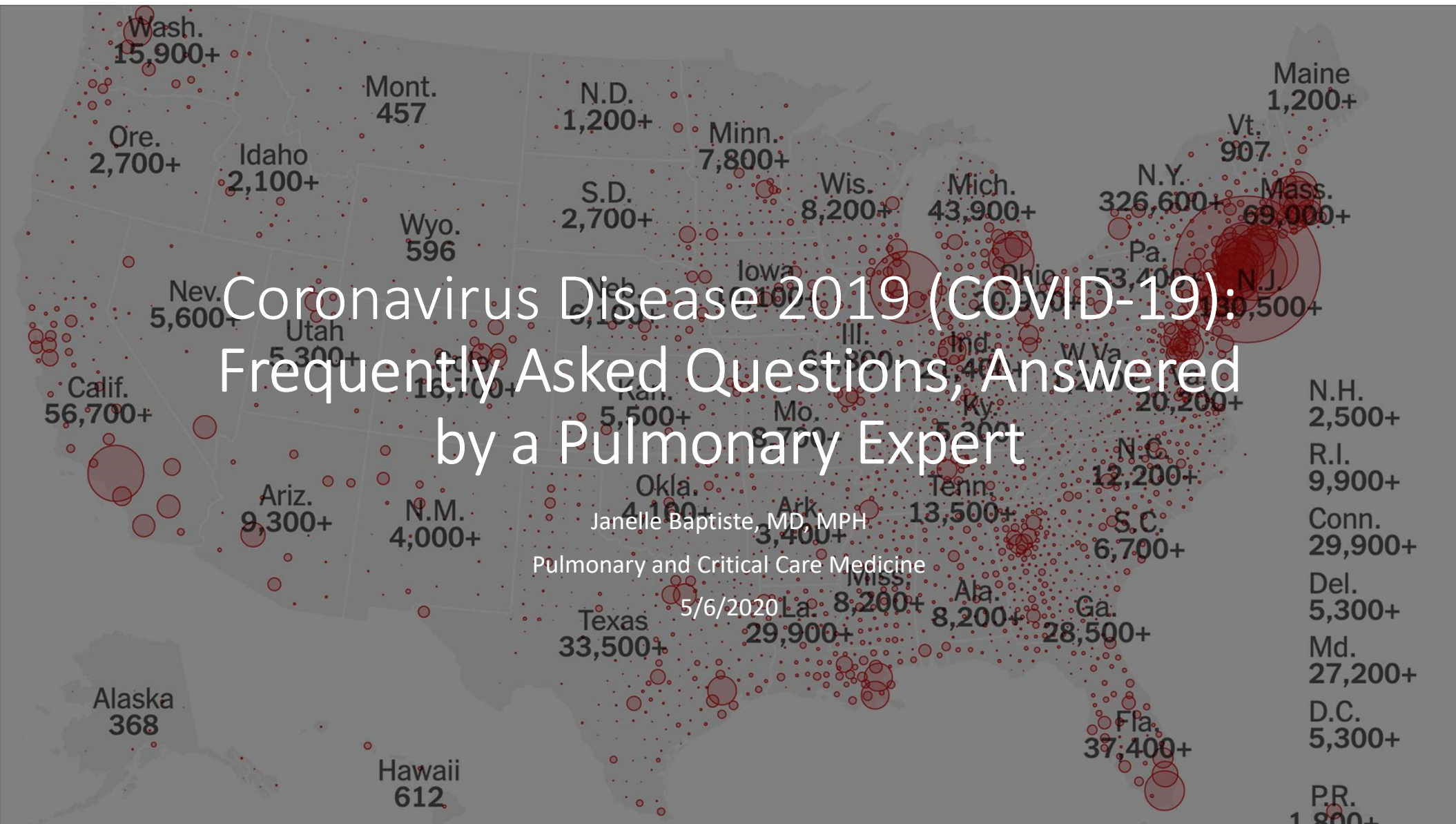


Coronavirus Disease 2019 (COVID-19): Frequently Asked Questions, Answered by a Pulmonary Expert

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What is COVID-19?


- A **Disease** caused by a **VIRUS**
 - Viruses are NOT treated by antibiotics
 - E.g. Flu/Influenza, Common cold/runny nose, sore throat (except Strep)
- **SARS-CoV-2** is the virus causing COVID-19
 - Seventh coronavirus to affect humans
 - Discovered in December 2019, and is a NEW coronavirus
 - Genetically different from SARS-CoV (no longer circulating) and MERS-CoV (still circulates sporadically in Arabian Peninsula)
 - Zoonotic virus: virus which has moved from animals in nature to humans
- 3/11/2020: World Health Organization (WHO) characterized the spread of COVID-19 as a **PANDEMIC**



How does COVID-19 spread?

- **Person to Person**
- **RESPIRATORY LIQUID DROPLET TRANSMISSION**
 - **Liquid droplets** containing the SARS-COV-2 virus
 - Droplets are released when an infected person coughs, sneezes, clears the throat, or talks
 - These droplets travel from the nose or mouth of the infected person and can land in the mouth, nose or eyes of an uninfected person.
 - Droplets can be inhaled if within six feet (two arm lengths) and in excess of 10 minutes of an infected person.
 - Touching surfaces that a droplet has fallen onto, and then touching the mouth, nose, or eyes
 - **PRESYMPTOMATIC transmission:** infected person showing no symptoms releases droplets when talking or clearing throat
- **FECAL –ORAL TRANSMISSION**
 - Virus is shed in feces, or replicates in intestines
 - Unclear if from contact with stool, or from touching contaminated surfaces
 - Unclear if eating virus contaminated food causes infection
- **Unknown or Limited Evidence:**
 - Aerosol transmission : virus particles remain suspended in the air for a long period of time
 - Vertical transmission: from mother to baby immediately before and after birth
 - Effect of temperature and humidity on transmission

How long can COVID-19 virus live on common surfaces?

SURFACE		LIFESPAN OF COVID-19	
	Air	3 hours	<div></div>
	Copper	4 hours	<div></div>
	Cardboard	24 hours	<div></div>
	Stainless Steel	2–3 days	<div></div>
	Polypropylene plastic	3 days	<div></div>

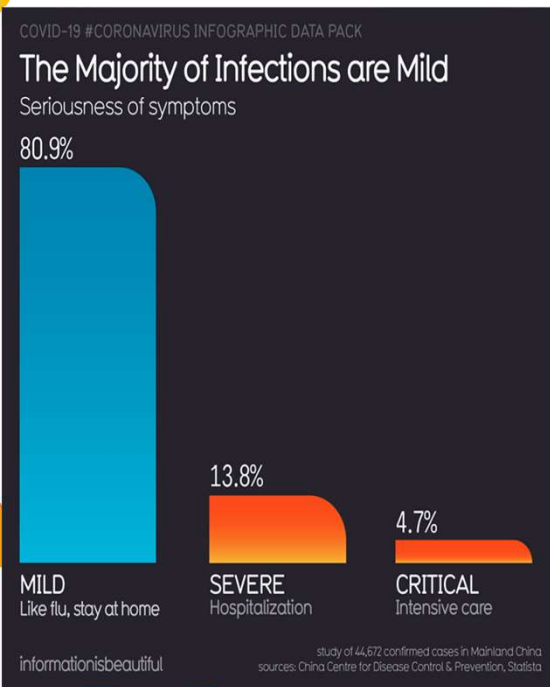
*At 69.8 to 73.4°F (21 to 23 °C) and 40% relative humidity

Source: New England Journal of Medicine

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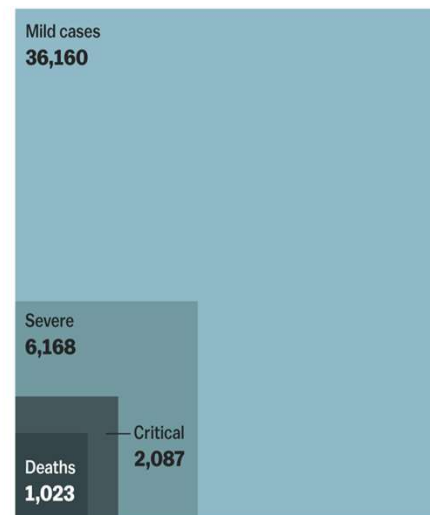
Nebulizer to stimulate coughing and sneezing, and found that the virus became an aerosol

What are the symptoms of COVID-19?



Covid-19 cases in mainland China

As of February 11, 2020



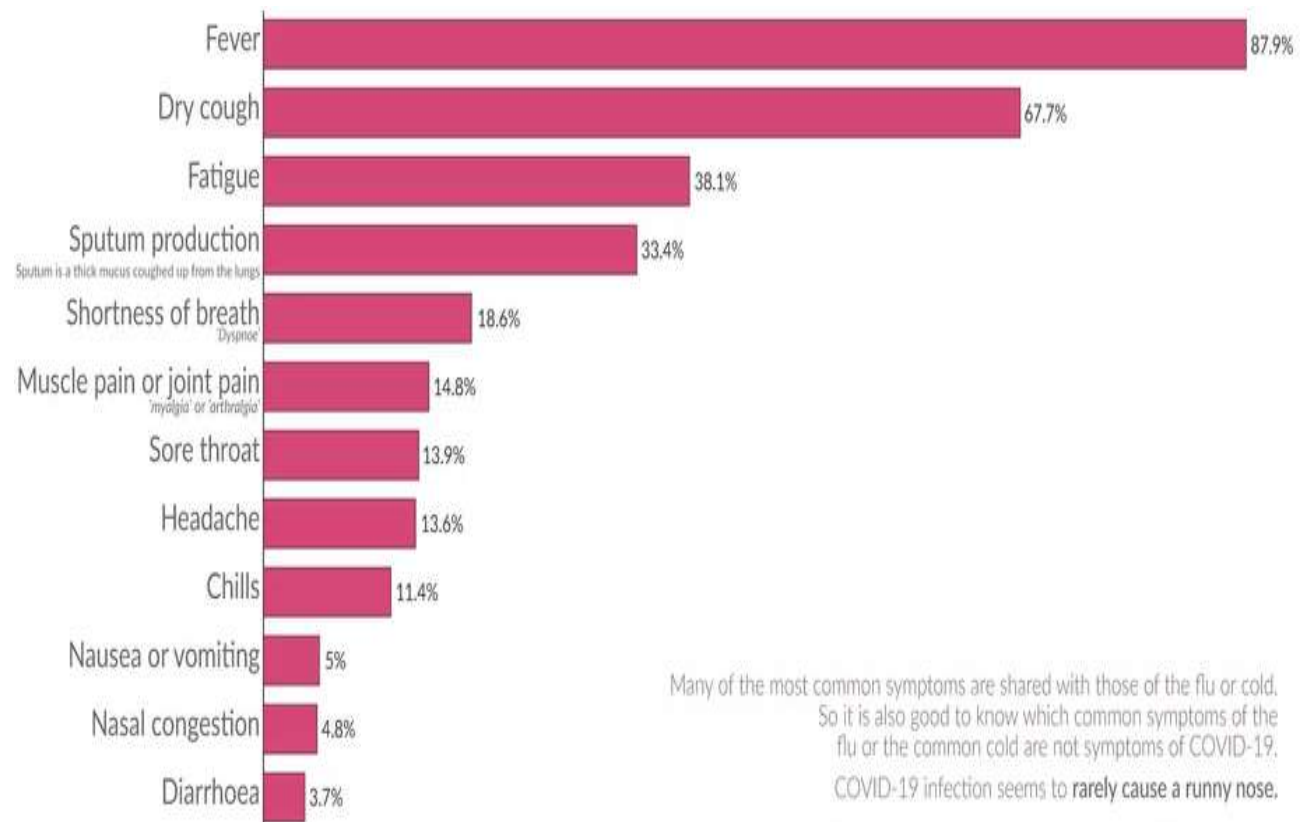
Source: The Epidemiological Characteristics of an Outbreak of 2019 Novel Coronavirus (COVID-19) – China, 2020, China CDC

Vox

- **Most** symptoms are **MILD**
- Only a **small subset** of patients hospitalized with COVID-19 have critical illness and **require the intensive care unit (ICU)**.

What are the clinical symptoms of COVID-19?

- Symptoms can present as early as 5.1 days but up to 14 days after the exposure
- Patients are most infectious or contagious early in the disease course



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.

Do I have COVID-19 based on my symptoms?

COVID-19 compared to other common conditions				
SYMPTOM	COVID-19	COMMON COLD	FLU	ALLERGIES
Fever	Common	Rare	Common	Sometimes
Dry cough	Common	Mild	Common	Sometimes
Shortness of breath	Common	No	No	Common
Headaches	Sometimes	Rare	Common	Sometimes
Aches and pains	Sometimes	Common	Common	No
Sore throat	Sometimes	Common	Common	No
Fatigue	Sometimes	Sometimes	Common	Sometimes
Diarrhea	Rare	No	Sometimes*	No
Runny nose	Rare	Common	Sometimes	Common
Sneezing	No	Common	No	Common

*Sometimes for children

Sources: CDC, WHO, American College of Allergy, Asthma and Immunology

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Who is most at risk for severe illness from COVID-19?

- Older patients (>60 years)
- Diabetes mellitus patients
 - Higher risk of contracting the virus, developing severe respiratory symptoms, and dying from the disease
 - Risk is equal for both type I and type II diabetics
 - There is an association with severe COVID19, but the causal link is unknown
- Patients with preexisting heart and lung disease
 - Hypertension, coronary artery disease , heart failure, asthma, COPD/emphysema,
- Severe disease is NOT more common in pregnancy

Why does COVID-19 hit some areas harder than others?

- New York, Boston, Charlotte, Chicago and Navajo Nation
 - **Elmhurst and Corona, in Queens NY** and **East Boston, Mattapan and Dorchester MA**
 - Large immigrant populations and low average income populations

The high incidence is being driven by several factors:

- **Density:**
 - Chelsea > 22000 people/square mile, >3x higher rate of infection than Boston
 - Somerville and Cambridge greater density, higher per capita income, lower infection rates
- **Employment in essential jobs:** unable to work from home, increase exposure through work
- **Multigenerational households:** elders living with adult children who must leave the home to work
- **Language:** large non-English speaking population, modifies health outcomes, worse access to health care
- **Healthcare avoidance:** undocumented patients who fear legal repercussions, more severe disease on presentation, or go untested due to distrust of the medical community
- **Air Pollution:** data to suggest increased air pollution correlated to increase mortality, highest in Greater Boston and NYC
- Data is on **Infection with SARS-CoV-2** , data on mortality is not complete

What if I have symptoms of COVID-19?

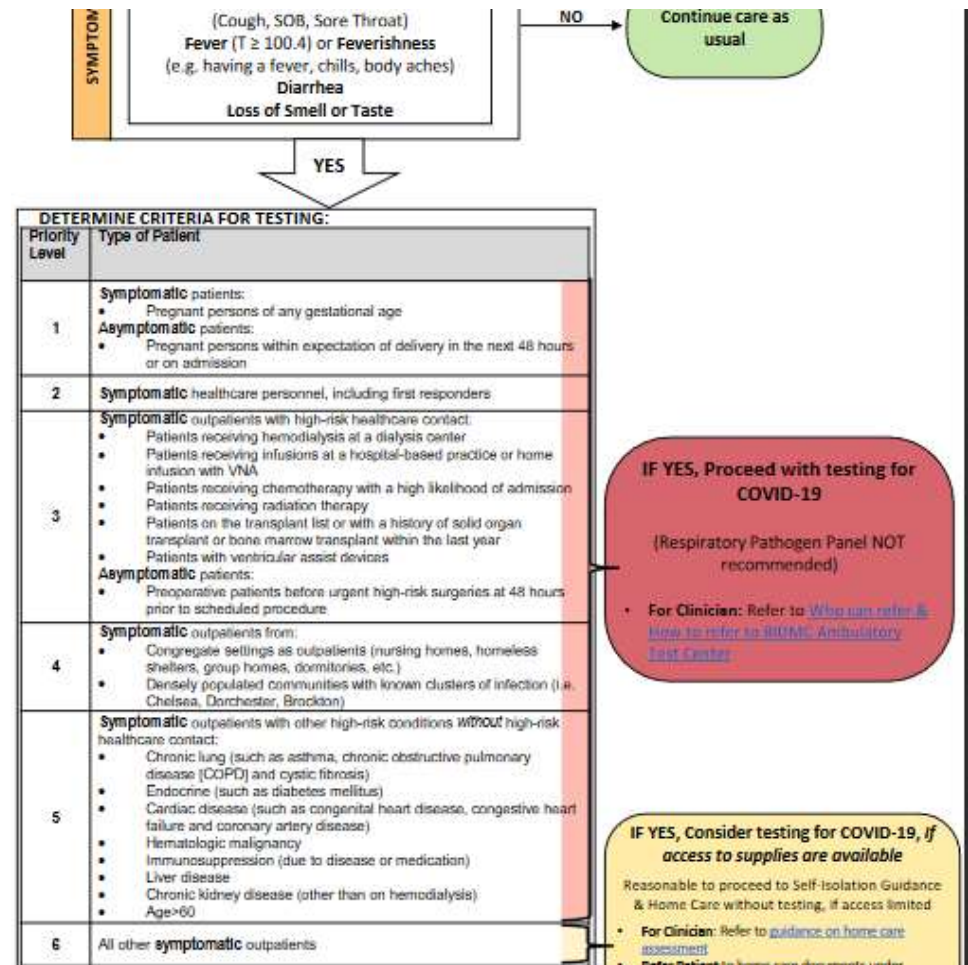
- Self isolation
 - Separation of an infected person from those who are not infected
 - Separate rooms, no sharing of bedding or eating utensils, avoid elevators
 - If unable to self isolate, recommend disinfecting all touched surfaces, disposing of tissues in trash, wear a mask, frequently wash or sanitize your hands
- Call you primary care physician
- Self monitoring:
 - Take temperature twice a day, remain alert for cough and shortness of breath
 - Temperature >100, prompt a call to the primary care doctor
 - Limit use of antipyretics like Tylenol during this time
 - Active monitoring by Dept. of Public Health – certain occupation groups , like health care workers
- Not all persons with symptoms need to be tested
 - Reasonable to continue with self isolation, self monitoring, and home care especially if access to testing is limited

What if I have no symptoms, but have a known exposure to COVID-19?

- A known exposure is defined as
 - contact with someone with proven COVID-19
 - travel to an area with widespread community transmission
- Quarantine
 - Separation of the person believed to have been exposed and not yet symptomatic
 - Stay home and 14-day mandated furlough from work or school
 - Maintain 6 feet (2 meters) from other persons
- Self-observation
 - Remain alert for cough, difficulty breathing and shortness of breath
 - Contact your primary care physician if develop symptoms
- Little guidance on testing of patients without symptoms



Algorithms used to determine who gets tested are both complicated and based on availability of testing swabs



How will they test for COVID-19?

- Nasopharyngeal swab is inserted into the nostril
- The swab is left in place for several seconds, or rotated for a few seconds
- The swab is slowly removed while rotating it
- Reporting of results, varies by testing center



Take Home Points

- COVID-19 is the disease caused by SARS-CoV-2 virus
- SARS-CoV-2 is primarily transmitted from person-to-person via liquid droplets
- SARS-CoV-2 survival varies from hours in the air to days on some surfaces
- Symptoms are generally mild and can be managed at home
- Age > 60, and certain comorbidities increases the risk for severe infection
- All communities are not equally affected by SARS-CoV-2 virus
- Physical distancing, monitoring of symptoms, and proper hand and home hygiene are key to management of COVID-19.

What about antibody testing?

- The role of antibody testing is to **determine whether there is immunity after becoming infected** and **whether a future vaccine may be effective**.
- 5/5/2020 : FDA issues an emergency use authorization of an antibody test by Roche
- **Many unknowns** to antibody testing :
 - Do not know if the antibodies evaluated by the test neutralize the virus
 - Do not know if we prove protective immunity through testing, how long that immunity will last
 - Do not know if the antibody tests are specific for SARS-CoV-2 virus only
- If there is protective immunity, that is shown to decrease over time, we will need a **vaccine** to protect both uninfected individuals and survivors of COVID -19
- **Complete antibody assessment of patients with severe COVID-19 is needed to fully understand the concept of immunity**