

# Chief Scientific Adviser's Sunday Telegraph article: 31 May 2020

Debate and challenge is at the very heart of how scientific advances are made and new knowledge is gained. By definition we often don't know the answers to the questions we ask.

And right now, during a global pandemic, people are understandably concerned and worried about what the future holds and are looking to the science for answers.

As we wrestle with this disease, I want to explain a bit about the scientific advice being given to the Government about coronavirus and the people working morning, noon and night to help us navigate this new disease. Perhaps now is a good time to clarify exactly what Sage is, and what it is not.

Sage stood up for Government emergencies at the request of Cobr (the civil contingencies committee), and when the emergency is a health one it is co-chaired by the Government Chief Scientific Adviser and the Chief Medical Officer. It is made up of scientists with diverse relevant expertise, who for this emergency have since January been crunching data, analysing information and giving frank and objective advice. The participants vary depending on the topic and the expertise needed, but there has been a core of scientists who have attended most meetings. For Covid it has included academics, clinicians, departmental chief scientific advisers and scientists from the NHS, Public Health England and other governmental bodies including the devolved administrations.

Good science involves sharing findings and interpretations for others to challenge, build on and replicate. Scientists publish their models, methods and results and subject them to review by their peers, for critique and reuse by others. If you sign up to science, you sign up to the idea that others should review your work. We learn from each other and we learn from mistakes. This week we have published a further batch of papers from Sage to show some of the evidence behind the advice that has gone to ministers. Clearly it is right that ministers see the advice first and that they have a chance to consider it as part of their overall decision making, but I believe it is also right that the evidence base should become open for others to see too, so they can provide challenge and form new and important observations.

Science advice to Cobr and to ministers needs to be direct and given without fear or favour. But it is advice. Ministers must decide and have to take many other factors into consideration. In a democracy, that is the only way it should be. The science advice needs to be independent of politics.

In the past, evidence from Sage has been published at the end of the particular crisis it was called for. In the days before Sage existed science advice to government was often not published at all. When it comes to this crisis it is clear we must get the information out as soon as possible, and

in my opinion, as close to real time as is feasible and compatible with allowing ministers the time they need.

As the Sage papers become available it is possible to track the evolution of thinking. It is possible to see how unknowns became known and where significant gaps in knowledge still exist. The papers also provide a chance to correct some of the misconceptions that have taken hold. Allowing many people to catch Covid to create widespread immunity was never an aim and never could have been with a committee comprised of many doctors who have spent their lives dedicated to improving health. Immunity on the other hand is something that prevents transmission and we all hope that a vaccine to induce immunity will become available.

Sage is not an infallible body of experts and nor is there cosy group think. There is a range of opinions in all of discussions and there is wide reading of the latest research, but what Sage endeavours to do is come down to a position or a range of positions, to provide options ministers could consider and explain the uncertainties and assumptions inherent in that science and evidence. Sage is not a body that has any accountability for operational aspects whether that be testing, PPE or NHS delivery.

Is the evidence usually crystal clear? No. And you only need to pick up a newspaper or watch the TV to see how strongly different scientists have presented diametrically opposed ideas, and how some have flipped from certainty to uncertainty and back again. Will the advice from Sage always be right? No. Will the science change as we learn more? Of course, and we learn from scientists across the world. But the evidence we present to ministers will always be based on a careful analysis of the science available at the time, in line with both the Nolan principles and the Civil Service Code.

As a civil servant and the Government's Chief Scientific Adviser, I am very aware of the responsibility and trust invested in me and the army of scientists and experts during this crisis. In the years to come, when this awful disease is no longer shaping all of our lives, I know I will look back with gratitude and admiration for what these individual scientists did to help understanding and provide advice in the face of uncertainty. I also know that we will have learned a lot, including how to do it better next time. That is science.

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