

What are Governments doing in response to the COVID-19 Pandemic?

KEY MESSAGES

1. Governments around the world have adopted a wide-range of measures in response to COVID-19.
2. While some countries such as China, Italy and Spain have adopted very stringent measures, others such as South Korea, Singapore and Sweden have been less stringent in their approach.
3. The stringency of measures applied by countries appears to be closely related to the rise in COVID-19 cases. As cases rise, governments apply more restrictions.
4. The resources and capacity available to the government determine which measures will be feasible especially in low-to-middle income countries (LMICs).
5. Disruption in routine health service delivery, education, the economic fallout, reduction of civil liberties and overall disruptions to the population are also considered when implementing control measures.
6. As this is a new and rapidly evolving situation, there is little robust evidence to support the use of one intervention over another.

SUMMARY

With the global spread of COVID-19, Governments have put in place various measures to contain the pandemic and mitigate its effects. Some countries — including China, South Korea and Singapore — appear to have had some success in slowing the rate of infection^{1,2}. But the United States and many European countries are still seeing exponential growth in cases. How and when governments implement control measures is crucial. This brief describes the actions taken by governments to contain COVID-19.

Multiple strategies have been adopted by governments

In the absence of a vaccine or an effective medicine against COVID-19, countries have been left to rely on non-pharmaceutical interventions to contain the pandemic and its effects. Non-pharmaceutical interventions are broadly divided into **suppression** and **mitigation** strategies. Suppression strategies reduce the mean number of secondary cases generated by one primary case and hence eventually

interrupt transmission completely. Mitigation strategies aim to reduce the health impact by slowing the spread of infection (e.g. isolation of cases and suspected cases)³. A summary of measures taken by different countries in response to COVID-19 is shown in Table 1.

Category	Measure	Category	Measure
Social Distancing	<ul style="list-style-type: none"> • School closures • Remote working • Ban on public events/gatherings • Public service closures 	Public health	<ul style="list-style-type: none"> • Surveillance and monitoring • Case isolation and contact tracing • Quarantine policies • Health screening • Widespread testing • Public information campaigns
Movement restrictions	<ul style="list-style-type: none"> • Partial/full lockdowns • Border closures • Flight suspensions • Closure of public transport • Curfews • Visa restrictions • Local travel bans 	Governance and economic	<ul style="list-style-type: none"> • Specific economic measures e.g. stimulus • Declaration of state of emergency • Activation of emergency administrative structures e.g. COVID-19 taskforce

Table 1: A summary of measures adopted by governments to control COVID-19

The stringency of measures adopted varies across countries

Many countries have introduced more than one measure (Figure 1). While some countries, such as China, Italy and Spain have adopted very stringent measures, others such as South Korea, Singapore and Sweden have adopted less stringent measures^{1,2,4,5}. The stringency of these measures appears to depend on several factors including use of model forecasting to predict the spread of COVID-19. First, the magnitude of the pandemic has led to governments introducing more measures and expanding restrictions. As cases rise, some countries apply more restrictions (Figure 2)⁶. Second, the resources and capacity available to the government determine which measures will be feasible especially in low-to-middle income countries (LMICs)^{7,8}. Third, governments are considering the secondary effects of the pandemic and the measures they implement in response. These include disruption in routine health service delivery, disruptions of other sectors such as education, the economic fallout, reduction of civil liberties and overall disruptions that their population can tolerate⁹.

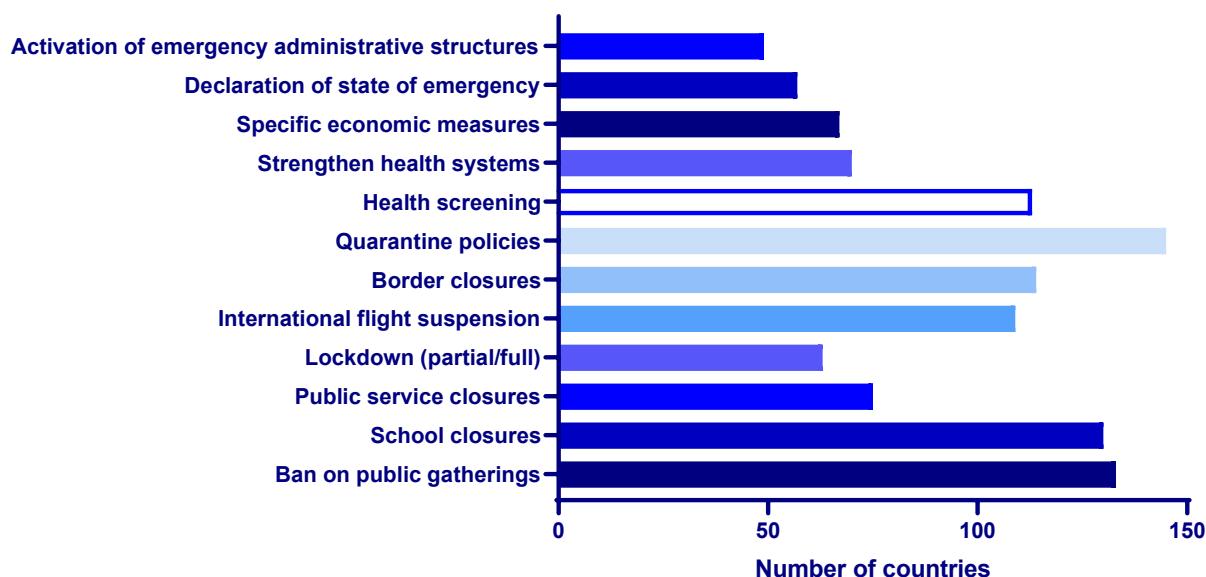
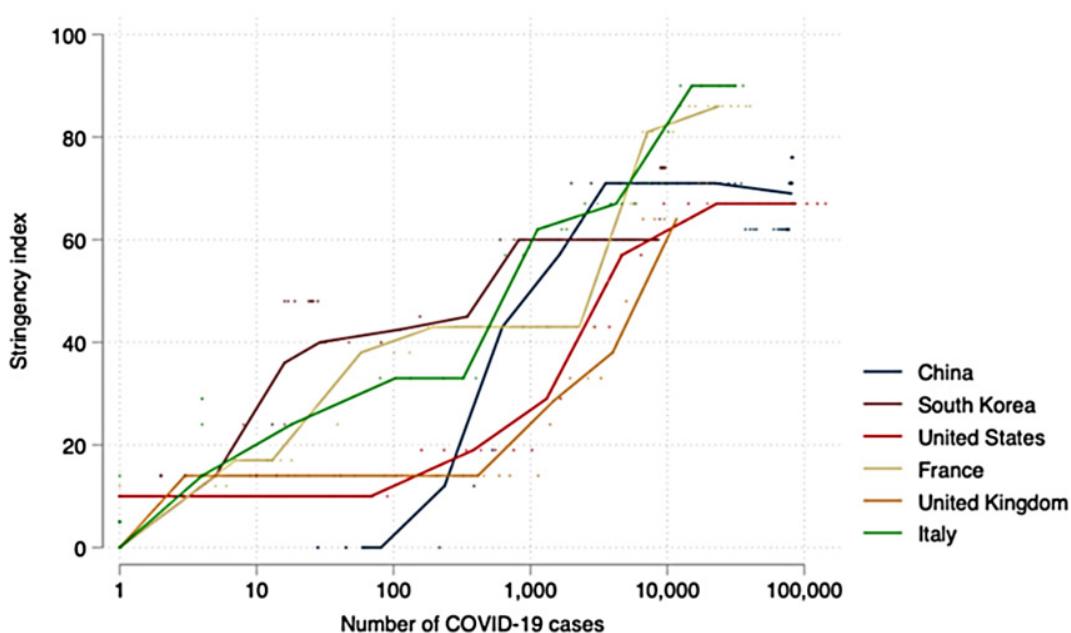


Figure 1: Control measures and the number of countries that have implemented them.



Data as at 30 March 2020. Individual countries may be several days older.
Source: Oxford COVID-19 Government Response Tracker. More at: bsg.ox.ac.uk/covidtracker

Figure 2: A comparison of stringency of COVID-19 responses in 6 countries.

Case studies

China

China's success in controlling the COVID-19 outbreak has been remarkable. Their containment efforts have included travel restrictions, intensive case and contact tracking, isolation of moderately ill patients in containment centers, social distancing, and locking down a whole province and many major cities inside Hubei. Underpinning all this is a national effort to promote respiratory and hand hygiene and universal temperature monitoring. These containment measures were supported by innovative technologies such as the use of 5G platforms to support rural response operations to shifting to online medical platforms for routine care and schooling. Importantly, measures were tailored to different cities, provinces and counties throughout China based on the capacity available and the nature of transmission in different settings. Authorities also worked relentlessly to improve the speed of case detection, isolation and treatment. Overall, China's success demonstrates that a firm and rapid response at the beginning of an epidemic can substantially reduce the spread of a new virus¹.

South Korea

South Korea had one of the world's largest initial outbreaks outside China. However, by late February, the number of new cases started to decline. South Korea's success is based mainly on their speed to develop their strategy of mass testing coupled with rigorous contact tracing and mandatory quarantine for contacts⁵. Free testing centers were set up and individuals that tested positive were immediately isolated. Additionally, the government used mobile phone records, credit card receipts and other private data of every positive individual to track the spread of the virus and alert people if they might have come into contact with an infected person. Additionally, international and local travel restrictions were placed with mandatory temperature checks at all ports of entry.

Singapore

At one point, Singapore had the highest number of cases outside China. However, they have managed to slow down the epidemic

significantly. Their approach was increased surveillance to detect as many cases as possible, case isolation and rigorous contact tracing. Mass fever screening was initiated at entry to all public buildings. Any individual receiving care for pneumonia and flu-like illnesses in hospitals and primary care facilities were tested for COVID-19. Additionally, doctors were permitted to test patients they suspected to have COVID-19. All positive and suspected positive individuals were then isolated at designated facilities to prevent spread. Contacts of all positive individuals were traced and placed under mandatory quarantine with routine checks from the authorities. Notably, Singapore have not implemented any of the extreme social distancing measures seen in other countries. The government however banned public events and recommended that mass gatherings be avoided. Travel restrictions were also implemented with anyone coming to the country required to observe a mandatory 14-day quarantine².

Sweden

Unlike other Scandinavian countries, Sweden's approach to containing the virus is relatively relaxed. While Norway and Denmark have closed their borders and imposed strict movement regulations, in Sweden, places like schools, restaurants and gyms remain open⁷. Instead, citizens were urged to practice hand hygiene, social distancing, avoid non-essential travel and self-isolation for sick and high-risk individuals. The country's approach is guided by modelling simulations that guide its surge requirements. Sweden anticipates far fewer hospitalizations per 100,000 of the population than predicted in other countries, including Norway, Denmark and the UK. However, COVID-19 case fatality rates in Sweden are higher at 4.1% (180 deaths from 4435 cases), compared with Norway at 0.9% (40 deaths from 4699 cases) (<https://coronavirus.jhu.edu/map.html>) access date 01/April/2020). In addition, the infection curve in Sweden has started to rise sharply. These developments may force the government to implement stricter restrictions. The success or failure of Sweden's approach will certainly draw interest in the future.

Conclusion

Governments around the world are putting in place control measures to control the spread of COVID-19. These measures and the stringency with which they are implemented vary between countries. Differences in pandemic intensity, resources/capacity, demography, health infrastructure and political resolve greatly influences which, how, and when containment measures are implemented. As this is a new and rapidly evolving situation, there is no evidence on which measures would be most effective.

References

1. Organisation, W. H. Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19). Geneva 2020. World Health Organisation (2020).
2. Lee, V. J., Chiew, C. J. & Khong, W. X. Interrupting transmission of COVID-19: lessons from containment efforts in Singapore. *Journal of Travel Medicine*, doi:10.1093/jtm/taaa039 (2020).
3. Ferguson, N. M. et al. Impact of non-pharmaceutical interventions (NPIs) to reduce COVID-19 mortality and healthcare demand. Imperial College, London. DOI: <https://doi.org/10.25561/77482> (2020).
4. Remuzzi, A. & Remuzzi, G. COVID-19 and Italy: what next? *The Lancet* (2020).
5. Normile, D. Coronavirus cases have dropped sharply in South Korea. What's the secret to its success? , (Science, 2020).
6. Hale, T., Anna Petherick, Toby Phillips, Samuel Webster. Variation in Government Responses to COVID-19. (Oxford, Blavatnik School of Government Working Paper, 2020).
7. Cohen, J. a. K., Kai. Countries test tactics in 'war'against COVID-19. *Science* (2020).
8. Gilbert, M. et al. Preparedness and vulnerability of African countries against importations of COVID-19: a modelling study. *The Lancet* 395, 871-877 (2020).
9. Anderson, R. M., Heesterbeek, H., Klinkenberg, D. & Hollingsworth, T. D. How will country-based mitigation measures influence the course of the COVID-19 epidemic? *The Lancet* 395, 931-934, doi:10.1016/S0140-6736(20)30567-5 (2020).

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