Figure 2, Table 1). A behaviour change smaller than a drop in R_0 1.3 to 1.1 from a period of effective mitigation with critical care to a period without critical care seems unlikely.

Discussion

If the local human population responds to saturation of critical care with COVID-19 patients by reducing contacts such that transmission is close to R=1, there will be no benefit to attempting mitigation over attempting ongoing control. Rather, the epidemic will still last through to the time at which a vaccine may be available, far more people will be infected than would be the case with ongoing containment, and far more will die. The health care service will never have an opportunity to recover and it seems likely there would be substantial additional health costs from the knock-on effects of the prolonged period of high COVID-19 incidence.

Our study has a number of limitations. The model is not spatial nor age structured. Rather it is as simple as possible to make the key points. The scale of difference between the health benefits is so large that we do not think this is an issue. However, we have not directly strong age specific social distancing with the other policies. Because the fatality rate is so much higher in older age groups, it is possible that a very stringent social distancing of older adults could dramatically reduce the crude numbers of deaths presented here based on age-averaged values. That said, IFR values are close to 1% even in the 50-59 age group, so it is not immediately clear how such a strategy could be implemented in an even approximately equitable way.

Essentially, our choice is whether to live with relatively high levels of infections and to let the virus decide our social structure for the next 18 months, or for us to find a way to live such that we keep levels of infection low and our social structures as close to normal as possible.

These results could be disheartening to those planning a response to COVID-19 epidemics. However, we suggest that they may also be a powerful positive motivation for action. The model results here do no more than reinforce the findings of the WHO China Mission and validate the strategy adopted by Chinese health authorities in or around the 23rd of January 2020; and then subsequently by Hong Kong, Singapore, Japan, and South Korea. We suggest that they are strong evidence with which to abandon mitigation strategies, justified in any way by the possibility of a short epidemic. Governments need to devote the entirety of their attention and resources to creating viable ongoing solutions to the presence of this virus. We suggest that the first step is to adopt stringent fixed-term social distancing so as to give time for detailed planning the rapid development of any accompanying technology.