

ECHO Diabetes

COVID 19 and Diabetes

the novel coronavirus, SARS-CoV-2

Indian Health Service

Division of Diabetes Treatment and Prevention

- **People with diabetes who are infected with the coronavirus are more likely to develop severe coronavirus disease (COVID-19) and complications.**
 - They should be especially diligent to reduce risk of exposure, including hand washing, practicing social distancing, and staying home as much as possible.
- Managing diabetes can be more challenging during this time.
 - **Blood sugars:** activity restriction, changes in eating patterns, and illness can all affect blood sugars. Patients should monitor more closely and call their health care team if they are having problems.
 - **Medications:** patients should ensure they have sufficient medications and call their health care team if they need refills.
- To reduce the risk of coronavirus exposure, avoid going to the clinic unless necessary. Patients who develop mild symptoms should monitor their blood sugars, stay well hydrated, and call their health care team with concerns.
- For severe symptoms, seek medical care right away.

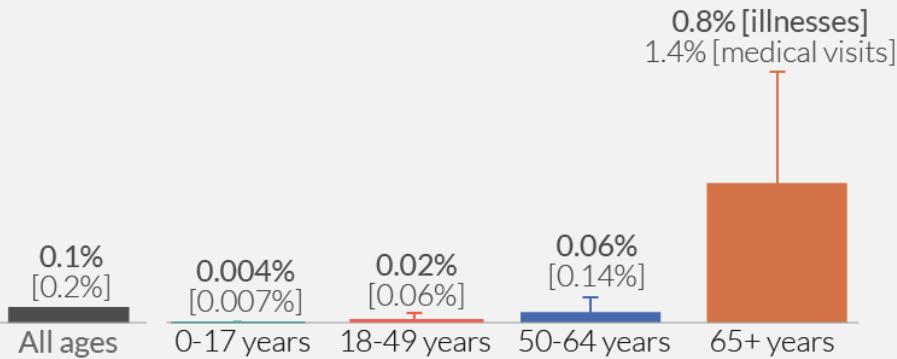
Case fatality rates: COVID-19 vs. US Seasonal Flu

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.

Seasonal Flu

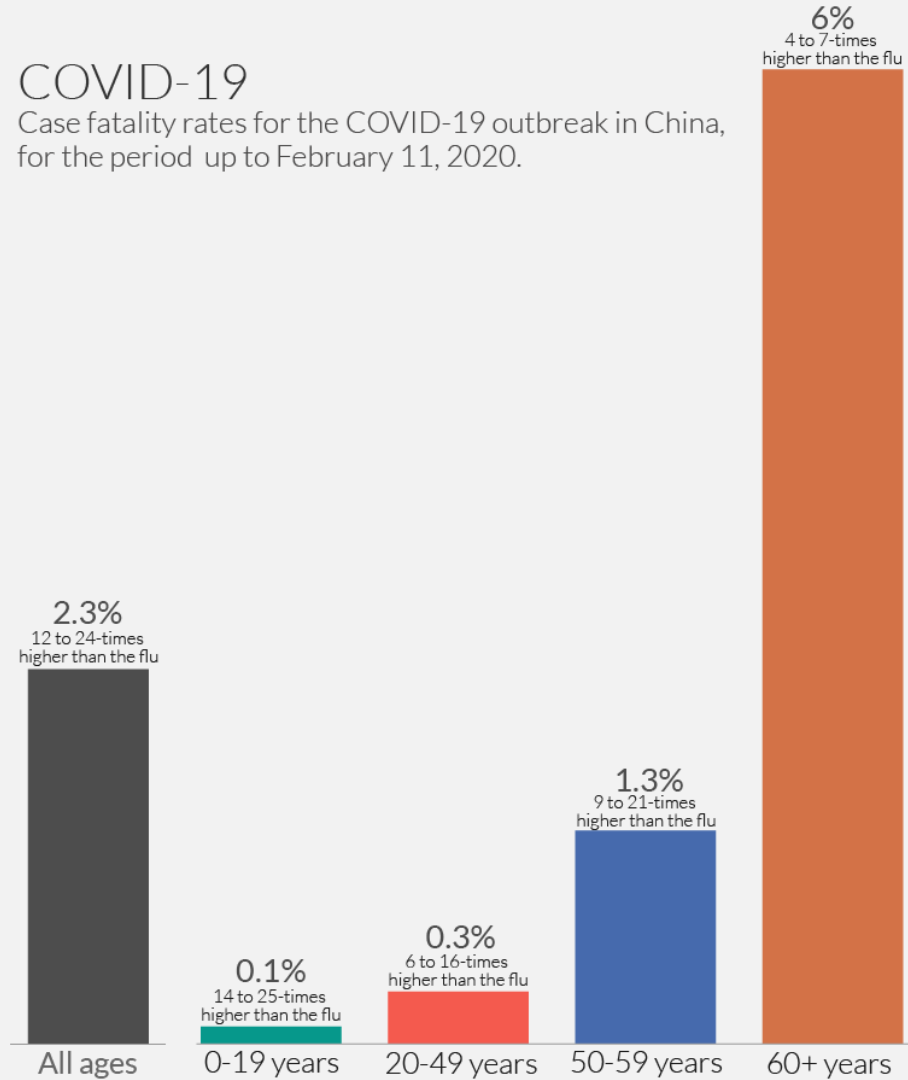
Case fatality rates for the influenza season 2018-19 in the USA.

Symptomatic cases are calculated based on models which aim to account for underreporting – figures based on medical visits are therefore also shown in square brackets, which may be a closer comparison to COVID-19 case fatality rates.



COVID-19

Case fatality rates for the COVID-19 outbreak in China, for the period up to February 11, 2020.



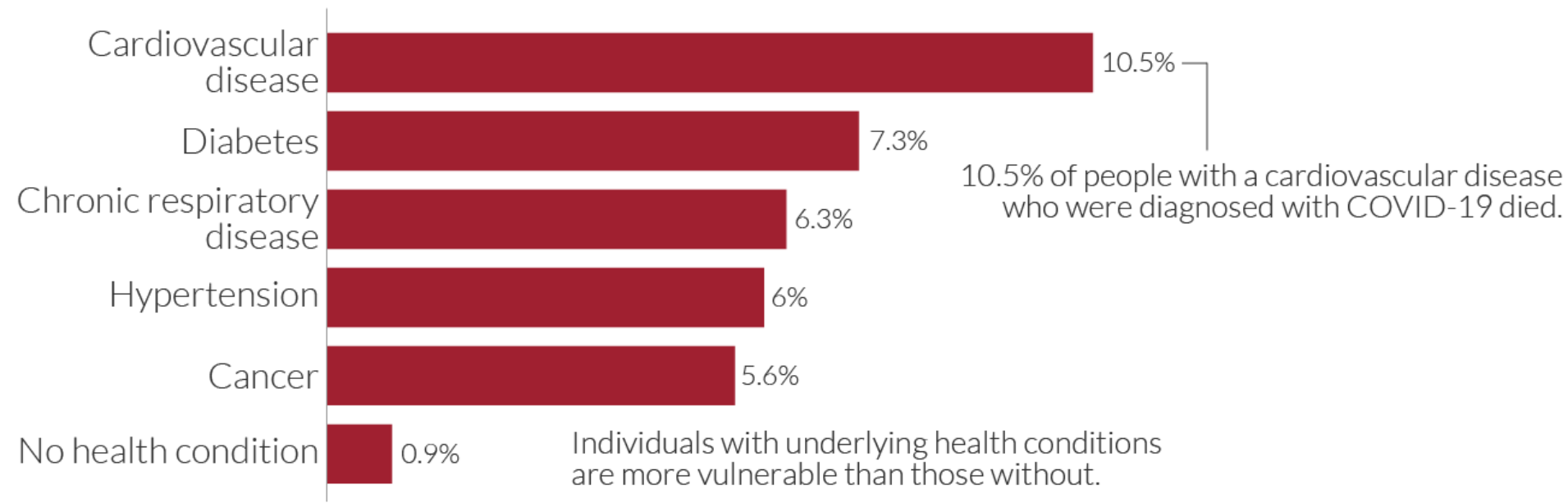
Data: Novel Coronavirus Pneumonia Emergency Response Epidemiology Team. *Vital surveillances: the epidemiological characteristics of an outbreak of 2019 novel coronavirus diseases (COVID-19)—China, 2020*. China CDC Weekly. US Influenza data is sourced from the US Centers for Disease Control and Prevention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

Diabetes and Risk with COVID 19

- A Person with Diabetes (PWD) is ***not more likely to get*** COVID-19, the problem is
- ***once infected*** – they are ***more likely to develop serious or critical disease***
 - especially if they have ***poorly controlled diabetes***,
 - and/or already ***have some of the complications*** such as heart disease or kidney disease
 - the ***more health conditions someone has*** (for example, diabetes and heart disease), ***the higher their chance of getting serious complications from COVID-19.***
- “If diabetes is well managed, the risk of getting severely sick from COVID-19 is about the same as the general population,” according to the ADA.
 - Experts don’t believe there is any different risk for people with type 1 versus type 2 diabetes
 - **Age and how well diabetes is controlled** affects the risk most.

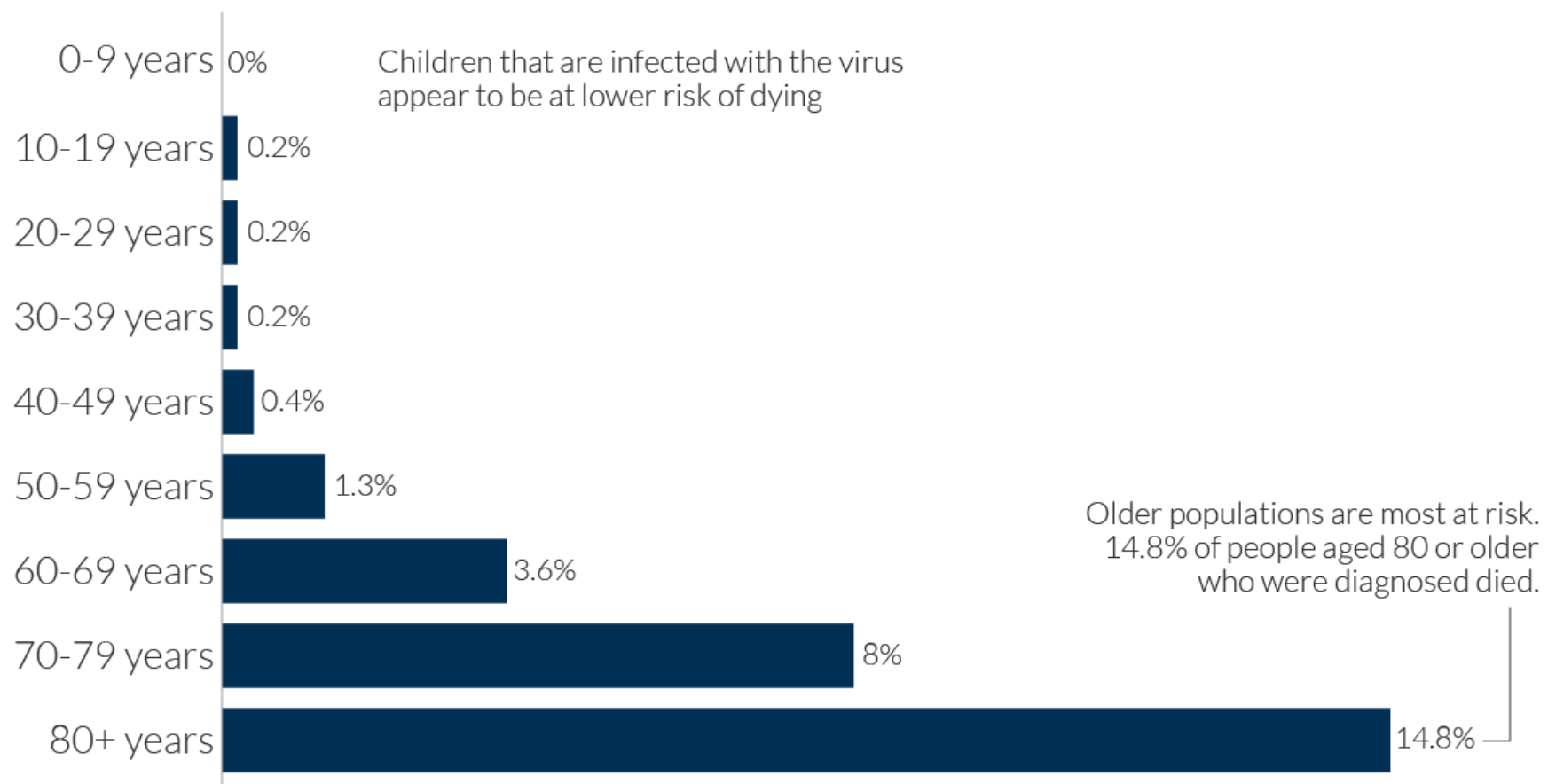
Coronavirus: early-stage case fatality rates by underlying health condition in China

Case fatality rate (CFR) is calculated by dividing the total number of deaths from a disease by the number of confirmed cases. Data is based on early-stage analysis of the COVID-19 outbreak in China in the period up to February 11, 2020.



Coronavirus: early-stage case fatality rates by age-group in China

Case fatality rate (CFR) is calculated by dividing the total number of deaths from a disease by the number of confirmed cases. Data is based on early-stage analysis of the COVID-19 outbreak in China in the period up to February 11, 2020.



Data source: 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.

Glucose control is key

- An ***important factor*** in ***any form of infection control*** in patients with diabetes seems to be whether a patient's **glucose levels** are well controlled or not.
 - ***Good glucose control, therefore, could be instrumental in reducing both the risk for & severity of infection of COVID 19***
 - ***Hyperglycemia can impair immune function by disrupting function of the white blood cells.***
 - ***Prior research indicates that with BGs >250, function of WBCs is impaired***
 - ***Viral infections, like the new coronavirus, increase inflammation, which also happens with above target blood sugar, contributing further to a higher risk for complications.***

Insulin/ Medication Rationing

- Patients who ration their insulin [or other meds] could find their level of precariousness increased by a significant degree. “For that margin of people who are running low and can’t afford to buy ahead, it [the virus] could be an issue,” the ADA said. “If they’re already rationing, then they certainly are moving into that higher risk category.” – ADA offer <https://insulinhelp.org/>
- We know even those who are not specifically rationing due to costs, take their meds as prescribed less than 50% of the time
- Encourage & assist patients to bring and maintain blood glucose below 250 mg/dl – may require increase in monitoring – offer phone or tele-assistance as needed and able

Best Scenario - Prevent Infection

The virus spreads through **droplets** that are produced when an infected person coughs or sneezes.

- Person to Person spread **through close contact** is the primary method of spread - advise to PWD:
 - If COVID-19 is spreading in your community, take extra measures to put **distance** between yourself and other people
 - Stay home as much as possible
 - Avoid all non-essential travel, especially air travel
 - Avoid crowds, especially in poorly ventilated spaces.
 - Your risk of exposure may increase in crowded, closed-in settings with little air circulation [drive-up outdoor delivery for foodbanks]
 - Practice social distancing – 6 feet or more
 - Avoid close contact with anyone with symptoms or known COVID 19
 - Close contact is defined as [a) being within 6 feet for at least 10 minutes or b) having direct contact with infectious secretions such as being coughed or sneezed on].

Best Scenario - Prevent Infection

Touching a surface covered in viral droplets & then touching your face can spread the virus (not primary means of spread)

- To the extent possible, avoid touching high-touch surfaces in public places (elevator buttons, door handles, handrails) or handshaking
 - Use a tissue or your sleeve to cover your hand or finger if you must touch something.
- Wash your hands after touching surfaces in public places.
 - Best option: Soap & water (soap damages the virus capsule, water temp not a factor) – at least 20 seconds – fingertips to wrist
 - If can't wash use hand sanitizer >60% alcohol x 20 sec
- Avoid touching eyes, nose, mouth (face)
- Clean & disinfect “high touch surfaces”
 - Tables, counters, rails, light switches, remotes, doorknobs, phone, etc.
 - Should remain wet 20-60 sec
 - CDC has list of disinfectants

Be sure Patients are Prepared

- For staying home / “shelter in place”
- For self-quarantine for suspected or known exposure
- For someone else within the home being infected
- For illness (suspected or confirmed COVID 19)

Be sure Patients are Prepared

- Advise to PWD → **Gather your supplies:**
 - Phone numbers of your doctors and healthcare team, your pharmacy and your insurance provider
 - List of medications and doses (including vitamins and supplements)
 - Simple carbs like regular soda, honey, jam, Jell-O, hard candies or popsicles to help keep your blood sugar up if you are at risk for lows and too ill to eat
 - Extra refills on your prescriptions so you do not have to leave the house [recommending 90 day of meds for refills]
 - If you can't get to the pharmacy, find out about having your medications delivered
 - Always have enough insulin for 2 weeks or more ahead
 - If you are struggling to pay for insulin or know someone who is, the ADA has resources to help—visit [InsulinHelp.org](https://www.insulinhelp.org)
 - Extra supplies like rubbing alcohol and soap to wash your hands
 - Glucagon and ketone strips, in case of lows and highs (esp T1DM)
 - Have enough household items and groceries on hand so that you will be prepared to stay at home for a period of time

Recommendation from ADA

- For people with underlying health conditions, including diabetes, healthy family **members in the household should conduct themselves as if they were a significant risk to them.**
 - For example, they should be sure to wash their hands before feeding or caring for them.
 - If possible, a protected space should be made available for vulnerable household members, and all utensils and surfaces should be cleaned regularly.
 - Consider providing additional protections or more intensive care for household members over 65 years old or with underlying health conditions

Self-monitoring/ quarantine

- Self-monitoring might include regularly checking your temperature and watching for signs of a respiratory illness, such as fever, cough or shortness of breath, according to the Centers for Disease Control and Prevention. It also involves limiting interaction with others.
- Self-quarantine is a step up from self-monitoring because the person at risk of infection — even though the person still doesn't have symptoms — had a higher chance of exposure.
- Quarantining means staying home and away from other people as much as possible for that 14-day period.
 - People in this circumstance who don't live alone should do their best to retreat to their room or find a separate area in their home, and they shouldn't go out shopping, eating or socializing.
 - "Don't sleep in the same bedroom [with other family members], and try to use a separate toilet, if you can," says Dr. Georges Benjamin, executive director of the American Public Health Association. "Be careful with dishes. They should go right from you into the dishwasher."
- If you are under a self-quarantine because of possible exposure and then develop a fever, a cough or shortness of breath, call your doctor, local hospital or public health department to find out what to do.
- For mild cases, physicians may direct you to stay home and treat your symptoms with over-the-counter fever reducers and other treatments.
 - Those with more serious symptoms and people in higher-risk groups may be directed to where to seek medical care.

Be sure Patients are Prepared

- **If Someone in household exposed or ill:**
 - Entire household needs to quarantine / isolate
 - Need to especially protect PWD
 - The exposed or sick person needs to be isolated in their own room, if possible, and keep the door closed.
 - Have only one family member care for them, and
 - Consider providing additional protections or more intensive care for household members over 65 years old or with underlying health conditions (diabetes, etc.)

Isolation in the home

- Household members should stay in another room or be **separated** from the patient as much as possible. Household members should use a separate bedroom and bathroom, if available.
- **Prohibit visitors** who do not have an essential need to be in the home.
- Household members should care for **any pets** in the home. Do not handle pets or other animals while sick. Washing hands after touching or having contact with animals will prevent the spread of many diseases.
- Make sure that shared spaces in the home have **good air flow**, such as by an air conditioner or an opened window, weather permitting.
- Perform **hand hygiene** frequently.
 - Wash hands often with soap and water for at least 20 seconds or use an alcohol-based hand sanitizer that contains 60 to 95% alcohol, covering all surfaces of your hands and rubbing them together until they feel dry. Soap and water should be used preferentially if hands are visibly dirty.
- **Avoid touching eyes, nose, and mouth with unwashed hands.**
- The patient should wear a **facemask** when around other people. If the patient is not able to wear a facemask (for example, because it causes trouble breathing), the caregiver, should wear a mask when in the same room as the patient.

Isolation in the home

- Wear a **disposable facemask and gloves** when you touch or **have contact with the patient's blood, stool, or body fluids**, such as saliva, sputum, nasal mucus, vomit, urine.
 - Throw out disposable facemasks and gloves after using them. Do not reuse.
- **Avoid sharing household items** with the patient. Do not share dishes, drinking glasses, cups, eating utensils, towels, bedding, or other items. After the patient uses these items, wash them thoroughly.
- **Clean all "high-touch" surfaces**, such as counters, tabletops, doorknobs, bathroom fixtures, toilets, phones, keyboards, tablets, and bedside tables, every day. Also, clean any surfaces that may have blood, stool, or body fluids on them.
 - Use a household cleaning spray or wipe, according to the label instructions.
- **Wash laundry thoroughly.**
 - Immediately remove and wash clothes or bedding that have blood, stool, or body fluids on them.
 - Wear disposable gloves while handling soiled items and keep soiled items away from your body. Clean your hands (with soap and water or an alcohol-based hand sanitizer) immediately after removing your gloves.
 - Read and follow directions on labels of laundry or clothing items and detergent. In general, using a normal laundry detergent according to washing machine instructions and dry thoroughly using the warmest temperatures recommended on the clothing label.

Active Infection --- concerns:

- Exacerbation of diabetes (blood sugar issues)
- Exacerbation of other chronic conditions (e.g. cardiac, respiratory, renal function)
- Worsening of COVID 19

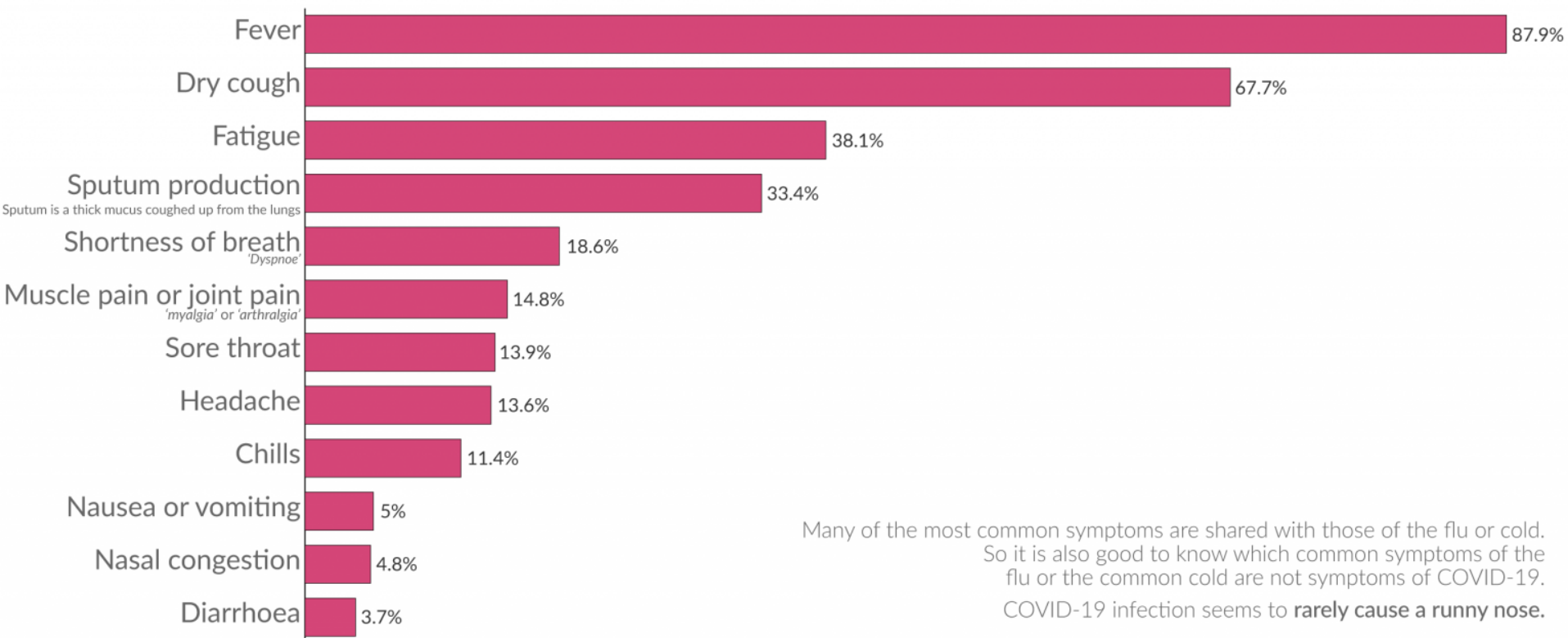
Active Infection --- Concerns:

- Onset of COVID 19
 - Signs and symptoms of COVID 19, including mild respiratory symptoms and fever, develop on an **average of 5-6 days** after infection (the incubation period can vary in a wide range of between 1 to 14 days)
 - Recently published research indicates that COVID-19 presents initially with mild symptoms in the first week, which includes **fever** (77%–98%), **dry cough** (46%–82%), **shortness of breath** (3%–1%), and myalgia or fatigue (11%–52%).
 - For patients with ***allergic symptoms*** such as cough and rhinitis, the **presence of fever** can be a helpful
 - If patients feel they are developing symptoms they should call their health care team -
 - Awareness for monitoring
 - Ensure proper isolation (see previous)
 - Criteria for testing

The symptoms of coronavirus disease [COVID-19]

Our World
in Data

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



Many of the most common symptoms are shared with those of the flu or cold.
So it is also good to know which common symptoms of the flu or the common cold are not symptoms of COVID-19.
COVID-19 infection seems to **rarely cause a runny nose.**

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.

If Infection --- Concerns:

- Worsening of COVID 19
 - The symptoms of the disease develop and change over time & often **worsen as enters second week** of infection
 - **Severe and critical cases** can lead to severe pneumonia, respiratory failure, septic shock, and multiple organ dysfunction or failure.
 - In adults, **emergency warning signs** include:
 - Difficulty breathing or shortness of breath
 - Persistent pain or pressure in the chest
 - New confusion or inability to arouse
 - Bluish lips or face
 - If develop emergency warning signs for COVID-19 get medical attention immediately – **call first** to notify Clinic or ED
 - If possible, wear mask into the facility

Coronavirus [COVID-19]: the severity of diagnosed cases in China

Descriptions of 44,415 confirmed cases of COVID-19 nationwide in China.

Included are confirmed cases in the early period of the outbreak of the disease up to February 11, 2020.

2.3% of all cases died

1,023 of the 44,415 infected people, for which the breakdown is shown on the right, died.

The *case fatality rate* is therefore 2.3%.

5% Critical cases

Critical cases include patients who suffered respiratory failure, septic shock, and/or multiple organ dysfunction/failure.

14% Severe cases

Severe cases include patients suffer from shortness of breath, respiratory frequency ≥ 30 /minute, blood oxygen saturation $\leq 93\%$, PaO₂/FiO₂ ratio < 300 , and/or lung infiltrates $> 50\%$ within 24–48 hours.

81% Mild cases

Mild cases include all patients without pneumonia or cases of mild pneumonia.

Cases that were not identified and not diagnosed

Data source: 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. Case counts: 36,160 mild cases; 6,168 severe cases; 2,087 critical cases.

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If Infection --- concerns:

- Worsening of diabetes (blood sugar issues)
 - Being ill can make it more difficult to manage diabetes.
 - Illness itself can increase insulin resistance and **raise blood glucose levels**.
 - People with diabetes, both type 1 and 2, have a higher risk for **diabetic ketoacidosis (DKA)** when ill with a viral infection — that can make it harder to avoid sepsis and septic shock (impaired immune function, electrolyte and fluid imbalance)
 - If a patient is severely short of breath, has severe malaise or is vomiting and is ***unable to eat and keep down fluids***, that can cause **glucose levels to fall** [occasional hypoglycemic response to illness]

If Infection --- concerns:

- Worsening of diabetes (blood sugar issues)
 - Illness itself can increase insulin resistance and **raise blood glucose levels** and people with diabetes, both type 1 and 2, have a higher risk for **diabetic ketoacidosis (DKA)** when ill with a viral infection
 - Joslin Diabetes Center in Boston advise patients who are feeling sick to **continue taking their diabetes medications**, unless instructed otherwise by their providers, and to **monitor their glucose more frequently** because it can spike suddenly.
 - Based on what we know about risk of DKA with ketogenic diet and surgical stress – likely best to suggest patients **stop SGLT2i if patient sick or needing to ration food**
 - if **patient on both insulin and SGLT2i**, and gets sick or needs to limit food due to shortage (and BG going low) --- **STOP the SGLT2i first** before reduce or stop insulin because if reduce/stop the insulin and not the SGLT2i then much higher risk for DKA during stress of illness or reduced carb intake

If Infection --- concerns:

- **Worsening of diabetes (blood sugar issues) – preventing high BGS /DKA**
 - Leading manufacturers report that COVID-19 has not impacted their current manufacturing and distribution capabilities for insulin and other supplies at this time (ADA) -ADA has resources to help—visit [InsulinHelp.org](https://www.insulinhelp.org)
 - NPH and Regular Insulin can be purchased with no prescription – Walmart lower cost (ADA – Medscape message) -
 - If need to add “sick day” insulin & instruct patients new to insulin – consider
 - Use pens, if possible, for simplicity
 - Tele-video visit to instruct and help monitor/adjust if possible
 - Phone call with you-tube to instruct (several available) & monitor/adjust
 - Car visit --- instructions provided from outside with patient/caregiver in car (window up except enough to hear) – then monitor by phone
 - If “clinic-visit” required (discouraged) --- try to do outdoors or open windows – create a 6 foot+ counter to teach across (and sanitize) – mask on the ill person or quarantined caregiver

If Infection --- concerns:

- **Worsening of diabetes (blood sugar issues) – preventing high BGS /DKA**
 - **Need for fluids / hydration**
 - Drink plenty of fluids - patients should be encouraged to have both non-sugary and sugary fluids at home, such as apple juice or sugary sodas. Water, electrolyte tablets and broth are good to have on hand. Patients need to have the option of consuming fluids, whether they have carbohydrates or not, as they need them. (ADA, Joslin)
 - If having trouble keeping water down, have small sips every 15 minutes or so throughout the day to avoid dehydration.
 - In T1DM [or longer duration T2DM] – if blood sugar has registered high (e.g. BG greater than 240-250 mg/dl) more than 2 times in a row, **check for ketones** to avoid DKA. (may need to modify level to call with)
 - Call your doctor's office immediately, if you have **medium or large ketones** (and if instructed to with trace or small ketones).
- Wash hands and clean **injection/infusion and finger-stick sites** with soap and water or rubbing alcohol.

If Infection --- concerns:

- **Worsening of diabetes (blood sugar issues) - hypoglycemia**
 - If a patient is severely short of breath, has severe malaise or is vomiting and is ***unable to eat and keep down fluids***, that can cause **glucose levels to fall** [occasional hypoglycemic response to illness]
 - Stop SGLT2i
 - May need to reduce or stop sulfonylureas
 - May need to reduce insulin
 - Glucagon rescue – sick day use
 - Rapid glucose
 - If low (blood sugar below 70 mg/dl or target range), eat 15 grams of simple carbs that are easy to digest like glucose tabs, honey, jam, Jell-O, hard candy, popsicles, juice or regular soda, and re-check blood sugar in 15 minutes to make sure levels are rising.
 - Check blood sugar extra times – instruct based on risk

Patients requiring hospitalization for COVID 19

- Very sick patients who are hospitalized should be managed with **insulin**
- oral agents – particularly metformin, sodium-glucose transporter 2 inhibitors, glipizide & pioglitazone– should be stopped.
 - Usually also stop the glucagon-like peptide receptor–1 analogues*
- Only insulin can be used for acutely sick patients – those with sepsis, severe breathing disorders, and definitely, if they are on a ventilator.

*study from Grady on GLP-1 RA in hospitalized patients – need to review before any recommendation related to COVID 19

- There are currently no drugs that have been approved specifically for the treatment of COVID-19, although a vaccine against the disease is currently under development and trials with remdesivir, and chloroquine.

Managing Through COVID 19

- Work with patients - Have a plan:
 - How often to check blood sugar
 - When to check for ketones (may need keto test strips)
 - Medications to use for symptom management
 - Acetaminophen (caution with CGM), cough suppressants
 - What about Ibuprofen / NSAIDs ?
- Any changes to diabetes medications
 - May need insulin increased or added to control BGs during infection
 - **Stop SGLT2 inhibitors** if sick or eating less (rationing food)
 - Especially important – if patient **on both insulin & SGLT2i** and sick and or low BGs – **STOP SGLT2i first** --- if stop or reduce insulin before stop SGLT2i then **increased risk of DKA**
 - If reduced food intake (sick or rationing), may need to reduce or stop sulfonylureas and/or insulin to avoid hypoglycemia –
 - Use of glucagon and sources of rapid glucose
 - What about ACEI/ARBs – statement from ACC

Acetaminophen

- Dr. Krutika Kuppalli, an infectious disease physician and fellow with the Johns Hopkins University Center for Health Security always tells her patients to **use Tylenol [acetaminophen] for fever "because its mechanism is thought to affect the temperature regulating center of the brain."**
- Dr. Angela Rogers, a pulmonologist at the Stanford University Medical Center and chair of its intensive care unit's COVID-19 task force, **notes that Tylenol is the go-to medication for patients who are sick enough to be hospitalized for any infection** [want to avoid damage to kidneys from NSIADs in very sick patients]
- Acetaminophen can cause serious ***liver damage in high doses***. ***In low doses, it is "very effective" for reducing fever and "very safe."***
- ***Be aware that some CGM sensors (Dexcom G5, Medtronic Enlite and Guardian) are impacted by Acetaminophen (Tylenol).***
 - *Check with finger sticks to ensure accuracy.*

Concerns about Ibuprofen/NSAIDS

- Social media has lit up with reports, picked up by some media outlets, that taking drugs like ibuprofen to ease COVID-19 symptoms could **worsen the progress of the illness** (French Health Ministry and some reports with other viral pneumonias)
- "Based on currently available information, **WHO does not recommend against the use of ibuprofen,**" the WHO stated on its official Twitter account, adding, "We are also consulting with physicians treating COVID-19 patients and are **not aware of reports of any negative effects of ibuprofen, beyond the *usual known side effects that limit its use in certain populations.***"
- Dr. Angela Rogers, a pulmonologist at the Stanford University Medical Center and chair of its intensive care unit's COVID-19 task force, notes that patients with COVID 19 are at higher risk of damage to internal organs, including kidneys. And ***kidney damage (AKI) can be a side effect of ibuprofen*** for some patients

Statement from ACC on ACEI & ARBs

- Patients with underlying cardiovascular diseases appear to have an increased risk for adverse outcomes with coronavirus disease 2019 (COVID-19). Although the clinical manifestations of COVID-19 are dominated by respiratory symptoms, some patients also may have severe cardiovascular damage.
- Angiotensin converting enzyme 2 (ACE2) receptors have been shown to be the entry point into human cells for SARS-CoV-2, the virus that causes COVID-19. In a few experimental studies with animal models, both angiotensin converting enzyme (ACE) inhibitors and angiotensin receptor blockers (ARBs) have been shown to upregulate ACE2 expression in the heart. This has resulted in a **speculation of potential increased risk for COVID-19 infection in patients with background treatment of these medications.**
- The role of ACE2 in the setting of COVID-19 infection in patients with cardiovascular disease is unclear. Furthermore, in experimental studies, **both ACE inhibitors and ARBs have been shown to reduce severe lung injury in certain viral pneumonias, and it has been speculated that these agents could be beneficial in COVID-19.**
- Currently there are **no experimental or clinical data demonstrating beneficial or adverse outcomes with background use of ACE inhibitors, ARBs or other RAAS antagonists in COVID-19 or among COVID-19 patients with a history of cardiovascular disease treated with such agents**
- **The HFSA, ACC, and AHA recommend continuation of RAAS antagonists for those patients who are currently prescribed such agents for indications for which these agents are known to be beneficial, such as heart failure, hypertension, or ischemic heart disease.**
- **In the event patients with cardiovascular disease are diagnosed with COVID-19, individualized treatment decisions should be made according to each patient's hemodynamic status and clinical presentation. Therefore, be advised not to add or remove any RAAS-related treatments, beyond actions based on standard clinical practice.**
- These theoretical concerns and findings of cardiovascular involvement with COVID-19 deserve much more detailed research, and quickly. As further research and developments related to this issue evolve, we will update these recommendations as needed.



DO Wash Your Hands

WASH YOUR HANDS OFTEN

20 seconds of vigorous scrubbing with soap and water will remove germs. This will help limit spreading it. You can also use alcohol sanitizer

DO Avoid Touching Your Face



LIMIT YOUR RISK AND EXPOSURE

Your skin is the first line of defense against germs, but germs can easily enter your body through your mouth, eyes, and nose and make you sick



DON'T Panic

STAY UPDATED ON THE LATEST DEVELOPMENTS

Get your information from: the Centers for Disease Control (CDC), World Health Organizations (WHO) & your Local Health Department.

DON'T Shake Hands



AVOID SPREADING GERMS

Try elbow bumping, waving, or the vulcan salute.



Wash your hands if you do have to make contact.



DO Practice Social Distancing

FLATTEN THE CURVE!

This is our best tool at the moment to stop the pandemic. Reduce your risk of getting and spreading the virus. You may actually have the virus without symptoms and spread it unknowingly. Avoid crowds and social gatherings.

DO Stay Home if Sick



IF YOUR SYMPTOMS ARE MILD, PLEASE STAY HOME

A mild cough or fever does not necessarily mean you have to be tested. Stay home and quarantine yourself until you are symptom free. Save the hospital and ER for the severely ill. If you have access to tele-medicine or can call/message your doctor, do that. If your symptoms get worse, seek medical advice.



**IF YOU HAVE MORE
SEVERE SYMPTOMS,
SEEK MEDICAL
ADVICE.**



DON'T Hoard Resources

WE ARE ALL IN THIS TOGETHER

Hoarding resources like toilet paper can worsen the crisis. Take necessary precautions but do not be excessive. Have a 2 week supply of food, water, & medicine. Help your community.

DON'T Steal Hospital Supplies!



SUPPLIES LIKE N95 MASKS AND GLOVES ARE INVALUABLE TO HEALTH CARE WORKERS

They need to protect themselves so they can take care of the sick. Otherwise, they are unable to work and contain the spread of disease. Hospitals need to be ready if the crisis worsens.



If you yourself get sick, you want the hospital to be fully supplied.

Tele-visits

- Consider doing diabetes care by remote (virtual) tele-visits – also suitable acute care & respiratory infection assessment
 - Reduces exposure to at risk patients, their families & to staff → fewer infected persons (**prevention**)
 - Keeps people healthier (vs abandoning diabetes and other chronic care) → reduces risk for need for clinic or ED visit for exacerbation of chronic condition & reduces risk of complicated disease if infected with COVID
 - Conserves PPE, testing supplies, HC workforce, hospital beds, etc. etc.
- Practices using doxy.me as secure tele-med option – there is free version
- Check with carriers
 - e.g. CO Medicaid will count landline phone call as tele-visit and pay same as clinic visit
 - Medicare has waved geographic & HIPPA requirements – allows face-time, skype -

Joslin Diabetes Center Letter to Patients

To our Joslin patients and their families:

We are writing to let you know that due to the rapidly evolving guidance regarding the novel coronavirus (COVID-19), we are shifting to a remote model of patient care with very limited in-person, “urgent care” appointments. We have made this decision in line with current Department of Public Health guidelines for preventing the transmission of COVID-19 to ensure the health and safety of our patients and their families.

Our **remote care model** with limited, in-person “urgent care” appointments means:

- Current and **future appointments will be conducted by telephone or video conference** with your Joslin provider at the scheduled date and time. The call from Joslin may come from an unfamiliar number; please answer if the call is at or near your appointment time.
- In-clinic appointments are limited to very urgent appointments which must be authorized by the Joslin provider
- Patients should not come into Joslin unless confirmed by their Joslin provider.
- We are still available for prescriptions and prior authorizations – we will make sure patients have access to medications and supplies.
- You may receive an outgoing phone or text message “cancelling” appointments which refer to in-person visits. If you have confirmed a remote visit, please assume that we have NOT cancelled remote visits.
- Please call Joslin with urgent matters during the day whenever possible and the on-call provider overnight and on weekends at 617-309-2400.
- As always, please call 9-1-1 for all medical emergencies.
- We will notify patients when a decision is made to open the clinic for routine clinical visits.

We understand that there is a lot of information regarding this situation, but please be assured that Joslin is doing everything possible to maintain continuity for your care.

Thank you.

Another group of people could be particularly vulnerable to Covid-19 and hasn't received as much attention: people who smoke, vape or have substance use disorders.

- However, "[T]he research community should be alert to the possibility that [Covid-19] could hit some populations with substance use disorders particularly hard," Because Covid-19 attacks the lungs, those who smoke tobacco or marijuana or who vape may be especially threatened", Dr. Nora Volkow, director of the National Institute on Drug Abuse wrote in a blog post published last week.
- "When someone's lungs are exposed to flu or other infections the adverse effects of smoking or vaping are much more serious than among people who do not smoke or vape," Stanton Glantz, professor of medicine and director of the Center for Tobacco Research Control & Education at University of California, San Francisco, wrote in a blog post updated Tuesday.

Vaping concerns:

- **"Vaping affects your lungs at every level. It affects the *immune function in your nasal cavity by affecting cilia which push foreign things out...[T]he ability of your upper airways to clear viruses is compromised,*"** Glantz (UCSF) said
- The CDC reported on Wednesday that young adults under age 44 make up a big part of Covid-19 hospitalizations in the US, and Glantz questions whether the vaping epidemic might have contributed to this.
- "Some of my pulmonary [colleagues] have noted people under 30 [with Covid-19] ending up in hospitals and a couple were vapors," Glantz said. However, he said, there hasn't been enough research or evidence to support whether there's a link.

Impaired Immune Function, not just lung damage

- Evidence suggests that smoking suppresses immune function in the lungs and triggers inflammation. There have been far fewer investigations of vaping, but preliminary research suggests it may do similar damage..
 - “For regular smoking, we know it inhibits the ciliary clearance of the airways,” - “We have these little [hairlike] structures known as cilia, and they are responsible for taking the toxins and the mucus out of our airways and clearing the lungs when we cough. We know that that is affected when you smoke and when you vape.”
 - Vaping may interfere with neutrophil function, some studies suggest. Scientists at Chapel Hill have shown that e-cigarette use **suppresses the activity of immune- and inflammatory-response genes in nasal cells—more so even than smoking.**
 - A preprint study found that the gene that encodes the receptor **ACE2, which the novel coronavirus uses to infect cells, is more active in smokers than nonsmokers.**

Much Higher Risk of Severe Illness

- People who smoke are generally at an increased risk of serious complications, such as acute respiratory distress syndrome, when they have a severe infection.
- The odds of a Covid-19 case becoming more severe -- and at the most extreme, leading to death -- were **14 times higher among people who had a history of smoking compared to those who did not smoke**, Glantz said, citing a study from China published in the peer-reviewed Chinese Medical Journal in February.

Tobacco Research Control & Education at University of California SF
– does **suggest people stop smoking or vaping to reduce their risk** --

Smoking or Vaping May Increase the Risk of a Severe Coronavirus Infection

Though few studies have investigated the connection specifically, cigarette smoke and vaping aerosol are linked to lung inflammation and lowered immune function

Scientific American By Tanya Lewis on March 17, 2020

- Smoking or vaping could make you more vulnerable to a severe infection with the novel coronavirus, some experts say.
- Although there have not been many studies investigating this link specifically, a wealth of evidence suggests that smoking suppresses immune function in the lungs and triggers inflammation. There have been far fewer investigations of vaping, but preliminary research suggests it may do similar damage. And both long-term smokers and e-cigarette users are at a heightened risk of developing chronic lung conditions, which have been associated with more severe cases of COVID-19, as the disease caused by the new virus is called. Scientists say it therefore seems reasonable to assume that smoking—and possibly vaping—could increase the risk of developing a serious infection from the coronavirus.
- “All these things make me believe that we are going to have more severe cases—especially [in] people who are [long-term] smokers or vapers,” says Melodi Pirzada, chief of pediatric pulmonology at NYU Winthrop Hospital on Long Island.* She has not treated COVID-19 patients herself, “but it is definitely common sense to think that once you have a history of smoking or vaping, the whole airways, the defense mechanism of your lungs—everything changes,” she says.