

# PUBLIC SERVICE ANNOUNCEMENT REGARDING COVID-19: A WARNING

*This version drafted March 21, 2020 by u/likeleagoandcrackers, via reddit. For latest version, see [this](#) post, which will be continuously updated.*

If you just want to learn how to reduce your risk of catching COVID-19, scroll down to the "Risk Reduction" section. However, to appreciate the full scope of the challenge ahead, you are encouraged to carefully read this entire document, which will be updated regularly as long as it stays on the front page of your sub.

The aim of this document is simple: it's best to walk into something knowing what you're about to face. It also aims to reduce anxiety, panic, and misinformation by arming you with key sourced information, all without downplaying the risks of COVID-19.

The document has gone through hundreds of iterations thanks to global community feedback, including from places such as Seattle, LA, Australia, and Canada. Although all facts are meticulously sourced from experts in their fields, you are responsible for your own health and your own research.

Further, contextualization of information remains an ongoing challenge, as does keeping up with a fluid situation. Final word will always belong to the health authorities, as well as the mods of this subreddit.

Now brace yourself, because this is going to suck a little bit.

## CONTEXT:

A recent in-depth [study](#) has shown just how incredibly infectious COVID-19 is. Unfortunately, its spread [has not slowed](#), and the virus has only been halted through stringent physical distancing measures.

In other words, and as the Director of the WHO himself has [said](#), this is not a drill.

**The bad news:** There are currently over [300,000](#) global confirmed cases of COVID-19, and the WHO recently [classified it](#) as a pandemic. Now it seems that it has arrived upon your doorstep, which means there is likely exponential and silent human-to-human transmission in the community.

**The good news:** knowledge is a weapon that defeats these things. It worked in 1918 against the Spanish Flu, when we essentially stopped the medieval practice of blood-letting (you know when they drained you of blood because they thought that would cure whatever ailed you? Or leeching?). And it worked against many other outbreaks since: Smallpox, MERS, SARS, Ebola, etc. The WHO's tackling of Smallpox alone was nothing short of scientific heroism.

And so, a hundred years after 1918, here we are again, facing perhaps the [greatest test of our generation](#).

The problem is that these days we're inundated with so much information that, when a real threat comes along, it's buried under a mountain of clutter. And although this document is not all-encompassing by any means, hopefully it will help you see through some of that clutter, as well as give those new to the threat an opportunity to hit the ground running.

So go ahead and meet [your foe](#). Do not underestimate it.

Now prepare to go to war.

## IMPORTANT:

- **The main mode of transmission is via respiratory droplets: coughing, sneezing, and breathing.** But you can also get it through shaking hands, kissing somebody who is sick, or touching a contaminated surface (droplet dispersion; think of a cough plume settling). This can include handrails, doorknobs, elevator buttons, and surfaces prone to a droplet dispersion cloud. "Cough dispersion" basically means anytime a sick person coughs, they're dispersing a plume of droplets over a given area. The viral particles within those droplets then settle on ordinary surfaces. People touch those surfaces then touch their phones or their faces, which in turn lead to contact with their eyes, mouth, or nose, inducing infection. Therefore it is best to keep a 6 ft "coughing distance" from people, and treat everything you touch in public as if it's been contaminated (see the "Risk Reduction" section below). [Here's an excellent short video on the topic.](#) Read a little more on the subject [here](#).
- [AWAITING PEER REVIEW, BUT IS GAINING [ACCEPTANCE](#) IN THE SCIENTIFIC COMMUNITY] There now appears to be evidence the virus can spread through breathing. Michael Osterholm, PhD, MPH, director of the Center for Infectious Disease Research and Policy at the University of Minnesota: "The findings [of the study] confirm that COVID-19 is spread simply through breathing, even without coughing. Don't forget about hand washing, but at the same time we've got to get people to understand that if you don't want to get infected, you can't be in crowds. Social distancing is the most effective tool we have right now." [Source](#). (Crucial to understand: the research specifies patients who are symptomatic, and makes no claims about asymptomatic transfer.) **UPDATE:** [Dr. Osterholm just went on the Joe Rogan show to explain the situation](#). Although the show itself has been known to be controversial, the Doctor's [credentials](#) speak for themselves.
- [AWAITING PEER REVIEW] A new study indicates COVID-19 can survive in the air for up to 3 hours, and several days on surfaces, depending on the surface (up to 3 days on plastic, up to 2 days on metal, up to 1 day on cardboard). ([Article](#) | [Study](#)). [Here's a shadowgraph imaging](#) of people breathing ([source](#)). Unfortunately it is a bit misleading as it does not show drop dispersion, but gets the point across.
- [AWAITING PEER REVIEW] New analysis seems to indicate infected people without symptoms might be driving the spread of coronavirus more than we realized (CNN [link](#), with links to multiple studies in the article). This is corroborated by Dr. Norman Swan on March 14th, via ABC Australia, who says "you *are* infectious *before* the symptoms come out, there's no question about that." The WHO says you are infectious for about 48 hours prior to showing first symptoms. (Source 1: Dr. Swan: see minute mark 4:02 in [this health alert video](#)), ([Source 2](#)). **ALERT: It is now generally believed that this is the reason the virus is taking so many communities by surprise: it spreads during that crucial asymptomatic/low-symptom stage.**
- **WARNING:** March 16th Article, based on fresh research: "80% of COVID-19 spreads from people who don't know they are sick" ( [Article](#) | [Study](#) | [Discussion 1](#) | [Discussion 2](#) )
- **WARNING: We are past containment. It is now vital to [flatten the curve](#) and implement physical distancing measures.**
- **Up to 1 in 5 infected people may require hospitalization** [source 1](#), [source 2](#). But this is an oversimplification as the metric skews toward the elderly and those with comorbidities (see the Mortality/Comorbidities section below). Plus the metrics differ based on [region and testing capacity](#). [Excellent short video](#) on the topic.

- Here's a breakdown of the above: Approximately 80% of laboratory confirmed patients have had mild to moderate disease, which includes non-pneumonia and pneumonia cases. 13.8% have had severe disease requiring hospitalization, and 6.1% were critical, requiring the ICU (respiratory failure, septic shock, and/or multiple organ dysfunction/failure). (These numbers are as of Feb 20, 2020, based on 55,924 laboratory confirmed cases in China, from the [WHO report](#).) **Update:** European Society of Intensive Care Medicine is reporting a 10% ICU rate, and has [issued a word of warning](#).
- Due to the highly infectious nature of COVID-19, **the danger is not just the mortality rate for the vulnerable, but the possibility of overwhelming the health infrastructure, which in turn causes unnecessary fatalities.**
- As it stands, it wouldn't take much to overwhelm hospitals, hence why it's important to start taking preventative measures now (outlined in the Risk Reduction section below)—especially because hospitals are already burdened with a heavy flu season (in the Northern hemisphere, that is). For example, if only 10 out of every 1000 people required a bed, we'd already be coming up short, as in the USA there are only [2.77](#) beds for every 1000 people, and [2.58](#) in Canada. Why is this important? **In South Korea, 4 in 22 deaths happened while waiting to be hospitalized** ([source](#) in Korean, as well as a [discussion](#) about it), and that's from South Korea, who is #2 in the world bedcount-wise with [12.27](#) beds per 1000 people. And of course many beds will already be occupied for regular patients. [Toronto Star soberly warns hospitals can't cope if coronavirus outbreak worsens in Canada: March 6th.](#)
- A surgeon working in the heart of Italy's outbreak gives a harrowing testimony and urges everyone to heed the warning that it can easily overwhelm hospitals ([translation](#) / [Original](#)).
- This is a "novel" virus, which means the immune system has never been exposed to it and therefore everyone is susceptible. There is no vaccine, nor do authorities expect one for some time.
- A [superb short video](#) by Kurzgesagt on how the virus works, among other things of note.
- People are thought to be most contagious when they are most symptomatic (the sickest). (Source: [CDC](#))
- **Update:** March 18th: Young people are getting extremely sick from coronavirus, according to new evidence ([article](#) | [discussion](#) ). A young person's [dire warning](#).
- **Update:** March 17th: "Prepare to see COVID-19 cases rising. That doesn't mean social distancing has failed: Impacts won't be apparent for at least two weeks and probably longer, experts say" ([source](#))
- **Update:** "Coronavirus: Why You Must Act Now | Politicians, Community Leaders and Business Leaders: What Should You Do and When?" ([link](#))
- **Update:** Excellent quick read on how normalcy lulls and how quickly this thing can hit, by The Washington Post: "When a danger is growing exponentially, everything looks fine until it doesn't" ([link](#) | [archive link](#))
- **Update:** CNN: "Take this seriously. Coronavirus is about to change your life for a while" ([link](#))
- **Update:** WHO director: "We are deeply concerned both by the alarming levels of spread and severity, and by the alarming levels of inaction." ([link](#))
- **Update:** "Any country that looks at the experience of other countries with large epidemics and thinks that it won't happen to us is making a deadly mistake," [warned the WHO](#).

- **Update:** "People infected with #COVID19 can still infect others after they stop feeling sick, so these measures should continue for at least 2 weeks after symptoms disappear. Visitors should not be allowed until the end of this period. There are more details in WHO's guidance" ([Source: WHO](#))
- **Update:** March 17th: [Short video of the situation in a hospital in Bergamo, Italy.](#)
- **Update:** March 20th: "Not sure we've communicated well enough that social distancing interventions will pay dividends in 1-3 weeks. Anything that happens in the next 10 days was already baked in prior to that. A surge in cases now would NOT mean that social distancing isn't working." —[Kate Allen](#), Science reported for Toronto Star
- **Update:** Viewer discretion is advised: [A heartbreaking look](#) into the frontlines of an Italian hospital. Do not underestimate this virus.

## PSYCHOLOGY:

- Do not panic, but give yourself permission to feel fear. [Fear gets you prepared](#). As for panic, all one has to do is look at the crowded halls of Wuhan hospitals during the early phases of the outbreak to understand how panic worsens problems. A jolt of fear is all right, as it gets you moving in the right direction. After that point, however, you must turn to thinking clearly, level-headedly, and listen to your local health authorities. As for what you can do, follow the steps in the "Risk Reduction" section below.
- Ignoring this threat will only make it worse, as it preys on your underestimation of it. That underestimation may cost you your life, or the life of a loved one.
- Upon first learning about the extent of the threat, you may become anxious and hyper aware and start taking extra precautions. This is normal, what psychologists call an *adjustment reaction*. [A short guide on how to cope](#).
- [Normalcy bias](#) plays a factor. So does denial. You may hear things like "it's just a flu, nothing to worry about." It is [dangerously inaccurate](#) to compare COVID-19 to the flu. Facing the threat will help you prepare for it while denial puts you and your loved ones at risk. People in denial may take foolish risks like attend crowded events during an active outbreak, or fail to take precautionary measures, thereby accidentally passing the virus on to others. Denial also slows community response.
- [Here is an excellent Harvard piece](#) on reactions and overreactions, denial versus panic, and the five principle bulwarks against denial. It is short and absolutely worth your time.
- For officials, [crisis management teaches us](#) that it is important not to downplay a threat, otherwise you may lose the public's trust. Do not fear inducing a panic (see the aforementioned paper). The public needs you to be clear, informative, competent, and proactive. Studies such as [this one](#) about the 1918 pandemic have shown just how effective a proactive approach can be on the part of leadership. But [look what can happen](#) on the other end of the spectrum. Update: [A warning for leadership](#). Update: [Speed trumps perfection](#).
- If you're experiencing distress, please consider visiting COVID-19 [mental health support](#).

## RISK REDUCTION:

Think of those in your life who are vulnerable (see the Comorbidities section). If not for yourself, do it for them.

- **To reiterate, we are *past* containment. It is now vital to [flatten the curve](#) and implement physical distancing measures.**
- Practice [physical distancing](#). Here's [why it works](#). An excellent [visual](#) example of why it works.
- Do not touch your face (practice this one at home, as [it's harder than you think](#)).
- After *every* outing, wash your hands and disinfect your phone (the virus can likely [live up to 96 hours on phone screens](#)). And you're probably washing your hands wrong. [Here's a short 1.5 minute tutorial](#) by the WHO.
- Carry disinfectant with you. But if you don't have any, know that soap works better than alcohol and disinfectants at destroying the structure of viruses ([source](#))
- Do not shake hands.
- While in public, try to keep a coughing distance from people, which is at least 6 feet.
- Treat everything you touch in public as a contaminated surface.
- If you use a travel mug, be sure to disinfect it after *every* outing.
- Disinfect doorknobs and often-touched places, especially keyboards and phones. Also disinfect reusable shopping bags, wallets, keys.
- Take initiative and disinfect doorknobs and elevator buttons in your building. Do not wait for management to do it for you.
- Keep disinfectant by every entrance to your house.
- Avoid anyone who is coughing, and [stay away from poorly ventilated places](#).
- Stay away from crowds.
- Cough into your elbow, or preferably into a tissue that is disposed of into the trash.
- While in public, only touch things with your knuckle, a glove, or your sleeve. Touch elevator buttons with the tip of your key.
- Ask your boss to work from home as many transmissions happen at work.
- There is a global shortage of face masks. If you have extra, be prepared to donate some should the hospitals/care homes send a call out to the community.
- If you have extra bottles of hand-sanitizer, please consider sharing them with those who do not have any. This is about working together, and minimizing community spread helps everyone within the community, including you and your loved ones.
- Have 14 days of food in your home in case you are ordered under quarantine. There's nothing wrong with preparatory shopping in case of quarantine, but be careful not to do this once an outbreak has been declared in

your city, as you may be lining up alongside sick people. At that point, it is better to shop at night/off hours, and after taking careful precautions. Or consider ordering your groceries online.

- Don't share a cup. Don't share eating utensils. Don't share a toothbrush. In fact, don't share anything that comes in direct contact with your mouth or nose.
- Keep air circulating. Dispersing droplets can keep you from getting a hefty, infectious dose. Open a window; turn on a fan. ([source](#))
- Use a humidifier. Keeping the humidity up will [keep the protective membranes in your nose from drying out](#), which makes them less effective as they try to keep pathogens out. Mid-range humidity also appears to cause some viruses to decay faster.
- Besides practicing physical distancing, always remember the top three: disinfect your phone, don't touch that ugly face of yours, and wash your filthy hands. After *every* outing. Seriously, if there's *one* thing you take away from this, do these three things. They may just save your life, or the life of a loved one.
- A [nifty GIF](#) to show the importance of taking precautions now.
- Be proactive. How can *you* help?

## INCUBATION PERIOD:

- People generally develop signs and symptoms, including mild respiratory symptoms and fever, on an average of 5.1 days after initial infection.
- 97.5% develop symptoms within 11.5 days.
- "Current 14 day quarantine recommendation is 'reasonable' as only 1% will develop symptoms after release from 14 day quarantine."
- [Source](#) / [Discussion](#) with regards to this section.

## TYPICAL SYMPTOMS:

(All direct from [WHO report](#) based on 55,924 laboratory confirmed cases in China.)

- Fever (87.9%)
- Dry cough (67.7%)
- Fatigue (38.1%)
- Sputum production (33.4%) (a mixture of saliva and mucus coughed up from the respiratory tract)
- Shortness of breath (18.6%)
- Sore throat (13.9%)
- Headache (13.6%)
- Joint pain (14.8%)
- Chills (11.4%)
- Nausea or vomiting (5.0%)
- Nasal congestion (4.8%)
- Diarrhea (3.7%)
- Hemoptysis (0.9%) (coughing up of blood or blood-stained mucus from the bronchi, larynx, trachea, or lungs)
- Conjunctival congestion (0.8%)

[Here is what those symptoms look like on a visual timeline, in Fahrenheit.](#)

[Here it is in Celsius.](#)

A new chart with an excellent [timeline of symptoms on the right](#)

Health Canada: [What to do if you're ill.](#)

[CDC: What to do in your home if someone is sick](#)

Want to know the difference between a flu, a cold, and Covid-19? [Here's a nifty visual.](#)

What Happens When You Get Coronavirus, and when should you go to the hospital? [An excellent short official Canadian Public Health video](#)

What does it feel like to be sick? [The New York Times spoke to six people with the virus.](#)

## COMORBIDITIES:

Underlying medical conditions that may increase the risk of serious COVID-19 for individuals of any age:

- People 60 years of age and older
- Diabetes (more [here](#))
- Hypertension
- Cardiovascular disease
- Chronic respiratory disease
- Heart or kidney disease
- Cancer
- Those with weakened immune systems
- Obesity ([source](#) / [credentials](#) of source)
- People with weakened respiratory system due to [smoking](#) /vaping ([source 1](#)), ([source 2](#)). Quitting now [can save your life](#).
- Lung disease, including asthma or chronic obstructive pulmonary disease (chronic bronchitis or emphysema) or other chronic conditions associated with impaired lung function or that require home oxygen (Source: [CDC](#), last page)
- **UPDATE:** March 18th: "99% of Those Who Died From Virus Had Other Illness, Italy Says" ( [article](#) | [discussion](#) )

**If you fall into any of the above categories, the CDC says "it is especially important for you to take actions to reduce your risk of exposure."**

UPDATE: "CDC: Americans over 60 should 'stock up' on supplies, avoid crowds" ([source](#)).

UPDATE: The [New York Times detailed](#) how 40% of Americans have chronic conditions and should immediately start taking extra precautions.

Sources for comorbidities: [WHO report](#) / [CDC](#), more from [CDC](#). A CDC guide titled [People at Higher Risk for COVID-19 Complications](#) expounds on the point.

# MORTALITY RATE:

(As of 20 February 2020 and based on 55,924 laboratory-confirmed cases in China as per the [WHO report](#). Please note mortality will differ from region to region based on regional comorbidities, as well as a host of other variables such as healthcare infrastructure, response time, etc.)

Age	<a href="#">% of population</a>	<a href="#">% of infected</a>	<a href="#">Fatality</a>
0-9	12.0%	0.9%	0
10-19	11.6%	1.2%	0.1%
20-29	13.5%	8.1%	0.2%
30-39	15.6%	17.0%	0.2%
40-49	15.6%	19.2%	0.4%
50-59	15.0%	22.4%	1.3%
60-69	10.4%	19.2%	<b>3.6%</b>
70-79	4.7%	8.8%	<b>8.0%</b>
80+	1.8%	3.2%	<b>14.8%</b>

**UPDATE:** Mortality numbers are starting to come in from Italy. [Here's a data set of 11,538 cases.](#)

\*\* March 16 Update: "This is a serious disease. Although the evidence we have suggests that those over 60 are at highest risk, young people, including children, have died" —Dr. Tedros, Director of the WHO\*\* ([source](#))

Disease in children appears to be relatively rare and mild with approximately 2.4% of the total reported cases reported amongst individuals aged under 19 years. A very small proportion of those aged under 19 years have developed severe (2.5%) or critical disease (0.2%), via [WHO report](#).

# ADDITIONALS:

- The Average time from first symptoms to death is estimated to be 18 days ([source paper](#)). Again, the metrics skew toward comorbidities.
- **Due to the high mortality rate for people over 60, the authorities in Seattle are encouraging anyone in that demographic to stay home as much as possible. ([Source](#)).**
- But even as a young person you want to avoid COVID-19, and not only because you could pass it on to others with comorbidities, but because experts do not know what the longterm side effects of a novel coronavirus can be. And then there's the potential of suffering. The following is an example of a healthy 25-year-old nonsmoker who felt like he was going to suffocate [from the virus](#).
- The virus is of zoonotic origin, sharing 99% DNA with the coronavirus that infects pangolins ([source](#)). Update: [This claim is now in dispute](#).. March 17th update: The proximal origin of SARS-CoV-2: "Our analyses clearly show that SARS-CoV-2 is not a laboratory construct or a purposefully manipulated virus." (Source [study](#)). March 20th update: Latest genome analysis seems to suggest two viruses may have combined ([source](#))
- During a black swan event, knowledge is power, and taking proper precautions now will minimize risk exposure for you and your loved ones.



# LANGUAGE TRANSLATIONS OF THIS DOCUMENT

- [Portuguese](#)
- [Spanish](#)
- [Greek](#)

You are invited to translate this document into your native language and post it to your native country sub. Please message me with the link so I can post it into this PSA. Thank you.

## A CURATED SET OF LINKS WORTHY OF YOUR TIME:

- [Global COVID-19 metrics / Live numbers of global infections](#)
- [A scientist answers why South Korea's response is the best so far](#)
- [An excellent summary from Feb 29th why Covid-19 is worth your concern](#)
- [How canceled events and self-quarantines save lives, in one chart | This is how we all help slow the spread of coronavirus](#)
- [Coronaviruses: How long can they survive on surfaces?](#)
- [Sleepwalking Towards Disaster: Why COVID-19 isn't just another flu](#)
- [A Guide: How To Prepare Your Home For Coronavirus](#)
- [Here's what to do if you think you are sick and are worried it may be the coronavirus.](#)
- [Nursing 101: Caring for your loved ones at home](#)
- [Effects of Closing Schools During the 1918-1919 Influenza Pandemic](#) arguing that the sooner public health interventions began the better.

### FOR HEALTH WORKERS/HOSPITALS

- Handbook of Covid-19 Prevention and Treatment from Hospital with 0% fatality after treating 104 patients, funded and translated by Jack Ma & Alibaba ( [Handbook](#) | [Discussion](#) )
- [How to Triple Ventilator Capacity in 10 Minutes](#)
- [What US Hospitals Should Do Now to Prepare for a COVID-19 Pandemic](#)

### OFFICIAL NATIONAL/INTERNATIONAL:

- [Health Canada's COVID-19 Resource Centre](#)
- [Health Direct Australia](#)
- [CDC Resources for Households](#)
- [Latest on the virus direct from Harvard](#)
- [World Health Organization's rolling updates on coronavirus disease for COVID-19](#)
- [COVID-19 on Health Canada](#)
- [CDC: Center for Disease Control](#)
- **[NEW]** [Google COVID-19 resource page](#)

### GET INVOLVED:

- 3D printing, programming, modeling, organizing, or doing anything else to help out? Want to chip in somehow and looking for a project? ([discussion](#))

- If you have a relevant skillset, consider joining the Ultimate Medical Hackathon: How Fast Can We Design And Deploy An Open Source Ventilator? ( [source](#) | [discussion](#) )
- A reminder: If, in the coming months, you find yourself in need of a particular mechanical object that has run out (e.g. nasal cannulas), there are tens of thousands of redditors capable of producing replacements under short notice, often needing little more than a picture and rough dimensions. ([discussion](#))

Why I created this post:

I've done the best job I could giving the sources context. I've asked the public and some medical professionals to weigh in, and have adjusted the document based on what they have said. I don't have an agenda or anything of that sort, and to reiterate, you are responsible for your own health and your own research. I'm just a volunteer who's put countless hours into this as I have a very particular communicative and collative skillset that I suspected could be of benefit in this ordeal—that and I've been following COVID-19 closely since mid-January. I hummed and hawed whether to even to start this document, yet after seeing how much it benefited people even in its crude early form, I decided to give it all of my focus.

And now the beast is upon my doorstep, and I too have susceptible loved ones around me.

The aim of this document was to inform, without minimizing risk. Accurate information reduces panic and anxiety, and helps people make the right decisions in a difficult time. I hope it succeeded in that regard, and that you found it useful.

Yet there's always room for improvement, so feel free to constructively suggest changes (but if you're going to be a jerk about it, you will simply be blocked and ignored, and that's that). If you have a trustworthy more up-to-date source on an old metric of mine, please leave it in the comments. Also you are welcome to suggest alternative word/sentence choice changes.

As I mentioned in the intro, this document went through many versions. Thank you to those from all around the world who had constructively weighed in to make it a more robust and useful PSA.

Other communities are invited to post a link to the source doc in [Sydney](#), Australia, or the one over in the [Canada sub](#), both of which will be kept up to date (as will any of my PSA's that I posted myself, as long as they're still on the main page of that sub).

My very best wishes from Victoria, BC, Canada, and good luck to us all.

P.S. Feel free to share this post without attribution to me. This was never about credit.

P.P.S. "Everything we do before a pandemic will seem alarmist. Everything we do after will seem inadequate."  
—Michael Leavitt

P.P.P.S. [A touching note to the world.](#)

By u/ilikelegoandcrackers, via reddit.