



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.

preferences, and power in favour of planetary health equity, public-interest actors must be part of the energy, macroeconomic, food, infrastructure, and social policy discussions. This shift will require advocates to challenge the often opaque relationship between industry and governments, and a move to a more broad view of policy making, with open processes that enable civil society and otherwise marginalised groups to exercise influence. Activist shareholders can help to drive corporate change in support of planetary health equity goals—eg, shareholders recently requested that the Australian mining company BHP suspend membership in industry associations that do not advocate for bold climate policy.²⁰

Societies are at a pivotal juncture in addressing the impacts of the climate crisis and the consumptogenic system. Recalibrating power inequities might be possible by compelling narration of ideas that advance equity and sustainability, strategic use of institutional processes, and social mobilisation among like-minded and unusual bedfellows.

SF receives an Australian Research Council Laureate Fellowship grant (FL210100044) and a grant from the National Health and Medical Research Council all to her university, consulting fees from WHO to her university, and is on the Board of Directors of the non-profit Health Justice Australia, which is an unpaid position. NF receives consulting contracts from the International Trade Centre and the Organization of Economic Cooperation and Development. MA declares no competing interests.

*Sharon Friel, Megan Arthur, Nicholas Frank
sharon.friel@anu.edu.au

Planetary Health Equity Hothouse, School of Regulation and Global Governance, Fellows Road, Australian National University, Canberra 2601, Australia

- 1 IPCC. Climate change 2022: impacts, adaptation, and vulnerability. Cambridge: Cambridge University Press, 2022. <https://www.ipcc.ch/report/ar6/wg2/> (accessed June 21, 2022).

- 2 DAWE. Australia State of the Environment 2021. Canberra: Commonwealth of Australia, 2022. <https://soe.dcceew.gov.au/> (accessed Aug 5, 2022).
- 3 Islam SN, Winkel J. Climate change and social inequality. DESA Working Papers No. 152. New York, NY: UN Department of Economic and Social Affairs, October, 2017.
- 4 Rasanathan K. 10 years after the Commission on Social Determinants of Health: social injustice is still killing on a grand scale. *Lancet* 2018; **392**: 1176–77.
- 5 Friel S. Climate change and the people's health. Oxford: Oxford University Press, 2019.
- 6 IPCC. Climate Change 2022: mitigation of climate change. Cambridge and New York, NY: Cambridge University Press, 2022. <https://www.ipcc.ch/report/ar6/wg3/> (accessed June 21, 2022).
- 7 Friel S, Townsend B, Fisher M, Harris P, Freeman T, Baum F. Power and the people's health. *Soc Sci Med* 2021; **282**: 114173.
- 8 Mialon M. An overview of the commercial determinants of health. *Global Health* 2020; **16**: 74.
- 9 Sell SK, Williams OD. Health under capitalism: a global political economy of structural pathogenesis. *Rev Int Polit Econ* 2020; **27**: 1–25.
- 10 The Lancet Planetary Health. Moving the Overton window. *Lancet Planet Health* 2021; **5**: e751.
- 11 Maani N, van Schalkwyk MCI, Filippidis FT, Knai C, Petticrew M. Manufacturing doubt: assessing the effects of independent vs industry-sponsored messaging about the harms of fossil fuels, smoking, alcohol, and sugar sweetened beverages. *SSM Popul Health* 2021; **17**: 101009.
- 12 Buse K, Bhaumik S, Miranda JJ, Hunnisett C, Batz CS, Feeny E. Individual responsibility: a red herring that lets the fossil fuel industry off the climate catastrophe hook. *BMJ* 2022; **378**: o1656.
- 13 Freudenberg N. Lethal but legal: corporations, consumption, and protecting public health. Oxford: Oxford University Press, 2014.
- 14 Brulle RJ. The climate lobby: a sectoral analysis of lobbying spending on climate change in the USA, 2000 to 2016. *Clim Change* 2018; **149**: 289–303.
- 15 Lucas A. Investigating networks of corporate influence on government decision-making: the case of Australia's climate change and energy policies. *Energy Res Soc Sci* 2021; **81**: 102271.
- 16 Rodrik D. One economics, many recipes: globalization, institutions, and economic growth. Princeton, NJ: Princeton University Press, 2007.
- 17 Friel S, Schram A, Townsend B. The nexus between international trade, food systems, malnutrition and climate change. *Nat Food* 2020; **1**: 51–58.
- 18 Wellbeing Economy Alliance. A wellbeing economy in action. 2021. <https://weall.org/case-studies> (accessed Oct 28, 2021).
- 19 't Hoen E. TRIPS, pharmaceutical patents, and access to essential medicines: a long way from Seattle to Doha. *Chic J Int Law* 2002; **3**: 39–68.
- 20 ACCR. BHP finally listens to investors and commits to wind down Australia's biggest thermal coal mine. June 16, 2022. <https://www.accr.org.au/news/bhp-finally-listens-to-investors-and-commits-to-wind-down-australia%E2%80%99s-biggest-thermal-coal-mine/> (accessed July 28, 2022).

The UK COVID-19 Inquiry must examine the foundations of pandemic decision making

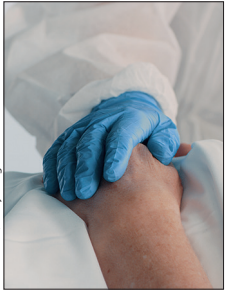


As the UK Government has shifted its pandemic response to living with COVID-19,¹ the long-awaited UK COVID-19 Inquiry started on June 28, 2022. Chaired by the Right Honourable Baroness Heather Hallett DBE, the Inquiry's Terms of Reference have been published after a public consultation and a final decision from the UK Prime Minister.² However, we believe that the UK COVID-19 Inquiry risks missing scrutiny of important aspects of the pandemic response if it is built on the same foundations that produced government pandemic decision making.

Crucially, the Inquiry must review if a culture of political expediency dictated the response at various key timepoints during this pandemic. We highlight two important examples of what we regard as gaps in the UK COVID-19 Inquiry's Terms of Reference.

First, long COVID is not centred in the Terms of Reference. The chronic illness burden created by mass SARS-CoV-2 infection is the living legacy of this pandemic and needs to be a priority area for the UK COVID-19 Inquiry. At the start of the pandemic in 2020,

Published Online
July 18, 2022
[https://doi.org/10.1016/S0140-6736\(22\)01332-0](https://doi.org/10.1016/S0140-6736(22)01332-0)



Marco VDM/Getty Images

data were available about clinical outcomes in severe acute respiratory syndrome³ and early reports from COVID-19 survivors⁴ pointed to longer-term sequelae with potentially serious effects for individuals and the population. On the basis of data up to August, 2021, at least one in nine of those infected with SARS-CoV-2 reported experiencing long COVID at 12 weeks from onset of infection.⁵ Population estimates from the UK's Office for National Statistics (ONS), as of June 4, 2022, point to an estimated burden of 2 million people living with long COVID for more than 4 weeks (3% of the population), of whom 105 000 are aged 2–16 years and 95 000 are aged 17–24 years.⁶ A Bank of England publication in May, 2022, stated that the UK workforce has shrunk by 440 000 people (1.3%) since the final quarter of 2019 and is 2.5% below the January, 2020 forecast, and that the share of the population aged 16–64 years who are outside the workforce because of long-term sickness is a record high, with a particularly sharp rise among women.⁷ This could at least partly be due to long COVID.⁷

The UK's surveillance systems have done much to provide transparent data during the pandemic, but can only report what is counted. Long COVID is more difficult to measure than such endpoints as hospitalisation or death and our health surveillance systems remained unprepared to count long COVID, despite repeated calls to do so after the first wave of the pandemic.⁷ Long COVID has never featured on the government UK Coronavirus Dashboard. Other than estimates from the ONS based on their infection survey, little progress has been made in this regard. This gap in counting long COVID persists even since electronic health-care record codes for post-COVID-19 syndrome started to get released in late 2020.

The UK COVID-19 Inquiry's Terms of Reference mention long COVID, but only in terms of health provision. The Inquiry's response to concerns raised during the public consultation about insufficient consideration of long COVID states that the extent to which risks associated with long COVID were considered will be investigated under other parts of the Inquiry's Terms of Reference, "for example, consideration of 'how decisions were made, communicated, and implemented' will include investigation of how long COVID was considered in decisions on the implementation of lockdown measures".⁹ The response to the public consultation states that, therefore, Baroness Hallett is not recommending

further amendment to the Terms of Reference to ensure long COVID is adequately addressed.⁹

The UK Government's regular pandemic press briefings have not used long COVID as an outcome to be factored in when communicating public health decisions. With sections of the government's supporter base tending towards scepticism over COVID-19 control measures,¹⁰ it was not only that counting long COVID was difficult but also that including long COVID in risk-benefit calculations could have been politically inconvenient. The direct hit to the workforce was not explicitly weighed in policy decisions, which often, and mistakenly, pitted public health against the economy.

The pandemic response has therefore rested on the metrics of deaths and hospitalisations and not on chronic disease and disability, and the virus was allowed to circulate at high levels so long as the UK National Health Service was perceived to cope. Long COVID is particularly important to consider when scrutinising the decisions that aided mass spread of SARS-CoV-2 among children.¹¹ There has been a disconnect in policy whereby long COVID is regarded as something that has happened in the past, rather than the reality that it is a potentially preventable public health problem, and it is the Inquiry's duty to examine that.

The second gap in the Terms of Reference is an inadequate focus on the implications of airborne transmission of SARS-CoV-2. "Droplet dogma"¹² has been established for more than a century as short-range disease transmission was mistakenly assumed to only arise from large respiratory droplets or contact. Confirmation bias in outbreak investigation premised on respiratory droplets hampered the ability to learn from likely examples of airborne transmission. In the UK, the translation of airborne transmission science was discussed in multiple committees, including the Scientific Advisory Group for Emergencies (SAGE)¹³ as well as others, where discussions included the trade-offs against the consequences of taking stricter protection measures, such as higher grade masks in health-care settings.¹⁴ Neglect of airborne transmission allowed reduced protection for health-care workers,¹⁵ thus reducing requirements for personal protective equipment in the first COVID-19 wave.¹⁴ The failure to recognise the role of airborne transmission could be regarded as politically convenient in that it contributed to making public health messaging around COVID-19 control measures a matter

of personal responsibility, rather than requiring relatively expensive engineering solutions such as well ventilated indoor spaces.¹⁶ This trend has persisted throughout the pandemic up to the present, even with the accumulation of evidence on airborne transmission of SARS-CoV-2.

Attempts to square the convenience of droplets with the acknowledgment of airborne transmission by SAGE in early 2020¹³ led to the “situationally airborne” fudge, where it has been suggested that airborne transmission is unusual, but possible in a limited number of high-risk contexts.¹⁷ In hospitals, this approach led to “aerosol generating procedures” in anaesthesia being considered high risk¹⁸ and reducing surgical throughput, while airborne exposure was ignored in other settings. In the community, this approach led to confusion about indoor versus outdoor risks. Handwashing has consistently been a popular policy, and occupied prime position in the UK Government’s “Hands, Face, Space” slogan, whereas other actions against an airborne threat, notably the use of masks, have been more challenging politically.¹⁰ The UK COVID-19 Inquiry’s Terms of Reference state that the Inquiry will examine how decisions were made but do not make specific reference to engagement with up-to-date scientific findings and the consultation response does not mention transmission at all.⁹ Timely engagement with the evidence on airborne transmission must be examined in the Inquiry.

The UK COVID-19 Inquiry has the potential to enhance our understanding of what has so far happened during the pandemic. This should be an opportunity to learn valuable lessons that could have global relevance, and hopefully improve any response to future pandemics. But there is a need for the Inquiry to examine the principles that underpinned the UK’s responses if it is to have a meaningful, lasting impact. An opaque culture, which has signs of being driven by political convenience, has pervaded many aspects of the UK’s pandemic response. The Inquiry must examine and be able to challenge the underlying culture and assumptions that shaped the UK Government’s pandemic policies.

TL is a member of FreshAirNHS, a group promoting understanding of airborne disease transmission in health care. NAA is a co-investigator on NIHR supported research on long COVID (STIMULATE-ICP and HI-COVE studies). The views expressed here are the authors’ own and not necessarily those of NIHR. NAA has lived experience of long COVID and has contributed in an advisory capacity to WHO and the EU Commission’s Expert Panel on effective ways of investing in health meetings in relation to post-COVID-19 condition.

Tom Lawton, *Nisreen A Alwan
n.a.alwan@soton.ac.uk

Improvement Academy, Bradford Institute for Health Research, Bradford Royal Infirmary, Bradford, UK (TL); School of Primary Care, Population Science and Medical Education, University of Southampton, Southampton General Hospital, Southampton SO16 6YD, UK (NAA)

- 1 UK Government. Living with COVID-19. Feb 21, 2022. <https://www.gov.uk/government/publications/covid-19-response-living-with-covid-19> (accessed July 7, 2022).
- 2 Cabinet Office, UK Government. UK COVID-19 Inquiry: Terms of Reference. 2022. <https://www.gov.uk/government/publications/uk-covid-19-inquiry-terms-of-reference/uk-covid-19-inquiry-terms-of-reference> (accessed July 7, 2022).
- 3 Ahmed H, Patel K, Greenwood DC, et al. Long-term clinical outcomes in survivors of severe acute respiratory syndrome and Middle East respiratory syndrome coronavirus outbreaks after hospitalisation or ICU admission: a systematic review and meta-analysis. *J Rehabil Med* 2020; **52**: jrm00063.
- 4 Carfi A, Bernabei R, Landi F, for the Gemelli Against COVID-19 Post-Acute Care Study Group. Persistent symptoms in patients after acute COVID-19. *JAMA* 2020; **324**: 603–05.
- 5 Ayoubkhani D, Pawelek P, Gaughan C. Updated estimates of the prevalence of post-acute symptoms among people with coronavirus (COVID-19) in the UK. London: Office for National Statistics, 2021. <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/articles/technicalarticleupdatedestimatesoftheprevalenceofpostacutesymptomsamongpeoplewithcoronaviruscovid19intheuk/26april2020to1august2021> (accessed July 7, 2022).
- 6 Ayoubkhani D, King S, Pawelek P. Prevalence of ongoing symptoms following coronavirus (COVID-19) infection in the UK: 7 July 2022. London: Office for National Statistics, 2022. <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/prevalenceofongoingsymptomsfollowingcoronaviruscovid19infectionintheuk/7july2022> (accessed July 13, 2022).
- 7 Saunders M. The route back to 2% inflation. Speech presented at Resolution Foundation. Bank of England. May 9, 2022. <https://www.bankofengland.co.uk/speech/2022/may/michael-saunders-speech-at-the-resolution-foundation-event> (accessed July 7, 2022).
- 8 Alwan NA. Surveillance is underestimating the burden of the COVID-19 pandemic. *Lancet* 2020; **396**: e24.
- 9 UK Covid-19 Inquiry. Terms of Reference consultation summary report May 2022. 2022. <https://covid19.public-inquiry.uk/wp-content/uploads/2022/05/FINAL-Consultation-Summary-Report.pdf> (accessed July 7, 2022).
- 10 Mellon J, Bailey J, Prosser C. How do coronavirus attitudes fit into Britain’s ideological landscape? *Parliam Aff* 2021; **74**: 597–616.
- 11 Williams S, Michie S, Pagel C, Squires A. The UK is an international outlier in its approach to covid in children. *BMJ* 2022; **376**: 327.
- 12 Jimenez J, Marr L, Randall K, et al. What were the historical reasons for the resistance to recognizing airborne transmission during the COVID-19 pandemic? *SSRN* 2021; published online Aug 11. <http://dx.doi.org/10.2139/ssrn.3904176> (preprint).
- 13 Scientific Advisory Group for Emergencies. Evidence of environmental dispersion of COVID-19 for different mechanisms. April 14, 2020. <https://www.gov.uk/government/publications/evidence-of-environmental-dispersion-of-covid-19-for-different-mechanisms-14-april-2020> (accessed July 7, 2022).
- 14 NERVTAG, Scientific Advisory Group for Emergencies. New and Emerging Respiratory Virus Threats Advisory Group minutes. Items 2.2 to 2.4: PPE (IPC guidance for secondary care). March 6, 2020. <https://www.gov.uk/government/groups/new-and-emerging-respiratory-virus-threats-advisory-group> (accessed July 7, 2022).
- 15 Lawton T, Butler M, Peters C. Use of airborne precautions for COVID-19 in healthcare settings. *BMJ Opinion*. June 28, 2021. <https://blogs.bmj.com/bmj/2021/06/28/use-of-airborne-precautions-for-covid-19-in-healthcare-settings/> (accessed July 7, 2022).
- 16 Moravska L, Tang JW, Bahnfleth W, et al. How can airborne transmission of COVID-19 indoors be minimised? *Environ Int* 2020; **142**: 105832.
- 17 Greenhalgh T, Ozbilgin M, Tomlinson D. How Covid-19 spreads: narratives, counter-narratives and social dramas. *Authorea* 2021; published online Nov 16. <http://dx.doi.org/10.22541/au.163709155.56570215/v1> (preprint).
- 18 Klompas M, Baker M, Rhee C. What is an aerosol-generating procedure? *JAMA Surgery* 2021; **156**: 113–14.