

## COVID-19 Bulletin

An RSB communication on the  
bioscience behind the outbreak and  
response

18 May 2020

The fifth edition of the RSB COVID-19 bulletin highlights a selection of the bioscience research and news of the last fortnight. 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.

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](mailto: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 research news and outputs under topic headings.
- 3. How else can the bioscience community help?** 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. Opinion 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, preserving the original title and summary line. 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**

### [Main RSB webpage on COVID-19](#)

The RSB is working to adapt and ensure our services are delivered to the greatest extent possible whilst also taking into account Public Health England and Government advice during the pandemic. We regularly update this webpage with relevant information about our activities, initiatives and community support.

## 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.

## RSB launches COVID-19 Impact Survey

The Society has launched a survey to find out more about how the bioscience community has been affected by the COVID-19 pandemic.

If you can, please do fill in this short survey to help inform how we support the research community now and in the future.

### *"Everyone leaves their ego at the door and is so upbeat, even at 4am"*

PhD student Adrienne Adele Cox takes us inside one of the UK's three 24-hour 'mega-labs', where volunteers are working day and night to help scale up COVID-19 testing.

It's the latest in *The Biologist's* [COVID Q&A series](#) looking at how the bioscience community has sprung into action since the crisis began. Contact [tom.ireland@rsb.org.uk](mailto:tom.ireland@rsb.org.uk) if you would like to be featured or have any information to contribute to this series.

## Antimicrobial Resistance: The One Health Approach and implications for the COVID-19 pandemic response

**Wednesday 20 May | 19:00-21:00 BST**

This free online event will take place on Zoom on Wednesday 20th May from 19:00-21:00 BST. This is part of our [Policy Lates](#) series, which provides an opportunity for relaxed discussion with an interested and informed audience. Our expert panel will consider what we know about antimicrobial resistance, and what we don't know, to better understand the causes and consequences of AMR for our health, our food supplies and our environment. The panel will address the challenges we face, and how strategies and policies to tackle AMR intersect with those needed to respond to COVID-19 now, and to prevent future pandemics.

Visit [www.rsb.org.uk/PolicyLatesAMR](http://www.rsb.org.uk/PolicyLatesAMR) for full details and to book your place. Direct queries to Harriet McAra at [events@rsb.org.uk](mailto:events@rsb.org.uk) or on 020 3925 3445.

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.*

### Coronavirus (COVID-19): scientific evidence supporting the UK government response

A collection of the evidence provided to the Government by the Scientific Advisory Group for Emergencies (SAGE) on COVID-19, updated May 5th.

### UK Parliament POST: Covid-19

The Parliamentary Office of Science and Technology (POST) has produced a series of 'rapid response' articles on topics including potential COVID-19 vaccines and school closures.

### Coronavirus research updates: Promising vaccine shields monkeys from lung damage

*Nature* wades through the literature on COVID-19 so you don't have to.

## 'Finally, a virus got me.' Scientist who fought Ebola and HIV reflects on facing death from COVID-19

Virologist Peter Piot, director of the London School of Hygiene & Tropical Medicine, fell ill with COVID-19 in mid-March. He spent a week in a hospital and has been recovering at his home in London since. Climbing a flight of stairs still leaves him breathless.

## SARS-CoV-2 virus characteristics

### How is the COVID-19 virus evolving?

A new analysis of the worldwide effort to sequence the coronavirus genome has revealed the scale of the genetic changes that are occurring in the virus known as SARS-CoV-2, as it spreads across the world. These changes have important implications for molecular diagnostics and potentially vaccine success.

### Coronavirus mutations: Scientists puzzle over impact

The BBC explores global efforts to understand how the virus has mutated so far.

### The Problem With Stories About Dangerous Coronavirus Mutations

There's no clear evidence that the pandemic virus has evolved into significantly different forms - and there probably won't be for months.

### Profile of a killer: the complex biology powering the coronavirus pandemic

Scientists are piecing together how SARS-CoV-2 operates, where it came from and what it might do next - but pressing questions remain about the source of COVID-19.

## COVID-19 pathophysiology

### Risk factors for COVID-19 death revealed in world's largest analysis of patient records to date

Academics at the University of Oxford and the London School of Hygiene & Tropical Medicine (LSHTM), working on behalf of NHS England and in partnership with NHSX, have analysed the pseudonymised health data of over 17.4 million UK adults to discover the key factors associated with death from COVID-19.

### Coronavirus blood-clot mystery intensifies

Research begins to pick apart the mechanisms behind a deadly COVID-19 complication.

### Coronavirus: A third of hospital patients develop dangerous blood clots

Up to 30% of patients who are seriously ill with coronavirus are developing dangerous blood clots, the BBC reports.

### PHE to review how ethnicity affects vulnerability to coronavirus

Deprivation, age, gender and obesity will also feature in review of thousands of health records.

### Coronavirus: Children affected by rare Kawasaki-like disease

Up to 100 children in the UK have been affected by a rare inflammatory disease linked to the virus, the BBC reports.

### Surviving Covid-19 May Not Feel Like Recovery for Some

Debilitating symptoms can last long after a person's body has gotten rid of the coronavirus, a reality Italians are now confronting.

### Autopsy slowdown hinders quest to determine how coronavirus kills

Strained health-care systems, lockdowns and safety requirements have hampered efforts to

collect tissue from patients that is crucial to research.

### Coronavirus symptoms: UK adds loss of smell and taste to list

Loss of smell or taste has been added to the UK's list of coronavirus symptoms that people should look out for and self-isolate with.

## Epidemiology and public health response

### New survey results provide first snapshot of the current number of COVID-19 infections in England

Understanding how COVID-19 is spreading across the population is crucial to controlling the pandemic and its effects. A large study jointly led by the ONS, in partnership with the Universities of Oxford and Manchester, Public Health England and Wellcome Trust, is tracking infections within a representative sample of people of all ages across England. As the initial estimates are released, Pete Benton, Director of Population and Public Policy Operations, explains what they mean, why there are important and how to compare this survey to other COVID-19 estimates.

### 100,000 infections every day – why the UK lockdown came just in time

Expert opinion on the timing of lockdowns from the London School of Hygiene and Tropical Medicine.

### Only 4.4% of French population infected by coronavirus - Pasteur institute

A study led by the Pasteur Institute says a mere 4.4% of the French population - or 2.8 million people - have been infected by the novel coronavirus, much higher than the official count of cases but way too low to achieve so-called "herd immunity".

### Estimating number of cases and spread of coronavirus disease (COVID-19) using critical care admissions, United Kingdom, February to March 2020

A study of the extent of COVID-19 in the UK from the journal Eurosurveillance.

### Almost 75% of people on board Diamond Princess with COVID-19 may have been asymptomatic

New estimates suggest this group may have contributed significantly to overall transmission

### 'Social bubble' could be limited to fewer than 10 friends and family

To help stop the spread of Covid-19, social interactions will need to be severely limited for a prolonged period, new modelling shows.

### How do children spread the coronavirus? The science still isn't clear

Schools are beginning to reopen - but scientists are still trying to understand what the deal is with kids and COVID-19.

### Dogs caught coronavirus from their owners, genetic analysis suggests

But there's no evidence that dogs can pass the virus to people.

## Testing and ongoing surveillance

### Coronavirus: why testing and contact tracing isn't a simple solution

Since mid-March, the World Health Organization has urged countries to scale up the testing, isolation and contact tracing of COVID-19 patients in order to combat the pandemic.

### Covid antibody test a 'positive development'

A test to find out whether people have been infected with coronavirus in the past has been approved by health officials in England, the BBC reports.

### [Abbott joins Roche in winning UK approval for virus antibody test](#)

Public Health England gives green light to second diagnostic kit to detect past infection and potential immunity.

### [First CRISPR test for the coronavirus approved in the United States](#)

The kit has been granted approval under 'emergency use' provisions, and should help to ease testing backlogs in the country.

## **Prophylaxis and treatment**

### [Sustained suppression](#)

Further COVID-19 outbreaks are unavoidable. To detect and suppress them, governments ought to implement a range of public health measures aided by technology.

### [Coronavirus vaccine: Macaque monkey trial offers hope](#)

A vaccine against coronavirus appears to have provided protection against the disease Covid-19 in six rhesus macaque monkeys, the BBC reports.

### [WHO conditionally backs Covid-19 vaccine trials that infect people](#)

'Challenge' studies would deliberately give coronavirus to healthy volunteers.

### [A rational roadmap for SARS-CoV-2/COVID-19 pharmacotherapeutic research and development. IUPHAR Review 29](#)

In this review, the authors identify opportunities for drug discovery in the treatment of COVID-19 and in so doing, provide a rational roadmap whereby pharmacology and pharmacologists can mitigate against the global pandemic.

### [British Pharmacological Society responds to new roadmap for identifying COVID-19 treatments](#)

A new review, published in the British Journal of Pharmacology, from a team of researchers representing the International Union of Basic and Clinical Pharmacology (IUPHAR), identifies opportunities for drug discovery in the treatment of COVID-19.

## **How else can the bioscience community help?**

### [How you can help with COVID-19](#)

An RSB webpage collating routes through which individuals can offer their help to support the national effort to respond to the spread of COVID-19.

*The Biologist* is publishing [a series of Q&As](#) with bioscientists who are helping to understand, track, and treat COVID-19. The series is looking at how science works in a crisis, how we know what we know about this virus so quickly, and the experiences of researchers and scientists that have shifted their focus towards the current emergency. Contact [tom.ireland@rsb.org.uk](mailto:tom.ireland@rsb.org.uk) if you would like to feature or have any information or ideas for the series.

### [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](#).

The [Covid-19 Volunteer Testing Network](#) is looking for labs with RT-PCR capacity to help provide vital Covid-19 testing for frontline healthcare staff. This will help prevent asymptomatic carriers spreading the virus, ensuring that patients are kept safe and making sure that GP surgeries and care homes can stay open. The network will provide logistical and operational support, as well as funding from the Department of Health and Social Care to allow labs to meet the cost of running tests. They're interested in hearing from all sorts of labs. Whether you're a large commercial lab or research facility with a handful of staff, no lab is too big or too small. Visit [www.covid19-testing.org](http://www.covid19-testing.org) to learn more about how you can help the national effort against the Covid-19 pandemic.

### [COVID-19 Rapid Response Rolling Call](#)

Building on the initial calls of their Initiative, DHSC, through the NIHR, and UKRI are jointly launching a rolling call for proposals for rapid research into COVID-19. As this is a rolling call there is currently no fixed end date to the call, we are open to applications and will aim to review complete proposals within 4 weeks of submission.

### [New call for research on the risk factors, transmission and prevalence of coronavirus](#)

A new call for research proposals on the risk factors, transmission and prevalence of the COVID-19 virus SARS-CoV-2, has been launch by UK Research and Innovation (UKRI) and the National Institute for Health Research (NIHR).

### [Coronavirus Global Response](#)

[#UnitedAgainstCoronavirus](#) [#StrongerTogether](#) [#GlobalResponse](#)

The European Union and its partners are hosting an international pledging marathon starting on Monday 4 May 2020 and running until the end of May 2020. The aim is to gather significant funding to ensure the collaborative development and universal deployment of diagnostics, treatments and vaccines against coronavirus.

### [\[Scottish\] Government's approach to coronavirus testing to be examined by Scottish Parliament Committee](#)

The Parliament Committee is seeking views to find out what role testing should play in helping to tackle the pandemic, and what infrastructure is required to deliver the Government's test, trace and isolate strategy it aims to introduce by the end of May.

**Closes: 18 May 2020**

### [Impact of Covid-19 disruptions on schools and higher education institutions](#)

An inquiry by the education select committee is open until end of May, considering the implementation of the critical workers policy, fairness of qualification arrangements and progression to next stages of education, and financial implications of closures for Higher Education Institutions. If you plan to submit evidence, please let us know by emailing [consultation@rsb.org.uk](mailto:consultation@rsb.org.uk).

**Closes: 31 May 2020**

### [The science of COVID-19](#)

The Science and Technology Committee (Lords) is investigating the scientific and technological aspects of the COVID-19 pandemic, including the nature of the SARS-CoV-2 virus, its transmission and spread, the development of vaccines and treatments, and how digital technologies can be used for tracking and modelling. The inquiry aims to help Government and society learn from the pandemic and better prepare for future epidemics.

**Closes: 30 June 2020**

## UK Science, Research and Technology Capability and Influence in Global Disease Outbreaks

The Science and Technology Committee will inquire formally into the place of UK research, science and technology in the national and global response to the COVID-19 pandemic, and what lessons should be learned for the future. If you plan to submit evidence, please let us know by emailing [consultation@rsb.org.uk](mailto:consultation@rsb.org.uk).

**Closes: 31 July 2020**

## How Public Health Veterinarians can Respond to Covid-19 Emergency

Expert opinion from Maurizio Ferri, Vice-President of Union of European Veterinary Hygienists (UEVH).

## COVID-19: Emergency funds available to environmental groups

*By Jane Cabutti, Environmental Funders Network, 20th April 2020:* We know COVID-19 has resulted in many environmental organisations struggling with a significant drop in income due to the closure of visitor centres, pause on events, halting of face-to-face fundraising and the downturn in the economy. Given the magnitude of the social crisis unfolding, it's not surprising that the vast bulk of the emergency funds being made available are focused on social and health issues. We've done our best here to track down those funds that are open to environment-orientated organisations. We will be updating this list regularly.

## Updated: LSHTM free online COVID-19 short course

Tackling the Novel Coronavirus: Find out more about the outbreak of the novel coronavirus and its implications around the world.

## Royal Academy of Engineering online event series - Innovation in a crisis - focusing on rapid innovation, collaborations, and lessons learned during the ongoing COVID situation:

### Nightingale Hospitals: Skills and technology deployment

Thursday 14 May 2020, 2.00pm – 3.00pm: [register here](#)

- **Dr Helen Meese**, Founder and MD of The Care Machine and Trustee at the Institution of Mechanical Engineers
- **Professor Richard Kitney OBE FEng FRSE**, Chair of Visbion, Professor of BioMedical Systems Engineering and Dean of the Faculty of Engineering at Imperial College London.

Dr Helen Meese will talk about her involvement in the Nightingale Hospitals coordinating the engineering profession to volunteer as auxiliary engineers. She will be joined by Professor Richard Kitney who will talk about his experience of deploying his healthcare technology (Visbion data cubes) in the Nightingale Hospitals.

### UCL-Ventura breathing aid (CPAP)

Tuesday 19 May 2020, 2.00pm – 3.00pm: [register here](#)

- **Andy Cowell FEng**, Managing Director of Mercedes AMG High Performance Powertrains
- **Professor Rebecca Shipley**, Professor of Healthcare Engineering, Director of the Institute of Healthcare Engineering and Vice Dean (Healthcare) at University College London.

In response to the pandemic, engineers at University College London and Mercedes AMG High Performance Powertrains have worked in collaboration to produce the UCL-Ventura breathing aid - a Continuous Positive Airway Pressure (CPAP) device which is now in operation in hospitals.

## Going viral: how to boost the spread of coronavirus science on social media

Scientists have a responsibility to communicate effectively and compassionately, says Samantha Yammine. Here's how.

## The Biochemist Blog

Viruses Gone Viral: A blog exploring the world of viruses and the race for a COVID-19 vaccine.

Contact RSB to discuss bioscience community issues or actions via [policy@rsb.org.uk](mailto:policy@rsb.org.uk)

## Positive community news

### COVID-19 drugs trial rolled out across UK homes and communities

A UK trial – testing whether low-risk treatment in the community can help people at higher risk of complications from COVID-19 to get better quicker, reducing the need for hospital admission – is today announcing that older people who have had coronavirus symptoms for 15 days or less can now also screen for the trial online.

### Major COVID-19 drugs trial begins in Birmingham

A trial which will rapidly test new therapies for patients hospitalised due to COVID-19 is opening in Birmingham this week. It is hoped that by using drugs that target the most serious symptoms of the virus, the severity of the disease could be reduced leading to a reduction in the number of patients needing to be admitted to intensive care and ultimately, a reduction in virus related deaths.

### Coronavirus: Manchester to keep lectures online in autumn

Email to students confirms that University of Manchester will keep lectures online in 2020-21, though tutorials will be held in person.

### What Lies Beyond?

Post-COVID-19 Commission formed by the RSE to support a positive future.

### From maths to maps: The modellers tackling COVID-19

The work of the LSHTM Centre for Mathematical Modelling of Infectious Diseases (CMMID), led by Professor Graham Medley, in predicting the spread of the disease has been crucial in informing government policy both in the UK and around the world.

### Simulate the impact of physical distancing in countries around the world

New app to support public understanding of mathematical modelling.

### Together in spirit

Brickwall have partnered with the London School of Hygiene and Tropical Medicine (LSHTM) to create a video that tells young people's stories of social distancing. Our mental health and wellbeing is under exceptional stress at the moment, and [Brickwall] believe we'll all get through this better if we do it together. If you are between the ages of 18-27, and living in the UK [Brickwall] want to hear from you.

## Other regularly updated information sources

### Additional COVID-19 resources

An RSB webpage collating other regularly updated resources on COVID-19.

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

## Opinion on personal and community wellbeing

### [Responding to the hidden pandemic for healthcare workers: stress](#)

Healthcare workers are having to work under incredibly stressful conditions. Videoconferencing can be harnessed to provide mental-health support, but some report 'tele-health' fatigue. To protect public health, prepare for the mental-health surge among healthcare workers. *Nature Medicine*.

### [COVID-19 mental-health responses neglect social realities](#)

A diagnosis is rarely a solution to problems caused by poverty and inequality. *Nature World View*.

### [The Single Most Essential Requirement in Designing a Fall \[Autumn\] Online Course](#)

Let's start the week by repeating that a summer of planning for better online learning this Fall [Autumn] will be wasted if we do not begin from the premise that our students are learning from a place of dislocation, anxiety, and trauma. So are we. Writes HASTAC Co-founder.

### [Burnout at Work Isn't Just About Exhaustion. It's Also About Loneliness](#)

Written for Harvard Business Review.



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