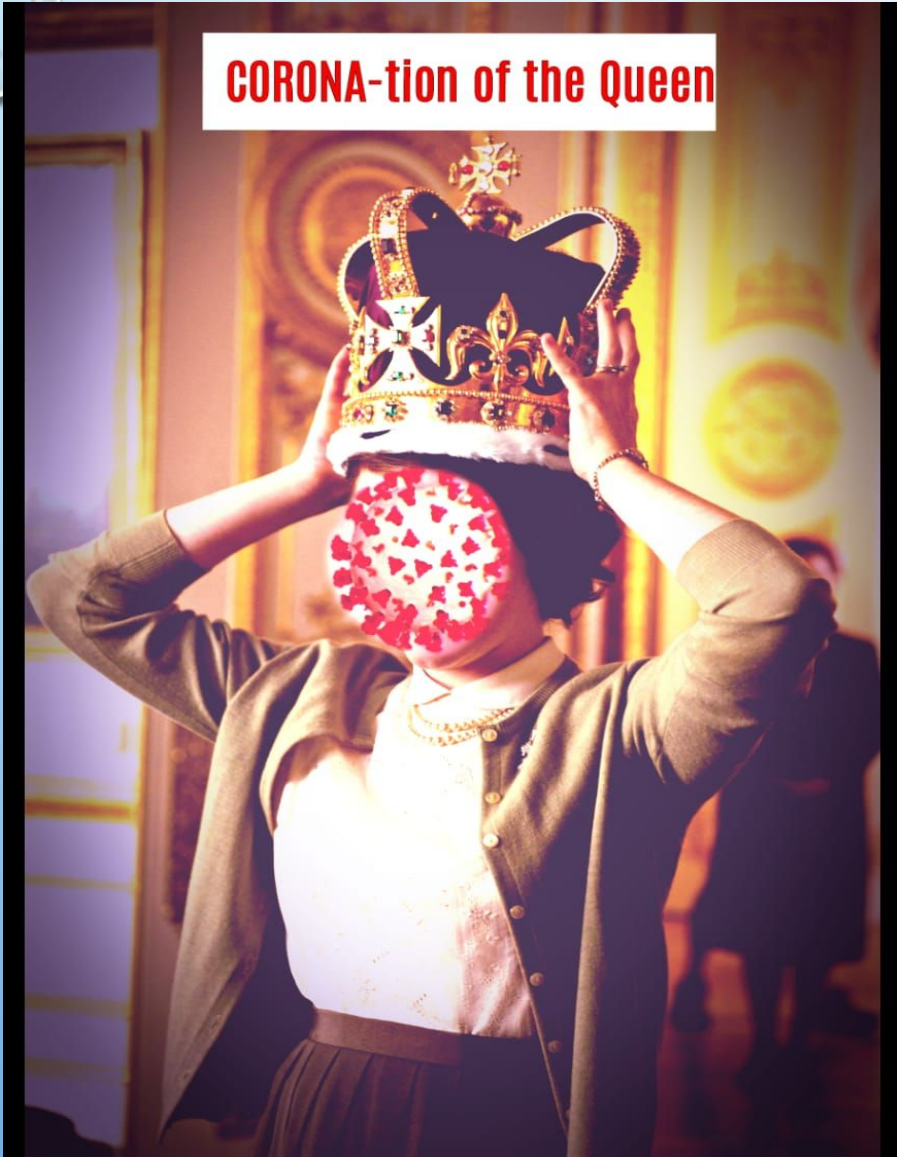


# COVID-19

- BY DHANRAJAN THAMARAI ANTO SWARNA DHARSHINI
- GROUP: LA2-CO-173(2)

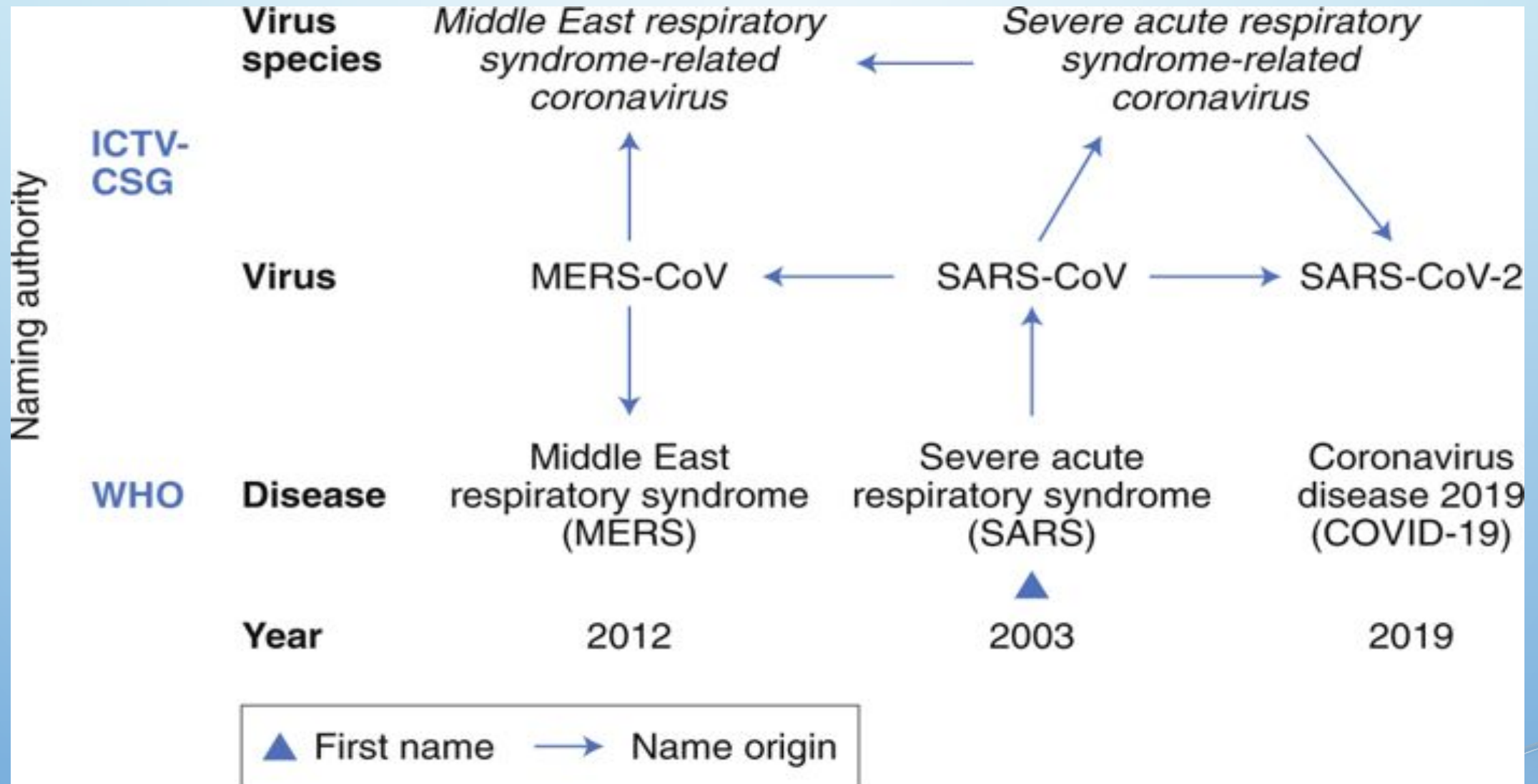
# WHAT IS CORONAVIRUS ?? WHY IS IT CALLED SOO????

## CORONA-tion of the Queen



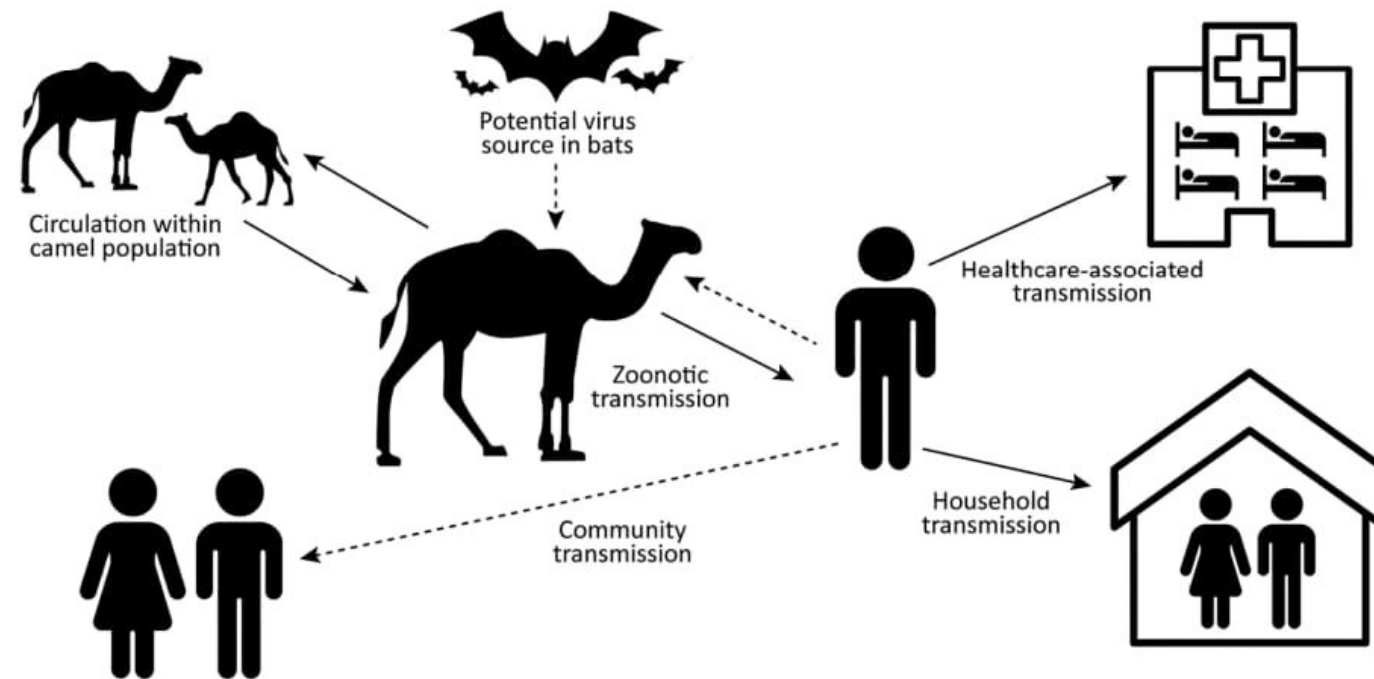
1. Coronaviruses have extraordinarily large single-stranded RNA genomes .
2. Coronavirus particles are surrounded by a fatty outer layer called an envelope and usually appear spherical, as seen under an electron microscope, with a crown or “corona” of club-shaped spikes on their surface.
3. **Coronaviruses** are a group of related viruses that cause diseases in mammals and birds. In humans, coronaviruses cause respiratory tract infections that can be mild, such as some cases of the common cold (among other possible causes, predominantly rhinoviruses), and others that can be lethal, such as SARS, MERS, and COVID-19.

# CORONA VIRUS - SUBFAMILY AND DISEASE CAUSED BY THEM



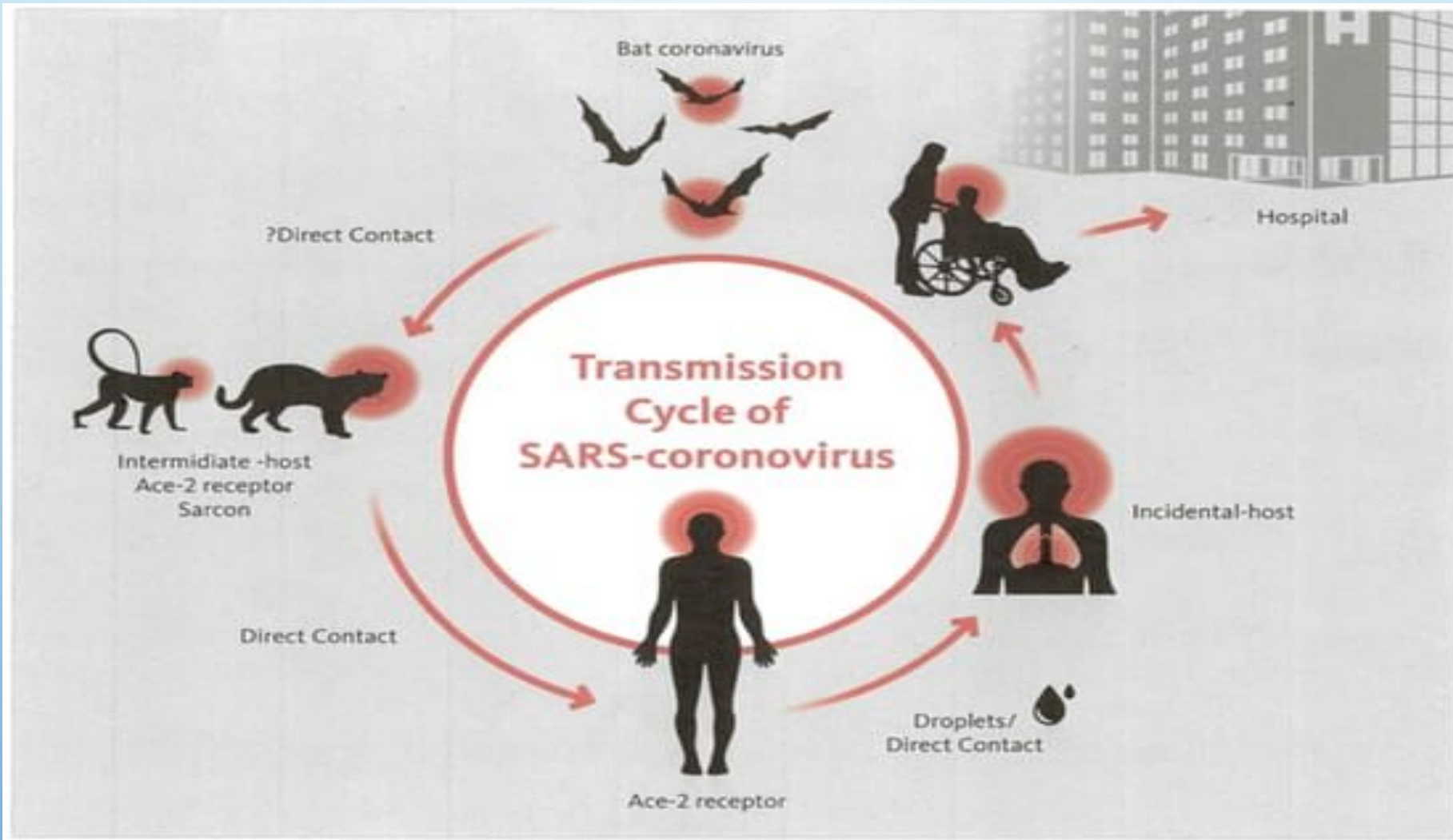
# MODE OF TRANSMISSION OF MERS

## PERSPECTIVE



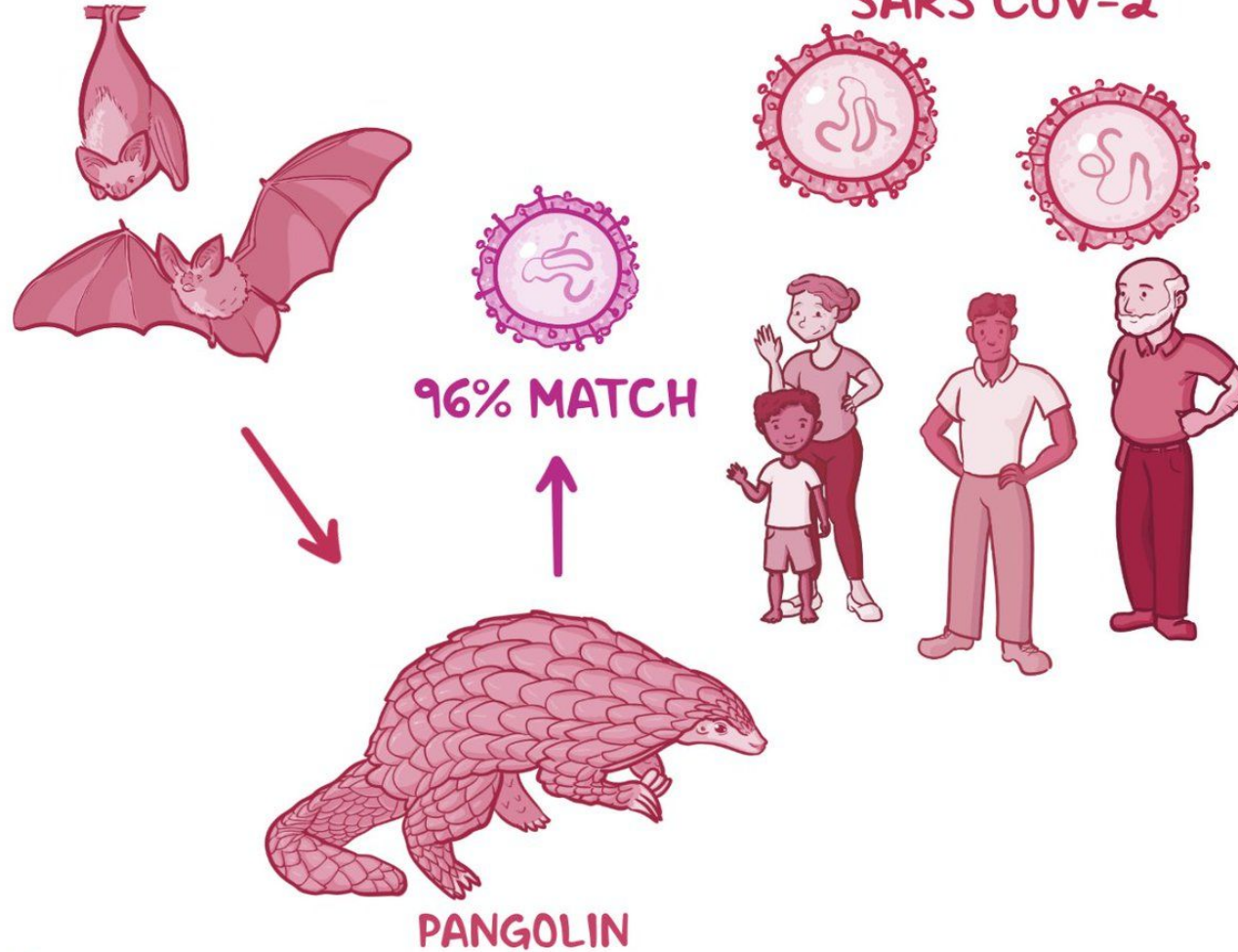


# MODE OF TRANSMISSION OF SARS



# COVID-19

SARS COV-2





# COVID -19 pandemic

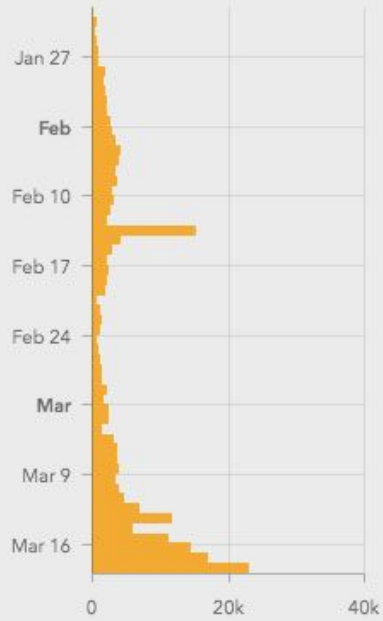


## Novel Coronavirus (COVID-19) Situation

**207,860**  
confirmed cases

**8,657**  
deaths

**166**  
countries, areas or territories with cases



Last updated: 3/18/2020 18:00 CET



\*Confirmed cases reported between 13 and 19 February 2020 include both laboratory-confirmed and clinically diagnosed (only applicable to Hubei province); for all

Data source: WHO, National Health Commission of the People's

### Countries, areas or territories with cases

China :81174 cases
Italy :35713 cases
Iran (Islamic Republic of) :17361 cases
Spain :13716 cases
Republic of Korea :8413 cases
Germany :8198 cases
France :7652 cases
United States of America :7087 cases
Switzerland :3003 cases
The United Kingdom :2626 cases
Netherlands :2051 cases
Austria :1646 cases
Belgium :1486 cases
Norway :1423 cases
Sweden :1279 cases
Denmark :1044 cases
Japan :873 cases
International conveyance (Diamond Princess) :712 cases
Malaysia :673 cases

# ETIOLOGY OF COVID-19

Wet markets put people and live and dead animals — dogs, chickens, pigs, snakes, civets, and more — in constant close contact. That makes it easy for zoonotic diseases to jump from animals to humans. Global wildlife trade.

One of the most common cause of mutation and emergence of new virus is because of animals cages are stacked one over another . So that animals at the bottom cage are soaked with excrement, pus, blood received from animal above.

- Not the product of laboratory engineering.
- It is a result of "NATURAL EVOLUTION"

BECAUSE :

1. Researchers compared the genome of this novel coronavirus with other coronavirus and found that novel coronavirus originated through NATURAL PROCESS.



2. Coronavirus uses spike proteins to bind to host cell and infect them in order to bind to human cell spike proteins need a receptor on human cell (ACE2).
3. Novel coronavirus is so effective at binding to this receptor. It implies the natural selection of virus instead of being engineered in lab.

### BASED ON DECISION OF GOVERNMENT

Back in 1970s after independence china faced tragic food scarcity that killed more than 36 million people. Communist regime which controlled all food production , was failing to feed its people.

In 1978 regime gave up the food control and allowed private farming.

Due to law of china which designate wildlife as **NATURAL RESOURCE** .

( i.e it allows people to utilize wildlife resource which helped them to feed and sustain . so Chinese government backed it. Nowadays that emerged as large scale wildlife farming)





Vendor prepares a frog for sale in a Wuhan street market

Improvised table for cutting meat

Live frogs for sale

Fish and frog remains

Frog being slaughtered for client

Nylon industrial gloves

Unwashed buckets

Dirty scale



# THE CHANGES IN CHINA'S DIETARY PATTERNS MIRROR THE FIVE STAGES OF THE NUTRITION TRANSITION PROPOSED BY POPKIN

## STAGE1

- FIRST, FAMINE RECEDED FROM CHINA'S INDEPENDENCE IN 1949 TO 1957.
- AFTER 1949 THE ECONOMY BEGAN TO RECOVER, AND THE FOOD SUPPLY BEGAN TO INCREASE.
- LIMITED BY INFERIOR AGRICULTURAL TECHNOLOGY AND POOR LAND RESOURCES, FOOD PRODUCTION STILL WAS NOT ADEQUATE TO FEED THE QUICKLY GROWING POPULATION.

## STAGE2

- IN THE SECOND STAGE, FROM 1958 TO 1962, THE MOST SERIOUS NATURAL DISASTER IN THE COUNTRY'S HISTORY.
- DURING THIS PERIOD CEREAL INTAKE DECREASED BY 18.9%, ANIMAL-SOURCE FOOD INTAKE BY 42.1%, AND EDIBLE OIL INTAKE BY 55.2%

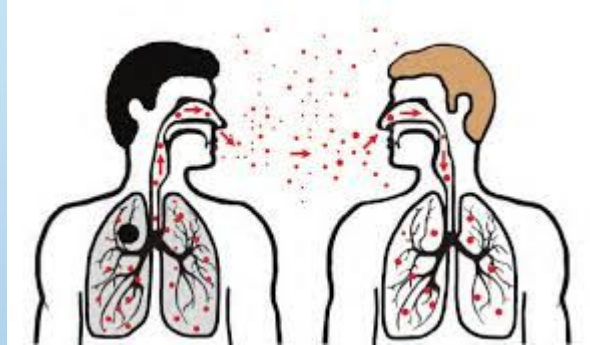
## STAGE3

- THE THIRD STAGE WAS A STRONG RECOVERY BETWEEN 1962 AND 1978.
- THE ECONOMY IMPROVED SLOWLY.
- DURING THIS PERIOD INTAKE OF CEREALS INCREASED BY 25.8%, AND INTAKE OF ANIMAL-SOURCE FOODS AND EDIBLE OIL DOUBLED.



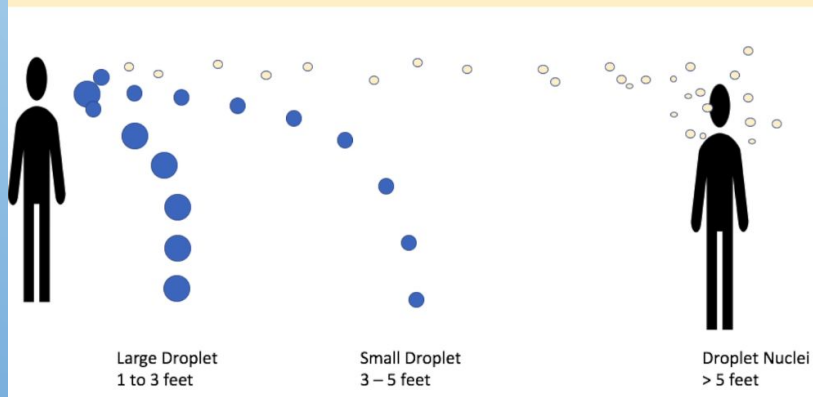
# PATHOGENESIS:

Begins with transmission:  
**Droplets**

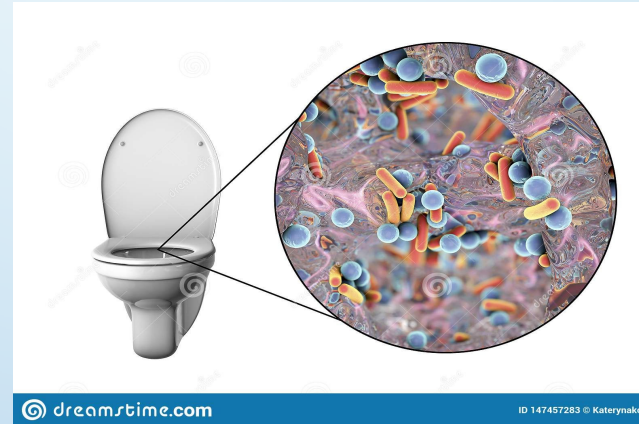


**Airborne Transmission**

Airborne Precautions



**Fecal-Oral Transmission**



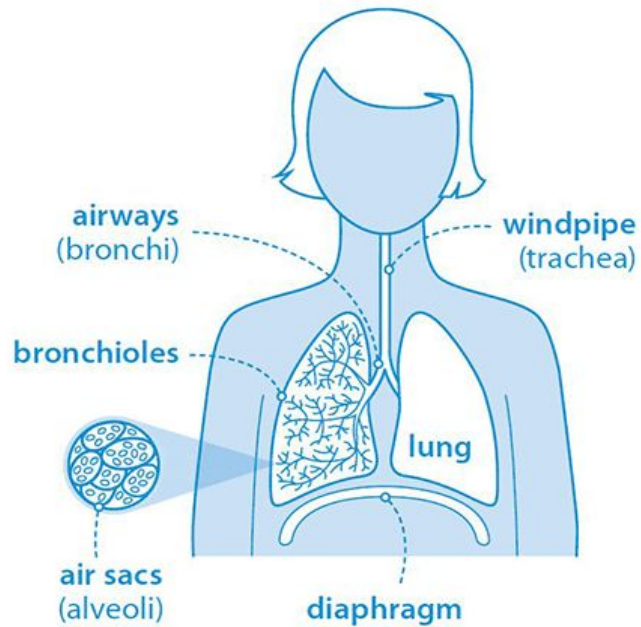
**Community Spread**



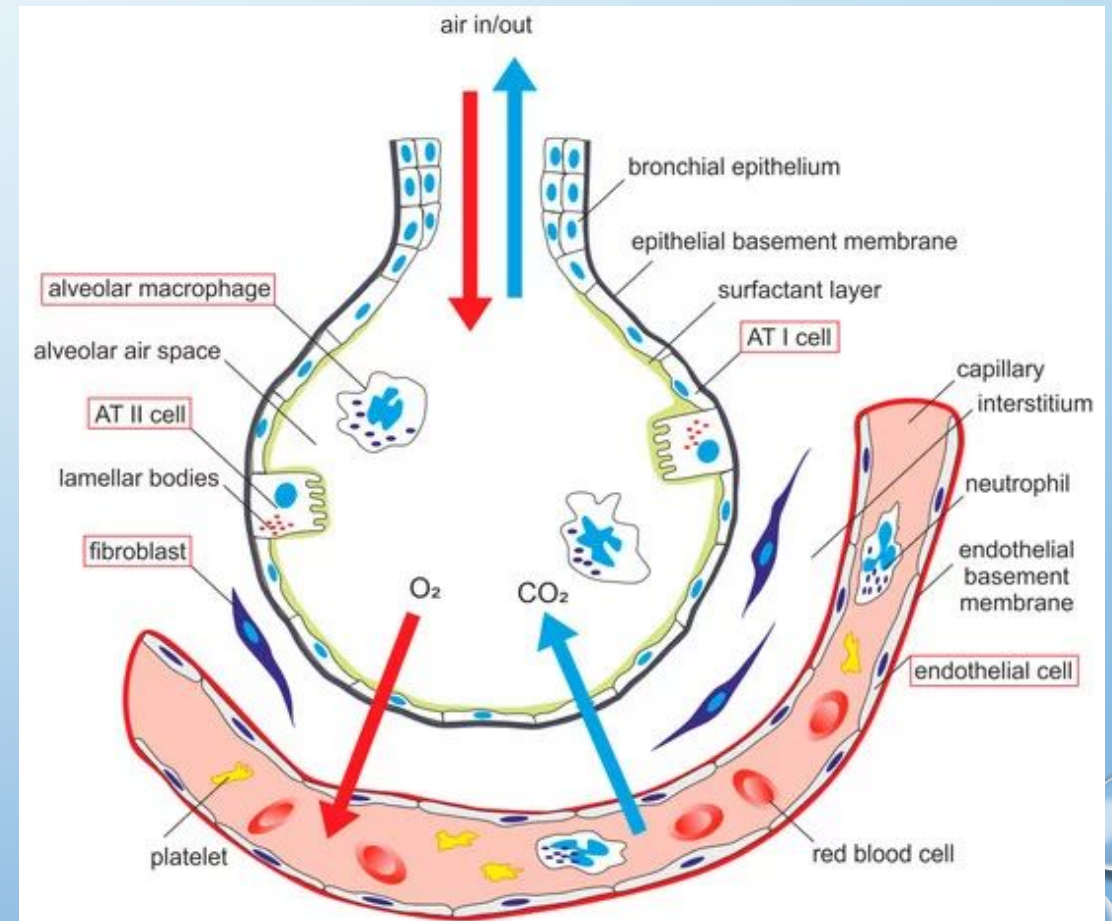
**Surface Transmission**



1. Virus gets into resp. tract and attacks alveoli.



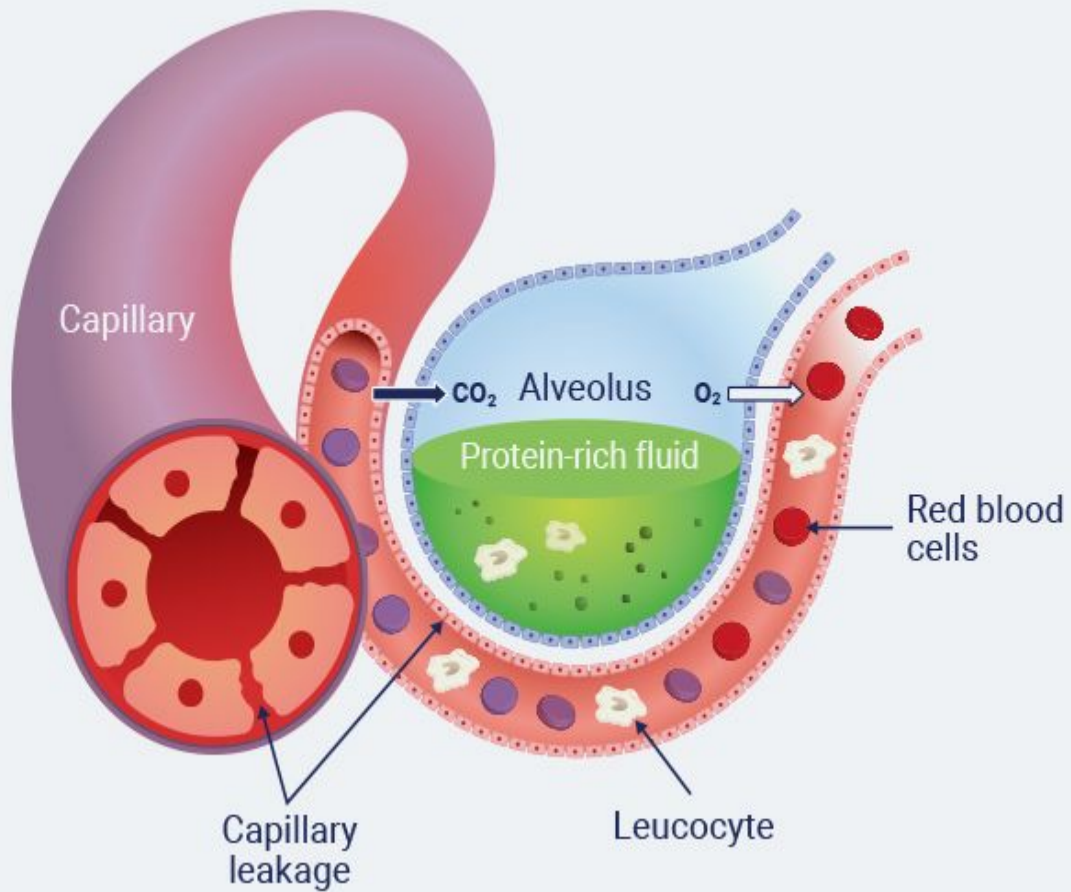
2. S-spike of virus bind to specific receptor(ACE-2) on type 2 pneumocytes. Receptor helps to engulf virus into cell. And replicates inside it .











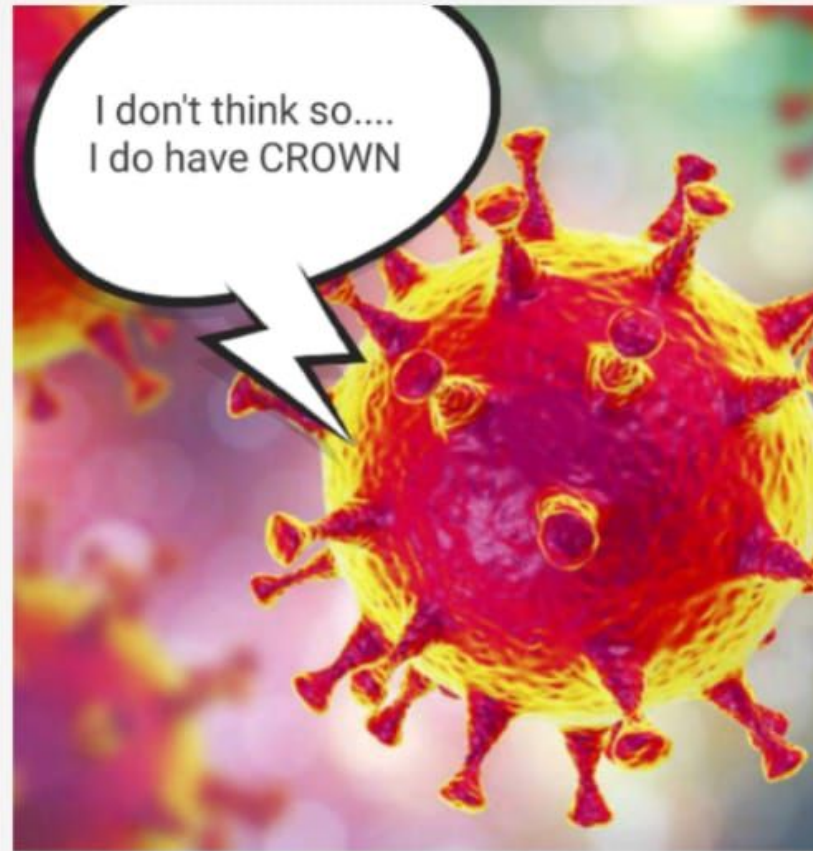
5. Which causes:

Endothelial cells to dilate, increases capillary permeability that causes interstitial edema and alveolar edema.

Affects the surfactant production

Alveolar collapse ↓ gas exchange,  
dyspnea, hypoxemia.

Ultimately causes  
ARDS



  
**STAY  
SAFE  
&  
THANK  
YOU**