastructure of research centres and laboratory IT systems may help our research processes against any future peaks of the virus. Moreover, the clinical trial consent process for patients will need to include COVID-19 risks and have a strategy in place for the trial to continue, should there be a COVID-19 re-emergence.

We have to work together efficiently by increasing collaboration between research units and hospitals, especially when recruiting patients and finding ways to bridge gaps in the funding of projects. In reality, until the economy starts to recover from the COVID-19 recession, obtaining government and industry-sponsored funding will be especially challenging.

When times are hard, we always see innovation progress technology and services. Virtual meetings and communication globally have progressed more in this year than they had in the last ten years within healthcare systems. We must take advantage of this in research and collaborate nationally and globally to improve all aspects of research including recruitment, efficiency, and output and dissemination of trials. Patient engagement with technology has been impressive, including communication via telephone and email for routine follow-up and service delivery. Using these processes in future research pathways will streamline data collection and may improve compliance and the outcomes of our research.

Another silver lining during the COVID-19 pandemic has been the vast amount of manuscripts submitted to peer reviewed journals around the world. We have had a massive increase in manuscript submission compared to the same time last year. There have been some high-quality papers on COVID-19 and the management of trauma published during the pandemic.¹⁵⁻¹⁸ Although elective work has come to a halt, surgeons have had the opportunity to complete research projects. Furthermore, this pandemic has sparked interest among surgeons to engage more in healthcare policy and governance.¹⁹⁻²¹

With so many lives lost during the peak of the pandemic, the boundaries for medical innovations and service restructure have been pushed. Policies that would have previously taken a considerable amount of time to approve have now rapidly been executed by multi-institutional collaborations. Discussions among organizations and leading societies have been able to develop efficient pathways for resuming elective work and clinical trials. We must now facilitate research studies on the most

effective way to deliver elective services during these difficult times.²²⁻²⁷

The pandemic has created a sense of pride, national unity and, above all, brought to the attention of the nation the valuable work all the keyworkers, and in particular researchers, do in keeping the country safe. In short, COVID-19 has had a significant impact on orthopaedic research and, through adaptation and restructuring of our processes, we can and should now confidently continue our research.

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