Superspreaders, asymptomatics and COVID-19 elimination

In reply: The article I published in the *MJA*[1] challenged pessimism about the ability of public health restrictions to defeat the coronavirus disease 2019 (COVID-19) pandemic in Australia. For pessimists, the existence of asymptomatic cases could mean that there was an appreciable chance that generations of these cases could fester silently long after public health measures had eliminated the last symptomatic case and, thus, it would be likely that the disease would eventually re-emerge.

The calculations in the article were based on data showing that relatively rare superspreaders account for most disease transmission. As a result, once case numbers are very low, the cases remaining (symptomatic or otherwise) will probably not include a superspreader and, therefore, the disease will die out abruptly and will be very unlikely to re-emerge. Recent experience across Australia and New Zealand supports this conclusion. Re-introductions of COVID-19 from overseas have occurred, but they have been eliminated by reinstitution of public health measures.

Critics of my article complain that the conclusions are inaccurate because it seems likely that there are more asymptomatic cases than I had assumed in my modelling, but these asymptomatic cases are likely much less infectious. These two effects act in opposite directions with regards to the risk of re-emergence of COVID-19 from generations of asymptomatic cases. If there really are more asymptomatic cases, some of whom could be superspreaders, the risk of COVID-19 re-emergence will be increased; whereas if asymptomatics are much less infectious, the risk of re-emergence will be considerably decreased. In any case, estimates of the number and infectivity of asymptomatics are not directly relevant to the phenomenon of superspreading. My conclusion will remain that the relative rarity of superspreaders means that the disease will almost certainly have been eliminated within a few weeks of there being no new symptomatic cases.

Strong public health measures have prevented a health catastrophe across Australasia. Unlike most of the world, the total Australian mortality is likely to be lower for 2020 than for previous years.[2] This seems likely even for deaths by suicide.[3,4] My calculation and our collective experience show that lockdowns are successful, overall do not cause harm as measured by mortality, and need not be unduly prolonged.

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