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COVID INQUIRY

Role of scientific advice in covid-19 policy

Holly Jarman and colleagues discuss why scientific advice must be separate from government decisions and evaluate the autonomy and transparency of the UK's system

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Key message

- Governments claimed to be following scientific advice during the pandemic to legitimise decisions
- Advice should be autonomous to ensure that governments do not simply seek advice that aligns with what they want to hear
- Transparency is also essential to know who gave the advice and what the government did with it
- The UK's advice system was not autonomous, being designed to answer questions posed by government with advisers appointed by government
- The system became more transparent as a result of political pressure

The use, non-use, and misuse of advice from natural, medical, and social scientists during the pandemic is highly controversial. Governments generally claim that they are "following the science" when discussing their policy choices. Introducing the UK government's covid-19 response plan in spring 2020, the health secretary, Matt Hancock, claimed it was "driven by the science" and expressed confidence in the UK's "world-class expertise to make sense of the emerging data" on the virus.[1] Announcing the UK government's plans to relax restrictions in summer 2021, the prime minister appeared at the press conference flanked by the chief medical officer and chief scientific adviser.

Critics of the government's covid-19 policies said that the claim to be "following the science" was political theatre, designed to support the government's desired policy positions rather than evidence informed policy making.[2] Others pointed out that science is not a monolith, so it is close to meaningless to claim to follow science without specifying what kind of science is supporting which decisions.[3] To claim to follow science only raises questions such as "which science?" and "according to whom?"

Moreover, holding advisers responsible for government decisions is tricky. Advisers do not compel politicians to do anything. Politicians have interests of their own and abundant sources of advice, including special advisers, friends, lobbyists, backbenchers, media, private consultants, civil servants, and other ministries.

Advisers are often blamed to deflect responsibility from the politicians who selected the advisers and made the decisions, and attacking advisers is a way to get at their political employers. The result is that arguing about advice often amounts to arguing about policy decisions by proxy. An inquiry into the quality of scientific advice to government has to begin with an appreciation that governments, not advisers, balance priorities and make decisions, and so it is never clear that good advice will lead to good policy.

We examine the structure that, on paper, was supposed to shape and legitimise policy in England and compare it with systems in Northern Ireland, Scotland, and Wales (which relied on much the same scientific advice) and those in France and Germany (to show how governments in similarly large countries with strong scientific establishments sought advice). These comparators help us to understand how the UK government solicited and used science.

Role of advice systems

The first potential contribution of an advice system is giving government access to credible advice that can shape its decisions. Although some governments elsewhere gave prominence to fringe figures, the UK's science advisers were clearly experts in relevant fields. Rather, the risk was that government selection of experts created an echo chamber. Minutes from the UK's Scientific Advisory Group on Emergencies (SAGE) and parliamentary reports show the UK government primarily wanted to know the likely effect of different policies on the spread of the virus and the consequences of spread for healthcare.[4] It was uninterested in broader advice from social sciences about, for example, health behaviour or the trade-offs of different policies. The advisory committees produced credible, if not always consensual, models drawing on policy options and questions set by the government.

The second potential contribution of an advice system is broader democratic accountability. Knowledge of what politicians asked and heard, and inferring how they incorporated that advice into their decisions, can allow the media and voters to evaluate politicians' decisions and hold them accountable. That requires transparency: public knowledge of advisory bodies, including their composition, members' interests, agendas, and advice given.[5] It also requires autonomy: the ability to go beyond answering questions posed by government in order to identify potential problems that the government did not anticipate.

The UK civil service and government agencies are traditionally not very transparent or autonomous of the central executive, and government's ability to influence them has been increased over decades by every party.[6,7] UK science advice is no exception. Adapted to the preferences of strong governments,

it has a long tradition of opacity, informality, and "safe pairs of hands."[8] The result is a characteristic string of UK policy failures in which decisions were made too quickly, by too few people, and with weak and unchallenged justifications.[6 9]

Advising governments in a pandemic

What scientific advice informed policy makers? Table 1 shows the bodies with official advisory roles in different countries. In England these included pre-existing committees (eg, the Scientific Advisory Group for Emergencies (SAGE) and its subcommittees), committees within the executive (eg, the civil contingencies committee), agencies (eg, Public Health England, PHE), and ad hoc advisory committees configured specifically for covid-19. Table 2 shows the extent to which they were public about their composition, activities, and the advice they gave and that information when it was available.

Table 1 | Who advised governments on covid-19?

	Established advisory committee	Ad hoc advisory committee	Public health agencies advising on pandemic	Prominent figures
UK and England	SAGE and subcommittees; New and Emerging Respiratory Virus Threats Advisory Group (NERVTAG)	None	Public Health England, to April 2021, UK Health Security Agency (UKHSA), from August 2021	Chief medical officer for England; government chief scientific adviser; special advisers; external consultants
Northern Ireland	SAGE and subcommittees	None	Public Health Agency	Chief medical officer; chief scientific adviser
Wales	SAGE and subcommittees	Technical Advisory Group (TAG)	Public Health Wales	Chief medical officer; chief scientific adviser; TAG chair
Scotland	SAGE and subcommittees	Scottish Government Covid-19 Advisory Group (SGAG)	Public Health Scotland	Chief medical officer; chief scientific adviser for Scotland; SGAG chair
France	High Council of Public Health; High Authority of Health	At least 4 ad hoc scientific councils advising the president	Multiple, notably Santé Publique France and the French Agency for Food, Environmental, Occupational Health and Safety (ANSES)	Extensive use of National Defence Council; external consultants
Germany	Commission for Pandemic Research, German Research Foundation (DFG)	Network of university medical centres	Multiple, notably Robert Koch Institute and Federal Centre for Health Education	Lothar Wieler, president of Robert Koch Institute; Christian Drosten, head of Institute of Virology, Charité, Berlin; National Academy of Sciences

Table 2 | What do we know about the advice given*?

Structure	Members public?	Composition	Advice public?	Form of advice
UK: SAGE and subgroups; NERVTAG	Not initially	Interdisciplinary membership for SAGE; more specialists in particular groups	Not initially	Summaries of literature and research; emphasis on modelling effects of new developments or policies
Wales: TAG	Yes	Government officials, NHS Wales, academics with public health, medical, biomedical, social scientific expertise	Yes	From May 2020, summaries of advice from the technical advisory cell, which supports TAG; modelling results; special issue reports; TAG consensus statements
Scotland: Scottish Government Covid-19 Advisory Group and subgroups	Yes	Government officials, academics in data science, epidemiology, medicine, nursing, global public health, social sciences	Yes	From April 2020, summaries of literature and research, select academic articles, memorandums from government and academics
France: High Council of Public Health, Santé Publique France	Yes	Medicine, health fields including public health; limited behavioural science	Yes	Scientific reports and extensive guidelines on particular practical issues
France: ad hoc committees and National Defence Council	No	Unknown	No	Unknown
Germany: Robert Koch Institute	Yes	Public health and medicine	Yes	Press conferences, status reports, situational reports, Covid dashboard, FAQs, risk assessments, daily surveillance reports

*Authors' compilation from government documents. Excludes executive-only coordinating groups—eg, special cabinet formations or interdepartmental civil service meetings.

Transparency

Among the countries we compared, France's approach was most opaque; Scotland and Wales were somewhat more transparent than the UK government about their use of advice, and Germany was the most transparent. In both France and the UK, high ranking bureaucrats, advisers, and politicians shaped advice by using consultancy firms, sidelining public health experts and agencies, and relying on special advisers.

France has maintained partial control over public availability of its advice. Publication of recommendations from the scientific council

and the vaccines strategy council were sometimes delayed, and the proceedings of the National Defence Council were kept confidential.[10] The vaccines strategy council's recommendations were published by the health ministry rather than the council, and some were never made public.

In theory, secrecy can enable civil servants and advisers to offer unpalatable advice to leaders and can prevent lobbying; civil servants and advisers stay in the shadows and politicians get both credit and blame. This bargain, which was clearly the basis for the structure of SAGE and other committees at the start of the pandemic, has been eroding for decades as politicians try to shift blame onto others and outsiders demand transparency.[7]

The UK advice system did become more transparent, with the names of SAGE members and meeting minutes eventually published. The key questions that government was asking science advisers and the basis of their answers became clearer. This allowed better external scrutiny. For example, outsiders pointed out that issues such as shielding vulnerable populations and integration of economic, educational, and other outcomes with epidemiological modelling were not considered, the attendance of people such as special adviser Dominic Cummings (not a scientific expert) at meetings, and the gaps when SAGE was not asked to meet.[4 20 21] However, delays in disclosure meant that information about advisers and the evidence base for decision making were not available in time to support effective outside scrutiny, especially in the early stages of the pandemic.[6]

Autonomy

If the transparency of the UK system improved during the pandemic, autonomy did not. SAGE provides advice in the shadow of government authority. Although SAGE's ramifying subgroups gave it access to a wide base of experts, giving its views credibility, these experts were centred within committees that had their terms of reference and membership controlled by government, had their secretariat provided by the government, and were chaired by government's chief scientific adviser, Patrick Vallance. As Freedman notes, "By necessity SAGE can be said to provide 'policy aware scientific advice.' This can be seen in the objectives it set for itself and the means chosen to meet those objectives."[11] Or, as SAGE member Graham Medley succinctly put it on Twitter, "Since models always have a policy assumption in them (do nothing is a policy option), it makes perfect sense for policy to tell modellers what will most help them decide what to do."[12] The question of autonomy is whether the advisers are able to do more than this.

Advice from SAGE has sometimes seemed to anticipate government objections, particularly relating to the framing of lockdown measures in the early stage of the pandemic. In its early meetings, SAGE concluded that immediately going into lockdown was not a viable option because the UK public would not tolerate it. The social science underpinning that decision was not well specified. Both Vallance and SAGE member Neil Ferguson subsequently stated that a decision not to lock down earlier in spring 2020 was a mistake that probably cost lives.[13]

UK advisory committees lacked autonomy. SAGE and the other committees have no consistent membership or regular meeting requirement. SAGE did not meet for large periods of 2021, supposedly because the UK government was not seeking its advice. The UK also acted against advice from its own committees, as with the decision not to adopt a circuit breaker in October 2020 or the choice to adopt less stringent rules on masking in schools in May 2021. The government used the advice received in ways that did not necessarily reflect its text or apparent intent.[2 14] For instance, few who read the SAGE advice on the lifting of public health measures or the provision of home testing from the 10 February 2022 meeting would have regarded it as a clear mandate for what the government did a few days later, which was to announce the end of almost all restrictions and a massive scaling back in the testing regime. In fact, since the documents behind that advice are public, it is clear that the government was not following the science it had solicited from its advisers.

The lack of autonomy for the government advice system was made especially clear by the UK government's mid-2020 decision to abolish Public Health England. Public health agencies around the world did not always get the influence they sought during the pandemic, but it seems only the UK went so far as to abolish and replace its public health agency during the pandemic.

How to improve

The science of covid-19 progressed extremely quickly. Compared with past pandemics such as HIV (in which even identifying the virus took years) researchers started to understand the epidemiology, virology, and treatment of covid-19 with remarkable speed. Useful knowledge about topics such as transmission, masking, vaccination, and treatment was becoming available at a tremendous pace, and the speed with which it was identified and used could save lives. The stakes for scientific advice were therefore particularly high.

The weaknesses in the UK system are a lack of autonomy among advisers—they are selected by government and answer questions posed by government—and poor overall transparency. Although the transparency of the UK's advice system improved as the pandemic progressed, the initial lack of openness, combined with advisers' lack of autonomy, robbed the process of its legitimacy in the early stages and might have enabled damaging government decisions through to today.

What lessons could we draw from the UK's experience? First, governments tend to get the advice they want. This can be through informal routes, and the abundant informal connections with government are well documented (eg, in UK contracts for personal protective equipment).[15] It can also come through private consultancy firms, which gave extensive and expensive advice in France, Germany, and the UK about which the public knows very little. The French government, for example, contracted with several consulting firms to design their vaccines strategy. McKinsey received €11.6m between 4 December 2020 and 4 February 2022 to monitor the delivery and administering of the Pfizer and Moderna vaccines, track shipments, create indicators and monitoring tools for the French ministry of health, and produce thematic analyses on specific subjects at the request of the government.[16] McKinsey's mission far exceeded its initial contractual duration: it was initially to focus on the first three weeks of the vaccination campaign but ended up providing support to the government for 14 months.

Voters can judge the overall performance of their governments, but it is hard for them to learn whether governments asked the right questions or received valid responses from private consultancy companies. Nor can we rely on post hoc scrutiny to deter poor decision making, at least in the UK.

Government dominance extends to inquiries in the centralised UK system, where it tends to commission and choose the membership and terms for inquiry.[17] The weakness of scrutiny makes independent inquiries and civil society or professional pressure (such as the work of Independent SAGE) more important.

Second, transparent and independent advice can enable democratic accountability even if governments do not want it. It is rightly the task of elected politicians, not science advisers, to balance and represent interests, so a good science advice system for the UK should make it easier to see how they have incorporated scientific advice as they do that. This would allow observers and ultimately voters to judge the competence and priorities of their politicians. For example, the UK government's decision not to require masks in English schools, taken against SAGE advice in May 2021, was clearly the government's decision. That increased transparency means that voters can draw their own conclusions.[14]

By contrast, more autonomous German institutions were able to provide more diverse advice. Their autonomy, and the explicit separation between scientific advice and political decisions, contributed to public trust in pandemic response by communicating that government leaders were not misrepresenting science.[18]

Third, transparent and competent scientific advice can also improve intergovernmental coordination, as in Germany and the UK. The devolved administrations looked, to various degrees, to SAGE for advice and when SAGE's advice convinced them of the appropriateness of a particular course of action, this eased coordinated action. When the devolved administrations were not convinced by SAGE's advice, they were less likely to follow the UK's lead. In this, the UK can learn from Germany, where trust in advice from federal institutions reduced intergovernmental conflict.[19]

Finally, we should recognise the limits of reforming scientific advice systems. Advising is not decision making. Good advice systems preserve the autonomy and credibility of the advisers and scientists by separating their advice from actual decisions. Understanding the UK government's actions might require understanding its scientific and public health advice, but it must also include its internal arguments and its political and economic understandings and motivations. Perhaps the pandemic teaches us that the best we can hope for is scientific advice that is useful to well intentioned governments and allows others to hold governments accountable when they make specious claims about following the science. The political role of transparent scientific advice is not just to enable policy making; it is also to enable accountability for failures, such as the ones we saw in the covid-19 pandemic.

Questions for the inquiry

- Why did it take so long to increase the transparency of SAGE and other government scientific advice bodies?
- SAGE answered questions set by the government. Did omissions and assumptions in what it was asked shape outcomes?
- Where, if anywhere, did government get advice about trade-offs and broader policy implications of public health measures?
- Why do UK science advisers have so little autonomy from the government?

Contributors and sources: SLG and HK have extensively researched and published on comparative health politics and policy making, with a special focus since 2020 on covid-19 responses. SR and MF have extensive research and publication experience on German and French health politics and policy, with a special focus since 2020 on covid-19 responses. OR is a health policy researcher and writer working on European and US health policy. This article was jointly formulated by SLG and HJ. All authors contributed research and writing, and reviewed the drafts in light of comments at two authors' workshops. HJ, OR, and SLG conducted research on the UK, SR on France, and MF on Germany. Information comes primarily from public literature and review of government websites from France, Germany, and around the UK. SLG is guarantor.

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