



Dame Deirdre Hine
35 Great Smith Street
London
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14 April 2010

Dear Deirdre (if I may?)

**INDEPENDENT REVIEW OF THE GOVERNMENT RESPONSE
TO THE 2009 H1N1 PANDEMIC**

Thank you for inviting me to take part in the Independent Review of Government Response to the H1N1 Pandemic. In my role as Government Chief Scientific Adviser and as co-Chair of the Scientific Advisory Group for Emergencies (SAGE) I took a very active part in the Government response and I hope my thoughts will further improve Government's already excellent contingency planning for future pandemics.

I understand the Department of Health will address many of the factual questions you posed in your letter, therefore I will keep my comments focussed more generally on what went well and areas which could be addressed for further improvement. I will of course be happy to speak to all of these, and any other questions, in more detail when we meet in person.

I should first of all say that I thought the government response to the pandemic was good; the time and effort spent on developing pre-pandemic contingency plans (e.g. stockpiling of antiviral drugs) was justified and allowed a measured and proportionate response to what fortunately turned out to be a milder version of pandemic influenza than could have been. There are of course always areas that can be improved, therefore please find my thoughts below;

- The existing peacetime Scientific Advisory Group on Pandemic Influenza (SPI) Committee provided an excellent base from which to draw expertise into SAGE. These experts were already familiar with pre-pandemic planning and the relevant issues on which advice was likely to be required. It would be useful to consider if other independent scientific advisory committees might fulfil similar roles for other areas of civil contingency planning.
- Similarly having an independent co-Chair of SAGE, Prof Sir Gordon Duff - who had previously chaired SPI, provided continuity from the pre-pandemic work. This greatly assisted me and added significant value to the chairmanship, particularly when discussing certain detailed scientific issues. Having co-Chairs also allowed some degree of flexibility in taking decisions on behalf of SAGE when one or other was not available (given the time pressures faced during a pandemic). Again, this might be a useful model to consider for future occasions when SAGE is activated.
- The secretariat to SAGE (and its sub-committees) worked extremely hard throughout the pandemic and deserve particular praise in the quality of service they delivered throughout. Given the length of the pandemic and the time requirements, extra resource to this activity would have helped reduce long-term pressure and stress on those committed individuals (and perhaps help strengthen linkages with DH policy, see below).
- SAGE had a remit to advise Government and Devolved Administrations (DAs) through the Ministerial CCC by providing regular updates and answering specific questions. Much of the SAGE advice fed directly into Department of Health (DH) policy development which was also subsequently discussed at CCC. This worked well (particularly given this was the first time a SAGE had been convened in a civil contingencies situation), however, there wasn't always a clearly structured or fully transparent way in which this was done. Therefore a more structured approach in how DH policy engaged with SAGE (particularly in a fast changing environment) would benefit all parties in ensuring advice on relevant issues was provided at the most appropriate time.
- The route for scientific advice into the other key Ministerial forum, the Four Nation Health Ministers group, was less clear. This group undoubtedly fulfilled a useful role in allowing all administrations to fully discuss policy issues; however, there were some discussions on issues requiring scientific advice. The limited attendance at these meetings meant SAGE was not directly involved in providing advice.

There was therefore a lack of clarity in how scientific advice was presented and in what context. Although such scientific advice provided might have been perfectly appropriate, there was a clear lack of transparency which should be addressed.

- Earlier this year SAGE undertook a lessons learned exercise, which identified a number of areas to work on (and which SPI sub-committees are already acting on). One particular area flagged up was that Ministers and senior officials often expected SAGE (or HPA) to be able to provide more information and more certainty on scientific evidence than was possible; in particular on modelling projections for the future of the pandemic. In the first 1-3 months epidemiological data is often insufficient to base 'accurate' predictions, and at best modellers can show a range of possible scenarios including the possible 'worst-case'. Only as a pandemic progresses and more data becomes available can epidemiologists, modellers and virologists begin to revise the scenarios and have more certainty on predictions.

Therefore certain decisions must be taken in the face of limited scientific evidence, for example the decision on the purchase of vaccines was taken at a time when there was still a considerable range of potential scenarios for the pandemic. Although the uncertainties in the data could be explained at CCC meetings, emphasising what could and couldn't be expected, I still sensed a feeling of frustration at the lack of certainty. It is understandable to want more scientific certainty in civil contingency situations, and this is not a criticism; however there is definitely a need to work on managing the expectations of Ministers and senior officials for future pandemics, and develop tools to explain the intrinsic uncertainties in scientific evidence (and this work should include modellers and epidemiologists to try to find the right balance).

As mentioned above, when to purchase vaccine and how much was clearly an important decision early on in the pandemic. The options for different levels of vaccine coverage and whether to wait for more information on the virus before ordering were discussed at both JCVI and SAGE. Previous analysis had shown that a 45-50% population coverage would have significant impact on the pandemic from an epidemiological perspective. However, both JCVI and SAGE advised that, given the level of uncertainty in information on the disease at the time and the time required to develop, manufacture and licence a vaccine, an immediate decision to purchase should be made. The level of uncertainty on the severity and impact of the new H1N1 strain, suggested purchasing 100% coverage for the whole population, based on an expected two dose regime, would be the prudent course.

The intense media interest during the pandemic put significant pressure on Government. The media were keen to have 'accurate' predictions for the pandemic, but when provided with the 'worst-case' planning assumptions; the first revision of which gave possible deaths of up to 65,000 there was much speculation of government overreaction. Even though this figure was reduced from the 750,000 deaths used for pre-pandemic planning, and was further reduced twice more as the understanding of the epidemiology of the disease became clearer, the issue of 'worst-case' predictions was largely misunderstood or misinterpreted. The 'worst-case' figures were arrived at by multiplying the 'worst-case' for every parameter together. The 'worst-case' figures therefore represented an extremely unlikely outcome. This approach arose from the way in which each of the different parameters were presented separately in the early versions of the planning assumption document. Clearly, the planning assumptions contain important information for contingency planners, and was not originally intended to be a public document, however a more careful presentation and derivation of a reasonable 'worst-case' scenario would be beneficial in future.

As reflected in recent media articles on this issue, there is work to be done in educating the media and the public, and learning how best to communicate scientific uncertainty and the difference between 'worst-case' scenarios, and broad ranges of predictions. I understand these thoughts are also echoed in the Department of Health memorandum.

- It should also be highlighted that while in general SAGE members were in agreement about their analysis of the pandemic, and in their recommendations, this can not be guaranteed. For example it was not possible to form a consensus opinion on whether antiviral treatment should continue be given to all patients or if this should be limited to only those individuals in the defined 'at-risk' groups. The majority view was that of providing treatment to 'at-risk' groups (with additional clinical discretion) rather than to all, however the discussion was finely balanced. The lack of a complete consensus was clearly communicated to CCC and it was made clear that the advice given was based on the weight of scientific opinion. However, the lack of a consensus amongst SAGE members caused a delay in taking policy decisions because of the perceived 'scientific uncertainty'. Clearly in situations where scientific evidence is unclear or incomplete there are going to be times when scientists will not agree, but this is precisely the reason why independent scientific scrutiny is necessary to challenge the existing evidence. This again highlights the need to consider how best to communicate scientific evidence to Ministers and senior officials, in particular at times when policy decisions need to

be made in the absence of agreement amongst the scientific community.

- Given the internal and external pressures faced by government during an emergency situation there is an inevitable desire for new scientific data to be analysed and disseminated as quickly as possible. During the swine flu pandemic, the battle rhythm that was established meant that data from HPA, provided in their regular situation report, was discussed by Ministers and communicated to the public often on the same day, not leaving time for independent scrutiny through SAGE. This led to some SAGE members concern at the way in which data was being presented to the public (or at least a lack of clarity as to the context in which some data was presented). For future civil contingencies events some more thought should be put into the battle rhythm that is established; while accepting that there is an inevitable way in which Ministerial agendas/timetables are forced by events, there is equally an important need to leave time for scientific data to be analysed before wider dissemination, particularly in events such as disease outbreaks where the scientific evidence base is a slowly evolving process.
- There has also been some comment about the different surveillance systems in place in the different administrations during the pandemic. This meant extra time was required to interpret the differences between the data, however, where one administration had more detailed data, or a different interpretation on data in a particular area this provided useful comparisons on which to assess the epidemiology of the disease. Generally the different systems didn't hinder the response to the pandemic, and the level of data collected was of excellent quality. However, to continue to improve in this area consideration should be given to the surveillance data required in a pandemic, and examine which administrations systems were able to capture certain information the best, and see how this might be applied across all administrations (acknowledging operational differences).

To address one particular surveillance data issue, a key data set required to develop the full epidemiological picture is that of deaths. On this occasion the CMO did a meticulous job in looking into all H1N1 related deaths to assess the true mortality figures. However, such investigations were not undertaken in devolved administrations, thus leading to differences in reported mortality rates between the administrations. This led to some uncertainty in SAGE, and the modelling sub-committee, with no real way to resolve the issue in real-time. This specific point should be addressed for future pandemics.

- As mentioned above, better information and data provides the basis on which to assess the pandemic and how it might progress, and as pandemics are a global issue there are many sources of data. During the swine flu pandemic there was a lot of very good information obtained from other countries, and international bodies, which was invaluable in helping build up the epidemiological picture. This was obtained mostly through formal bilateral processes (for example, I travelled to the US in May last year and put in place a process for the agreement of an MOU for HPA to formally share data with US CDC) or via international organisations such as WHO or ECDC, but sometimes on the basis of a informal contact. Although not necessarily a major issue, this process seemed quite ad-hoc, and consideration should be given to see where we can learn on strengths and weaknesses in the existing process.
- There was significant time demands from SAGE members (who were unpaid and also had day jobs to consider) in what turned out to be a relatively mild pandemic but still requiring long-term commitment (especially those members also sitting on SPI sub-committees and /or other DH advisory bodies). Further consideration should be given to what is a reasonable expectation for the time provided by independent scientific experts.

I hope you find these comments helpful, and I look forward to discussing in more detail when we meet.

Kind Regards,

A handwritten signature in blue ink, consisting of a horizontal line above a stylized 'J' and 'B'.

Professor John Beddington