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UK decision not to suppress covid raises questions about medical and scientific advice

Five years on from the first UK-wide lockdown for covid-19, **Anthony Costello** asks why long term strategies of suppression continue to be under-recognised and calls for better governance of UK pandemic science advice

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Early in the covid pandemic, evidence emerged from several East Asian countries that suppression could lead to successful control. Yet the UK did not adopt the approach. Suppression aims to avoid national lockdowns and maintain economic activity for most of the population by introducing surveillance systems to bring new outbreaks under control quickly, thus reducing the reproductive rate of infection (Ro) to below 1 and causing the epidemic to wither. In May 2020, Jeremy Hunt, then chair of the health and social care select committee, criticised UK government advisers for failing to recommend a response focused on suppression of the SARS-CoV-2 virus from early in the pandemic, calling it "One of the biggest failures of scientific advice to ministers in our lifetimes."[1] Why was suppression not recommended, and what can be done to improve advice in future?

Early signals

By 24 January 2020 the global threat from covid-19 was clear, with residents in China dying in the streets and three *Lancet* papers reporting high case fatality rates, human-to-human transmission, and more than 500 cases in China, Japan, South Korea, Thailand, Singapore, and the United States.[2-4] East Asian countries had rapidly scaled up case finding, testing, and contact tracing in hotspot areas where cases were rapidly increasing, and introduced financial support for cases and contacts to isolate.

On 28 January, the UK government's Scientific Advisory Group for Emergencies (SAGE) unanimously recommended a pandemic response based on influenza. The UK's 2011 pandemic preparedness plan, for influenza not coronaviruses, may have influenced SAGE's decision. This states, "It will not be possible to halt the spread of a new pandemic influenza virus, and it would be a waste of public health resources and capacity to attempt to do so."[5]

However, around this time the World Health Organization (WHO) was advising countries to focus on rapid suppression to avoid immediate threat from the spread of the new coronavirus SARS-CoV-2, even though a second wave was possible. Mike Ryan, head of emergencies, on 29 January, said that countries with cases "have to stop transmission ... our previous experience is that with adequate public health intervention and measures both at community and hospital level [coronaviruses] can be stopped."[6]

Greece, Germany, Norway, and Ireland took steps to follow these recommendations but, along with the UK, the US, and many other European countries failed to mount a response focused on suppression. The UK and Sweden were largely alone in choosing a plan based on influenza.

On 22 February the report of the WHO-China Joint Mission on Coronavirus Disease 2019 was presented to UK chief medical officers. It showed that suppression measures were reducing cases, hospital admissions, and deaths throughout China's 22 provinces.[7] SAGE minutes do not mention this report.

On 3 March, SAGE minutes report rapidly falling cases and Ro values in several East Asian countries that had focused on suppression, yet SAGE recommended no change in plan for the UK.[8] On 9 March, Steven Riley, SAGE participant and modeller, reported exponential expansion of the UK epidemic to SAGE.[9] His results showed that "critical care facilities ... would be saturated quickly [and] support current advice from WHO, and are consistent with policy decisions by China, Hong Kong, Singapore, Japan, South Korea and most recently Italy [of suppression strategies]." On the same day, a preprint reported that Ro for the Guangdong province and mainland China had fallen below 1 during February.[10] On 6 March commentators reported a similar fall in Ro for South Korea.[11]

But SAGE did not change its advice. On 3 March the government published its "contain, delay, research, mitigate" plan based on influenza that would allow the virus to spread to achieve "herd immunity."[8] On 12 March it moved from the "contain" phase, which relied on limited Public Health England resources (under 300 contact tracers) for test and trace to eliminate the disease "for as long as is reasonably possible," to the "delay" phase of its plan and stopped community testing.

Inquiry continues to sideline suppression

The ongoing UK Covid-19 Inquiry has focused in public hearings on lockdowns, modelling, "managing" spread of the virus, "herd immunity," shielding of vulnerable groups, and social distancing. However, it has spent less time discussing the suppression strategies to reduce Ro below 1 that might have proved effective in low prevalence periods, most importantly in February and March 2020 before the first lockdown, and afterwards in July 2020. The next inquiry report will hopefully cover this critical issue.

SAGE's unwavering decision to recommend a response based on influenza has continued to be defended by its co-chairs, Chris Whitty, England's

chief medical officer, and Patrick Vallance, chief scientific adviser until 2023. Their defence, including at the inquiry, is based on three arguably mistaken assumptions: that covid could not have been suppressed, that a huge second wave could follow even if it was, and that suppression required prolonged national lockdowns.

Vallance, in evidence to the inquiry wrote, "a 'zero Covid' strategy could have been pursued (but) required a national lockdown and border closures by the end of February, to be continued indefinitely."[12] Whitty, England's chief medical officer, told the inquiry, "If it's spread out of China it cannot be stopped . . . No-one with an ounce of common sense would suppress."[13] But the term "zero covid" may be understood to mean eradication (zero global incidence) or elimination (zero local incidence), and suppression does not aim to eradicate the virus but to bring Ro below 1.

Different advice

All pandemics are different, but SARS CoV-2 had an Ro value more similar to the coronavirus SARS-CoV-1 than to influenza. Influenza spreads too fast to be controlled by testing and contact tracing, but coronaviruses have longer incubation periods and potentially can be suppressed, as evidence from early in the pandemic showed.[14 15] Several East Asian states avoided prolonged national lockdowns with responses focused on suppression initiated early in the pandemic. Here is the advice SAGE should have given the government.

Coronavirus science

Experts had dealt with two previous coronavirus epidemics: severe acute respiratory syndrome (SARS) in 2002-04 and Middle East respiratory syndrome (MERS), first reported in 2012. Two papers after the SARS outbreak showed that coronavirus infections, with slower transmission rates and longer incubation periods than influenza, could be suppressed.

One paper, coauthored by SAGE participant Neil Ferguson, showed that isolation and contact tracing could bring about control even if asymptomatic transmission was as high as 40% of all transmission.[14] At the start of the epidemic in Wuhan Ro for SARs-CoV-2 was estimated to be close to 3, similar to that seen in the SARS outbreak, indicating that similar suppression measures might have worked.

The other paper, on which SAGE participants Peter Horby and Jonathan van Tam were coauthors, concluded that coronavirus epidemics require a different approach (using isolation and quarantine measures) to control than pandemic influenza.[15]

East Asian success in suppression

China, Japan, South Korea, and several other East Asian states suppressed coronavirus epidemics within two months by quickly implementing conventional infection control measures when prevalence was still low. Certainly, policies differed among East Asian states, and mistakes were made. Japan was slow to roll out testing. Hong Kong initially banned mask wearing. And China suppressed pandemic reporting until 20 January, when cases and deaths in Wuhan exploded.

The WHO-China report describes provincial governments implementing "aggressive case and contact identification, isolation and management and extreme social distancing, to interrupt the chains of transmission." It reported 2478 new cases in early February, and 409 two weeks later, arguing, "This decline ... is real ... Several sources of data support this conclusion, including the steep decline in fever clinic visits, the opening up of treatment beds as cured patients are discharged, and the challenges to recruiting new patients for clinical trials."[7]

Test infrastructure

Whitty and Vallance both said repeatedly that the UK didn't have sufficient test infrastructure compared with countries pursuing suppression strategies. That opinion was not shared by many public health experts or WHO.[16] UK advisers didn't recommend developing public-private testing links until the health secretary launched his 100 000 tests a day target on 2 April. They could have recommended immediate mobilisation of 44 NHS molecular virology laboratories, the Crick Institute, and the British biopharmaceutical sector to produce tests at scale.

At low prevalence the number of tests required to help suppress an epidemic may be relatively low: South Korea (population 52 million) needed a peak of 18 000 tests a day to control its two hotspots (fig 1). Similar measures could have been taken in England's two hotspots, London and the West Midlands.

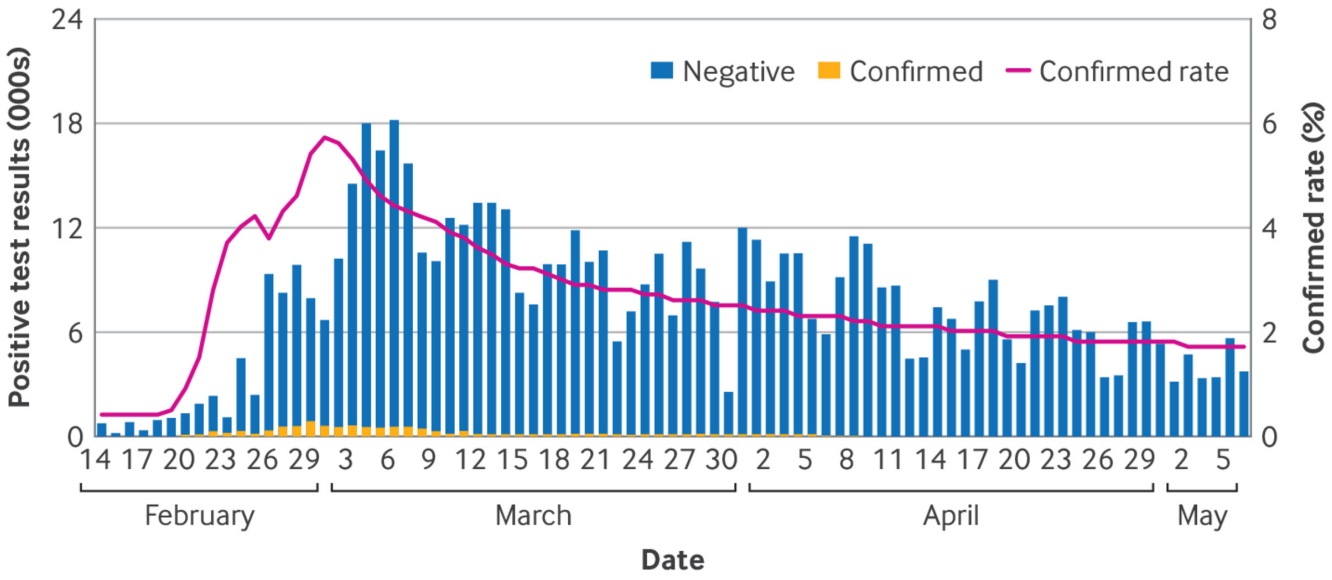

Fig 1 | South Korea test status February to May 2020 (https://dc-covid.site.ined.fr/en/data/korea). Total tested=643 095; tests completed (negative+confirmed accurate)=635 086; confirmed rate (total confirmed/total tests completed)=1.7%

China, Japan, and South Korea had no pre-existing test infrastructure, but all three had established public-private partnerships after the experience of SARs and MERs. Without a reliable test, they focused on finding and isolating anyone with symptoms. Within 14 days of creating a test (on the same day as the UK in mid-January) South Korea had mobilised experts and biotech companies to scale up test production. A test, trace, and isolate system, with smartphone apps to provide case support and monitor case movements, was scaled up within weeks.

Community health workers

China, Japan, and South Korea quickly mobilised thousands of junior doctors and community health workers to hotspots.[7] In the UK, 750 000 people, many with health skills, responded to a call for volunteers.[17] Most were never used in any capacity and none to support case finding. The government could have redeployed environmental health officers, sexual health contact tracers, or medical students to case finding and contact tracing but did not do so.

Support for self-isolation

China, Japan, and South Korea provided generous financial support to encourage infected people to isolate for 14 days and reduce fear about difficulties in paying for rent, food, or drug bills.[18] In the UK sick pay was under £96 a week unless you earned less than £120 a week, in which case you received nothing[19]: this was the third lowest rate among Organisation for Economic Cooperation and Development countries, at 34% of average earnings, compared with 57% in South Korea and 55% in Japan.[20] Compliance with self-isolation in England was poor: in initial waves, just one in five people with symptoms sought a covid test and only 43% stayed at home for 14 days.[21] Government advisers should have drawn attention to this critical policy failure publicly.

Poor control leads to poor outcomes

Over the next three years, death rates in China, Japan, and South Korea were five times lower than in the UK (fig 2). Demographics seem insufficient to explain these huge differences: Japan and South Korea had similar gross domestic products (GDP), life expectancy, and age profiles to the UK. Had the UK followed the same strategy and achieved the same excess cumulative death rate by March 2024 as South Korea, 69 instead of 344 deaths per 100 000, it might have prevented up to 180 000 UK deaths.

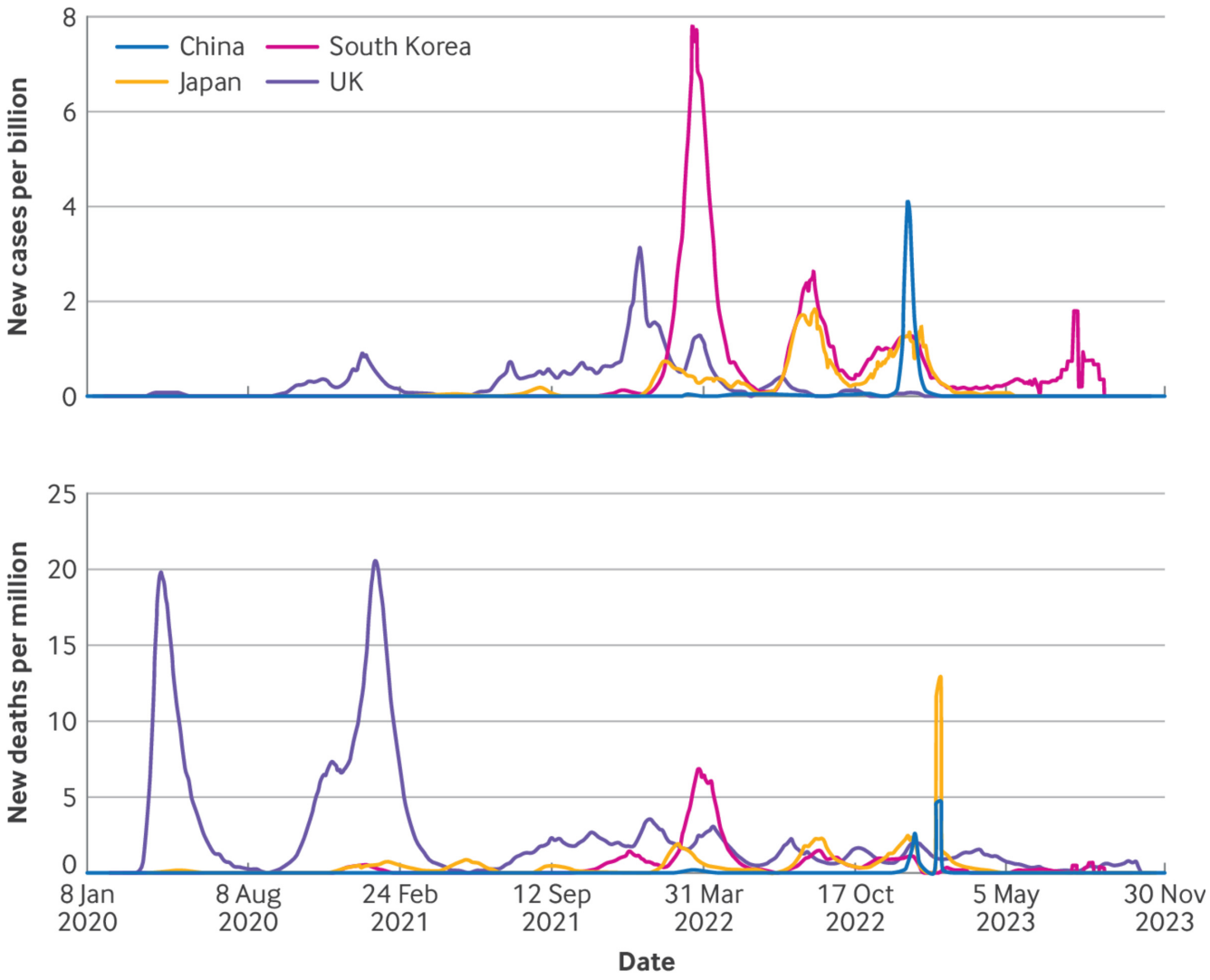

Fig 2 | Covid-19 cases and deaths per million people (7 day rolling average), Jan 2020-Nov 2023 (https://ourworldindata.org)

With a poorly controlled pandemic, 1.9 million UK people had long covid symptoms in 2023.[22] Over 800 000 people had left the workforce because of long term sickness since the start of the pandemic.[23] Evidence on suppression's impact on long covid and long term sickness in China, Japan, and South Korea is mixed.[24 25]

Avoiding prolonged lockdowns, East Asian economies overall grew during 2020. By contrast, in 2020, the UK saw the largest fall in its GDP (9.8%) since 1709. UK spending on covid-19 measures is estimated at £310bn-£410bn,[26] with a further £450bn for quantitative easing to support the economy. International Monetary Fund estimates suggest covid control measures in 2020 cost China $440 per head, South Korea $787, and the UK $5700-$6029.[27]

Flawed advice and systems failure

SAGE faced a difficult and fast changing situation in January and February 2020. However, its advice to government was flawed: its early and enduring recommendation of a response based on pandemic flu ignored the different characteristics of coronavirus transmission; accepted the inevitability of a huge epidemic of a new dangerous virus in the UK, with threats to overwhelm the NHS; and led to modelling of national strategies that excluded WHO's recommendation of suppression. SAGE did not recommend rapid expansion of testing, form plans to mobilise community health workers as contact tracers at scale to hotspot areas and across district health protection teams, or advise on key financial and support measures for effective self-isolation.

SAGE's flawed scientific advice arose from systems failure. The *Guardian* newspaper in April 2020 identified 23 initially confidential SAGE participants, 13 (57%) of whom were paid government employees and so lacked independence.[28] Although the government stated that SAGE drew on "expertise from across the scientific spectrum including ... public health and virology,"[29] at the start of the pandemic it lacked participants with coronavirus, independent public health, infection control, and community mobilisation expertise. Such participants might have advocated following contemporaneous advice calling for suppression responses from WHO and the experts who had dealt with previous coronavirus outbreaks.

SAGE's remit is limited to advice on scientific matters. The independent participants were asked not to discuss or recommend policy options. But scientific discussions around a pandemic clearly have policy implications that SAGE should have discussed so that

medical and science advisers were able to articulate them to government. In addition, only seven (30%) SAGE participants were women, there was no ethnic minority representation, and the senior medics and modellers were all based in the south of England.

China, Japan, and South Korea had long established standing pandemic committees, detailed pandemic plans, and standard manuals of operations.[30 -32] The UK needs similar preparedness. Given the continuing severe national threat of a pandemic, SAGE should have a standing membership to monitor plans and to evaluate rehearsals and guidelines for pandemic action.

SAGE needs formal guidelines about which disciplines are represented, with selection of independent scientists based on merit and with ethnic, gender, and four nation balance. SAGE experts independent of government should predominate and declare detailed conflicts of interest. A public inquiry is not needed to make these changes.

The UK was once rated the second best country (after the US) in the world for pandemic preparedness.[33] Covid-19 caused over 230 000 civilian deaths, three times the number during the Blitz.[34] The root failure of the UK response to covid was a strategy devised in January and February 2020. Yet the four chief medical officers in their 2023 technical report for future advisers maintain that their recommendation to "contain, delay, research, and mitigate" was broadly correct, and the report does not recognise suppression successes that led to much better survival rates and lower economic damage in other states.[35]

Chief medical and science advisers are appointed as independent advisers, not as career civil servants, and are free to speak publicly. They could have spoken out about health harming policies—for example, on the inadequate support for people to isolate—as previous chief advisers have when they believed policies would be harmful. *The BMJ* asked Chris Whitty and Patrick Vallance why they had not recommended a suppression response, given WHO advice and emerging evidence early in the pandemic; about SAGE's lack of independent experts; why they were not more outspoken about health harming policies; and whether they stand by the recommendations they made not to focus on suppression, but had not received a response by the time of publication.

Five years on, many of the people who developed the UK's flawed response are still in post; they have not changed their views on suppression, and little has been done to improve government pandemic advice committees or to introduce detailed governance rules for the UK's future pandemic response and resilience. The covid inquiry and the UK medical establishment should properly critique this public health failure.

Competing interests: I have read and understood BMJ policy on declaration of interests and declare that I was a cofounder of independent SAGE and am former director of maternal, child, and adolescent health at the World Health Organization.

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