Fortieth SAGE meeting on Covid-19, 4th June 2020
Held via Zoom

Summary

1. SAGE highlighted the importance of cluster tracing – including location tracing, understanding of environmental factors and backwards contact tracing – to the TTI programme.
2. There is an increased risk from Covid-19 to BAME groups, which should be urgently investigated through social science research and biomedical research, and mitigated by policy makers.
3. SAGE continues to advise at least 2m separation where possible, given the significant reduction in risk compared to shorter distances. Mitigations are available in some situations, and the principles of mitigation have been clearly identified.

Situation update

4. SAGE agreed the latest R estimates: 0.7-0.9 for the UK; 0.7-1.0 for England; 0.6-0.8 for Scotland; 0.7-0.9 for Wales; 0.7-1.0 for Northern Ireland.
5. CO-CIN data suggest it is highly likely that a significant proportion of total transmission is derived from hospitals or care homes. Nosocomial infection is responsible for an increasing proportion of cases and accounts for why R remains close to 1. The majority of cases currently coming into hospital may be linked to nosocomial spread.
6. R will start to tend towards one, which means confidence intervals will include values greater than one. This will present a communications challenge in which it will be important to also emphasise incidence levels.
7. ONS and the King's College London Zoe app are reporting lower incidence (7-8,000 per day) than modelled estimates, where models are converging around an estimated 35,000 infections per day; more work is needed to reconcile model outputs with ONS data and understand the discrepancies. The ONS data are seen as more direct.
8. Potentially one third to one half of hospital admissions labelled as Covid-19 admissions are readmissions or not acute Covid-19 disease: it is necessary to understand how the NHS is recording these patients to know whether its data is distorting modelling work.
9. SAGE endorsed the SPI-M paper on clusters and highlighted the importance of cluster tracing – including location tracing, understanding of environmental factors and backwards contact tracing – to the TTI programme. This has already been discussed with the TTI programme and will be reiterated.
10. SAGE reiterated the importance of robust TTI to prevent rising incidence of infection.
11. PHE has received advice on a generation time study from John Edmunds – and will confirm whether it has capacity to lead this investigation and, if not, which organisation will.
12. SAGE approved the latest excess deaths paper (to inform the reasonable worst case scenario) for use by Cabinet Office.

ACTION: NHS Medical Director to clarify for SPI-M which hospital admissions are recorded as Covid-19

ACTION: NERVTAG to advise on a) incubation time and b) proportion of asymptomatic cases as part of overall advice on infectiousness for next SAGE meeting on 11 June

ACTION: SAGE participants to comment on revised SPI-M 'Superspreading and Clusters' paper within next 24 hours (out-of-committee approval assumed)

ACTION: SAGE secretariat to send papers 'Estimating Additional Deaths to Expand the RWCS' and 'Adjusting RWCS for Total Deaths' to CCS for amalgamation and dissemination with existing excess deaths estimates

ACTION: Nosocomial group and **NHS Medical Director** to consider Wendy Barclay's 'Viral dynamics of infectiousness' paper ahead of next SAGE meeting on 11 June, particularly its recommendation for testing Covid-19 patients prior to hospital discharge

ACTION: **SPI-M** and **NERVTAG** to advise on optimal duration of pre-symptomatic timeframe for backwards contact tracing for next SAGE meeting on 11 June

Immunology

13. There is an antibody response in nearly all infected people, including those who are asymptomatic. It is not yet known how long these responses last, or what degree of protection is conferred.
14. The response includes some neutralising antibodies. While it is not yet known which antibodies give protection, and neutralising antibodies are not the only protective element, it is reasonable to infer there is some degree of protection.
15. The T-Cell response is also important and may confer cross-reactivity from seasonal coronaviruses. This T-cell cross-reactivity might explain some differences in clinical susceptibility.
16. It should not be assumed (indeed it is unlikely) that there will be true sterilising immunity, either from vaccines or from natural immunity. Immunity may provide protection from disease but not necessarily complete protection from infection. Antibody responses to vaccination may vary between groups, with elderly patients possibly needing adjuvant.
17. Different demographic groups, particularly the elderly, may have different responses to vaccines, and there are research gaps around gender and ethnicity. Additional sampling in some groups may be helpful.
18. Preliminary results show seroprevalence of around 17% in London, with higher rates in healthcare workers (up to 35%), and much higher rates in care homes which experienced outbreaks (in one case up to 70%). There is value in bringing together different datasets on seroprevalence in a single place.
19. Uncertainties around the implications of antibody test results mean that clinical use of serological testing is some way off. Immunity passports or equivalents are not advisable for similar reasons.
20. SAGE endorsed the paper on serological testing priorities, subject to it being updated to reflect the discussion in the meeting.
21. Key unknowns were identified as (a) degree of protection conferred by seropositivity (and which antibodies are protective), (b duration of any protection, and (c) whether seropositivity prevents acquisition and transmission of virus.

ACTION: UKRI, PHE and **Paul Moss** to ensure linkage between academic immunology research and PHE serological testing

ACTION: Andrew Morris and **Paul Moss** to identify how data from immunology research and PHE seroprevalence studies can be effectively captured and coordinated for wider use

ACTION: PHE (Maria Zambon) to ensure link up between JCVI (setting vaccination strategy and priority groups) and CMO testing strategy to ensure sufficient and appropriate serology data are collected for future vaccination programmes

Ethnicity

22. SAGE endorsed the summary paper drafted by the SAGE secretariat, which noted increased non-uniform risk among BAME groups of catching Covid-19 – potentially linked to economic inequality, deprivation, occupation, household size and other cultural features causing increased social contacts and levels of exposure.
23. The summary paper also noted increased risk of ICU admission and death from Covid-19 among BAME groups compared to non-BAME groups experiencing the same severity and duration of illness on admission to hospital. CO-CIN data show a 20% increase in

the chance of death among hospitalised Covid-19 patients of South-Asian background after adjusting for other risk factors including age, gender, comorbidities, and available markers of social deprivation. This in-hospital difference in outcomes may relate to biological factors including cardiovascular disease.

24. Preliminary NHS analysis of deaths of healthcare workers also identifies ethnicity as a major factor.
25. DHSC polling finds comparable levels of worry, trust and handwashing among BAME and non-BAME groups, but lower knowledge of Covid-19 symptoms among BAME groups.
26. SAGE further noted that considerable differences exist within current ethnic categories (e.g. among "South Asians"); that improved, tailored public messaging, while important, cannot overcome structural obstacles/inequalities; and fundamental sociological factors that may contribute to the observed increase in risk.
27. There are opportunities to analyse occupation by ethnicity within CO-CIN data.
28. Both social science research (quantitative and qualitative) and bio-medical research are urgently needed to better understand risk factors related to ethnicity.
29. Important to social science research is investigating issues such as health-seeking behaviours among BAME groups; levels of exposure to the virus and causes thereof; discrimination within occupations and healthcare roles (e.g. differential access to PPE); trust, social stigma and their behavioural impacts during and after the epidemic (including for social cohesion, inclusion, job seeking, in employment).
30. SAGE recognised the importance of recent sub-group work on high-contact occupations to understanding risk for BAME groups.
31. SAGE also noted the importance of involving BAME groups in framing research questions, participating in research projects, sharing findings and implementing recommendations.

ACTION: SAGE secretariat to circulate 'Ethnicity and Covid-19' summary paper (and supporting papers) to Cabinet Office and DHSC for onward dissemination to Cabinet Secretary, Heads of Departments and all relevant leads, once updated to include discussion of stigmatisation risk

ACTION: Lucy Yardley to ensure ethnicity is captured in summary report on high-contact occupations by 11 June

ACTION: SPI-B to provide advice on targeted messaging for BAME groups; chairs of SPI-B to discuss with No10 communications

ACTION: SAGE secretariat to speak to Science Media Centre about press briefing on ethnicity and Covid-19 by 8 June

ACTION: UKRI to consider priorities for social and biomedical research on ethnicity and Covid-19 by 11 June

ACTION: PHE, **HSE** and **Faculty of Occupational Medicine** to be contacted to implement strategies to mitigate ethnicity as Covid-19 risk factor; **PHE** to lead

Environmental transmission and mitigations

32. Risk of transmission varies in a continuous non-linear way with distance of separation and with duration of contact. Physical distancing is an important mitigation measure.
33. SAGE continues to advise at least 2m separation where possible, given the significant reduction in risk compared to shorter distances. Current evidence suggests that 1m separation carries 2-10 times the risk of 2m separation, though there remains significant uncertainty.

34. Given the continuum in risk, 2m separation should not be treated as an absolute rule, with greater distances presenting lower risk, and shorter distances presenting higher risk.
35. Other mitigations can reduce risk and should particularly be considered where it is necessary for people to be closer than 2m for a prolonged period, or where someone has multiple, frequent interactions with others at a shorter distance. Selection of measures should be tailored to the environment and activities.
36. SAGE endorsed the paper on transmission and mitigation measures.
37. SAGE endorsed the paper on mask wearing to reduce transmission in hospitals, and agreed that similar consideration should be given to care homes so that coordinated and consistent advice can be given. SAGE recognised a number of practical challenges that will need to be addressed for this policy to be operational.

ACTION: SAGE Secretariat to circulate approved EMG paper 'Mitigating transmission' and these minutes to key departments, including BEIS, DHSC, DfT and Cabinet Office

ACTION: Care Homes subgroup to consider recommendations from Nosocomial group paper 'Mask wearing to reduce virus transmission in hospitals', and assess its implications for care homes, before Nosocomial group paper is endorsed at SAGE subgroup chairs meeting on 8 June

Next meeting

38. Agenda will include infectiousness and science advice for the longer term.

ACTION: SAGE participants to comment on 'Science requirements and governance for next phase of Covid-19 response'

ACTION: SAGE secretariat to capture inputs from Devolved Administrations, Joint Biosecurity Centre and DHSC on 'Science requirements and governance for next phase of Covid-19 response' ahead of next SAGE meeting on 11 June

List of actions

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Attendees

Scientific experts (48): *Patrick Vallance (GCSA), Chris Whitty (CMO), Jonathan Van Tam (dCMO), Jenny Harries (dCMO), Angela McLean (CSA MoD), Robin Grimes (CSA Nuclear), John Aston (CSA HO), Charlotte Watts (CSA DfID), Carole Mundell (FCO CSA), Osama Rahman (CSA DfE), Andrew Curran (CSA HSE), Stephen Powis (NHS), Mark Wilcox (NHS), Yvonne Doyle (PHE), Sharon Peacock (PHE), Maria Zambon (PHE), Ian Diamond (ONS), Graham Medley (LSHTM), John Edmunds (LSHTM), Peter Horby (Oxford), Cath Noakes (Leeds), Michael Parker (Oxford), James Rubin (KCL), Brooke Rogers (KCL), Lucy Yardley (Bristol/Southampton), Wendy Barclay (Imperial), Calum Semple (Liverpool), Andrew Rambaut (Edinburgh), Ian Boyd (St Andrews), Charles Bangham (Imperial), Peter Bruce (Oxford), Janet Lord (Birmingham), Deborah Dunn-Walters (Surrey), Paul Moss (Birmingham), Michael Ferguson (Dundee), Iyiola Solanke (Leeds), Vittal Katikireddi (Glasgow), Jonathan Benger (Bristol), Kevin Fenton (PHE), Jeremy Farrar (Wellcome),*

Venki Ramakrishnan (Royal Society), Mark Walport (UKRI), Sheila Rowan (CSA Scotland), Andrew Morris (Scottish Covid-19 Advisory Group), Nicola Steedman (dCMO Scotland), Jim McMenamin (Health Protection Scotland), Rob Orford (Health CSA Wales), Ian Young (CMO Northern Ireland)

Observers and government officials (12): [redacted] *Emma Payne (CO),* [redacted] *Stephen Aldridge (MHCLG),* [redacted] *Vanessa MacDougall (HMT), Ben Warner (No. 10), Imran Shafi (No. 10),* [redacted]

SAGE Secretariat (16): [redacted] *Simon Whitfield,* [redacted] *Stuart Wainwright,* [redacted]

Total participants: 76