



9 charts that explain the coronavirus pandemic

What symptoms are most common, which groups are most at risk, and more.

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The [outbreak of Covid-19](#), a coronavirus-caused illness that originated in Wuhan, China, and has since spread to most of the world, is one of the most serious public health crises in decades. It has spread far wider than [Ebola did in 2014](#), and the World Health Organization has designated it a [pandemic](#). [Johns Hopkins's tracker](#) is worth bookmarking with case number counts in the US and worldwide as the crisis progresses.

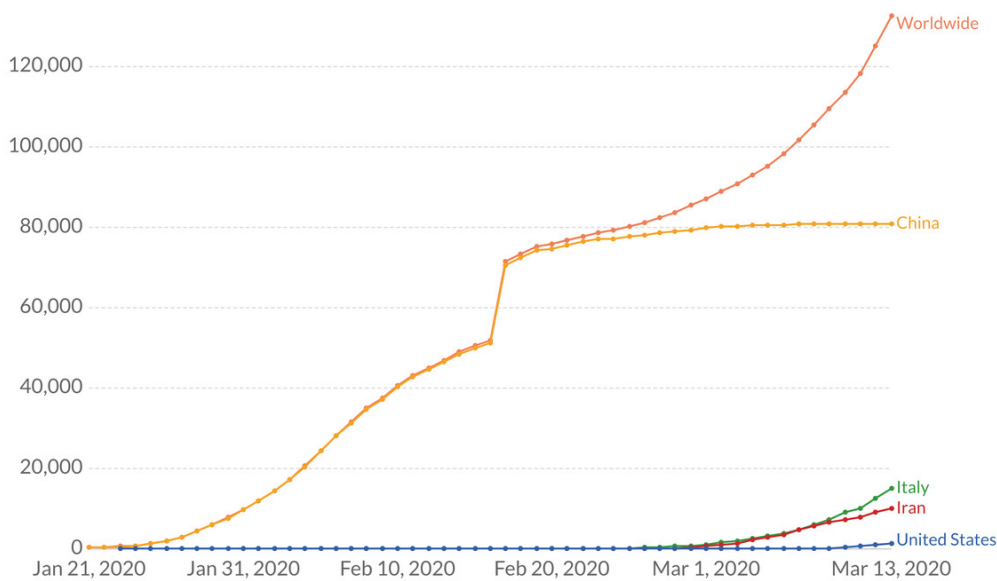
The situation on the ground is evolving incredibly quickly, and it's impossible to synthesize everything we know into clean, intelligible charts. But we do know a fair bit about how bad the outbreak is, what the disease does, and what controlling and ultimately ending the outbreak will look like.

With that in mind, here are nine charts that help explain the Covid-19 coronavirus crisis.

1) The virus is spreading rapidly

Total confirmed COVID-19 cases

The large increase in the number of cases globally and in China on Feb 17 is the result of a change in reporting methodology. It is explained at OurWorldInData.org/Coronavirus



Source: World Health Organization daily Situation Reports [COVID-19]

OurWorldInData.org/coronavirus • CC BY

[Max Roser and Hannah Ritchie/Our World in Data](#)

The Covid-19 caseload has risen rapidly day to day, but here's where things stood as of March 13. Many of the reported cases are still from the earlier peak in China. But while the number of new cases in China has fallen, the number of new international cases is rising, indicating that the epicenter of the problem has shifted from China to new places like Europe and the United States.

<https://www.vox.com/future-perfect/2020/3/12/21172040/coronavirus-covid-19-virus-charts>



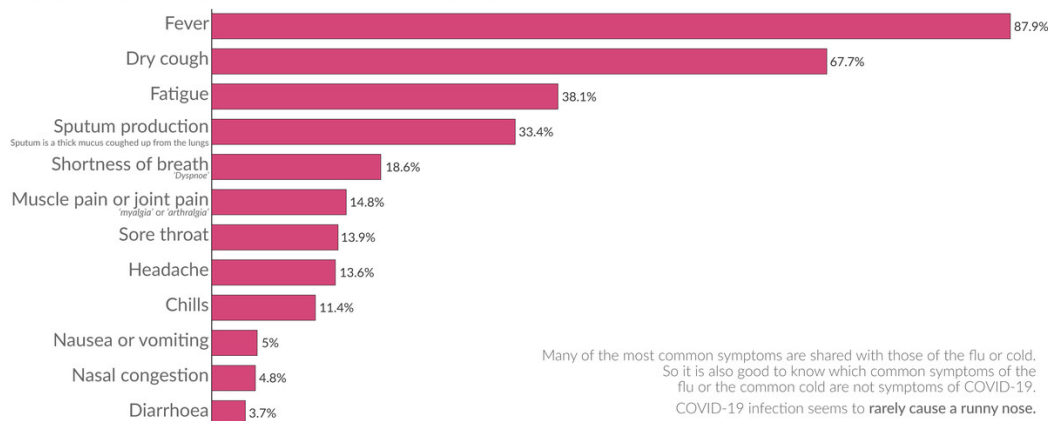
Note that the huge spike in new cases was due to improved data reporting from China; there was not one particularly bad day in the middle of February.

2) Know the symptoms

The symptoms of coronavirus disease [COVID-19]



The most common signs and symptoms of 55,924 laboratory confirmed cases of COVID-19. Reported from China in the period up to February 22, 2020



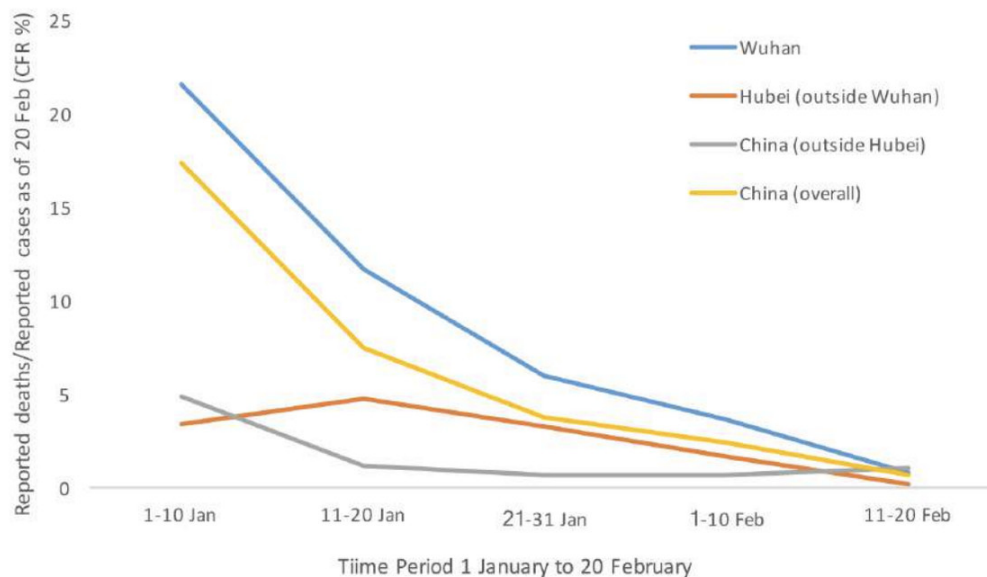
Data source: World Health Organization (2020). Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19). Symptoms in fewer than 1% are not shown. OurWorldinData.org – Research and data to make progress against the world's largest problems. Licensed under CC-BY by the authors.

[Max Roser and Hannah Ritchie/Our World in Data](#)

The symptoms of Covid-19 vary from case to case, but the most common ones in China, from February data, are fever and dry cough (which are each seen in a majority of cases), fatigue, and sputum (the technical term for thick mucus coughed up from the respiratory tract).

If you have a fever and dry cough, that could be a good reason to contact a health professional and get yourself tested if possible.

3) Death rates in China have declined over time



WHO

One glimmer of hope in this story is that Chinese medical authorities appeared to get better at treating infections and preventing death as the outbreak proceeded. “Even the first and hardest-hit province, Hubei, saw its death rate tumble as public health measures were strengthened and clinicians got better at identifying and treating people with the disease,” [Vox’s Julia Belluz](#) explains.

The rate didn’t go down on its own; China took [drastic, even authoritarian measures](#) to lock down affected areas and contain the virus’s spread so that the medical system was not overwhelmed.

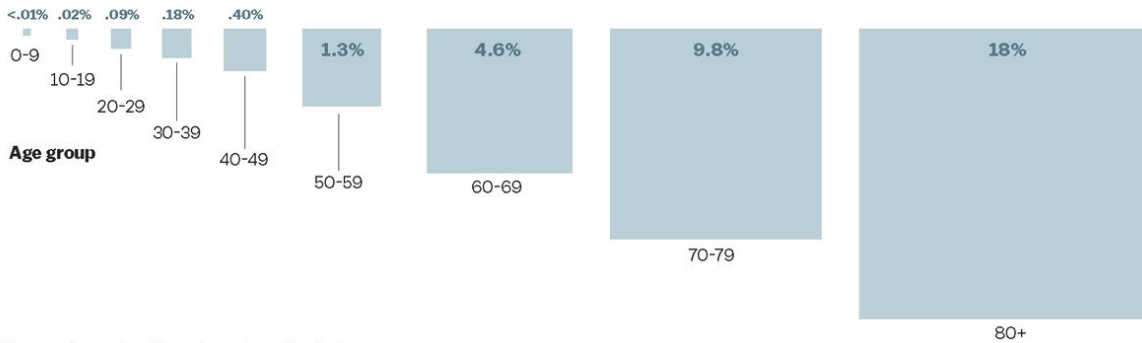


4) Older people in China have been at the greatest risk of dying from Covid-19

Covid-19's case fatality rate increases with age, according to China's data

Estimated case fatality risk in Hubei, China, January-February 2020

Case fatality ratio*



*Among all symptomatic and asymptomatic infections

Source: Adjusted age-specific case fatality ratio during the Covid-19 epidemic in Hubei, China, January and February 2020, medRxiv



Christina Animashaun/Vox

The [Spanish flu of 1918-'19](#), the most horrific pandemic in modern times, focused mainly on the young. It had biological similarities to a flu pandemic in the 1830s that gave some older people in the 1910s limited immunity.

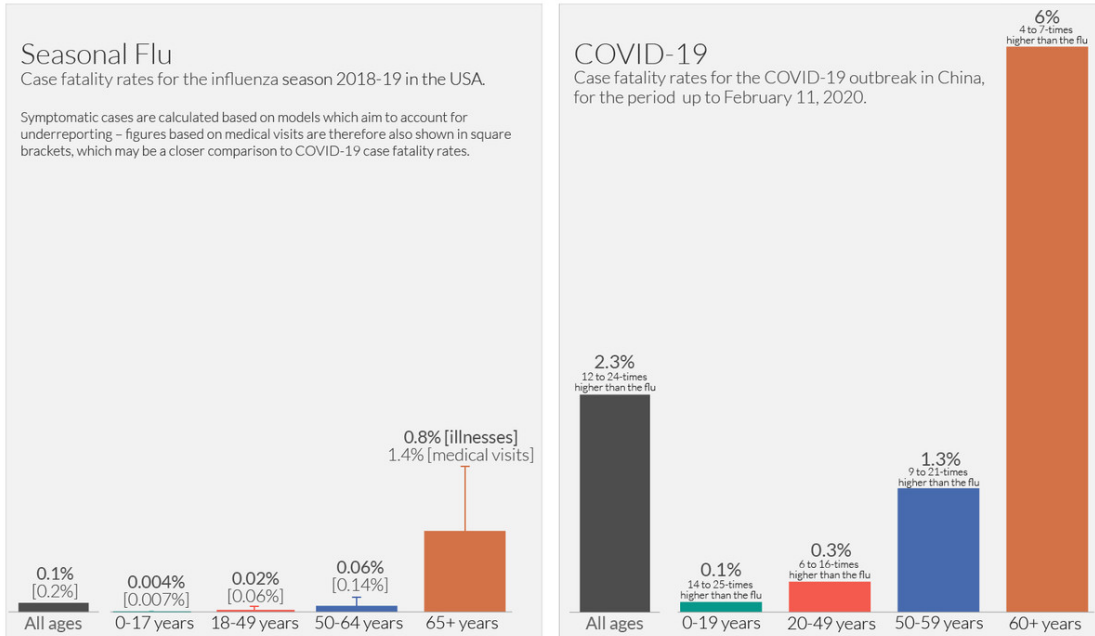
Covid-19 is not like that. So far, [deaths in China](#) have been concentrated among older adults, who have weaker immune systems on average than younger people and have a higher rate of chronic illness. People of all ages with chronic medical conditions are also at higher risk. The risk of death is real for younger people as well, but older people are most at risk.

5) This is much more severe than an ordinary flu

Case fatality rates: COVID-19 vs. US Seasonal Flu

Case fatality rate (CFR) is specific to a location and time. It is calculated by dividing the total number of deaths from a disease by the number of confirmed cases.

Our World in Data



Data: Novel Coronavirus Pneumonia Emergency Response Epidemiology Team. Vital surveillances: the epidemiological characteristics of an outbreak of 2019 novel coronavirus diseases (COVID-19)—China, 2020. China CDC Weekly. US Influenza data is sourced from the US Centers for Disease Control and Prevention (CDC).

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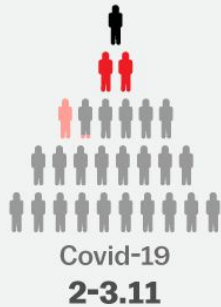
It is tempting to compare Covid-19 to a more familiar disease: [the seasonal flu](#). After all, the flu also has mild symptoms for most people, and can be dangerous and lethal among vulnerable populations like the elderly. [President Trump](#) even made this comparison recently.

But as the case fatality data shows, there's no real comparison. About 6 percent of people 60 or older infected with Covid-19 die, according to the data from China we have so far; that's over six times the fatality rate in the US for older people infected with the flu. The overall Covid-19 fatality rate may be 12 to 24 times the flu death rate. (Estimates for the [fatality rate for Covid-19 vary](#), and they vary by region depending on response to the outbreak.)

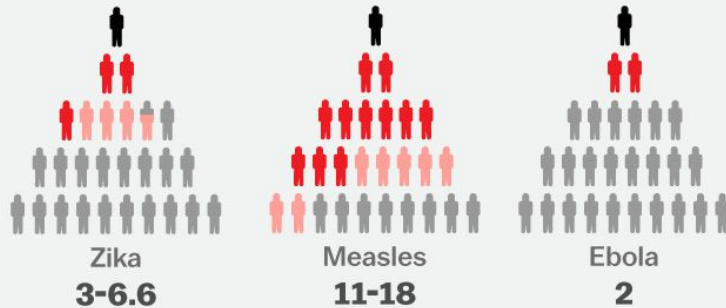
6) Experts also think Covid-19 is more contagious than the ordinary flu

How contagious is a disease?

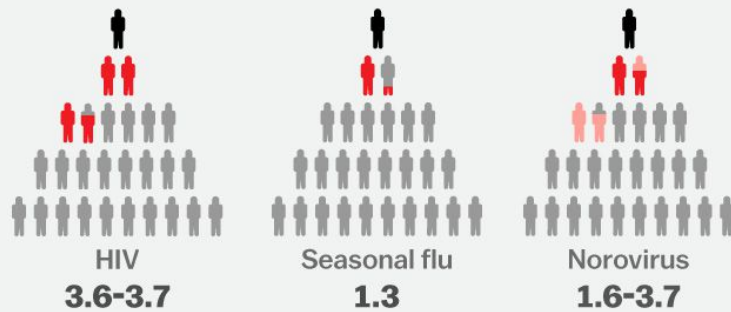
Scientists use "R naught," or R_0 , to estimate how many other people one sick person is likely to infect



*This estimate is preliminary and likely to change



*An early estimate based on the Colombia outbreak in 2015



*An estimate based on Réunion Island in 2006

SOURCES: Travel Medicine, PLOS One, JAMA Pediatrics, MDPI, NCBI, New England Journal of Medicine, "The Spread and Control of Norovirus Outbreaks Among Hospitals in a Region"



There's another way that Covid-19 is a tougher adversary than the seasonal flu: Its R0 ("R nought") is over 2, indicating that it's more contagious than the typical flu. R0 estimates the number of people an average infected person spreads the disease to. "R0 is important because if it's greater than 1, the infection will probably keep spreading, and if it's less than 1, the outbreak will likely peter out," [the Atlantic's Ed Yong](#) explains. Covid-19's R0 is substantially higher than 1, giving more reason for concern.

7) Spending on airlines, hotels, and cruises is collapsing

Year-over-year change in weekly US travel sales

	Jan. 7-13	Jan. 14-20	Jan. 21-27	Jan. 28-Feb.3	Feb. 4-10	Feb. 11-17	Feb. 18-24	Feb. 25-Mar. 2
Online travel agencies	2.1%	16.6%	-0.4%	-1.9%	9.1%	7.8%	-6.2%	-20.5%
Airlines	5.6%	3.2%	4.9%	-5.7%	-4.0%	0.5%	-7.4%	-16.5%
Cruiselines	0.6%	3.1%	13.4%	-3.9%	-12.2%	-11.1%	-6.4%	-14.9%
Hotels	7.5%	11.6%	12.1%	6.2%	4.6%	7.6%	3.4%	-0.6%

Source: Earnest Research

recode BY Vox

[Rani Molla/Recode by Vox](#)

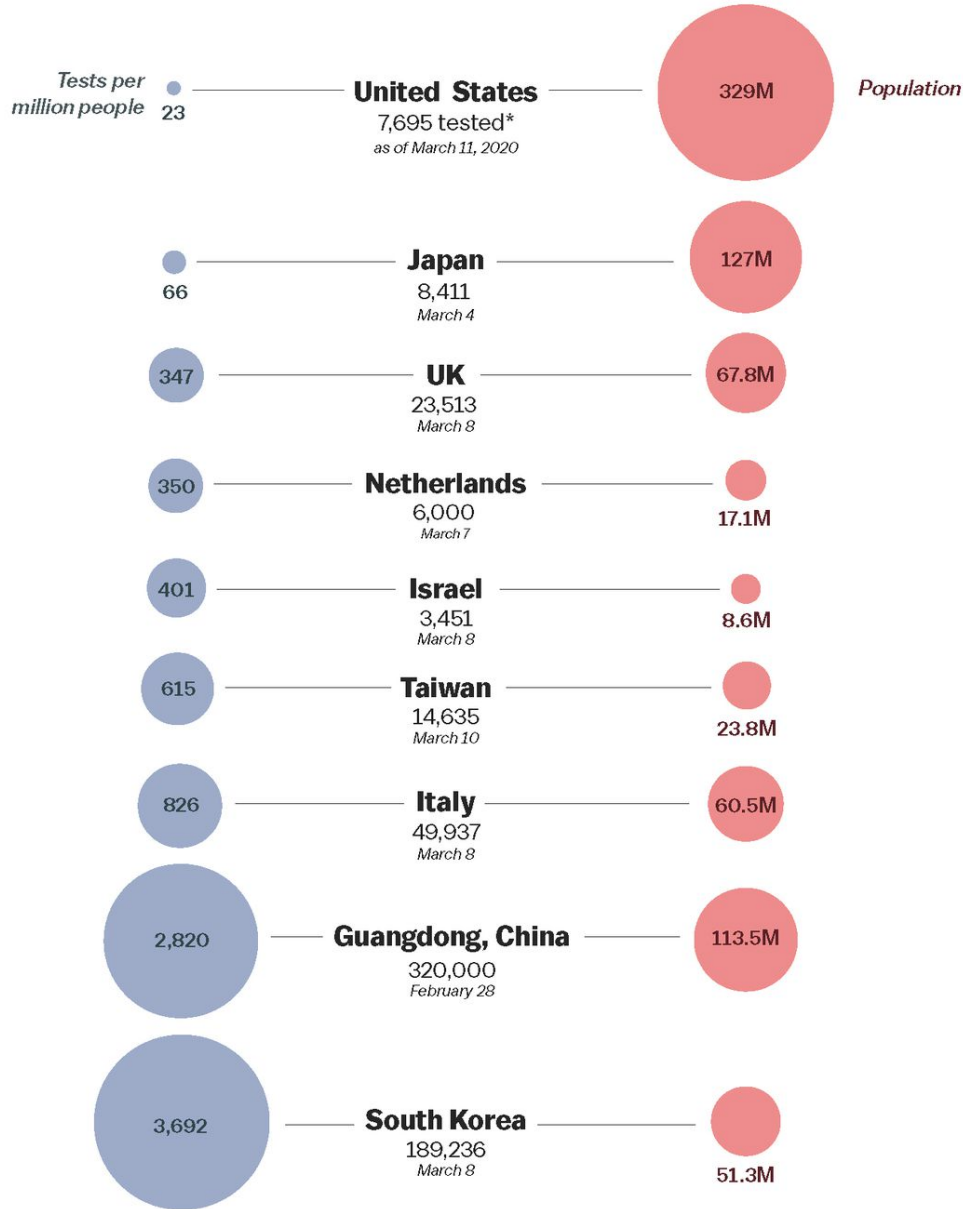
Warnings to avoid crowds, and cancellations of major gatherings like [conferences](#) and [parades](#), have put a damper on travel in the US, and the consequences for airlines have been dire. According to Earnest Research, spending on airlines fell 16.5 percent in the last week of February relative to a year prior. Cruises have seen a similar dip, while hotels are only now starting to see sales mildly decline.

It's unlikely that the economic impact will stay limited to the hospitality industry, as social distancing leads people to avoid coffee shops, restaurants, gyms, bars, etc.

For more, see [Rani Molla's write-up](#) for Recode.

8) The US is not testing enough people

A snapshot of early Covid-19 testing per capita



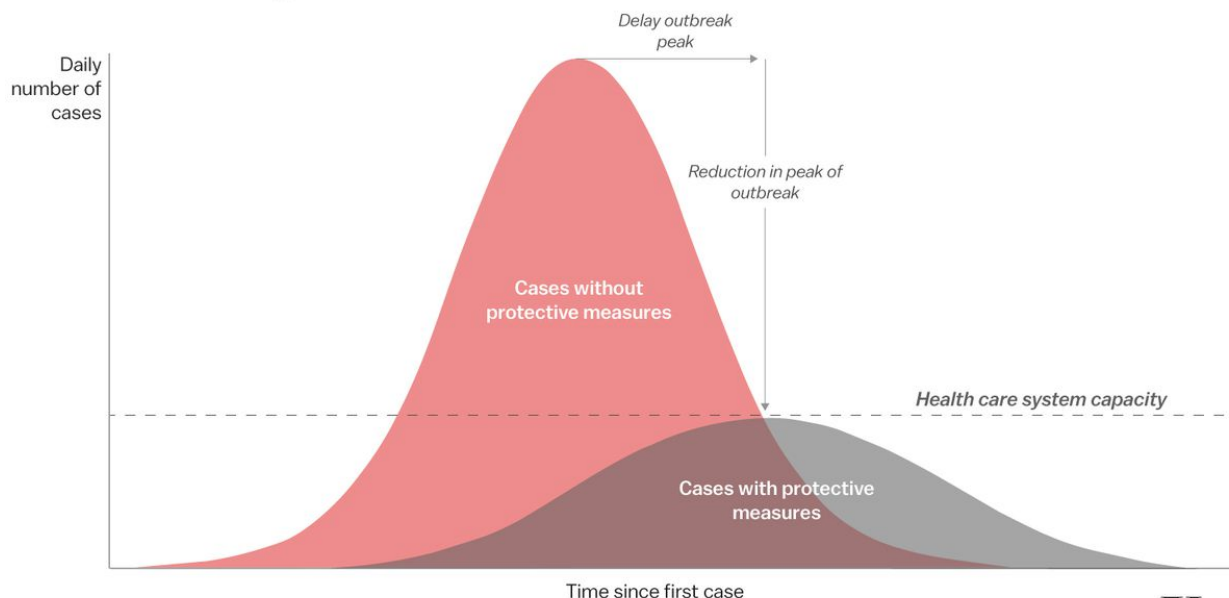
*Test counts do not include full reporting from all US labs
Source: Covid Tracking Project, Business Insider, the Atlantic, Taiwan CDC

The Trump administration's [slow rollout of testing for coronavirus](#) has become something of a national scandal, and it's easy to see why when you compare the US testing rate to that of other affected countries. South Korea stands out for its rapid rollout of extensive testing, including through innovative [drive-through testing programs](#).

Drive-through testing is being piloted in some parts of the US, like [New Hampshire](#), but we still have a long way to go before we match South Korean and Chinese testing levels.

9) Why canceling events and self-quarantining is so important

Flattening the curve



Source: CDC

Christina Animashaun/Vox

Vox

Covid-19 has quickly made large-scale gatherings and conferences unpopular if not socially frowned upon. This change arrived quickly, and may seem jarring, but it's easier to see the logic when you understand the theory behind this kind of "social distancing" policy. The key is to "flatten the curve": slowing the rate of increase in infections so that you spread out the cases, even if the total number doesn't change.

Flattening the curve slows the rate at which new cases arrive in hospitals, easing the burden on health care infrastructure and improving the odds that individual patients will survive.

Read more from [Eliza Barclay and Dylan Scott here](#).