# SPI-M-O Statement on JBC alert level change criteria

***Date: 27th May 2020***

## Ask of SPI-M-O

The Joint Biosecurity Centre (JBC) team is seeking expert views on the following questions:

a) Top level:

   Do you support our proposed approach of a principal indicator with a number of ancillary considerations?

b) Detail:
   a. Are the proposed principal indicators for each alert level change appropriate?
   b. What are the pros and cons of using estimated or observed new infection counts?
   c. Should we stick to estimated counts for all principal indicators?
      i. If so, how can we draw best on the inputs to SPI-M for this?
   d. If we use estimated counts of new infections, we will need these at regional level and for all nations of the UK. What models can we use to obtain comparable estimates that will allow us to achieve this?
   e. For each alert level change, what evidence can we draw on to improve the proposed threshold for each indicator?
   f. How long should a national test and contact tracing system be in operational mode before a move to level three should be considered?
      i. What indicators would give sufficient confidence that it is working well enough to support such a move?

## Summary

1. SPI-M-O broadly support the approach outlined in the document **if sufficient and proven effective contract tracing (CT) has been in operation for three to four weeks** prior to being used to trigger changes in alert level. The document from the JBC is not clear on how data from contact tracing will be used. We assume that "confirmed infections" will be swab-positive cases who arise as index cases for contact tracing.

2. Several data sources show that the great majority of people who believe they have COVID-19 symptoms do not swab positive for the virus. In the ONS study, less than 10% of people with cough/fever/anosmia swap positive, in the KCL Zoe study the equivalent figure is approximately 4%[1], and the Pillar 1 and 2 swabs from May 26 were less than 2% positive.

[1] *Note added for release*
*Please note that this estimate is incorrect and was based on a misinterpretation of the KCL Zoe app data.*

SPI-M-O and SAGE are very keen to bring these low percentages to JBC's attention as they could be key determinants of how any CT effort will be consumed.

3. Furthermore, not all individuals who swab positive have symptoms. In the most recent ONS survey, of those who swab positive for the virus, one in three had any symptoms and only one in six had cough/fever/anosmia on the day of swabbing itself.

4. The levels of daily infections outlined for both escalation and de-escalation of the alert levels for a national system seem sensible and SPI-M-O were pleased to see that avoiding oscillation between levels had been considered. However, it was noted that alert level 2 covers a wide range of scenarios – for example, both 50 and 1,800 confirmed infections a day would lie in level 2 yet these may require very different responses. This should be acknowledged and explored further. Alert levels could be nuanced as "rising 2" and "falling 2" to signal the different attitudes within the levels.

5. There was also the view that a single, simple measure would allow decisive and transparent decisions at each change point, which supports transparency and communication. **The preference for a single, simple measure was not universal.** Having a "knife edge" threshold for the introduction and lifting of interventions could impose pressure on decision-makers, with consequentially potential for perverse outcomes. A more complex indicator such as "approximately 2,000 cases per day with a doubling time < 10 days" is more operable.

6. For members concerned about the reliance on a principal indicator, **a broader focus on multiple data sources was recommended, rather than reliance on one leading metric**, as well as having more than one source where possible and practical. This should include a range of sources looking at behaviour of individuals (including contact patterns and settings of viral transmission), proportions of people with symptoms, 111 calls, numbers of positive and negative tests, as well as the epidemiological data that is more lagged such as hospitalisations, ICU admissions, and deaths. Not all these indicators will be appropriate at all geographies and infection levels.

7. Currently SPI-M-O produce weekly consensus estimates for R, alongside short-term forecasts for some of these key indicators for various geographies. In the interim period as the JBC is established, SPI-M-O offers to continue producing these outputs (R, short term forecasts, etc.). SPI-M-O also offers to share experience about the strengths (and pitfalls) of different data streams.

8. SPI-M-O views were diverse on the pros and cons of confirmed and estimated new infection counts. **Some felt it is right to act decisively on the way up** (hence use confirmed new infections to escalate)**, and discursively on the way down** (hence use estimated new infections to de-escalate). **However, others felt that estimated counts of new infections should be used for every change.**

| | **Pros** | **Cons** |
|---|---|---|
| **Confirmed** new infections | An observed number so whilst you can debate *__why__* it is so, it is what it is.<br>Available at the end of each day.<br>Sensitive to very localised events. | Likely to have weekly fluctuations and sensitive to localised events.<br>Might have other fluctuations (e.g. low on rainy days).<br>Strongly influenced by testing effort, so must be considered in the context of the number of negative tests and any operational limits on the number of tests available. |
| **Estimated** new infections | More robust descriptions of the scale and trajectory of the epidemic which encompass multiple sources of data.<br>Take into account testing effort; for example, 500 positive tests has very different implications if they are from 5,000 tests or 1,000 tests. | Requires modelling so will be slower to produce than confirmed cases.<br>Estimates have confidence intervals, i.e. they include uncertainty.<br>Making estimates requires decisions about how to interpret data and associated variability.<br>More difficult to detect localised events with precision. |

9. "Who" and "where" matters when considering how to respond to a change in alert level change. For example, 2,000 cases all in young adults is very different from the same number of cases in elderly individuals. Similarly, 2,000 cases spread across a region is very different from 2,000 in one specific location. **The regional distribution and age profile of cases seen should be considered when deciding how to respond to a change in the national alert level.**

10. Whether the alert level is primarily about the risk of onward transmission, or the burden on health and care services should be considered and clarified. Alert levels and transitions based on risks of defined outcomes rather than thresholds are potentially more robust to changes in process and make changing technology easier. For example, if a novel, more sensitive diagnostic becomes available, and is implemented, then the stated thresholds might be reached without any change in transmission – this would inevitably be a barrier to adoption. If the threshold is defined in terms of, for example, >60% of doubling time of

infection <20 days, then there is no barrier to technological innovation, and the definition is robust to improved knowledge and data.

11. **Contact tracing needs to be running for three to four weeks to ensure that it is working both effectively and successfully.** It is not enough to be simply operational and the system's resilience needs to be tested before relying on it to the extent this JBC paper implies and using it to change alert level. Possible indicators for this include:
    - Proportion of new COVID-19 hospital admissions that have been traced through the system already
    - Proportion of contacts traced before they develop symptoms – Iceland have a similar metric, under which 57% of people diagnosed were in already in quarantine.
    - Proportion of infections picked up by routine surveillance (such as testing all individuals on ICU admission and/or through a survey of attendees at GP surgeries) that had not already been picked up by contact tracing. It will be essential to maintain independent data streams that can be used to check performance from each system. The "backstop" is testing ICU admissions, although this could be replaced by testing all hospital admissions.
12. It was noted that the New Zealand system takes a different fundamental approach to that proposed for the JBC. They focus on what actions are permissible at each alert level, rather than the triggers for entering or leaving each level.
13. This document did not discuss responses at different alert levels. There was agreement, however, that **using these change criteria to trigger a discussion about the response, rather than an inflexible action, would be advisable**.