

SPI-M-O Expert narratives for potential Autumn and Winter Events

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1. An updated iteration of the Reasonable Worst-Case Scenario (RWCS) has been developed for government planning, quantifying one specific scenario. By its nature, this cannot capture all of the multiple possible scenarios that could occur in the longer term. SPI-M-O are concerned that other series of events, different from the RWCS, could take place which would lead to widespread community transmission that takes a long time to be detected and then suppressed. The greatest danger is likely to come from a situation where an increase in cases goes undetected for an extended period or where there is uncertainty about the increase in cases. This is might occur if there were a shift in the age-structure of infections so that more younger adults became infected so that the impact on severe symptomatic cases, hospitalisations, and mortality would not be seen for several weeks.
2. SPI-M-O members have used their expertise as infectious disease epidemiologists to consider alternative for the way that events might unfold. These can be broadly categorised into four scenarios:
 - A. Overall incidence remains broadly flat, with the national reproduction number around 1, and the epidemic controlled by the rapid identification of outbreaks and appropriate local interventions taken.
 - B. The national reproduction number slowly increases past 1, with relatively little local variation.
 - C. The national reproduction number rapidly increases past 1, with high regional variation.
 - D. The national reproduction number rapidly increases past 1, with relatively little regional variation.
3. Scenario A is optimistic; the current national strategy is to intervene in local hotspots, in line with this. Scenario D broadly aligns with the latest iteration of the RWCS. Further details on this are given in a separate paper. If scenario D were to occur, it would be relatively easy to identify the increase in transmission and therefore allow appropriate action to be taken.
4. Scenarios B and C are of particular concern to SPI-M-O. These would both result in situations where widespread sustained community transmission could occur without detection, or with delayed detection, at the national level. Under scenario B, local

interventions would only allow for a small proportion of transmission to be prevented. There would be sustained exponential growth in much of the country, requiring a change to a national strategy. The early stages of exponential growth would initially result in only a gradual increase in cases and so government and individuals might, at first, be unwilling to change policies and behaviour; this initial small increase in infections would likely happen in younger age groups (i.e. those under 50 years old) first, who are less likely to have severe symptoms. Widescale community transmission across all age groups would result, so much more stringent interventions would be needed than those required if measures were enacted earlier.

5. Scenario C would be similar to scenario B but would be even more worrying. Under such a scenario, local hotspots would not be controlled and would spread into connected areas, often through hard to reach groups and younger people. As a result, high levels of exponential growth would occur in much of the country at the same time, so even more stringent measures would be needed.

Why are SPI-M-O concerned that increases in transmission may be hard to detect at first?

- We anticipate that the age-profile of cases will be younger in future, as a result of differential behavioural patterns. Younger adults are more likely to be asymptomatic or mildly symptomatic and therefore less likely to be tested. This will subsequently inevitably lead to increased incidence in higher risk groups.
- As is currently the case, a higher proportion of infections may be in harder to reach groups, such as South Asian communities.
- The nature of exponential growth means that, at first, there will be only a slow accumulation of new cases, but the prevalence of infection will increase more rapidly as time progresses.
- As we move into winter, infected people may be more likely to assume their symptoms are caused by another seasonal virus. They may be less likely to report symptoms if incidence is low in their local area, so that they consider it unlikely that they have COVID-19. Adverse weather conditions in the autumn and winter months may also cause problems with contact tracing sample collection and so slow case detection.

6. SPI-M-O do not expect growth rates to reach those seen before the lockdown in March 2020, thanks to the implementation of COVID security, natural caution amongst the population and increased testing. Doubling times of less than 14 days, however, are

possible and have been observed elsewhere in other countries, such as in Japan, Romania, and Spain.

7. It is critically important that the NHS Test and Trace programme and the Joint Biosecurity Centre monitor the proportion of confirmed cases that can and cannot be linked to known clusters. This is the best indication of uncontrolled transmission that we have.

Why are SPI-M-O concerned that future interventions to reduce incidence will not be successful?

- While SPI-M-O are not behavioural scientists, we are concerned that people may be less able to adhere to government rules and guidelines on social distancing as the year progresses. There may be many reasons for this, such as if they believe their personal risk is low or if they are required to isolate multiple times, particularly if this means they cannot work.
- Whilst the seasonality of COVID-19 is unknown, it is likely that the decrease in air temperatures in the autumn and winter will lead to more people staying indoors and consequently an increase in transmission rates, rather than a reduction.
- The economic cost of further interventions may mean that these happen too late or may not be sufficiently stringent at first, when they can have the greatest impact on disease transmission.
- Increased community transmission will challenge both health and social care settings. Increased staff absence due to quarantine may result in reduced vigilance or ability to cope with large outbreaks. This effect is exacerbated by influenza.
- As incidence of COVID-19 and other respiratory viruses increase, demand for testing and contact tracing will be stretched. If this results in fewer people being able to access rapid testing and contact tracing, we will enter a negative feedback loop, causing increases in transmission still further.

When particularly worries SPI-M-O?

- Reopening schools and further education colleges in September is expected to increase transmission because people (including children) will mix more outside of their homes, resulting in great contacts between households. Outbreaks in educational establishments will be more common in parts of the country with higher incidence, will often be identified through symptomatic teachers, and will be more common in colleges and high schools than primary schools. While schools in Scotland will return in mid-

August, low incidence at present will mean the impact of their return may not become apparent by the start of the school term in England. Outbreaks will spread back into the local community, particularly those in high schools and colleges.

- When universities reopen, large numbers of young people will come into close contact with one another. This is highly likely to result in large numbers of asymptomatic infections, which will then spread to local communities. When students return home, they will pass infections on to older people, and other higher risk groups.
- There is a chance that transmission will be seeded by people returning from travel overseas and not quarantining correctly, or if a holiday destination is believed to be “low risk” but, in reality, is not. Holidays taken within the UK may spread transmission to areas that have had relatively little transmission to date, especially in the south west of England.
- Christmas could result in explosive outbreaks across the country, as people of different ages come into close contact with one another, at a time when almost all social interactions take place indoors. Many resources in the health and care system will be low over the Christmas period. Other festivities, such as Eid ul Adha this week, will pose a risk to transmission particularly within some high-risk communities; lessons should be learned from this ahead of the major winter festive season.

We need to stack the odds in our favour

8. Scenarios B, C and D are not inevitable. Current behavioural data suggest that there is still ample room for the Government to reduce their likelihood by actively encouraging implementation of as many of the mitigations recommended by SAGE as possible. Wherever possible, the most effective measures should be used to avoid or substitute risky contacts (e.g. by home-working and self-isolation).

9. The steps needed to implement mitigation measures effectively are outlined below and would all go a long way towards increasing the likelihood of Scenario A and decreasing the likelihood of Scenarios B, C, and D:

- i. A well-funded communications campaign that helps people understand why behaviours are necessary and how to perform them, to support the ever-more complex set of rules and guidance on gov.uk;
- ii. The use of respected role-models and community champions, who promote key behaviours;

- iii. Improved support packages for people who need to isolate or who are affected by mitigation measures;
- iv. Co-production of interventions to make them understandable and acceptable to, and achievable by affected communities;
- v. Effective monitoring of current levels of behaviour in the community and a transparent evaluation of core systems, such as NHS Test and Trace, to help them to find and resolve their problems.