

SPI-M consensus statement

Date: 20th April 2020

Healthcare acquired infection

1. Data from several sources, including SPI-M analysis of CO-CIN and PHE modelling using sitrep data, are consistent with 10-25% of hospital confirmed COVID-19 cases in England being acquired in hospital. This varies widely in different hospitals, and is highly likely to be an under-estimate of the total healthcare acquired infections. It is a realistic possibility that hospital transmission may be driven by the community epidemic, rather than being self-sustaining (i.e. the reproduction number in hospitals is lower than 1).
2. This estimate does not include people who acquire infection in hospital, leave (either because they are discharged, or because they are outpatients) and are then readmitted with COVID-19. This requires urgent investigation.
3. Using some hospitals exclusively for COVID-19 patients could be considered to reduce healthcare acquired infections

Social care

4. Without data on the pattern of cases within individual care homes, it is very difficult to understand the dynamics of COVID-19 in social care.
5. There is evidence in continued growth in the number of care homes which have experienced cases of COVID-19. Any estimates of the proportion of care homes which will eventually experience outbreaks is highly speculative at this stage, but a figure approaching 90% cannot be ruled out if current trends are maintained.

Deaths occurring at home

6. Emerging data on the number of COVID associated deaths occurring in homes up to the end of March, and excess deaths in the community more generally, are very concerning. It is important to understand whether the former trend is continuing and the proportion of the latter which are COVID-19 related. PHE statisticians are investigating excess deaths.

Contact tracing and testing

7. An intensive strategy of contact tracing, with high compliance rates for quarantine of both cases and their contacts, could have a significant impact on the reproduction number. The size of this reduction is highly uncertain, and would depend on the contact tracing strategy chosen, the effectiveness of the tracing, compliance / adherence rates, and the other social distancing measures put in place. With very good compliance, however, an approach to contact tracing that rapidly identifies and quarantines the vast majority of cases and their contacts could plausibly reduce the unmitigated reproduction number by the order of 30-60%.
8. A successful contact tracing strategy would require around 80% of non-household contacts of symptomatic cases to be traced and isolated rapidly, ideally within two days of symptom onset for the index case. This would require around 30 contacts to be tested per symptomatic case. Beyond that, benefits would be marginal.
9. To keep the reproduction number below 1, intensive and successful contact tracing strategies would also require some degree of social distancing to be maintained.
10. For a given proportion of contacts who are traced and isolated, the reduction in transmission seen would be approximately independent of incidence.
11. The incidence of symptomatic cases when a contact tracing strategy is started will affect the likelihood of its success in two ways:
 - a. Through the willingness for people to go into multiple periods of quarantine. People would have to go into quarantine more often, if contact tracing were started at a higher incidence. This would be mitigated somewhat with rapid and large-scale testing of people who are quarantined, with those who test negative being released. The behavioural elements of this are key and need careful consideration before such a policy is adopted. Releasing COVID negative people from quarantine reduces the epidemiological impact of contact tracing.
 - b. The higher incidence, the greater the number of people needing to be traced and / or tested. This number would depend on the contact tracing strategy used, but:
 - i. If there are 100,000 new symptomatic cases per day, the number of people needing tracing and quarantining would be of the order of magnitude of millions per day

- ii. If there are 10,000 new symptomatic cases per day, the number of people needing tracing and quarantining would be of the order of magnitude of hundreds of thousands per day
- iii. To rely on extremely high levels of contact tracing and app coverage to suppress the epidemic, could require the order of millions of people per day to be isolated per day.

12. In the absence of community testing data, the number of new symptomatic cases per day is highly uncertain. SPI-M cannot assess it with any degree of accuracy.

13. Any testing strategy should be targeted at those of highest risk and needs to be done as rapidly as possible. Weekly mass testing of a large proportion of the population would be of negligible benefit, as it would not be able to pick up new infections sufficiently quickly.

14. The proportion of contacts which could be identified by app-based contact tracing would scale with the square of the proportion of the population who use the app. If 10% of the population use the app, no more than 1% of contacts could be identified. If 30% use it, no more than 9% could be identified. It would not be possible to identify more than 50% of contacts using an app, even if all adults with smartphones use it. The behavioural consequences of such an app would need to be carefully considered.

Facemasks

15. Evaluating the impact of facemasks on the reproduction number would require knowledge on asymptomatic and pre-symptomatic transmission of Covid-19 (which is poorly understood) and on the proportion by which transmission is reduced in different settings by people in this group (which is unknown to this group, although NERVTAG are considering in parallel).

16. Based on estimates of the reproduction number in Hong Kong, 30% is a plausible upper bound for reduction in the reproduction number that could result from the widespread wearing of face masks in public places. We cannot give a lower bound for this figure, including saying whether wearing facemasks has any impact at all on the reproduction.