Addendum to ninth SAGE meeting on Covid-19, 20th February 2020
Held in 10 Victoria St, London, SW1H 0NN

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), Jenny Harries (dCMO), Charlotte Watts (CSA DfID), Carole Mundell (CSA FCO), Angela McLean (CSA MoD), John Aston (CSA HO), Phil Blythe (CSA DfT), Sharon Peacock (PHE), Ian Hall (Manchester), Neil Ferguson (Imperial), John Edmunds (LSTHM), Brooke Rogers (King's College), James Rubin (King's College), Maria Zambon (PHE), Peter Horby (Oxford), Alaster Smith (dCSA DfE).*

Observers and Government officials: *Ben Warner (No. 10).*

Secretariat: [redacted]

Names of junior officials and the secretariat are redacted.

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

Ninth SAGE meeting on Wuhan Coronavirus (Covid-19), 20 February 2020
Held in 10 Victoria Street

Summary

1. Before consideration of measures to reduce spread is undertaken, it is essential to understand the ability of surveillance methods to pick up evidence of an epidemic (and how those methods might be improved), understand when evidence will become available, and – from that surveillance – the likely trajectory of an epidemic.
2. It is also essential to understand the objectives behind seeking to manage the epidemiological curve, informed by key challenges the NHS is seeking to mitigate.

Situation update

3. There is evidence of local transmission unlinked to individuals who have travelled from China in Japan, Republic of Korea and Iran.
4. There is evidence from China and Hong Kong that social distancing measures have had some impact in limiting the outbreak.

Understanding Covid-19

5. SAGE agreed there was no reason to revise the agreed numbers for key variables.
6. Duration of illness: SAGE table should read "great variance" re. the median, rather than "great uncertainty".

ACTION: NHS England to provide **SPI-M** with a list of precise and essential criteria upon which NHS planning depends (e.g. is an estimate of the percentage of patients needing respiratory support, and for how long, the most important thing to know for planning?), in order for SPI-M to model these in different outbreak scenarios.

Measures to limit spread

7. Before consideration of measures to reduce spread is undertaken, it is essential to understand the ability of surveillance methods to pick up evidence of an epidemic (and how those methods might be improved), understand when evidence will become available, and – from that surveillance – the likely trajectory of an epidemic.
8. It is also essential to understand the objectives behind seeking to manage the epidemiological curve (e.g. flattening the peak, spreading the duration, avoiding winter), informed by key challenges the NHS is seeking to mitigate.
9. Once there is clarity on those issues, SAGE should review all potential methods to limit spread (schools, travel, large gatherings, home working etc.), including their likely relative effectiveness.

ACTION: NHS England to clarify for SAGE the profile of the epidemic that would allow the best NHS response.

ACTION: SAGE to review all possible interventions to limit the spread of the disease at a dedicated future meeting, including an assessment of the effectiveness of these inventions, based on advice from **SPI-M** and **SPI-B**.

ACTION: SPI-B to consider the likely public response to interventions to limit the spread of the disease, and the impact of public response on the effectiveness of such interventions. **SPI-B** also to consider what conditions could lead to civil disturbance.

Contact tracing and case surveillance

10. SAGE discussed a PHE paper on monitoring and contact tracing, the purpose of which is detection and containment to delay spread of Covid-19.

11. SAGE concluded that individual cases could already have been missed – including individuals advised that they are not infectious (given the challenge of picking up the virus after the first week or so of infection).
12. SAGE advised that PHE's proposed triggers for reviewing whether to discontinue contact tracing are sensible. SAGE should offer further advice should those triggers be met.
13. Any decision to discontinue contact tracing will generate a public reaction – which requires consideration with input from behavioural scientists.
14. Data collected, as well as clarity around methodology and numbers (e.g. general practices, pneumonia cases, where and how many), are essential to judge the effectiveness of any approach to surveillance. Modelling is necessary to understand how likely the proposed approach is to detect cases, both geographically and at what point of any outbreak.
15. SAGE advised that the locations chosen for serological sampling are important (including where previous cases have been identified, as well as the Devolved Administrations).

ACTION: PHE to share detailed proposals for surveillance (numbers, locations, methods) from clinical settings with **SPI-M**.

ACTION: SPI-M to provide a consensus view (with confidence intervals) on the impact of **PHE** surveillance proposals, and to identify potential improvements. This should include consideration of:

at what stage an outbreak will be detected (including appropriate geographical coverage)
the likelihood of detecting an outbreak
predicting the trajectory of the outbreak.

ACTION: PHE to co-ordinate with the Devolved Administrations on the development of surveillance and monitoring proposals.

School closures

16. SAGE discussed a SPI-M paper on modelling of school closures, assuming children have a transmission role for Covid-19 similar to that of influenza.
17. It is possible that school closures could have a modest impact on delaying the peak of an epidemic, but timing of intervention will be key and this will require the ability to detect and monitor any outbreak with good surveillance.
18. Sequential serological evidence represents the best means to predict epidemiological peak.
19. A systematic review of the literature on school closures found greater parental compliance with shorter durations (i.e. 2 weeks; there is no apparent evidence of school closures lasting more than 4 weeks).
20. Social mixing is inevitable with longer closures, but could be mitigated by effective public messaging (including a clear explanation of the purpose of closures).

ACTION: SPI-M to consider the impact of selective school closures in different outbreak scenarios, framed by NHS needs.

ACTION: PHE to update SAGE at future meetings on progress on serology test development.

Review of reasonable worst-case (RWC) scenario and planning

21. There is currently no new data prompting review of the RWC planning assumptions.

List of actions

NHS England to provide **SPI-M** with a list of precise and essential criteria upon which NHS planning depends (e.g. is an estimate of the percentage of patients needing respiratory support, and for how long, the most important thing to know for planning?), in order for SPI-M to model these in different outbreak scenarios.

NHS England to clarify for SAGE the profile of the epidemic that would allow the best NHS response.

SAGE to review all possible interventions to limit the spread of the disease at a dedicated future meeting, including an assessment of the effectiveness of these inventions, based on advice from **SPI-M** and **SPI-B**.

SPI-B to consider the likely public response to interventions to limit the spread of the disease, and the impact of public response on the effectiveness of such interventions. **SPI-B** also to consider what conditions could lead to civil disturbance.

PHE to share detailed proposals for surveillance (numbers, locations, methods) from clinical settings with **SPI-M**.

SPI-M to provide a consensus view (with confidence intervals) on the impact of **PHE** surveillance proposals, and to identify potential improvements. This should include consideration of:

- at what stage an outbreak will be detected (including appropriate geographical coverage)
- the likelihood of detecting an outbreak
- predicting the trajectory of the outbreak.

PHE to co-ordinate with the Devolved Administrations on the development of surveillance and monitoring proposals.

SPI-M to consider the impact of selective school closures in different outbreak scenarios, framed by NHS needs.

PHE to update SAGE at future meetings on progress on serology test development.

Attendees

SAGE participants: Patrick Vallance (chair), Jenny Harries, Charlotte Watts, Carole Mundell, Angela McLean, John Aston, Phil Blythe, [redacted] *Sharon Peacock, Ian Hall, Neil Ferguson, John Edmunds,* [redacted] *Ben Warner*

By phone: Brooke Rogers, James Rubin, Maria Zambon, Peter Horby, [redacted] *Alaster Smith*

SAGE secretariat: [redacted]

SAGE secretariat