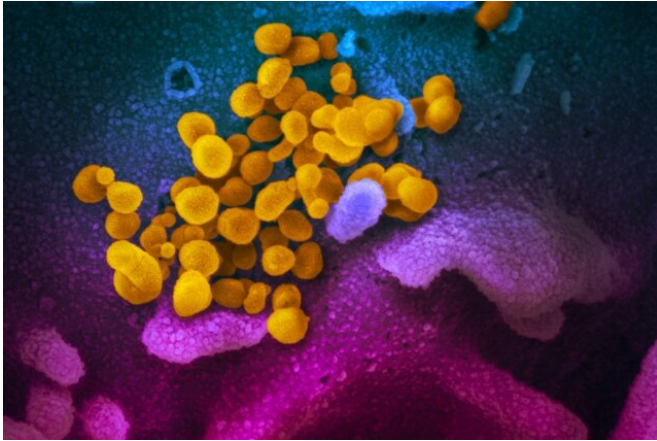


Rolling 50/30 day cycle of lockdown and relaxation could help manage COVID-19

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This scanning electron microscope image shows SARS-CoV-2 (yellow)—also known as 2019-nCoV, the virus that causes COVID-19—isolated from a patient, emerging from the surface of cells (blue/pink) cultured in the lab. Credit: NIAID-RML

An alternating cycle of 50 days of strict lockdown followed by 30 days of easing could be an effective strategy for reducing the number of COVID-19-related deaths and admissions to intensive care units, say an international team of researchers.

The [coronavirus](#) pandemic has imposed an unprecedented challenge on global healthcare systems, societies and governments. The virus SARS-CoV-2, which causes COVID-19 disease, has been detected in every country, with more than 4.6 million confirmed cases and a death toll of 312,000 worldwide to date.

There are currently no effective treatments for the disease and a widely-available vaccine is likely to be at least a year away. The principal strategy to control the disease globally has focused on measures that minimise person-to-person transmission of SARS-CoV-2 through social

distancing; including isolating suspected infected individuals, shielding vulnerable groups, school closures, and lockdowns.

While such measures are effective at slowing disease spread and preventing [health systems](#) becoming overwhelmed, these measures can also lead to significant job losses, financial insecurity and social disruption. As such, there is a growing concern that these interventions may be unsustainable over the long term. An alternative approach may be to alternate stricter measures with intervals of relaxed social distancing (with measures of effective "test-contact trace-isolate" and shielding of the vulnerable kept in place).

However, it is unclear what the frequency and duration of such dynamic interventions should be and which strategy could be adapted globally across countries with diverse health and economic infrastructures.

To address these uncertainties, an international team of researchers from the Global Dynamic Interventions Strategies for COVID-19 Collaborative Group modelled three scenarios across sixteen countries, from Belgium to India, that vary in setting and income. Their results are published today in the *European Journal of Epidemiology*.

In particular, the researchers were interested in the difference in impact between strategies aimed at mitigation and those aimed at suppression. Mitigation measures reduce the number of new infections, but at a relatively slow rate. These might include a combination of measures, such as general social distancing, hygiene rules, case-based isolation, shielding of [vulnerable groups](#), school closures or restricting of large public events. On the other hand, suppression measures lead to a faster reduction in the number of new infections by applying additional interventions such as strict physical distancing, including lockdown.

The first scenario modelled the impact of imposing no measures. As might be expected, the number of patients requiring treatment in intensive care units (ICUs) would quickly exceed the available capacity significantly for every single country, resulting in a total of 7.8 million deaths across the 16 countries. Under this scenario, the duration of the epidemic would last nearly 200 days in the majority of the countries included.

The second scenario modelled a rolling cycle of 50-day mitigation measures followed by a 30-day relaxing. Such a strategy would be likely to reduce the R number (the number of people each infected individual goes on to infect) to 0.8 in all countries. However, it would still be insufficient to keep the number of patients requiring ICU care below the available critical care capacity. While proving effective for the first three months for all the countries, after the first relaxation, the number of patients requiring ICU care would exceed the hospital capacity and would result in 3.5 million deaths across the 16 countries. In this scenario, the pandemic would last approximately 12 months in high-income countries, and about 18 months or longer in the other settings.

The final scenario involved a rolling cycle of stricter, 50-day suppression measures followed by a 30-day relaxing. Such intermittent cycles would reduce the R number to 0.5 and keep ICU demand within national capacity in all countries. Since more individuals remain susceptible at the end of each cycle of suppression and relaxation, such an approach would result in a longer pandemic, lasting beyond 18 months in all countries. However, a significantly smaller number of people—just over 130,000 across the 16 countries modelled—would die during that period.

In comparison, the team found that after a continuous, three-month strategy of strict suppression measures, most countries would reduce new cases to near zero. Looser, mitigation strategies would require approximately 6.5 months to reach the same point. However, such prolonged lockdowns would be unsustainable in most countries due to potential knock-on impacts on economy and livelihood.

Dr. Rajiv Chowdhury, a global health epidemiologist at the University of Cambridge, UK, and lead author on the paper, said: "Our models predict that dynamic cycles of 50-day suppression followed by a 30-day relaxation are effective at lowering the number of deaths significantly for all countries throughout the 18-month period.

"This intermittent combination of strict [social distancing](#), and a relatively relaxed period, with efficient testing, case isolation, contact tracing and shielding the vulnerable, may allow populations and their national economies to 'breathe' at intervals—a potential that might make this solution more sustainable, especially in resource-poor regions."

The researchers say that the specific durations of these interventions would need to be defined by specific countries according to their needs and local facilities. The key is to identify a pattern that allows countries to protect the health of the population not only from COVID-19 but also from economic hardship and mental health issues.

Professor Oscar Franco from the University of Bern, Switzerland, said: "Our study provides a strategic option that countries can use to help control COVID-19 and delay the peak rate of infections. This should allow them to buy valuable time to shore up their health systems and increase efforts to develop new treatments or vaccines.

"There's no simple answer to the question of which strategy to choose. Countries—particularly low-income countries—will have to weigh up the dilemma of preventing COVID-19 related deaths and public health system failure with the long-term economic collapse and hardship."

More information: Dynamic interventions to control COVID-19 pandemic: a multivariate prediction modelling study comparing 16 worldwide countries, *European Journal of Epidemiology* (2020). [DOI: 10.1007/s10654-020-00649-w](https://doi.org/10.1007/s10654-020-00649-w)

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