Fifty-fifth SAGE meeting on Covid-19, 3rd September 2020
Held via Zoom

Summary

1. The latest estimate of R for the UK is 0.9 to 1.1, while the daily growth rate estimate is - 1% to +2%. As previously, these estimates mask wide regional variation across the country and should be treated as a guide to the general trend. ONS data continue to show fairly flat prevalence and incidence. Contact studies suggest contacts are lower in UK than in other parts of Europe but the trend for contacts in the UK is upwards (high confidence).

2. Evidence from serology studies suggest a small proportion (around 6%) of the UK population has antibodies to Covid-19. There is an antibody response in nearly all infected people, including those who are asymptomatic (high confidence). It is not yet known how long these responses last, the degree of protection conferred, or effects on transmission, but where neutralising antibodies are present protection against infection seems very likely (medium confidence). There is some evidence of antibody levels waning. T cell reactivity may be more widespread in the population than antibodies (medium confidence).

3. Current levels of immunity in the population are expected to have greatest effect on R if R is close to 1 (medium confidence). This should be considered in future policies and argues for keeping R low.

4. SAGE noted an increasing proportion of positive tests occurring in younger people, particularly in the 20-29 age group, but also amongst 10-19 and 30-39 year olds.

Situation update

5. SAGE endorsed the papers on managing transmission associated with Higher Education (HE) and Further Education (FE) papers and reiterated the significant risk of transmission spill-over into the wider community with reopening FE and HE settings.

6. For HE settings the risk will require national oversight, monitoring and decision-making. For both HE and FE, there are local or regional risks. There will also be places with both HE and FE institutions that interact with each other and the wider community, which may exacerbate risks.

7. SAGE noted evidence of low adherence (self-reported) to self-isolation and reiterated that testing is one part of a wider system: without adherence to isolation, its impact on interrupting transmission would be more limited.

8. Onward transmission from people travelling to the UK remains a risk for outbreaks in the UK. The numbers of infections through this route are much lower than transmission from infection within the UK (medium confidence).

9. The most recent ONS Infection Survey data suggest a flat prevalence and incidence.

10. CoMix data indicate that the contact rates in the UK remain lower than some other European countries which may offer a partial explanation for the UK not currently seeing such large increases in incidence as those countries. However, as contact rates increase, a similar pattern may emerge in the UK and so it is particularly important to carefully monitor the epidemic as contacts increase.

Measuring population immunity to Covid-19

11. Evidence from serology studies suggest a small proportion (around 6%) of the UK population has antibodies to Covid-19. The exact relationship between seropositivity and immunity is unclear, but it is likely that with the right levels and types of antibody, sterilising immunity occurs (medium confidence).

12. As noted previously, 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, the degree of protection conferred, or effects on transmission. There is evidence of antibody levels waning over 2-3 months (medium confidence). There is evidence that individuals with certain types and levels of antibody can still have significant viral load and potentially transmit virus (high confidence).

13. There have been a small number of well documented cases of reinfection but little is known of initial antibody status following the first infection in these cases. The possibility of reinfection is consistent with knowledge of other coronaviruses.

14. The amount of virus shed by reinfected people may be similar to those being infected for the first time (indicating that they are likely to be infectious to others). There is not enough evidence to say whether the disease is likely to be more or less severe in the case of reinfection.

15. Current levels of immunity in the population are unlikely to mitigate the impact of a significant winter resurgence. Current levels of immunity may have greatest effect on R if contact rates are such that R remains close to 1 (medium confidence). This should be considered in future policies as it suggests R should be kept low. Immunity rates are likely to be higher in London and in some occupational settings.

16. Some groups have been more central to transmission than others, for example health care workers, due to their contact patterns. The high levels of exposure faced by groups of health and social care workers in the epidemic to date means that they may have higher levels of immunity but may still be at risk of reinfection because of high exposure.

17. There is currently no evidence of antigenic shift in the virus and known cases of reinfection are most likely related to antibody/immunity levels waning. It is not currently known at what point an individual is likely to be susceptible to reinfection, but the interval between infections for the case studied was 142 days.

18. There is therefore a need for individuals to continue to adhere to the usual testing and isolation requirements even if they have had a previous infection. This will require continued public health messaging that once a person has had COVID-19 they can be reinfected and should follow existing guidance.

19. Cross-reactive T-cell responses from other seasonal coronaviruses may exist but the degree and duration of any protection remains unknown. Standardisation of assays will be very important (as for neutralising antibody assays).

20. As noted previously, uncertainties around the implications of antibody test results means further work is need on serological testing. Immunity passports or equivalents are not currently advisable for similar reasons.

Transmission in younger people

21. SAGE noted an increasing proportion of positive tests occurring in younger people, particularly in the 20-29 age group, but also amongst 10-19 and 30-39 year olds (high confidence).

22. The underlying reasons for this are unclear but may be linked to poor adherence with guidance, which could be due to both voluntary and non-voluntary factors related to individuals' capability (e.g. levels of knowledge), opportunity (e.g. due to an inability to work from home, type of high contact occupation, or living in shared accommodation), or motivation (e.g. due to lower individual risk of severe disease).

23. Young people may have more contacts and be less likely to socially distance with each other than they do with older people. This means that transmission within these age groups is likely to be faster than transmission from these age groups into older age

groups (where the consequences are more severe) (low confidence and poor evidence base).

24. SAGE agreed further information on the occupations and activities of all newly infected individuals would help to establish the nature of contacts linked to increased incidence in these and other age-groups (recording the occupation of tested individuals has previously been requested and remains a priority). Age data alone are unlikely to give the full picture.

25. SAGE cautioned against focussing only on one age group. Despite younger people making up a greater proportion of infections, mixing of older and therefore higher risk individuals may pose a greater risk. It will also be important to understand the risks posed by transmission from young people to older individuals.

ACTION: SAGE secretariat to review participant comments and consider what, if any, further work might be of value to enhance understanding of transmission within and between different demographic cohorts

Attendees

Scientific Experts (27): *Patrick Vallance (GCSA), Chris Whitty (CMO), John Aston (CSA HO), Osama Rahman (CSA DfE), Maria Zambon (PHE), Robin Grimes (CSA Nuclear), Alan Penn (CSA MHCLG), Charlotte Watts (CSA DfID), Andrew Morris (SG Advisory Group), Mark Wilcox (NHS), Calum Semple (Liverpool), Wendy Barclay (Imperial), Graham Medley (LSHTM), John Edmunds (LSHTM), Catherine Noakes (Leeds), Ian Boyd (St Andrews), Venki Ramakrishnan (Royal Society), Mark Walport (UKRI), Sheila Rowan (CSA Scotland), Rob Orford (Health CSA Wales), Yvonne Doyle (PHE), Fliss Bennee (Technical Advisory Cell, Wales), Julia Gog (Cambridge), Peter Horby (Oxford), James Rubin (KCL), Brooke Rogers (KCL), Andrew Rambaut (Edinburgh).*

Observers (7): ███████████████████████████████
████████ *Ben Warner (No. 10),* ██████████████████████

Secretariat (all GO-Science) (13): ██████████████████████
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███████████████████ *Simon Whitfield,* █████████████

Total: 47