

The Covid-19 risks for different age groups, explained

Different age cohorts have different vulnerabilities to Covid-19, but nobody's risk is zero.

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Miami Beach city officials closed areas popular with college spring break visitors on March 18, 2020. | Cliff Hawkins/Getty Images

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Nobody's risk is zero when it comes to **the Covid-19 coronavirus**.

Anybody can get sick in this pandemic. But different people have different risks of getting severe symptoms that require hospitalization or intensive care — and **the chances of dying from Covid-19** vary widely across age groups.

The conventional wisdom says **kids and young people** may be fine even if they get infected, with the risk of a case being more severe increasing with age. **It's the older folks**, we need to worry about, this thinking says, given death rates reach 20 percent or more among people 80 and older. Public health experts have seemed exasperated by the social media images of younger Americans who continue to socialize or even take a spring break vacation, worried that the perception a young person has little to fear from the coronavirus has given them a false sense of security.

To be clear, nobody should feel invulnerable to the coronavirus. Young people are going to contract the disease, a not-insignificant percentage of them are going to get very sick, and a smaller number will die. The rates of severe and deadly cases might not be nearly as high as the older generations that we are worried about, but the data already show that age alone does not make you invincible.

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There are two other things about risk to keep in mind about who's at higher risk. One, there is some indication that men could be at a higher risk of severe symptoms and death than women. In **the initial Wuhan, China, outbreak**, for example, men were dying at a notably higher rate than women. We've seen **the same trend in Italy**. But we will need more research and data to be sure about the effect of gender on a patient's prognosis.

Second, we know that people who have underlying medical conditions face higher odds of getting really sick or dying from Covid-19, particularly those with heart disease, diabetes, high blood pressure, lung disease, and **cancer**. Having one or more of those conditions increases a person's risk of severe symptoms beyond what their age alone would suggest.



Spring breakers crowded Miami's beaches, ignoring for days the recommendations to keep their distance, and eventually forcing beach closures. | Chandan Khanna/AFP via Getty Images

To review everything we know on age and the Covid-19 risk, I'm going to draw from a few sources that we'll keep coming back to: **the World Health Organization report** on the initial Wuhan outbreak, **the Centers for Disease Control and Prevention's new report** on the

early cases in the US, **Spain's breakdown** of its pandemic by age group, and two Vox articles on the risks to **children** and **older people**.

One caveat: Overall infection rates increase with age (kids seeing lower infection rates, seniors higher). But it's hard to know if that's because young people actually get infected less or simply because they are less likely to develop serious symptoms and seek medical attention, and so their cases are being underreported. A second caveat: The data we have so far are preliminary, and what we know will change as more information from different countries' outbreaks come in.

We'll therefore stick to the data we have both good numerators and denominators for to answer an important question: What are your risks if you do get infected with the coronavirus?

Now let's run through the different age groups and what we know about their risks.

Kids under 10 years old

The important stats on our youngest:

- In Spain (with 28,600 total cases as of March 21, nearly as many as America's 31,000), 34 out of the 129 cases among children 0 to 9 years old resulted in hospitalization, a rate of 26 percent; one child was put in the ICU (a 0.8 percent rate); and there have been no fatalities.
- Across Italy, South Korea, and China, there have so far been no reported fatalities among children under 10 years old, according to data compiled from public sources by the widely

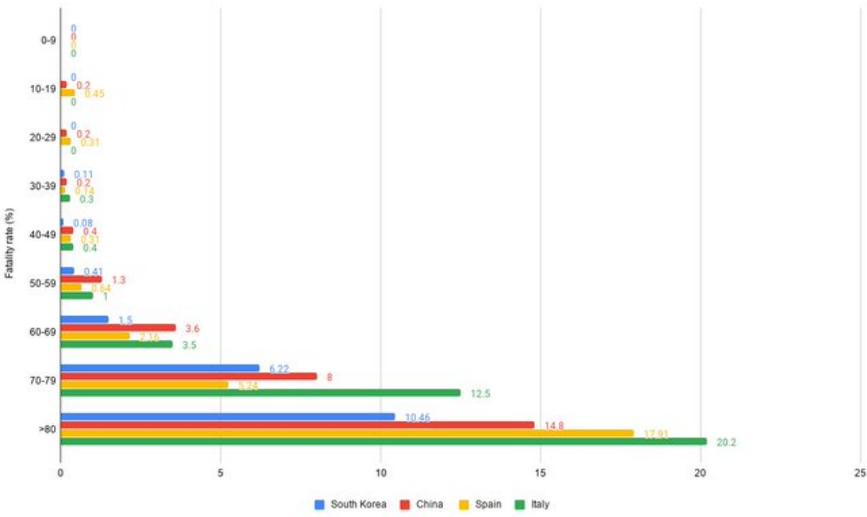
followed anonymous biotech investor and former scientist who goes by AndyBiotech on Twitter.

 **Andy Biotech**
@AndyBiotech

#COVID19 Crude case fatality rate age distribution chart updated with Spain data

(Wish can add CDC prelim data here too only if they also use decade cutoff like everyone else...)

COVID-19 Crude Case Fatality Rate by Age



Age Group	South Korea	China	Spain	Italy
0-9	0	0	0	0
10-19	0	0.2	0.45	0
20-29	0	0.2	0.31	0
30-39	0.11	0.2	0.74	0.3
40-49	0.08	0.4	0.3	0.4
50-59	0.41	1.3	1.4	1
60-69	1.5	3.6	2.1	3.5
70-79	6.22	8	3.75	12.5
>80	10.46	14.8	17.91	20.2

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- In the United States, there had been no ICU admittances or deaths reported among people under age 20 as of late last week; only a small percentage (1.6 percent) had been hospitalized. (I am using the lower bound of the CDC estimates because they cover all reported US cases, to be consistent with other data sources.)

So far, the data does bear out the idea that kids are not uniquely at risk of Covid-19, which is both surprising (because they usually are more vulnerable to the flu) and a relief.

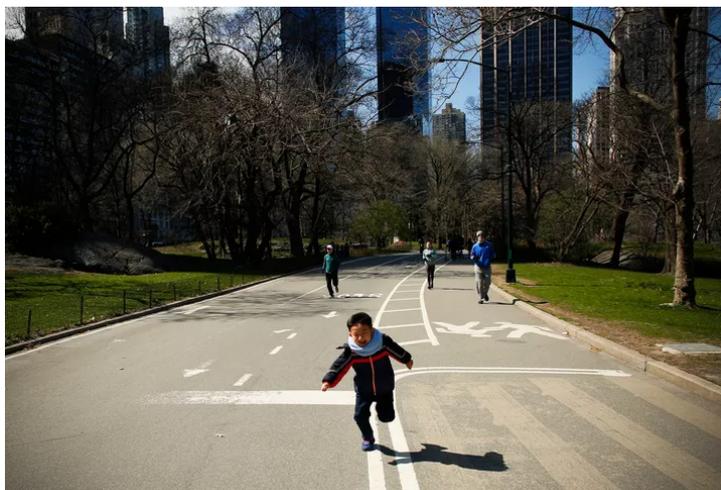
But this age group obviously covers everybody from infants to kids approaching middle school. And we do have evidence that the youngest of these can see more severe cases than their older brothers and sisters in elementary school, **as Vox's Umair Irfan reported:**

A study published March 16 in the journal *Pediatrics* of more than 2,100 children in China found that children of all ages were vulnerable to Covid-19, though the vast majority experienced mild symptoms, and some experienced none at all. A caveat for this study is that only one-third of the children in the sample were tested and confirmed to have the Covid-19 virus, SARS-CoV-2. The rest were presumptive Covid-19 cases, which means there's a possibility that another pathogen could have caused the observed symptoms.

Zeichner, who co-authored a **commentary article** about the findings, noted that the worst outcomes in children were often among infants. The study showed that about 30 percent of childhood Covid-19 cases deemed "severe" and more than half of Covid-19 cases deemed "critical" were among children less than 1 year old. Though the overall numbers were small — 7 infants had critical illness and 33 suffered severe illness — it did show that younger children faced a higher likelihood of more dangerous outcomes.

The other complication is that these younger people could still spread the disease to older generations, who are more at risk of critical illness.

Bottom line: Infants appear more vulnerable than toddlers and elementary school kids. Overall, though, only a small number of children under 10 years old are requiring hospitalization because of Covid-19 and, as of March 21, nobody in this age group has died.



A child runs through Central Park in New York City on March 22, 2020. | Kena Betancur/AFP via Getty Images



Kids play while waiting at the Phoenix Airport in Arizona on March 14, 2020. | Carol Coelho/Getty Images

Tweens and teens (10 to 19 years old)

The important stats on adolescents and just-turned-adults:

- In Spain, out of 221 cases for people 10 to 19, 15 of them have been hospitalized, a 7 percent rate; none have ended up in intensive care. One person in this age range has died,

a 0.4 percent fatality rate.

- Italy and South Korea have reported no fatalities for this group; China reports that 0.2 percent of cases for these young people end in death.
- In the US, there had been no ICU admittances or deaths reported among people under 20 as of late last week; only a small percentage (1.6 percent) had been hospitalized.

With the younger generations, same as the older generations, underlying medical conditions add to a person's vulnerability. But the absence of health problems does not mean the absence of risk: **CNN reported** Sunday on a 12-year-old girl in Atlanta with Covid-19 who has no known health conditions and who is nevertheless on a ventilator.

Bottom line: Older kids and teenagers may be more resilient than their younger peers in some ways (lower hospitalization and ICU rates in Spain, the only country we have data to separate the 0-9 and 10-19 cohorts), but there is still a small risk of serious complications or death.

Young adults (20 to 29 years old)

The important stats on young adults:

- In Spain, out of 1,285 cases for people 20 to 29 (a much bigger sample size than we have for children), 183 of them have been hospitalized, a 14 percent rate; eight have ended up in intensive care, a 0.6 percent rate, and four people in this age range have died, a 0.3 percent fatality rate.

- Italy and South Korea have reported no fatalities for this group; China reports that 0.2 percent of cases for these young people end in death.
- The CDC covers a huge 20-44 age range in its data, but here's what we know about that entire group: 14.3 percent hospitalized, 2 percent in the ICU, and 0.1 percent fatality rate.

Bottom line: We are seeing a higher hospitalization rate among young adults compared to the teens directly behind them in age, and comparatively more of them wind up in the ICU. Fatality rates are still low, but deaths do happen. The trends that will carry through the rest of this article — the older you get, the higher the risk — are starting to show up.



Bartender Anita Scani waits on customers at a family-owned sports bar in Chicago, Illinois, on March 15, 2020. | Scott Olson/Getty Images



Nurses adjust protective masks inside a testing tent at St. Barnabas hospital in New York City on March 20, 2020. | Misha Friedman/Getty Images

Adults up to middle age (30 to 49 years old)

The important stats on this working-age population:

- In Spain, out of 5,127 cases from this cohort, 1,028 people have been hospitalized, a 20 percent rate; 55 went to the ICU, a 1.1 percent rate; and 12 people ages 30 to 49 have died, a 0.2 percent fatality rate.
- Italy (0.3 percent death rate), China (0.2 percent), and South Korea (0.1 percent) have reported deaths in this age range.
- As mentioned above, the CDC covers one huge 20-44 age range in its report, but here's what we know about that group: 14.3 percent hospitalized, 2 percent in the ICU, and 0.1 percent fatality rate.
- For people 45 to 54, the CDC reports 21.2 percent have been hospitalized, 5.4 percent were put in the ICU, and 0.5 percent have died.

To prevent these numbers from becoming too abstract, the story of Jeffrey Ghazarian is a sad warning for this population. Ghazarian, a 34-year-old who lived near Los Angeles, **died Thursday** from Covid-19 after five days on a ventilator. He was a cancer survivor, which fits with what we know about the disease: People with past health problems and compromised immune systems are more at risk.

Bottom line: For this demographic, a significant number of people are being hospitalized, upward of one in five cases. And those final numbers from the CDC are a good example of how risk can vary within these age groups: Odds of hospitalization, intensive care, and death seem to increase from one's early 40s to late 40s. We've seen the same trend in Spain: The

rates of hospitalization jumped from 17 percent for ages 30 to 39 to 23 percent for ages 40 to 49.

People nearing retirement age (50 to 69 years old)

The important stats on the people entering their golden years:

- In Spain, out of 6,045 cases from this cohort, 2,166 people have been hospitalized, a 36 percent hospitalization rate; 221 went to the ICU, a 3.7 percent rate; and 83 people ages 50 to 69 have died, a 1.4 percent fatality rate.
- Taken collectively, Italy, China, and South Korea have reported fatality rates from 0.4 percent up to 3.6 percent for people in this group.
- For people 45 to 54, the CDC reports 21.2 percent have been hospitalized, 5.4 percent were put in the ICU, and 0.5 percent have died. For people 55 to 64, 20.5 percent have been hospitalized, 4.7 percent ended up in the ICU, and 1.4 percent died. For the oldest folks in this group, ages 65 to 74, hospitalizations (28.6 percent), ICU stays (8.1 percent) and deaths (2.7 percent) continue to trend upward.

For folks over 50, the risks steadily grow, both due to their age and because they are more likely to have a preexisting medical condition that exacerbates their risk. Almost half of Americans ages 55 to 64 have at least one preexisting condition, according to **the Kaiser Family Foundation**.

That's a problem when an unknown pathogen strikes. **More from Vox's Brian Resnick:**

The longer we live, the more likely our cells are to replicate in dangerous ways, the more damage they accumulate, and the more likely our organs are to stop functioning normally. This puts us at a heightened risk of chronic health conditions, like cancer or diabetes. Along with already weakened immune systems, these underlying diseases can make it harder for the body to ward off infections. The takeaway: It's not just age alone that endangers people; it's being older with one or more chronic diseases.

Among the **105 patients who had died in** Italy as of March 4, two-thirds had *three or more* preexisting conditions. The most common was hypertension, followed by ischemic heart disease and diabetes mellitus. These chronic illnesses can leave organs degraded and more vulnerable to infection. Additionally, the treatments for these conditions can suppress the immune system, leaving the body susceptible to pathogens.

Bottom line: All of these folks are in the high-risk category. A substantial minority are being hospitalized, and a handful of people out of every 100 have died. The dangers increase if they have heart or lung problems, or if they have diabetes or a cancer diagnosis.



Chuck Sedlacek, a patient at the Life Care Center nursing home, visits with his children in Kirkland, Washington, on March 18, 2020. The facility has been at the center of Washington's coronavirus outbreak. | Karen Ducey/Getty Images

Seniors (70 years old and older)

The important stats on older individuals:

- In Spain, out of 6,152 cases from this group, 3,388 people have been hospitalized, a 55 percent hospitalization rate; 199 went to the ICU, a 3.2 percent rate; and 705 people ages 70 and older have died, a 11.4 percent fatality rate.
- Italy, China, and South Korea have reported fatality rates from 6.2 percent up to 20.2 percent for people in this age range.
- I'll use the 75-and-older numbers from the CDC: For ages 75 to 84, hospitalizations (30.5 percent), ICU stays (10.5 percent), and deaths (4.3 percent) are already high, and the key metrics go up even higher for people 85 and older; 31.3 percent hospitalized, 6.3 percent in the ICU, 10.4 percent fatality rate.

One note: The ICU stays could be lower for the oldest people if the disease progresses so quickly that they don't even have an opportunity for intensive care.

Bottom line: There is no need to belabor the point, as I think one thing most people know about Covid-19 is it hurts older people the most. The data bears this out: People in this age group are the most likely to be hospitalized and to ultimately die during this pandemic.

For the rest of us, the risk is less severe but far from zero, and every person should be mindful of how their current health might make them more susceptible. And all of us, no matter our age or health status, should do our part to protect the most vulnerable through **social distancing**.

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