

**Addendum to the fourth SAGE meeting on Covid-19, 4 February 2020  
Held in 10 Victoria St**

This addendum clarifies the roles of the SAGE attendees listed in the minute. There are three categories of attendee. Scientific experts provide evidence and advice as part of the SAGE process. HMG attendees listen to this discussion, to help inform policy work, and are able to provide the scientific experts with context on the work of government where appropriate. The secretariat attends in an organisational capacity. The list of attendees is split into these groups below.

**Attendees**

**Scientific experts:** *Patrick Vallance (GCSA), Chris Whitty (CMO), Jonathan Van Tam (dCMO), James Rubin (King's College), Peter Horby (Oxford), Neil Ferguson (Imperial), John Edmunds (LSHTM), Graham Medley (LSHTM), Carole Mundell (CSA FCO), Charlotte Watts (CSA DfID), Phil Blythe (CSA DfT), Maria Zambon (PHE), Jeremy Farrar (Wellcome), Cathy Roth (DfID), Andrew Rambaut (Edinburgh), Wendy Barclay (Imperial), Alaster Smith (dCSA DfE).*

**Observers and Government Officials:** *Kavitha Kishen (DfT), Tasha Grant (CSS), Samantha Harris (GoS), Rupert Shute (dCSA HO), Kate Thomas (DHSC).*

**Secretariat:** [redacted]

Names of junior officials and the secretariat are redacted.

Participants who were Observers and Government Officials were not consistently recorded therefore this may not be the complete list.

**UPDATED, valid as of 1530 05 February**

**Fourth SAGE meeting on Wuhan Coronavirus (WN-CoV), 4 February 2020**

**Held in 10 Victoria Street**

### **Summary**

1. SAGE agreed that greater sharing of data on the outbreak is essential. HMG should make the case for data sharing at every opportunity.
2. The outbreak is likely to peak in Wuhan/Hubei in the next 3 to 5 weeks. This is currently a wide range, and SAGE would seek to refine this estimate as more data emerges. There will be a lag before it peaks in China, then further lags before it peaks elsewhere in the world if it spreads widely.
3. A delay now in the arrival and spread of WN-CoV in the UK would be beneficial for improving NHS readiness and ability to manage a UK outbreak and importantly may push any outbreak beyond the winter respiratory season. The NHS is currently facing winter pressures, and outside of the winter respiratory season there will be fewer people presenting at hospital with similar symptoms to WN-CoV.
4. SAGE remains content with the validity of the statement (issued 3 February) on the impact of international travel restrictions on delaying spread of WN-CoV.
5. SAGE agreed that, based on current evidence, domestic measures such as shutting down public transport or restricting public gatherings would probably be ineffective in creating any meaningful delay in spread of WN-CoV.
6. SAGE agreed that HMG should continue to plan using current influenza pandemic assumptions, which can be modified as data becomes more certain.
7. Modelling group SPI-M to produce projections of when the epidemic will peak, as well as other issues, including the impact of closing schools in different outbreak scenarios.

### **Introduction**

8. Moving forward, SAGE will tackle science questions under standard headings: update on the outbreak; measures to limit spread and impact of those measures; virology; clinical management; and communicating the science.
9. Participants were asked to put confidence intervals around statements where possible.
10. All previous SAGE actions in hand.

### **Situation update**

11. SAGE was updated on latest case numbers and fatalities: there was agreement that figures for China likely a significant underestimate.

### **Understanding WN-CoV**

12. Lack of data sharing is seriously hampering understanding of WN-CoV.

**ACTION: FCO** to work with **CMO and DHSC Comms** to ensure there is a coordinated message coming from the UK on the need for greater sharing of data internationally.

13. Case ascertainment in China appears to be low: potentially 1 in 15 being identified (possibly 1 in 20). Case ascertainment outside China potentially 1 in 4.
14. Case fatality rate (CFR): considerable uncertainty around this, but reasonable confidence lower than for SARS or MERS. SAGE requires regular updates from modellers on CFR. Currently no reason to change pan-flu CFR assumptions.
15. Reproductive number: previous estimate (2 to 3) still valid, with doubling time still 4 to 5 days.
16. Incubation period: range remains 2 to 14 days, with average of 5 days.
17. Duration of infectivity: around 2 weeks, but could be longer. Average possibly 7 days. Duration will vary depending on severity of individual cases.
18. Duration of illness: median of 15 to 18 days, but great uncertainty around this. Longest time so far appears to be 41 days.

19. Asymptomatic transmission cannot be ruled out and transmission from mildly symptomatic individuals is likely.
20. Almost nothing is known about WN-CoV in children – though it is significant that there have been no reports of illness among children.
21. Under-20s appear to be least susceptible. WN-CoV appears to mirror a flu mortality curve, with most deaths among the over-60s.

**ACTION: Neil Ferguson** to share a confidential report on at risk groups with the SAGE secretariat.

#### **Swabbing and testing**

22. SAGE discussed different countries' approach to swab testing asymptomatic individuals leaving China.
23. Some individuals were swabbed twice – with some testing positive for WN-CoV on second swabbing.
24. More information is needed about swabbing and subsequent testing to inform modelling of the outbreak.
25. The UK, to date, has not swab tested returnees.
26. Although the UK is building regional diagnostic capability within weeks, overall capacity is limited. Capacity cannot be substantially increased during this winter influenza season.

**ACTION: DCMO** to understand what swabbing and subsequent testing of returning travellers has been undertaken globally and to review how often swabs need to be taken to be reliable. In addition, **DCMO** to consider whether the UK should swab those returning from China, including those currently in quarantine in the UK.

#### **Global outlook**

27. Human-human transmission outside China has occurred. Sustained human-to-human transmission outside China cannot be ruled out, but there is as yet no definitive evidence of a sustained outbreak/epidemic elsewhere.
28. More testing for WN-CoV globally as part of routine influenza testing would improve understanding of the scale and nature of the outbreak, but currently is logistically difficult.
29. The outbreak is likely to peak in Wuhan/Hubei in the next 3-5 weeks.
30. There will be a lag before it peaks in China (potentially a month), then further lags before it peaks elsewhere in the world.
31. The epidemic in Wuhan could last for 5 to 6 months in total.
32. This is currently a wide range for all of these figures, and SAGE would seek to refine this estimate as more data emerges.

**ACTION: SPI-M** to produce projections of when the epidemic will peak as well as overall duration of outbreak in 1. Wuhan, 2. China and 3. UK – if we get sustained person-to-person transmission. In addition, **SPI-M** to advise on countries that may be most affected.

**ACTION: SPI-M** to review, based on available data, what can be said regarding seasonality of the outbreak and risk factors, specifically age and if possible, smoking.

**ACTION: UK science coordination group for WN-CoV**, which includes GCSA, CMO (NIHR), PHE, DfID, FCO and research funders, to consider whether the UK can accelerate diagnostic capability to include WN-CoV alongside regular influenza testing before the onset of the winter influenza season.



### **Measures to limit spread**

33. A delay now in the arrival and spread of WN-CoV in the UK would be beneficial for improving NHS readiness and ability to handle cases as the NHS would be dealing with fewer upper respiratory issues.
34. SAGE remains content with the validity of the statement (issued 3 February) on the impact of international travel restrictions on delaying spread of WN-CoV.
35. SAGE asked to be updated if the calculations underlying the statement were to change.
36. The effect of shutting schools to limit spread of WN-CoV is currently unknown, given ignorance about the impact of WN-CoV among children.
37. It is possible that school closures in reaction to further cases of WN-CoV in the UK would be less effective than in previous epidemics, when children were more susceptible to the disease, and infectivity periods were shorter.
38. As evidenced through previous behavioural science studies, regional closing of schools can be expected to have impacts elsewhere in the country as parents outside those regions would choose to withdraw children from school.
39. Measures within the UK – such as shutting down public transport and suspending public gatherings – would probably be relatively ineffective in limited spread of WN-CoV.
40. SAGE heard that NERVTAG advises that there is limited to no evidence of the benefits of the general public wearing facemasks as a preventative measure.
41. Facemasks and other personal protective equipment in the community is only advised for health and social care workers visiting individuals who may be infectious.
42. There is some evidence that wearing of face masks by symptomatic individuals may reduce transmission to other people, and therefore NERVTAG also recommends that symptomatic people should be encouraged to wear a surgical face mask, providing that it can be tolerated.
43. It is not known whether WN-CoV can be spread through air conditioning systems.
44. The next meeting of SAGE will consider other potential measures to delay spread, including measures to delay spread among vulnerable groups.

**ACTION: SPI-M**, with input from **James Rubin**, to consider the impact of closing schools in different outbreak scenarios, and advise SAGE on what triggers would require discussion as to whether schools should close.

### **Review of reasonable worst-case scenario and planning**

45. SAGE agreed that, in the absence of more reliable data, HMG should continue to plan using influenza pandemic assumptions.

**ACTION: SPI-M** to review UK pandemic flu reasonable worst-case planning assumptions on a weekly basis and update SAGE on whether they should be revised, as new data emerges. In addition, **SPI-M** to forecast hospital demand.

### **Communicating the science**

46. SAGE advised caution in explaining factors such as the case fatality rate to the general public. It is important to communicate that such factors are complex and can be calculated in different ways, meaning the public can expect to see different interpretations of the same factor.

### **List of actions**

**FCO** to work with **CMO and DHSC Comms** to ensure there is a coordinated message coming from the UK on the need for greater sharing of data internationally.

**Neil Ferguson** to share a confidential report on at risk groups with the SAGE secretariat.

**DCMO** to understand what swabbing and subsequent testing of returning travellers has been undertaken globally and to review how often swabs need to be taken to be reliable. In addition, **DCMO** to consider whether the UK should swab those returning from China, including those currently in quarantine in the UK.

**SPI-M** to produce projections of when the epidemic will peak as well as overall duration of outbreak in 1. Wuhan, 2. China and 3. UK – if we get sustained person-to-person transmission. In addition, **SPI-M** to advise on countries that may be most affected.

**SPI-M** to review, based on available data, what can be said regarding seasonality of the outbreak and risk factors, specifically age and if possible, smoking.

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**SPI-M**, with input from **James Rubin**, to consider the impact of closing schools in different outbreak scenarios, and advise SAGE on what triggers would require discussion as to whether schools should close.

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*SAGE participants:* Patrick Vallance, Chris Whitty, Jonathan Van Tam, James Rubin, Peter Horby, Neil Ferguson, John Edmunds, Graham Medley, Carole Mundell, Charlotte Watts, Phil Blythe, Kate Thomas

*By phone:* Maria Zambon, Jeremy Farrar, Cathy Roth, Andrew Rambaut, Wendy Barclay

*Observers:* [REDACTED] Kavitha Kishen, Tasha Grant, Samantha Harris, Rupert Shute, [REDACTED] Alaster Smith

*Secretariat:* [REDACTED]  
[REDACTED]

SAGE Secretariat