EPIDEMIOLOGY

Controlling COVID-19

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Credit: Geoff Smith / Alamy Stock Photo

As the COVID-19 pandemic unfolds, understanding what behaviours decrease how rapidly the disease spreads has become of paramount importance. An important source of information for policy makers are mathematical models that predict the probable consequences of different approaches to changing behaviour in the population, such as who must enter quarantine.

New work by Joel Hellewell and colleagues presents one such mathematical model that captures different scenarios, looking at potential outcomes of different types of intervention, systematically varying plausible assumptions about yet-unknown characteristics of COVID-19. In detail, the

authors address the question how much isolation of people who have contracted COVID-19 and of those they have been in contact with would slow the transmission. The model demonstrates clearly how much characteristics of the disease such as how easily people can pass on the virus before developing symptoms can affect the rate of contagion. What the authors show across various scenarios is that isolating only affected cases is unlikely to control transmission within 3 months if there is a long period in which an infected person is asymptomatic yet infectious. Under these circumstances, the model highlights the importance of learning about early signs or symptoms, and testing and potentially quarantining non-symptomatic contacts.

Policy makers currently are forced to make decisions on limited information. Mathematical models such as the one presented here can chart a large number of possible scenarios, and can be adapted as scientists learn more about the disease to improve future decision making.

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