

Why A 5-Week Lockdown Can Stop COVID-19

Chen Shen and Yaneer Bar-Yam
 New England Complex Systems Institute
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During a “strong” lockdown individuals stay home except to obtain food and other essentials, access medical care, or do work essential to the functioning of society. Intercity travel within affected areas would cease. Governments would provide economic and social aid to citizens who need it.

During the first two weeks of the lockdown, those who are already infected will show symptoms. This “incubation period” typically takes 3-5 days, but may take as long as two weeks. Infected individuals will recover from mild COVID-19 cases or seek medical care. The only people who can be infected are those who are cohabitating with a previously infected individual. Since we know which individuals are infected, due to symptoms and testing, we know who can be infected and can isolate them (this is called contact tracing).

During the 3-4 weeks that follow, any newly infected family or cohabitants of infected individuals will recover or seek medical attention. Once they are isolated, they cannot infect others. The number of cases will decrease rapidly. By the end of the lockdown, COVID-19 cases will be a small fraction of

what they once were. This is exactly what happened in China (see figure below).

The lockdown also gives time to dramatically scale up the supply of COVID-19 test kits and capacity to process them. If the number of infections is dramatically reduced using the lockdown and a massive testing regime is initiated, COVID-19 can be controlled after five weeks without extreme social distancing measures. Isolating sick individuals and their immediate contacts will be enough. This is what has been done to control the outbreak for a few cases in Singapore.

The case of Italy can serve as a warning about attempting a “soft” lockdown. Italy’s lockdown measures were insufficiently strict—many Italians flouted movement restrictions and continued spreading COVID-19. The disease continued to grow exponentially. Italy is strengthening its lockdown procedures to prevent further spread. Denmark, which has a more complete lockdown and closed its borders, has been much more successful at curtailing its outbreak.

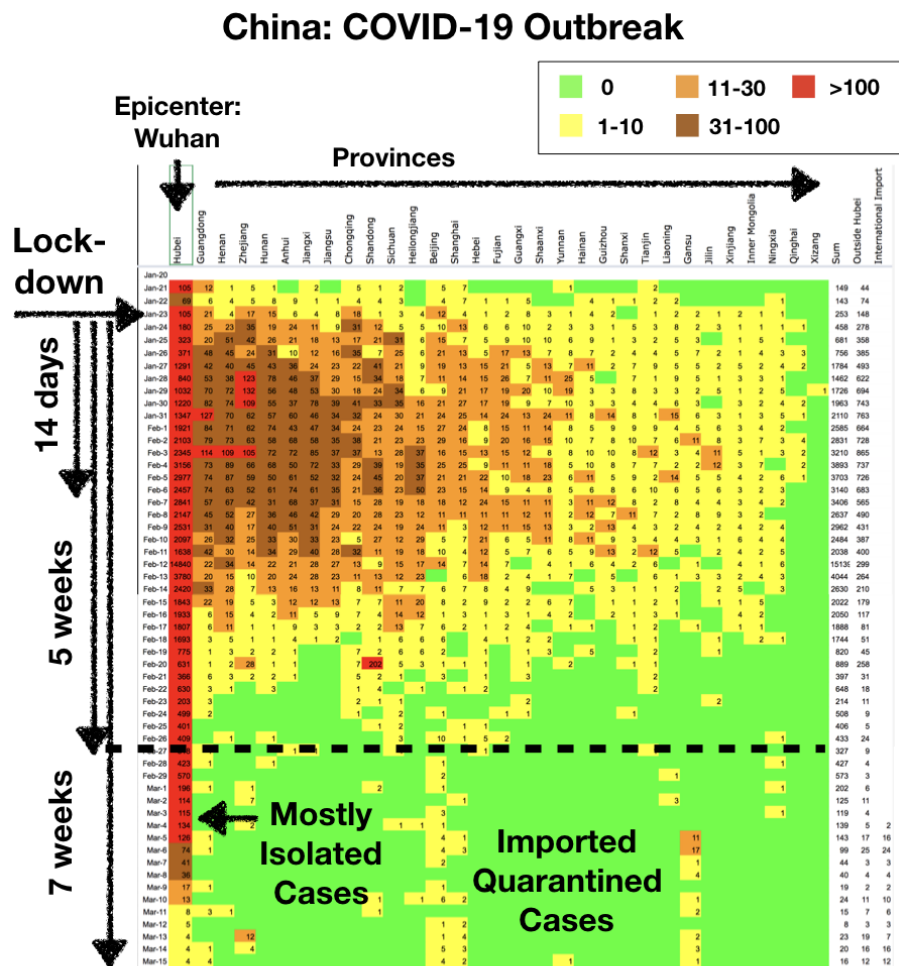


Figure: Dynamics of the China Outbreak showing the time of the lockdown and the number of cases in each province.