SPI-M-O: Statement on COVID-19 – "Bubbles" and outdoor activities

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SIGNED OFF BY CO-CHAIRS ON BEHALF OF SPI-M-O.

Bubbling

1. "Bubbling" describes a policy where people living in small, non-overlapping, groups of households are permitted to come into contact with one another. This has the effect of creating one large household out of two or more smaller households.

2. The impact of a policy on bubbling is highly dependent on several factors, including but not limited to the sizes of bubbles; the interaction with other policies in place; and how strictly rules about exclusivity of bubbles are adhered to. There are complex non-linearities and network effects that could radically affect the impact of such policies and that SPI-M-O have not been able to consider in depth. The following statement covers the general principles involved.

3. **In order to be effective, no person can be a member of more than one bubble, all individuals in one household must belong to the same bubble, and the bubble must contain the same individuals for the foreseeable future**. Even small breaches of bubbles are likely to prevent their effect on slowing transmission and come with a significant risk of increasing transmission.

4. Individuals at higher risk of virus exposure and subsequent infection, such as health and care workers, are likely to create very high-risk bubbles.

5. Bubbling would put people who are shielding because they are clinically very vulnerable at much higher risk than at present.

6. The probability of a household, or bubble, of size n becoming infected scales in line with $1-(1-p)^n$, where p is the probability that one person becomes infected from outside the household. This will rise quickly as n increases.

7. Allowing bubbles to form would increase the risk of infection to their members and amplifies the effects of random transmission between households, potentially increasing the spread of infection.

8. Interaction within a bubble, however, is less risky than lots of small contacts outside of it. For example, one shielded family member living alone with one other family household

connected with them would be better than that shielding person having lots of small contacts with multiple individuals from multiple households.

9. If infection prevalence is low and bubbles do remain exclusive, then chains of infection could be contained within them, depending on interactions with other policies implemented. For example, two households with children at the same school would form a lower risk bubble than an elderly couple joining a larger household with older children.

10. There may be important non-linear network effects that need considering, although there are likely fewer of these with smaller bubbles, and these will also have lower transmission risks than larger bubbles. Detailed analysis needs to be carried out to fully understand the impact of any policy of bubbling.

11. For bubbles to be effective then policies on household quarantine would need to apply to all members of the bubble. For example, if one member of the bubble develops symptoms, all members of the bubble would be expected to quarantine, not just those in the same household.

12. At present, there is ongoing community transmission in all parts of the country. As a result, allowing bubbles to be formed from households across different regions would have minimal further direct impact on the spread of COVID-19. Policy makers would need to consider the additional risk that would be associated with travelling to visit other members of the same bubble.

13. If infection prevalence were considerably lower than at present, then allowing bubbles formed from households in different parts of the country could run the risk of spreading localised outbreaks to other areas and could affect any future community-focused policy interventions. Additional measures, such as localised movement restrictions, could be considered in future to mitigate such risks.

14. As with many non-pharmaceutical interventions, behavioural adherence is vital in preventing excessive further transmission. Adopting any of the above measures could change people's behaviours in other ways that we cannot predict, leading to indirect changes to transmission rates, which have not been considered here. Even small breaches of bubbles are likely to remove their effect on slowing transmission. Clear messaging would be required to ensure people understand what is and isn't permitted, and how risk rises with the number of people in the bubble.

Outdoor activities

15. Allowing members of the same household, or multiple households acting as a bubble, to go outside for leisure activities such as picnicking or sunbathing would have negligible additional direct impact on transmission, as long as they maintain social distancing from those in other households and avoid making contact with shared surfaces, such as in children's playgrounds.

16. Permitting outdoor contact with other members of other households or other bubbles, while continuing to maintain a 2m distance, would have no more than a very small impact on overall transmission rates.