

COVID-19 Bulletin

An RSB communication on the
bioscience behind the outbreak and
response

14 July 2021

Dear Sir or Madam,

This nineteenth edition of the RSB COVID-19 bulletin highlights a selection of the bioscience research and news of the last month. It cannot be comprehensive and gives just a glimpse of the huge worldwide effort to understand SARS-CoV-2 and its effects.

We can all contribute to the response to COVID-19 by engaging with sound science, countering misinformation and increasing awareness. We hope this bulletin is helpful in this.

We are moving to bimensal publication of this bulletin; the twentieth edition will reach our subscribers in early September. We would like to take this opportunity to thank you for your readership.

Views or opinions presented are those of the original author(s) and do not necessarily represent the views of the Royal Society of Biology; medical and government advice should be consulted regarding personal wellbeing decisions.

For further information and to get in touch, contact our policy team via: policy@rsb.org.uk.

To read previous editions and directly sign-up to future editions of this bulletin, please [visit this page](#).

This bulletin is divided into six main sections:

- 1. RSB news:** including key current updates from the RSB.
- 2. Research updates and expert opinion:** relevant national and international research news and outputs under topic headings.
- 3. How else can the bioscience community help?** Examples, resource and expertise calls.
- 4. Positive community news:** community impact aiding the pandemic response.
- 5. Other regularly updated information sources:** useful online information hubs.
- 6. Spotlight on personal and community wellbeing:** articles on mental health and wellbeing during self-isolation and social distancing.

This newsletter provides links to published news articles from a range of sources. Views or opinions presented are those of the original author(s) and do not necessarily represent the views of the Royal Society of Biology.

RSB news

Education during COVID-19

Our education policy team is working with government, awarding bodies and policy partners to provide advice and support to teachers, parents and students. These pages will be updated regularly over the coming weeks.

Training

During the Covid-19 pandemic the RSB can offer training courses both online and in-person (via video conferencing). Training courses can also be delivered in-house to staff or students (via video conferencing). If you are interested in up-skilling then please contact us at training@rsb.org.uk. Visit our [online training platform myLearning](#) or send a request to sign-up to our [Training Newsletter](#) for regular updates.

For more current news, commentary and updates, visit the [RSB on Twitter](#), [LinkedIn](#), [The Biologist](#), and read our latest edition of the weekly [Science Policy Newsletter](#).

Research updates and expert opinion

SARS-CoV-2 is a virus in the zoonotic coronavirus family. This novel virus, discovered in 2019, was previously unidentified in humans and causes the disease COVID-19, which has since been characterized as a pandemic.

SARS-CoV-2 virus characteristics

Deleted coronavirus genome sequences trigger scientific intrigue

A biologist in the United States has 'excavated' partial SARS-CoV-2 genome sequences from the beginnings of the pandemic's probable epicentre in Wuhan, China, that were deposited - but later removed - from a US government database. The partial genome sequences address an evolutionary conundrum about the early genetic diversity of the coronavirus SARS-CoV-2, reports Nature.

Further evidence supports controversial claim that SARS-CoV-2 genes can integrate with human DNA

AAAS Science explores how a team of prominent scientists has given more effort to its controversial hypothesis that genetic material of the COVID-19 virus can integrate into our chromosomes and persist long after infection.

COVID-19 pathophysiology

Biomarkers for severe COVID-19

Authors of an article in the Lancet describe differences in biomarkers between COVID-19 patients on general wards and in Intensive Care Units (ICUs). The findings may have implications for development and timing of interventional therapies in severe COVID-19.

Vascular mechanisms and manifestations of COVID-19

Authors of an article published in the Lancet Respiratory Medicine suggest that severe COVID-19 is dominated by a multifaceted severe respiratory infection, simultaneously affecting three compartments of the lungs.

COVID-19 pathophysiology: looking beyond acute disease

Little more than a year after the start of the COVID-19 pandemic, new understanding of the disease is becoming apparent, with a range of clinical features that goes beyond the scope of acute disease. Marcin Osuchowski and colleagues describe these features in the first of a Series of four papers in *The Lancet Respiratory Medicine*.

How a rampant coronavirus variant blunts our immune defences

A news article published in *Nature* discusses the fast-spreading Alpha variant, including the mutations that caused it to be highly transmissible, and which may allow it to suppress the body's initial immune response.

A Tsunami of Disability Is Coming as a Result of 'Long COVID'

Many who survive the initial COVID-19 viral illness suffer debilitating long-term sequelae. As scientists and clinicians continue to delineate the "long-haul" course of COVID, policy makers and planners must anticipate and prepare for the impact of this new cause of disability, reports *Scientific American*.

Expert comment - COVID-19 and stillbirth risk

Scientists from the London School of Hygiene and Tropical Medicine have conducted a study which suggests that having coronavirus around the time of birth may increase the chance of stillbirths and premature births - although the overall risks remain low.

The four most urgent questions about long COVID

Nature looks at the insights that scientists are starting to get into the lingering disorder that affects some people infected with SARS-CoV-2.

Why are women more prone to long Covid?

Over the past 12 months a global gender skew for long Covid sufferers has become apparent, with the emerging data showing that the majority of those with long Covid are relatively young and overwhelmingly female, reports the *Guardian*.

COVID and the brain: researchers zero in on how damage occurs

How COVID-19 damages the brain is becoming clearer. New evidence suggests that the coronavirus's assault on the brain could be multipronged: it might attack certain brain cells directly, reduce blood flow to brain tissue or trigger production of immune molecules that can harm brain cells, reports *Nature News*.

Neuropsychiatric disorders and COVID-19

Research carried out at the University of Oxford and published in the *Lancet Psychiatry* provides evidence for substantial neurological and psychiatric morbidity in the 6 months after COVID-19 infection, with associated correspondence piece.

Mice with severe COVID symptoms could speed vaccine effort

Researchers have developed a strain of SARS-CoV-2 that triggers severe COVID-19 symptoms in mice - an advance that could accelerate the creation of drugs and vaccines and help to illuminate the biology of the disease, reports *Nature News*.

A long-term perspective on immunity to COVID

A *Nature* news article explores the ongoing discussion surrounding the length of protective immunity to infection by SARS-CoV-2, and how recent clinical studies may be a reason for hesitant optimism.

Epidemiology and public health response

Delta variant triggers new phase in the pandemic

An overview of coronavirus Delta variant characteristics and spread, by AAAS Science.

BBC News comment: 'Now is not the time to abandon all Covid caution'

Scientists say the Delta variant should make the government think twice about resting all its hopes on vaccines.

Delta coronavirus variant: scientists brace for impact

The rapid rise of the highly transmissible Delta strain in the United Kingdom has catalysed a third UK wave, forced the Government to delay the full reopening of society, and put countries in Europe, North America, and Africa on watch, reports Nature.

Coronavirus in Africa: Concern grows over third wave of infections

The World Health Organization (WHO) says the current rise in Covid-19 cases in Africa is 'extremely worrying'. Cases are on an upward trend in at least 12 countries with Uganda, the Democratic Republic of Congo, Namibia, Zambia, Rwanda and Tunisia among the countries worst affected, reports BBC News.

Why Uruguay lost control of COVID

Once looked to as a global model for how to respond to the COVID-19 pandemic, Uruguay has in recent months lost its grip on the coronavirus SARS-CoV-2. Uruguayan scientists say a mix of complacency - fuelled by the country's early success at controlling the virus - and the challenges posed by a particularly transmissible SARS-CoV-2 variant are to blame, according to Nature News.

'The perfect storm': lax social distancing fuelled a coronavirus variant's Brazilian surge

Genomic analysis has shown a link between a second COVID-19 wave in Brazil and an increase in travel and contact, according to Nature.

Greater risk of poor COVID outcomes in minority ethnic groups, finds study of 17 million in England

A study led by the London School of Hygiene & Tropical Medicine (LSHTM) has shown minority ethnic groups had higher risk of testing positive for SARS-CoV-2 and of COVID-19-related hospitalisations, intensive care (ICU) admissions and death compared with white groups in England.

Study improves understanding of higher rate of COVID-19 death among disabled people

The London school of Hygiene and Tropical Medicine (LSHTM) teamed up with the Office for National Statistics (ONS) to examine the link between self-reported disability and deaths involving COVID-19, finding that (after adjusting for age) the rate of death involving COVID-19 was higher among both more-disabled and less-disabled people.

COVID-19 and global mental health

A review published in the Lancet Psychiatry describes how humanitarian organisations with expertise in mental health began issuing guidelines in February 2020, to manage the pandemic's effects on mental health, and many LMICs integrated this guidance into national response plans for mental health.

Travelling football fans 'very clearly' linked to spike in positive Covid tests

The rise in positive coronavirus tests in Scotland is "very clearly" linked to Scotland fans travelling

to London for the Euro 2020 match against England, reports The Sunday Post.

COVID and schools: the evidence for reopening safely

After a school term filled with anxiety and vitriol, researchers assess the spread of coronavirus and the prospects for a return to normal, according to Nature News.

Some Pandemic Health Habits Deserve to Stay

An article in Scientific American tells of how we will have lost some traditional habits and gained new ones after the COVID-19 pandemic. Most of all, the virus has taught us that we need a major culture change when it comes to basic public health hygiene.

Testing and ongoing surveillance

Scientists raise hopes of blood test for long Covid

Research carried out at Imperial College London, UK, suggests that long Covid could soon be diagnosed by a simple blood test. Long Covid patients were found to have autoantibodies in their blood, which would explain their long-term symptoms, reports Medical Device Network.

Disease surveillance for the COVID-19 era: time for bold changes

A comment in the Lancet explores how the COVID-19 pandemic has exposed weaknesses in disease surveillance in nearly all countries, and how early identification of COVID-19 cases and clusters for rapid containment was hampered by inadequate diagnostic capacity and insufficient contact tracing.

Sensors shown to accurately detect odour 'fingerprint' of COVID-19 infections with up to 100% accuracy

Researchers at the London School of Hygiene and Tropical Medicine at the biotech company RoboScientific Ltd., with Durham University, tested devices developed for COVID-19 detection and monitoring. The technology can distinguish between individuals infected with the SARS-CoV-2 virus, and uninfected individuals, from body odour samples with up to 100% accuracy, according to this LSHTM News post.

Understanding COVID-19 Variants - What Can The Coronavirus Infection Survey Tell Us?

The Office for National Statistics survey repeatedly tests a large, randomised sample of the entire community population. In an ONS blog post, Sarah Crofts explains what it can tell us about the spread of COVID-19 variants.

Forget throat swabs: Dutch company claims its breathalyzer can help sniff out COVID-19

People seeking to be tested for COVID-19 by Amsterdam's Public Health Service were the first in the world to be tested using a breathalyser that can sniff out the disease based on a mix of chemical components exhaled by the patient, reports AAAS Science.

Prophylaxis and treatment

Collection of original papers in the Biochemical Journal presents findings for seven SARS-CoV-2 enzymes

The *Biochemical Journal* has published new research that identifies a range of potential antivirals, which could be developed into new treatments for COVID-19 or future coronavirus outbreaks. Along with colleagues at the Francis Crick Institute and the University of Dundee, John Diffley, lead author of the papers, presents the findings for seven SARS-CoV-2 enzymes. The papers describe several drug candidates that will serve as important starting points for further development and/or tool compounds for studies into the vagaries of this virus.

Antibody-laden nasal spray could provide COVID protection - and treatment

Scientists at the University of Texas Health Science Centre at Houston set out to engineer an antibody that could be delivered directly into the nose. Among the promising candidates were IgG antibodies, which are relatively slow to appear after an infection but are precisely tailored to the invading pathogen, reports Nature News.

Monoclonal antibodies cut risk of dying from COVID-19 - but only in some patients

The world's largest trial of COVID-19 therapeutics has produced evidence that a therapy that directly attacks the virus can save hospitalised patients from death, reports AAAS Science.

Six months of COVID vaccines: what 1.7 billion doses have taught scientists

At a pivotal moment in the pandemic, Nature explores key questions about the vaccines that countries are racing to deliver while viral variants spread around the globe.

COVID vaccines to reach poorest countries in 2023 - despite recent pledges

Nature News reports that amid a COVID surge in Africa, vaccine promises from richer nations are not enough to bring an early end to the pandemic, experts say.

A patent waiver on COVID vaccines is right and fair

A Nature editorial covers the principle underpinning the campaign to temporarily waive intellectual property (IP) protection on coronavirus vaccines. The campaign was initiated by India and South Africa, and is being backed by more than 100 countries, along with international organizations including the World Health Organization and the United Nations AIDS charity, UNAIDS.

FPM Statement on COVID Vaccine Supply May 2021

The Faculty of Pharmaceutical Medicine (FPM) believes that the key stakeholders in healthcare - governments, international bodies, patient organisations and charities, academia, pharmaceutical companies and manufacturers and healthcare professionals - with the potential to ensure effective, expedient and equitable global access to vaccines have an ethical duty to do so, for the good of patients and public health as a whole.

COVID-19 affects men and women differently. So why don't clinical trials report gender data?

Globally, for every 10 COVID-19 intensive care unit admissions among women, there are 18 for men; and rare adverse effects from the AstraZeneca vaccine appear to strike women more frequently, whereas those from the Pfizer-BioNTech and Moderna vaccines more often affect young men. But out of 45 COVID-19 randomized controlled trials whose results were published by December 2020, only eight reported the impact of sex or gender, reports AAAS Science.

COVID vaccines and breastfeeding: what the data say

Scientists are beginning to understand the effects of COVID-19 vaccines on breast milk, and their preliminary results should come as welcome news to the more than 100 million lactating people across the globe, reports Nature.

Mix-and-match COVID vaccines trigger potent immune response

Researchers conducting a study in Spain have found that vaccinating people with both the Oxford-AstraZeneca and Pfizer-BioNTech COVID-19 vaccines produces a potent immune response against the virus SARS-CoV-2, according to Nature News.

Experts study viability of giving flu and Covid jabs at same time

Researchers are working to establish whether the flu jab and a Covid vaccine can be given at the

same time, as the NHS braces itself for a potential surge in cases of flu this winter, according to the Guardian.

Is one vaccine dose enough if you've had COVID? What the science says

Research shows that a previous coronavirus infection plus one dose of vaccine provides powerful protection - but concerns linger, according to Nature News.

Does vaccinating adults stop kids from spreading COVID too?

Nature comments on the discussions surrounding whether children in wealthy countries should be prioritised for vaccination - or whether their doses should go to poorer nations instead.

Mounting evidence suggests Sputnik COVID vaccine is safe and effective

Nature reports on Russia's COVID-19 vaccine, Sputnik, which has been the subject of fascination and controversy since the Russian government authorized its use last year. It is in use in nearly 70 nations, but its adoption has been slowed by controversies and questions over rare side effects, and it has yet to garner World Health Organization approval.

Analysis of online conversations paints a picture of vaccine confidence

A report conducted by the World Economic Forum and analytics platform NetBase Quid, with expert support from the Vaccine Confidence Project at the London School of Hygiene & Tropical Medicine, suggests messages focusing on personal choice rather than moral obligations receive a more positive response on social media, reports LSHTM News.

'It's a minefield': COVID vaccine safety poses unique communication challenge

A poll carried out in the United States on public confidence in the safety of COVID-19 vaccines has made apparent the knife-edge that public-health authorities have been walking since COVID-19 vaccines became available late last year, demonstrating the predicament researchers face in transmitting risk information during a pandemic, reports Nature News.

Scientists identify long-sought marker for COVID vaccine success

An article by Nature news explores how researchers developing the Oxford–AstraZeneca COVID-19 vaccine have identified biomarkers that can help to predict whether someone will be protected by the jab they receive.

How else can the bioscience community help?

COVID-19 resources from the community

An RSB webpage with links to COVID-19 initiatives and resources available from other bioscience organisations and the wider community. This page is being updated regularly and if you would like to suggest additional content please **send us an email**.

Coronavirus restrictions: what you can and cannot do

England moves to Step 4 from 19 July.

Covid rules: Is lockdown ending on 19 July?

Scotland is to relax its Covid restrictions, with the whole country placed on level zero from 19 July. However, some measures, such as mandatory face coverings, will remain in place. Most Covid guidance and legal restrictions will be lifted in England on the same day.

Government Guidance: Regular rapid coronavirus (COVID-19) tests if you do not have symptoms

You can get regular rapid tests if you do not have symptoms of coronavirus (COVID-19). If you have symptoms of COVID-19, you need a different test called a PCR test. Get a PCR test if you have symptoms of COVID-19 on [GOV.UK](https://www.gov.uk)

Government Guidance: Coronavirus (COVID-19) vaccine

The coronavirus (COVID-19) vaccines are safe and effective. They give you the best protection against COVID-19.

Download the NHS COVID-19 app

The NHS provides an official COVID-19 contact tracing app for England and Wales enabling the fastest tracing alerts of contact risk.

Teachers urged to 'combat' anti-vaxxer ideas in class

The Stephen Hawking Foundation launches teaching aid to tackle vaccine hesitancy, developed by secondary teachers.

Contact RSB to discuss bioscience community issues or actions via policy@rsb.org.uk

Positive community news

Evidence-based medicine: how COVID can drive positive change

An editorial in Nature explores why it's important that researchers, doctors and global leaders assess what worked during the COVID-19 pandemic, take notes of what didn't and why, and make recommendations for change.

How kindness can be contagious in healthcare

Nature Medicine describes how pay-it-forward programs, whereby someone receives a gift or free service and then gives a gift to another person in return, have expanded during the COVID-19 pandemic, and how they provide an opportunity for healthcare providers to reduce costs, increase uptake of interventions such as testing and vaccines, and promote sustainability.

The pandemic has revived hope that a more sustainable world is possible

Economic growth is inextricably linked to the climate crisis, but the past year has taught us that such growth isn't essential, reports the Guardian.

Other regularly updated information sources

Additional COVID-19 resources

An RSB webpage collating other resources on COVID-19. This page is being updated regularly and if you would like to suggest additional content please [send us an email](#).

[WHO] Coronavirus disease (COVID-19) Situation Dashboard

WHO COVID-19 situation dashboard.

Coronavirus COVID-19 Global Cases by Johns Hopkins CSSE

COVID-19 case dashboard.

Global.health open repository and visualisation platform

An international database tracking anonymised information about individual COVID-19 cases.

Spotlight on personal and community wellbeing

Childcare in COVID - why social support for mothers and their children has never been more relevant

An expert opinion by Dr Abigail Page, from the London School of Hygiene and Tropical Medicine, explores how during the COVID-19 pandemic mothers have been disproportionately shouldering the burden of additional childcare, and the well-documented fact that mothers' mental health and wellbeing have suffered in recent times.

The empty office: what we lose when we work from home

An article in the Guardian explains how for some people, working from home prevents the lack of serendipitous chats and incidental information exchange that happens when physically working together.

The impact of Covid-19 on mental health and human rights

The House of Commons Library published an insight into how the pandemic has affected mental health and human rights, and how international organisations have responded.

Six mentoring tips as we enter year two of COVID

Writing for Nature's career column, Ruth Gotian and Christine Pfund write about how mentoring in the next few months - as people start to return to their labs and offices - needs to be reimaged.



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