

# Our COVID-19 response

Reflecting on an extraordinary year



**Imperial College London**

**Imperial College Healthcare NHS Trust**

**Chelsea and Westminster Hospital NHS Foundation Trust**

**ICRC** The Institute of Cancer Research

**The Royal Marsden NHS Foundation Trust**

## Introduction

Just over a year ago, the first cases of COVID-19 were reported and as they rapidly increased, the UK was placed into its first lockdown. During this uncertain and worrying time, Imperial College Academic Health Science Centre (AHSC) took swift and effective action to utilise the academic and clinical abilities of its partners to respond robustly and effectively to the pandemic.

Since then, the AHSC's COVID-19 research and clinical commitment has had a significant impact on both national and a global scale. Our researchers have informed the government's response to both the pandemic and the lifting of lockdown restrictions. Our engineers have developed a rapid COVID-19 test to diagnose the virus at the bedside. We have carried out clinical trials of interventions in critically ill COVID-19 patients, reducing mortality and length of hospital stay. We described the rare but serious COVID-19-related inflammatory syndrome in children, which is now being treated with steroids and are exploring its diagnosis and treatment. We have led a nationwide programme on the prevalence of SARS-CoV-2, the virus responsible for the pandemic, and used new technology to push for a vaccine. These are just a few examples of our work.

The AHSC's partners have been able to respond to each other's needs by providing additional staffing support as demands on the NHS increased. Around 200 of our clinical academics volunteered to be seconded to the

frontline of our partner hospitals to treat COVID-19 patients during the first waves. This unwavering support continued during the difficult winter surge of COVID-19 cases, where pressure on the NHS reached a critical level.

Towards the end of 2020, the first COVID-19 vaccines and their rollout were approved and our staff and students have been facilitating this by working with NHS colleagues to vaccinate healthcare workers in hospitals.

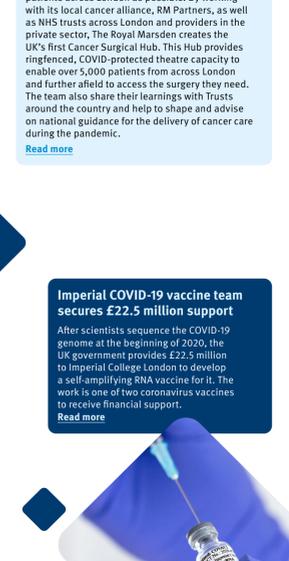
The vaccines, alongside other key medical and scientific developments, provide us with hope. As we move towards the easing of restrictions and containing virus transmission, it is timely to look back on this extraordinary year.

The year has resulted in heavy loss of life, devastated communities and has put unprecedented strain on our healthcare system and economy. Further challenges lie ahead and the AHSC is leading efforts to address these. We will be using our vaccine technology to respond to new and more infectious mutations of the virus, investigating more effective treatments and carrying out work to better understand and treat long COVID-19.

In this brochure we look back and reflect on a selection of our extraordinary achievements over the last year – made possible through the incredible efforts of our staff and students. I want to thank each and every one of them for their hard work.

The COVID-19 pandemic has illustrated clearly to me the importance of our partnership, and how collaboration is vital in tackling this global health crisis at pace and at scale.

**Professor Jonathan Weber**  
Director of the Imperial College Academic Health Science Centre  
March 2021



## Imperial researchers model likely impact of public health measures

Researchers from Imperial College London are at the forefront of the UK government's response. Researchers in the MRC Global Infectious Disease Analysis (GIDA)/IDEA team model the likely spread and impact of COVID-19 and their data informs the UK government's policy, as well as that of other governments around the world. Over the coming year, the team produce more than 40 vital reports covering the impact of non-pharmaceutical interventions and the impact of the virus on disadvantaged and vulnerable communities.

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## Researchers find being male or overweight can lead to more serious COVID-19 hospital admissions

Work begins at Imperial College London to learn more about the SARS-CoV-2 virus – the virus that causes coronavirus disease. The SABRIC study is the largest European study to systematically collect and analyse thousands of samples from COVID-19 patients to learn more about the natural history of the disease and how the virus causes it. By July, more than 66,000 COVID-19 patients are enrolled across the UK. The first analysis from the SABRIC study finds that being male or obese reduces the chance of survival from severe coronavirus disease (COVID-19).

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Imperial College London and Imperial College Healthcare NHS Trust join an Oxford-led clinical trial to begin testing a vaccine against COVID-19 in healthy volunteers. The team enables researchers to assess if people can be vaccinated against COVID-19 with the new vaccine, which is being co-developed with AstraZeneca. The trial provides the first evidence of the safety of the Oxford/AstraZeneca vaccine and its ability to generate good immune responses against the virus.

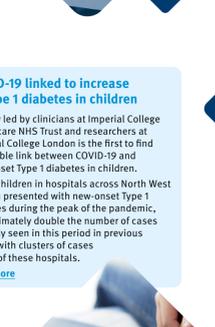
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## Poor health outcomes from COVID-19 more probable among Black patients

A study by the School of Public Health at Imperial College London and Imperial College Healthcare NHS Trust finds that Black patients requiring hospitalisation are at increased risk of poorer health outcomes from COVID-19.

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## Scientists develop AI to help cancer patients during the COVID-19 pandemic

A study using artificial intelligence (AI) to help analyse cancer patients' scans during the COVID-19 pandemic is launched by The Royal Marsden NHS Foundation Trust, the Institute of Cancer Research, London, and Imperial College London. People with cancer are at an increased risk of developing COVID-19 and are more vulnerable to serious diseases due to their weakened immune systems, while people with lung cancer – one of the most common cancers worldwide – are particularly vulnerable as the virus severely impacts the respiratory system.

The researchers use AI tools to analyse scans to help clinicians prioritise either getting treatment side-effects, infection or targeting cancer treatment side-effects.

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## Researchers outline how COVID-19 changes to less worrisome health inequalities

A study from the School of Public Health at Imperial College London and Chelsea and Westminster NHS Foundation Trust finds that the pandemic further widens existing health inequalities, such as access to services for ethnic minorities.

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A study led by clinicians at Imperial College Healthcare NHS Trust and researchers at The Royal Marsden NHS Foundation Trust, is the first to find a possible link between COVID-19 and new-onset Type 1 diabetes in children. Thirty children in hospitals across North West London presented with new-onset Type 1 diabetes during the peak of the pandemic, approximately double the number of cases typically seen in this period in previous years, with clusters of cases in two of these hospitals.

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## Imperial's new COVID-19 testing lab goes live

Imperial College London opens its new COVID-19 testing laboratory on the South Kensington campus. The laboratory forms part of the Department of Health and Social Care's partnership with the London Testing Alliance, brought together by life sciences cluster MedCity in December 2020. The London Testing Alliance receives swab tests from the community, including those from members of the public, key workers and care homes. It forms part of the national network of COVID-19 diagnostic facilities, the largest in the country's history.

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## REACT study expands to help better understand long COVID

A team of Imperial College London researchers is awarded £5.5 million from the UK Government to study Long COVID. The research will involve studying more than 120,000 people to better understand why some people who are infected with the coronavirus have symptoms for several weeks or even months – a condition called Long COVID – while others don't. In doing so, the team hopes to find new ways to diagnose, support and effectively treat Long COVID, which may affect up to a quarter of people who have had the virus.

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## North West London Pathology reaches testing milestone

North West London Pathology (NWLP) reaches the milestone of processing more than half a million COVID-19 tests, providing vital information to help hospitals and communities safely manage the timely isolation and management. Delivering pathology services on behalf of Imperial College Healthcare NHS Trust, Hillingdon Hospital NHS Foundation Trust, and Chelsea and Westminster NHS Foundation Trust, NWLP has processed 513,518 polymerase chain reaction (PCR) test samples for COVID-19 since 11 March 2020. These tests are the 'gold standard' for COVID-19 testing, providing accurate information about the COVID-19 status of patients and staff in North West London.

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**March 2020**

**April 2020**

**May 2020**

**June 2020**

**July 2020**

**August 2020**

**September 2020**

**October 2020**

**November 2020**

**December 2020**

**January 2021**

**February 2021**

**March 2021**

**Outwork continues**

## Cancer Hub delivers treatment during coronavirus pandemic

When the COVID-19 pandemic hit, the aim of The Royal Marsden NHS Foundation Trust was to continue to provide cancer treatment to as many patients across London as possible. By working with its local cancer alliance, RM Partners, as well as NHS trusts across London and providers in the private sector, The Royal Marsden creates the UK's first Cancer Surgical Hub. This Hub provides ring-fenced, COVID-protected theatre capacity to enable over 5,000 patients from across London and further afield to access the surgery they need. The team also share their learnings with trusts around the country and help to shape and advise on national guidance for the delivery of cancer care during the pandemic.

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## Imperial COVID-19 vaccine team secures £22.5 million support

After scientists sequence the COVID-19 genome at the beginning of 2020, the UK government provides £22.5 million to Imperial College London to develop a self-amplifying RNA vaccine for it. The work is one of two coronavirus vaccines to receive financial support.

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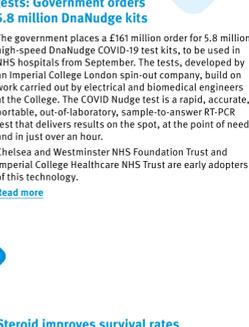
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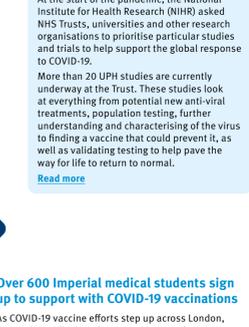


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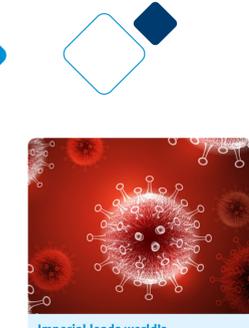
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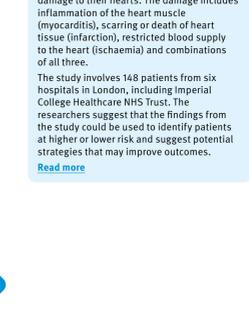
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## Heart damage found in half of COVID-19 patients discharged after hospitalisation

A study led by researchers at Imperial College London finds that half of patients who have been hospitalised with severe COVID-19 have damage to their hearts. The damage includes inflammation of the heart muscle (myocarditis), scarring or death of heart tissue (infarction), restricted blood supply to the heart (ischemia) and combinations of all three. The study involves 148 patients from six hospitals in London, including Imperial College London and Westminster Hospital NHS Foundation Trust. Researchers suggest that the findings from the study could be used to identify patients at higher or lower risk and suggest potential strategies that may improve outcomes.

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## Outwork continues