

**Thirty-sixth SAGE meeting on Covid-19, 14<sup>th</sup> May 2020**  
**Held via Zoom**

**Summary**

1. SAGE advised that social bubbles have the potential to create significant unwanted effects and advised against their introduction in the short term, when other distancing measures have only just been lifted, or in conjunction with release of other measures.
2. SAGE advised that further release of distancing measures should not be contemplated until effective outbreak surveillance and test and trace systems are up and running.

**Situation update**

3. The steady decline in hospital and care home deaths continues; the rate of decrease is slowing, but not more than would be expected.
4. There is a continued downward trend in hospital admissions, with some regional variation.
5. CO-CIN data show a decline in absolute numbers of hospital acquired infections (but they are increasing as a proportion of total).
6. Latest ONS data show overall prevalence is driven in part by healthcare workers. There are roughly 12,000 new cases per day and currently around 150,000 infected overall in England. Prevalence was slightly higher than in the last set of results but the difference is expected due to small numbers of cases.
7. Estimate of R remains between 0.7 and 1. SPI-M will advise on lead indicators for detecting changes in numbers of infections or R at SAGE on 19 May.
8. Data show increased seropositivity over time in London, with an adjusted seroprevalence of 13-17.4% (medium confidence). Seropositivity is higher in London than in other parts of the country (high confidence). Data for child seropositivity suggest it is roughly equivalent to that for adults. Data for infections from ONS also show a broadly similar infection rate for adults and children.
9. SAGE agreed the importance of serological and other testing data that is being collected in many hospitals locally, including from longitudinal studies of healthcare workers, being collected in one place. This will help determine whether seropositivity is associated with reduced infection and reduced carriage.
10. SAGE endorsed the Environmental and Modelling Group paper on principles of risk assessment.
11. Further research on environmental questions should be organised via a consortium, given the multidisciplinary requirements.

**ACTION: Environmental and Monitoring Group and NERVTAG** to advise UKRI on potential consortium members for research funding on a) environmental spread and b) infectiousness (and relation to PCR positivity)

**ACTION: SAGE secretariat** to circulate the SAGE-endorsed **Environmental and Monitoring Group** paper "Using understanding of transmission routes to inform risk assessment and mitigation strategies" to key departments, with clear instructions to act on relevant recommendations; **Cath Noakes** to make one alteration to paper in relation to faecal transmission (by 15 May)

**ACTION: NHS Medical Director** to ensure regional aspects of the ONS survey are fed into NHS planning and to liaise with **Ian Diamond** over future requirements (by 19 May)

**ACTION: Health Data Research UK (Andrew Morris)** to identify an approach to aggregate serological data from studies and surveys (including NIHR and other longitudinal studies); **NHS Medical Director** to capture any relevant serological data from NHS Trusts for this data repository (by 19 May)

### **Social bubbling**

12. SAGE advised strong caution concerning the introduction of social bubbling – particularly in the short term, when other distancing measures have only just been lifted, or in conjunction with release of other measures. SAGE has advised previously against making too many changes at once.
13. While SAGE noted the impact of lockdown on wellbeing and theoretical benefits of bubbling for some people (e.g. those experiencing loneliness, stress, economic hardship), it cannot be regarded as a universal good; for some people bubbling is impossible, too complicated or there may be no other household for them to link to.
14. Any bubbling will increase infection risk. If introduced, bubbling should only happen when it is safe to do so from an epidemiological perspective and on a very modest basis initially.
15. Currently, incidence is too high and R close to 1. Active contact tracing should be a pre-condition of introducing bubbling.
16. Modelling of risk to date has assumed schools remain closed and that R is 0.8 or lower. Risk would be amplified if schools are open and if workplaces are busier.
17. For bubbling itself, risk can be minimised if participating households are small, i.e. two one-person households interacting (1+1) or (slightly more risky) a one-person household interacting with a larger household (1+n). Bubbles of larger households with multiple individual connections provide a significant potential risk.
18. Consideration is needed, however, of bubbling involving multi-generational families including older people, of families which include vulnerable individuals or which include a healthcare worker.
19. SAGE also noted significant challenges to operationalising bubbling and setting out unambiguous guidelines. Isolation on contact with an index case would have to involve the whole bubble.
20. Messaging needs to be clear prior to launch to prevent/reduce non-adherence.
21. SAGE advised that non-adherence with guidelines could lead to spread of the infection, and that non-adherence was likely, especially if larger households are bubbled together.
22. SAGE noted a paucity of evidence from the adoption of bubbling in other countries – but that there is already some evidence of potentially significant non-adherence with bubbling guidelines.
23. Other unintended consequences are possible.
24. SAGE concluded that bubbling may be appropriate in limited circumstances – and that policy development in the area would benefit from being able to quantify and compare its impacts with other measures, though quantification is challenging and data sparse.
25. DHSC polling could in future ask about interactions among households to determine whether bubbling is already happening.

**ACTION: SAGE secretariat** to provide a covering summary note on social bubbling, setting out SAGE's advice and caveats (by 15 May)

### **Surveillance**

26. SAGE noted the challenges facing the Joint Biosecurity Centre (JBC), including how to identify local outbreaks, the required pace of testing, what NPIs could be implemented in response (and how quickly), public messaging, the potential for outbreaks undefinable by local geography (e.g. more likely linked to workplaces than schools) and variation in regional capacity.
27. SAGE noted the importance for the JBC of clearly defining its overall objective – plus the value of user-centred design, lead indicators as well as lag indicators, connected multi-dimensional data, privacy issues and public buy-in (including economic incentives/disincentives to identify outbreaks); early identification of any outbreaks should be a cause for public celebration and recognition.
28. SAGE advised that further release of distancing measures should not be contemplated until effective monitoring and test and trace systems are up and running.

29. SAGE offered ongoing rapid support and advice to JBC.

**ACTION: SAGE secretariat** to capture key science questions and advice around the design of monitoring and relevant measures for the Joint Biosecurity Centre (by 15 May); **Evaluation Sub-group**, with input from SAGE volunteers, to refine these questions as basis for further modelling and behavioural commissions (including modelling of reactive closures at the level of an individual workplace) and provide advice to JBC by 15 May

**ACTION: NHS Medical Director** to ensure input from NHS is fed into design of Joint Biosecurity Centre (by 15 May)

### **Asymptomatic cases and infection**

30. NERVTAG has reviewed various studies on asymptomatic infection. Many do not differentiate between asymptomatic/pauci-symptomatic individuals and pre-symptomatic individuals.
31. SAGE noted that longitudinal sampling in the ONS study will assist in clarifying this difference going forward but needs to include more than “asymptomatic on the day of infection”.
32. Taking all evidence into account, between 10% and 35% of individuals may be truly asymptomatic (low confidence), and many more may have few symptoms. Review of ONS data will help refine the estimate.
33. It is possible that asymptomatic individuals are less infectious, but this cannot currently be quantified. There is a key knowledge gap concerning how positive testing correlates with the presence of live, recoverable virus (i.e. infectiousness), although PHE is currently investigating this.

**ACTION: PHE (Maria Zambon)** to provide current summary of Covid-19 biology for consideration by NERVTAG (by 15 May) to inform its input to planned consortium researching infectiousness

### **Virus variants**

34. SAGE noted that it is currently hard to interpret the biological consequences of sequence variations in the virus – but acknowledged the ramifications of mutation and virus recombination in areas such as diagnostics and vaccines.
35. SAGE agreed that the biology of the virus should be the focus of an open research call.

**ACTION: Wendy Barclay** and **Peter Horby** to liaise with **Wellcome (Jeremy Farrar)** to develop with **UKRI** an open research call to better understand biology of Covid-19 variants

### **List of actions**

**Environmental and Monitoring Group** and **NERVTAG** to advise UKRI on potential consortium members for research funding on a) environmental spread and b) infectiousness (and relation to PCR positivity)

**SAGE secretariat** to circulate the SAGE-endorsed **Environmental and Monitoring Group** paper "Using understanding of transmission routes to inform risk assessment and mitigation strategies" to key departments, with clear instructions to act on relevant recommendations; **Cath Noakes** to make one alteration to paper in relation to faecal transmission (by 15 May)

**NHS Medical Director** to ensure regional aspects of the ONS survey are fed into NHS planning and to liaise with **Ian Diamond** over future requirements (by 19 May)

**Health Data Research UK (Andrew Morris)** to identify an approach to aggregate serological data from studies and surveys (including NIHR and other longitudinal studies);

**NHS Medical Director** to capture any relevant serological data from NHS Trusts for this data repository (by 19 May)

**SAGE secretariat** to provide a covering summary note on social bubbling, setting out SAGE's advice and caveats (by 15 May)

**SAGE secretariat** to capture key science questions and advice around the design of monitoring and relevant measures for the Joint Biosecurity Centre (by 15 May); **Evaluation Sub-group**, with input from SAGE volunteers, to refine these questions as basis for further modelling and behavioural commissions (including modelling of reactive closures at the level of an individual workplace) and provide advice to JBC by 15 May

**NHS Medical Director** to ensure input from NHS is fed into design of Joint Biosecurity Centre (by 15 May)

**PHE (Maria Zambon)** to provide current summary of Covid-19 biology for consideration by NERVTAG (by 15 May) to inform its input to planned consortium researching infectiousness

**Wendy Barclay** and **Peter Horby** to liaise with **Wellcome (Jeremy Farrar)** to develop with **UKRI** an open research call to better understand biology of Covid-19

#### **Attendees**

**Scientific experts (32):** Patrick Vallance (GCSA), Chris Whitty (CMO), Jonathan Van Tam (dCMO), Jenny Harries (dCMO), Angela McLean (CSA MoD), Robin Grimes (CSA MoD), John Aston (CSA HO), Charlotte Watts (CSA DfID), Andrew Curran (CSA HSE), Stephen Powis (NHS), Yvonne Doyle (PHE), Sharon Peacock (PHE), Maria Zambon (PHE), Ian Diamond (ONS), Andrew Morris (Scottish Covid-19 Advisory Group), Nicola Steedman (dCMO Scotland), Rob Orford (Health CSA Wales), Fliss Bennee (Wales Technical Advisory Cell), Wendy Barclay (Imperial), Peter Horby (Oxford), Cath Noakes (Leeds), Michael Parker (Oxford), James Rubin (KCL), Andrew Rambaut (Edinburgh), Calum Semple (Liverpool), Lucy Yardley (Bristol), John Edmunds (LSHTM), Graham Medley (LSHTM), Ian Boyd (St Andrews), Jeremy Farrar (Wellcome), Venki Ramakrishnan (Royal Society), Mark Walport, (UKRI)

**Observers and government officials (6):** [REDACTED]  
[REDACTED] Vanessa MacDougall (HMT), Ben Warner (No. 10)

**SAGE secretariat (13):** [REDACTED]  
[REDACTED]  
[REDACTED] Simon Whitfield, Stuart Wainwright

**Total participants: 51**