

BSI Response to the House of Commons Select Committees on Science and Technology and Health and Social Care Joint Inquiry into 'Coronavirus – lessons learned'

British Society for Immunology

As an organisation, the British Society for Immunology (BSI), the largest immunological society in Europe, represents over 4,200 immunologists working in academia, clinical medicine and industry. Our objective is to promote and support excellence in research, scholarship and clinical practice in immunology for the benefit of human and animal health.

- Government communications and public health messaging;

At the beginning of the pandemic and the restrictions announced surrounding the 'stay home, protect the NHS, save lives' mantra, the Government's communications around the need for parents to continue to ensure that their children were vaccinated against diseases other than COVID-19 should have been clearer. After several years of general decline in the uptake of childhood vaccinations in England, including 2018-19 which saw a decline in coverage in all vaccinations at the correct timepoints, 2019-20 saw a welcome uptick and a sign that this worrying trend was beginning to be reversed. [Interim data from Public Health England](#) released this month (November 2020) has indicated that this progress has been lost in the pandemic, with a marked drop in the number of vaccinations for both the hexavalent (6 in 1) vaccine and the MMR 1 vaccine.

The Government must ensure that in the future, blanket statements asking the public to 'stay at home' do not overwhelm the nuances including in this case, the continued need for parents to vaccinate their children against dangerous diseases. The Government should also make sure that any appointments that were missed as a result of this initial message are rescheduled by GPs, including any appointments that subsequently had to be cancelled to comply with the requirements around physical/social distancing. Indeed, the current anticipation amongst the public for a COVID-19 could be used as an opportunity by the Government to remind people about the importance of other vaccines. It will also, of course, be of utmost importance that the Government does learn the lessons regarding communications and public health from the last nine months when a COVID-19 vaccine is ready for rollout and information about how this will work must be imparted to the public.

- the UK's prior preparedness for a pandemic; and

Considering the prominence of 'pandemic influenza' on the UK's [National Risk Register](#), it is clear that the Government had failed to put into place the requisite infrastructure and measures that would have mitigated somewhat the shock of COVID-19. The focus on a form of pandemic influenza in the Government's plans for preparedness of such an event appears to have been carried out to the detriment of a dual focus on new and emerging infectious disease, such as a novel coronavirus. In fact, the National Risk Register (NRR) states that '[t]he likelihood of a new disease like SARS spreading to the UK is low, but if an outbreak of an emerging infectious disease occurred in the UK, and preventative measures were not put in place swiftly, the impact seen could be on the scale of the SARS outbreak in Toronto, Canada". The NRR goes on to say that in that case, "Toronto had 251 cases of SARS in two waves over a period of several months." It is clear from this, in retrospect, that preparations had failed to account for the situation that we found ourselves in.

Lessons that we must learn from this disease outbreak are also the ones that we failed to learn from the outbreaks of SARS1 and MERS, caused by similar coronaviruses. The primary failings from the SARS1 and MERS crises were a failure to continue to fund and conduct longer-term research into these diseases. Had research into SARS1 and MERS continued in earnest, we would likely have been

in a better position to tackle a novel coronavirus and efforts to develop a vaccine, many of which have been based on this earlier work, would have been further ahead or been able to be accelerated more quickly. It is vital that we learn the lessons of COVID-19 for future pandemics and continue to acquire as much knowledge as we can about the SARS-CoV-2 virus and how it interacts with our immune system. The COVID-19 pandemic has also unambiguously demonstrated the interconnected nature of challenges across the global healthcare landscape, and revealed the need to take a One Health approach to pandemic preparedness, including the necessity to fund ongoing research worldwide into other pathogens that have future pandemic potential, including those yet to cross the species barrier into humans.

- the development of treatments and vaccines.

The collaboration between academia, government, and industry in the development of a COVID-19 vaccine has vastly accelerated the normal timescale that it would take to create and test a vaccine. At the time of writing, the progress made by different research teams both in the UK and around the world looks propitious for the chances of the release of a vaccine that is both safe and efficacious in early 2021. The question going forward is whether there is the drive to maintain the links and working relationship between academia, government, and industry, that could be used in the future, not only for the development of vaccines against novel viruses, but to boost work that is ongoing in tackling existing diseases, such as tuberculosis and malaria.

More generally, we must give credit the Government with its early recognition of the importance of rapid response funding mechanisms to drive this type of research forward. Having a picture of the structure that worked in 2020 will definitely serve the country well should it face a similar sort of threat in the near future. But the need to be flexible, too, remains. This is particularly important in areas such as therapeutics, where knowledge of the details underlying the immune response to a novel virus creates avenues that need to be explored as they arise. The [RECOVERY trial](#) and the [UK-Coronavirus Immunology Consortium](#) (UK-CIC) are prominent examples of innovative projects bringing together expert researchers from across the UK, to work collaboratively and at scale to drive science forward and aid in the development of better diagnostics, treatments, and vaccines against COVID-19.

Whilst preliminary data suggests that at least a couple of the vaccines that are currently under development for COVID-19 are as effective in older people as they are in younger people, this is far from a guarantee when developing vaccines. This topic and the reasons why this is so, are explored more in depth in the British Society for Immunology's report '[The ageing immune system and COVID-19](#)'. One of the most important lessons to learn from the current pandemic, however, is that this may not be the case should a similar scenario with a novel virus arise again. It would be eminently sensible therefore to ensure that the Government's pandemic preparedness strategy in the future does not solely rely on the development of a vaccine, which may not be as efficacious in those most vulnerable to any novel pathogen, but also dually focuses on the development of therapeutics. In addition to this, the development of vaccines must also be considered in the context of whether they are safe and effective in those with certain co-morbidities who are particularly vulnerable to COVID-19, e.g. those with haematological cancers; more research is currently required on this and should be a feature of any future planning for vaccine development in a pandemic.