

Coronavirus transmission slowed in the U.K. but epidemic may continue for months

June 11 2020, by Ryan O'hare, Sabine L. Van Elsland



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COVID-19 has slowed in the UK, but despite a drop in transmission rate the epidemic remains likely to continue for months, according to new analysis.

Research led by Imperial College London found that the reproduction number, or R value, for COVID-19 in the United Kingdom was below the threshold of one as of 10 May. However, the analysis revealed that the R value was sufficiently high that the epidemic was likely to continue for months, even if lockdown controls and social distancing remained unchanged.

According to the researchers, easing social-distancing restrictions should be considered very carefully as small increases in contact rates are likely to risk resurgence of the disease, even in regions where the R has been reduced to below one.

Dr. Pierre Nouvellet, of Imperial's School of Public Health, said: "During this pandemic, the level of mobility reduction observed across the world has been unprecedented. This analysis provides very strong evidence of the benefit of population-wide mobility restriction to control such a pandemic.

He added, "Only few countries have succeeded in reducing mobility enough to ensure an R below one. In most countries, mobility reductions are still not high enough to control the epidemic without additional control measures. Many countries shows a recent gradual increase in mobility. Our analysis clearly demonstrates that even when under control, easing of social-distancing must be accompanied by strong alternative control measures to avoid resurgence."

The findings come in the latest report from the WHO Collaborating Centre for Infectious Disease Modelling within the MRC Centre for Global Infectious Disease Analysis, Jameel Institute (J-IDEA), and Department of Mathematics, Imperial College London in a collaboration with the University of Sussex.

Reduced mobility and transmission

In the latest report, the team focused on changes to mobility—the extent to which people move beyond the home—which represents an important proxy measure of contact, and influences transmissibility, especially for respiratory diseases such as COVID-19. They also focused on the reproduction number (termed "R"), which indicates the average number of people an infected individual is likely to infect.

The analysis found that keeping mobility to between 57.3 and 65.9 percent below pre-lockdown levels in the UK should keep the R below one—as of 10th May, mobility was reduced by as much as 65.9 percent. It also indicated that any increase in mobility above this would result in a rapid growth in transmission, unless there were other changes, for example increased contact tracing.

Researchers used Apple data measures for driving, walking and transit mobility, and Google data measures for transit stations, workspaces and retail and recreation to describe change in mobility. They found that mobility was a very good predictor of transmissibility, with over 80 percent of the variation in transmissibility being explained by variation in mobility.

In the latest report, the team looked at mobility and transmissibility for 53 countries with sustained SARS-CoV-2 transmission—including the UK, Italy and Spain. They found that the threshold in mobility reduction required to bring R below one varied between countries, but a reduction in mobility of 68.0% (Apple) and 58.6% (Google) was estimated to be sufficient to bring the reproduction number below one in half of the countries.

They estimate that in the United Kingdom, a reduction of 65.9% of Apple mobility and 57.3% of Google mobility would be sufficient to reduce the reproduction number below one.

The researchers found encouraging early evidence of a recent decoupling of the relationship between transmission and mobility in 10 countries, suggesting alternative control strategies are being implemented and effective, a key indicator of successful easing of social distancing restrictions.

Dr. Sangeeta Bhatia, of Imperial's School of Public Health, said: "The unprecedented reduction in mobility has played a crucial role in controlling the spread of COVID-19. Here we analyze the relation between transmission patterns of COVID-19 and the changes in mobility trends in various countries as reported by Google and Apple." He continued, "We find that in some countries, the relation between reduction in mobility and transmission has dampened. This suggests that alternative control measures coupled with easing of social distancing restrictions can potentially keep the spread of COVID-19 in check."

According to the research team, strong population-wide social-distancing measures are effective to control COVID-19. They add that gradual easing of restrictions must be accompanied by alternative interventions, such as efficient contact-tracing, to ensure control.

More information: Reduction in mobility and COVID-19 transmission: www.imperial.ac.uk/mrc-global-bility-transmission/

Provided by Imperial College London

Citation: Coronavirus transmission slowed in the U.K. but epidemic may continue for months (2020, June 11) retrieved 24 April 2024 from <https://medicalxpress.com/news/2020-06-coronavirus-transmission-uk-epidemic-months.html>

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