



COVID-19 Epidemics

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(Ex Minister of Health, Taiwan/ Ex Director General of CDC, Taiwan)



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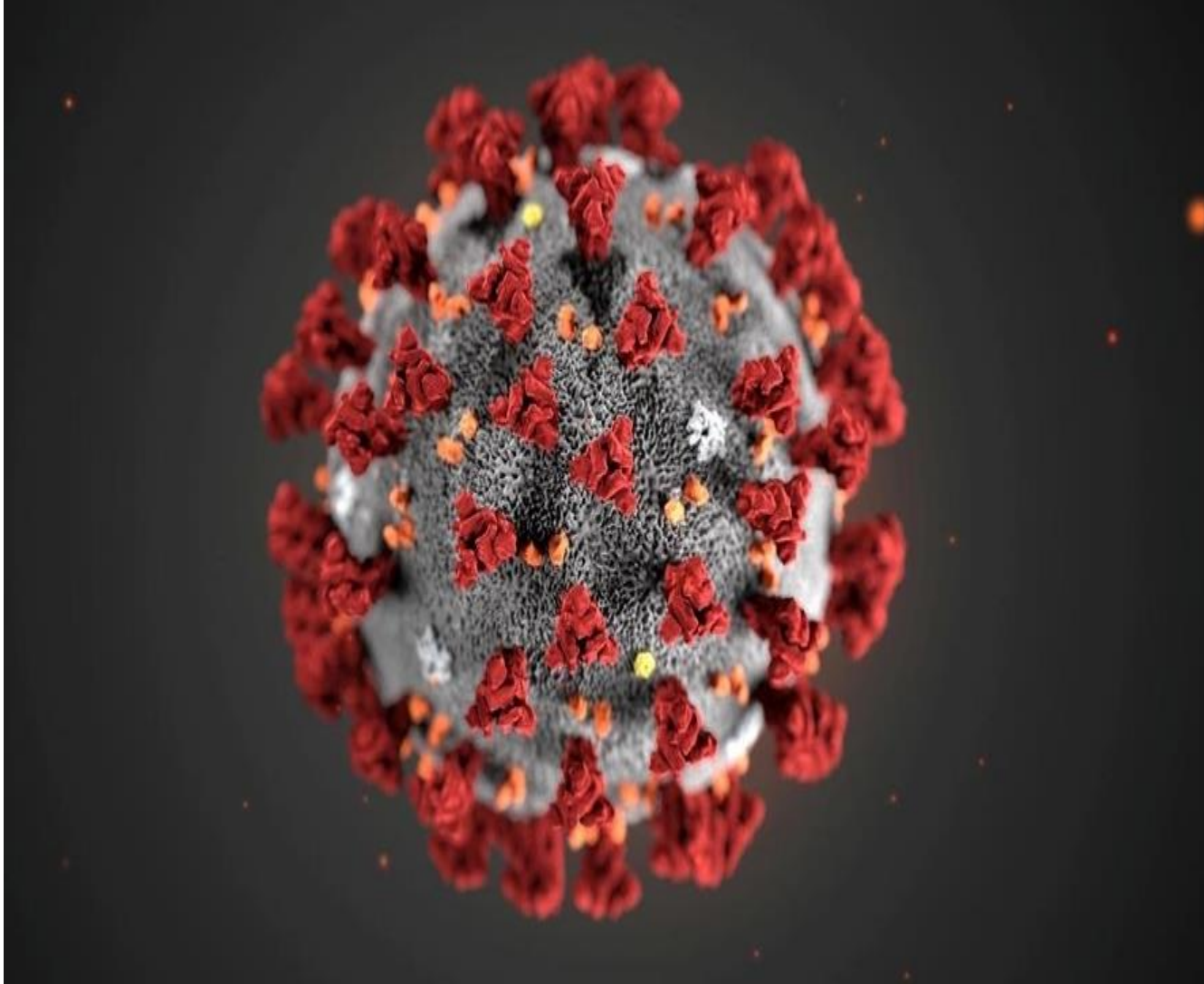
1. The Spread of Wuhan Pneumonia (COVID-19)
2. The Results of COVID-19 Infection
3. How to Control the Epidemics
4. How to Protect Yourself and the Institution

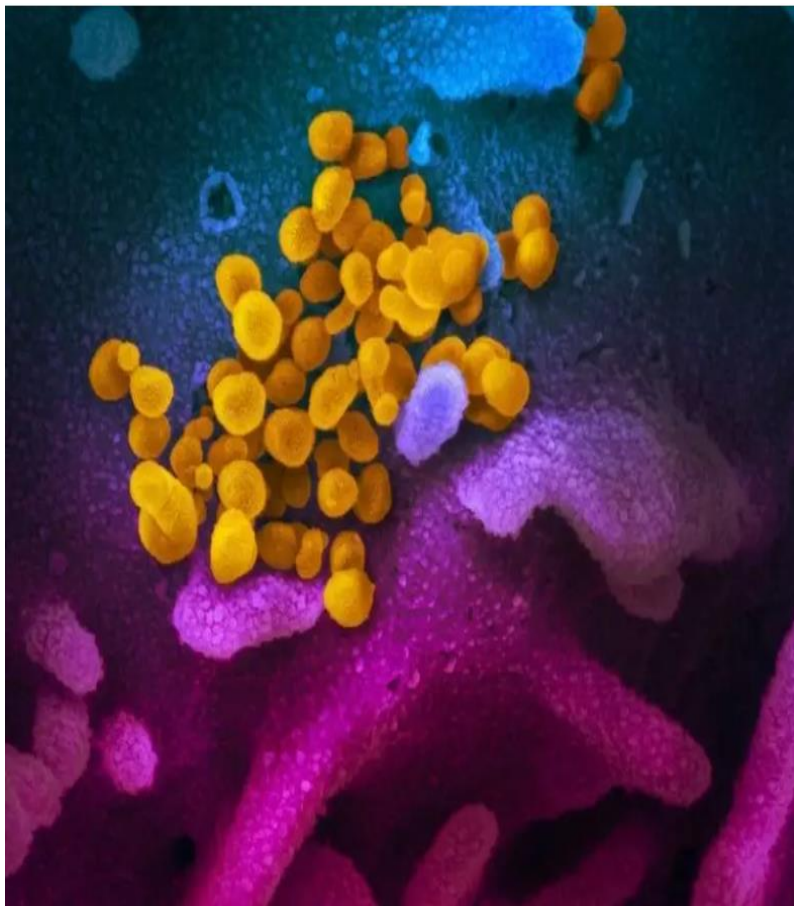


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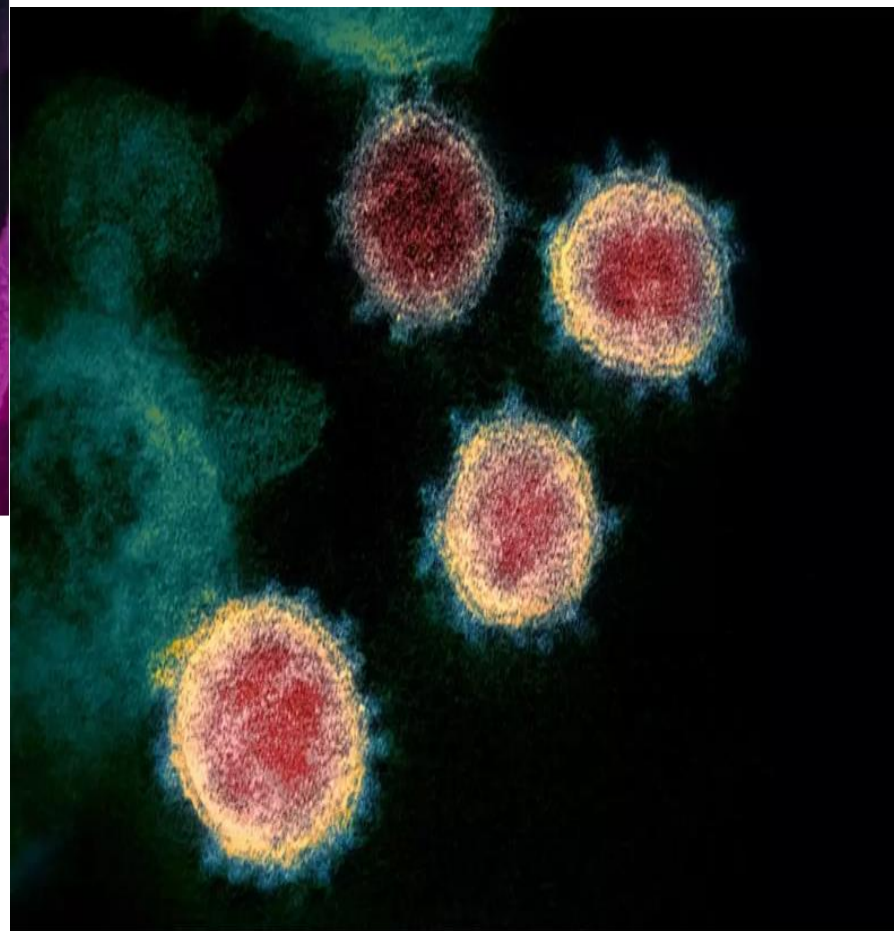
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COVID-19





美國專家近日公布在掃描式電子顯微鏡上觀察到的新型冠狀病毒影像，病毒上黃色，細胞表面上藍色和粉紅色，圖片來源：
中央社取自 [NIAID flickr 網頁](#)



美國鳳凰城住研醫院旗下的鳳凰城病毒傳染病研究所13日發布將冠狀病毒影像，圖片來源：[中央社取自 NIAID flickr 網頁](#)



COVID-19 Occurred in China

2019/12/1 1 st Case at Wuhan, China

2019/12/31 Report to WHO

2020/1/20 Admit human to
human transmission



COVID-19 Pandemics

2020/1/19 South Korea

2020/1/20 USA, Taiwan

2020/1/23 Wuhan Shock down 5 Million
people left

2020/1/23 France

2020/1/26 Germany

2020/1/29 Italy

2020/1/30 UK

Coronavirus Cases:

858,892

[view by country.](#)

Deaths:

42,158

Recovered:

178,100

ACTIVE CASES

638,634

Currently Infected Patients

605,736 (95%)
in Mild Condition

32,898 (5%)
Serious or Critical

[Show Graph](#)

CLOSED CASES

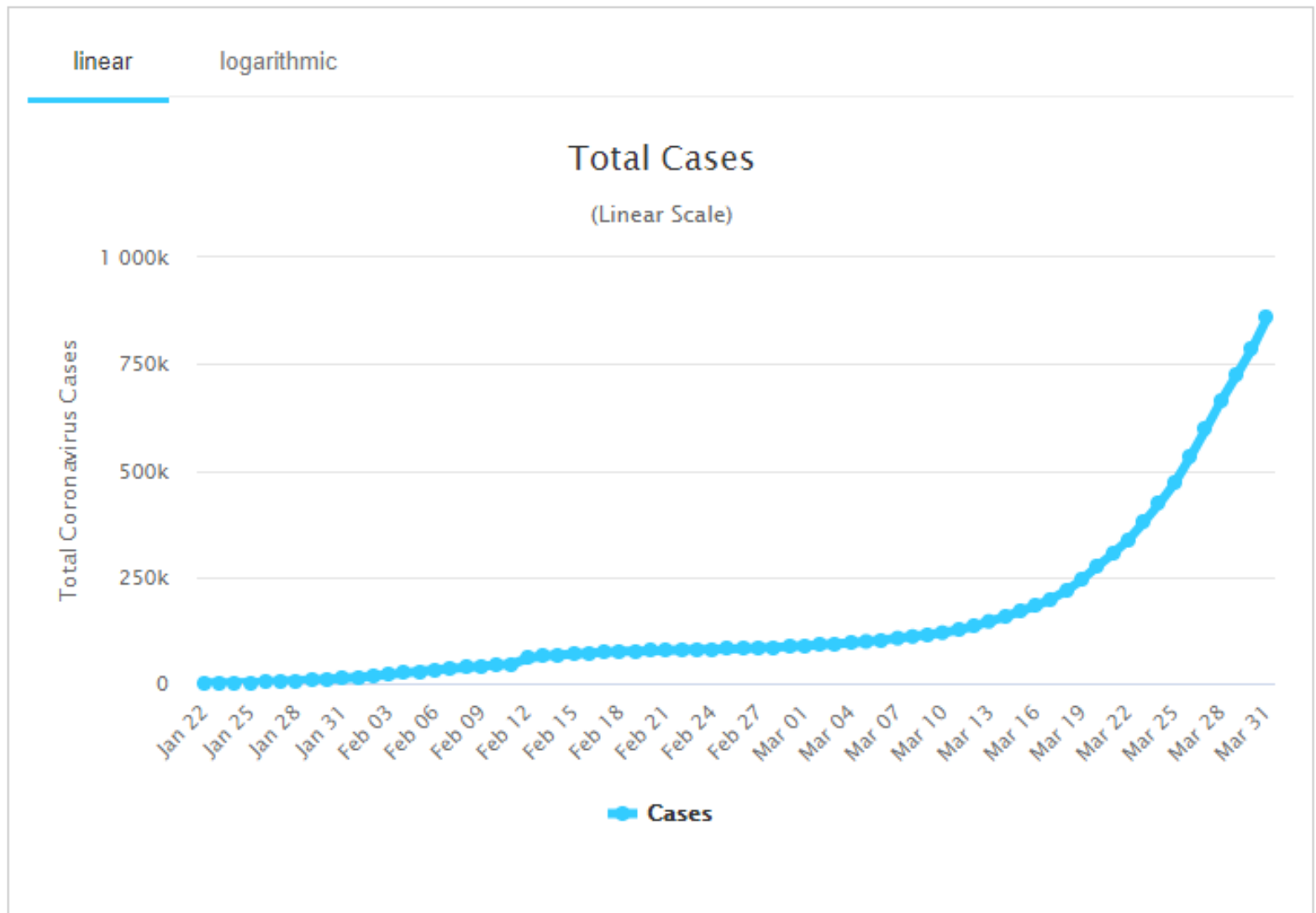
220,258

Cases which had an outcome:

178,100 (81%)
Recovered / Discharged

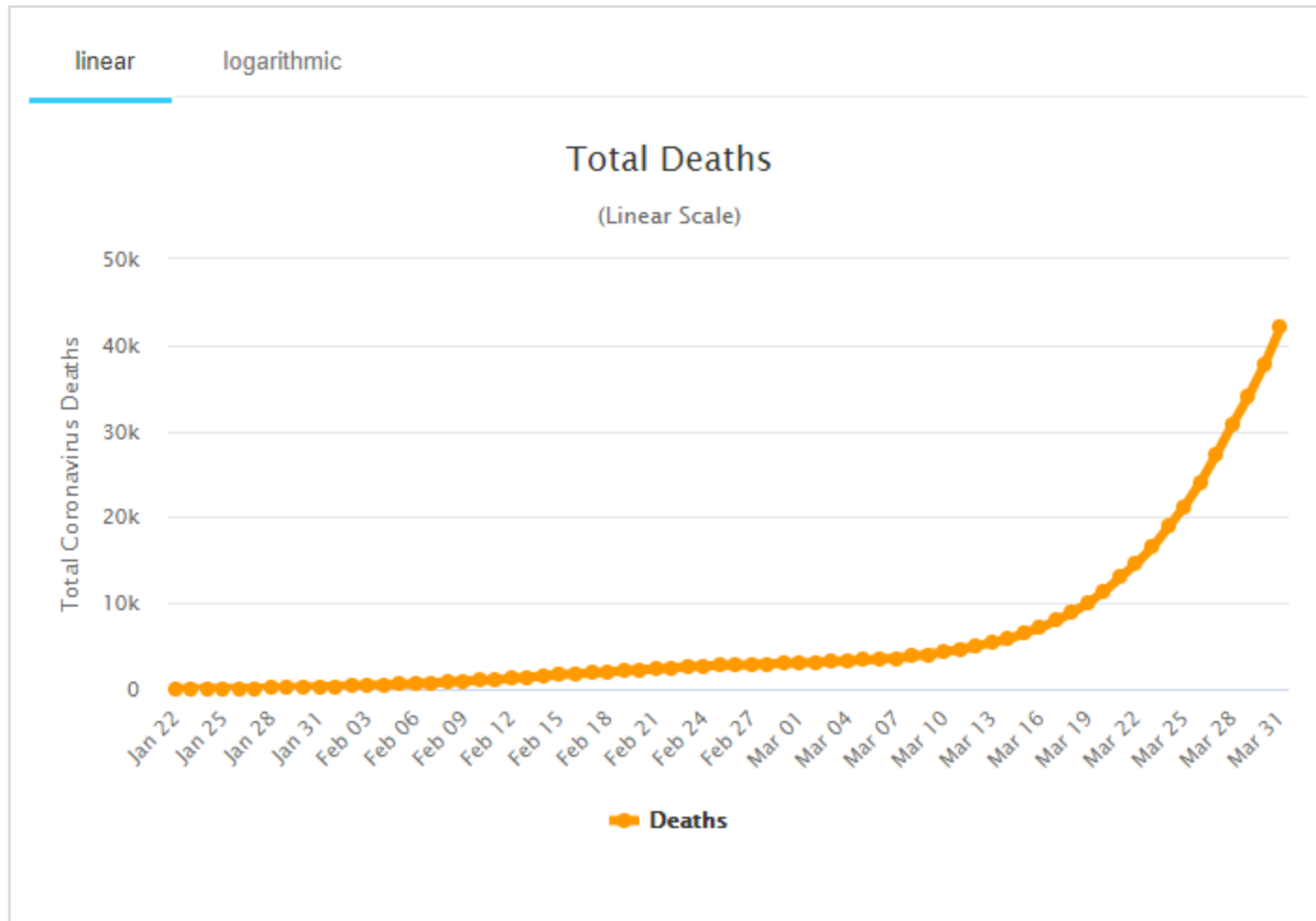
42,158 (19%)
Deaths

[Show Graph](#)

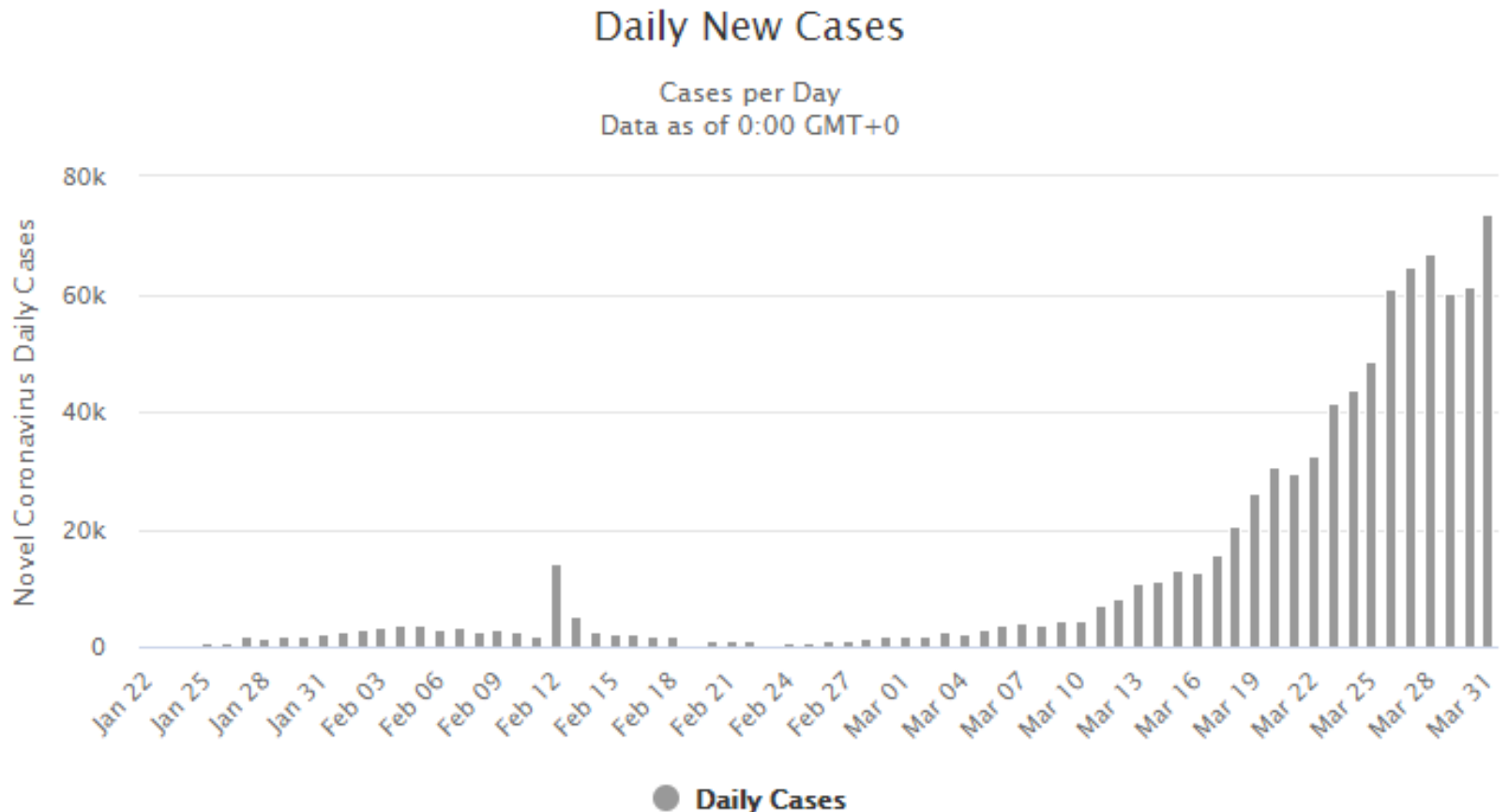


Source: Worldometer - www.worldometers.info 

Total Deaths

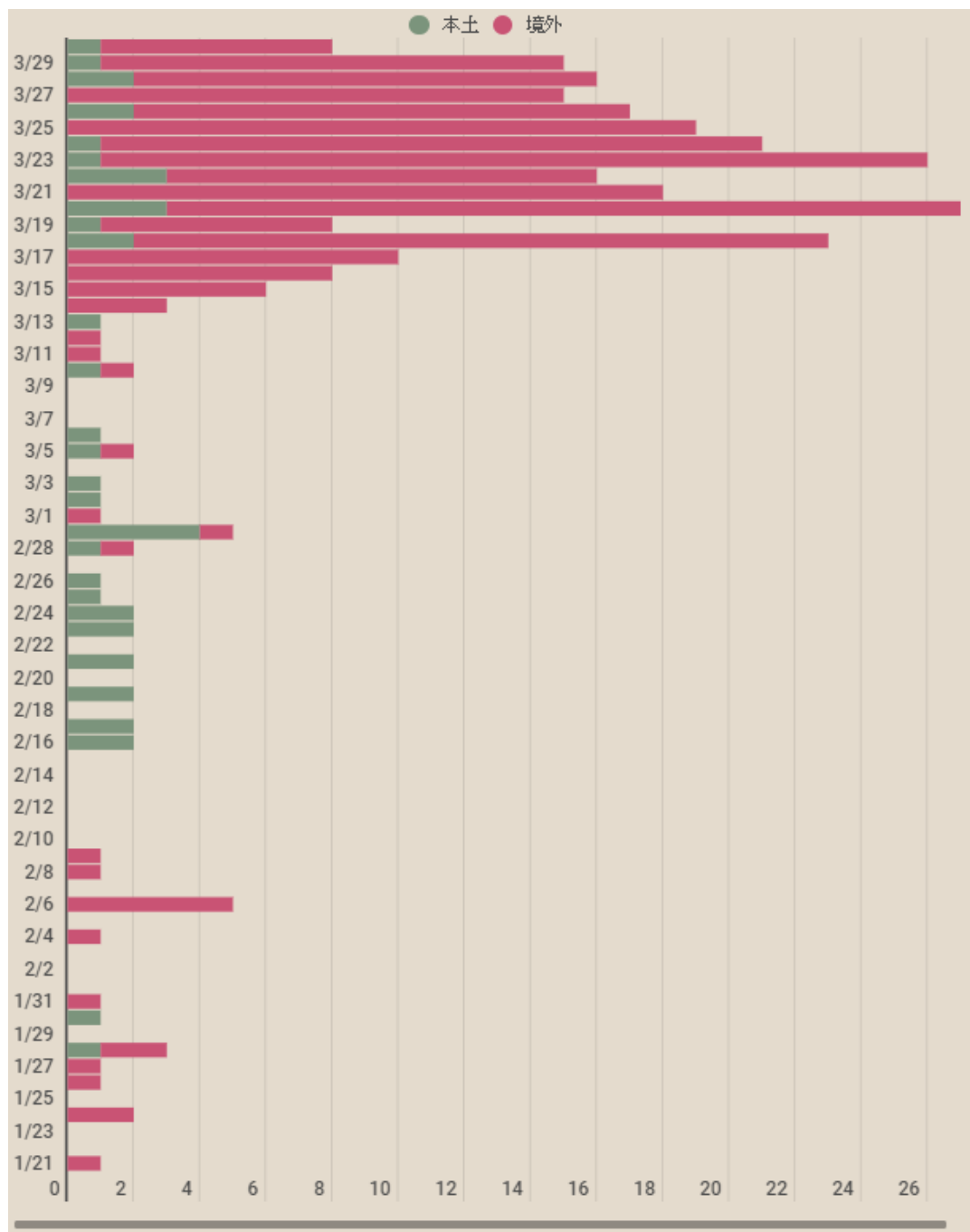


Daily Cases (worldwide)



Source: Worldometer - www.worldometers.info 

**Taiwan up to
2020/3/31 :
322
Deaths: 5**





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Coronavirus Incubation Period:

Last updated: March 12, 15:00 GMT

2 - 14 days

Possible outliers: 0 - **27 days**

Findings from the Wang et al study published on JAMA and based on 138 hospitalized patients

Common symptoms included:

(Wang et al study) ^[2]

Fever	98.6%
Fatigue	69.6%
Dry cough	59.4%

The median time observed:

from **first symptom** to → **Dyspnea** (Shortness of breath) = **5.0 days**

from **first symptom** to → **Hospital admission** = **7.0 days**

from **first symptom** to → **ARDS** (Acute Respiratory Distress Syndrome)
= **8.0 days** (when occurring)

80% of cases are mild

Based on all 72,314 cases of COVID-19 confirmed, suspected, and asymptomatic cases in China as of February 11, a paper by the Chinese CCDC released on February 17 and published in the Chinese Journal of Epidemiology has found that:

- **80.9% of infections are mild** (with flu-like symptoms) and **can recover at home**.
- **13.8% are severe**, developing severe diseases including **pneumonia** and **shortness of breath**.
- **4.7% as critical** and can include: **respiratory failure**, **septic shock**, and **multi-organ failure**.
- in about 2% of reported cases the virus is fatal.
- Risk of death increases the older you are.
- Relatively few cases are seen among children.

Coronavirus (COVID-19) Mortality Rate (case by fatality)

- 3.4% Mortality Rate estimate by the WHO as of March 3
- Mortality Rate in China as of Feb. 20 (3.8% nationwide, 5.8% in Wuhan, 0.7% other areas)
- Mortality Rate in China as of Feb. 4 (2.1% nationwide, 4.9% Wuhan, 3.1% Hubei, and 0.16% other provinces) reported by the NHC of China
- Study providing a tentative mortality rate of 3%
- Death rate among patients admitted to hospital (HFR): 15%
- Days from first symptom to death: 14 days
- Comparison with other viruses
- How to calculate the mortality rate during an outbreak

COVID-19 Fatality Rate by COMORBIDITY:

PRE-EXISTING CONDITION	DEATH RATE confirmed cases	DEATH RATE all cases
Cardiovascular disease	13.2%	10.5%
Diabetes	9.2%	7.3%
Chronic respiratory disease	8.0%	6.3%
Hypertension	8.4%	6.0%
Cancer	7.6%	5.6%
<i>no pre-existing conditions</i>		0.9%

***Death Rate = (number of deaths / number of cases) = probability of dying if infected by the virus (%).** The percentages **do not have to add up to 100%**, as they **do NOT represent share of deaths by condition**.

Sex ratio

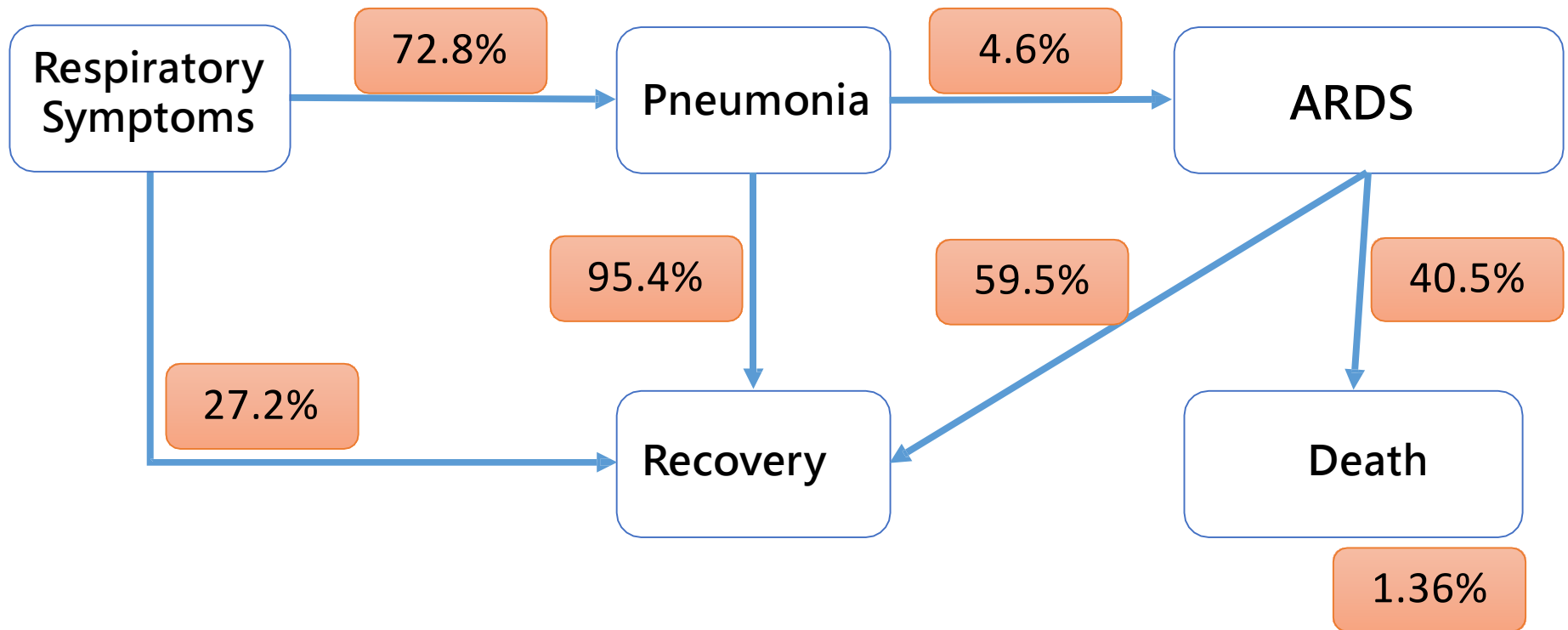
SEX	DEATH RATE confirmed cases	DEATH RATE all cases
Male	4.7%	2.8%
Female	2.8%	1.7%

Age of Coronavirus Deaths

AGE	DEATH RATE confirmed cases	DEATH RATE all cases
80+ years old	21.9%	14.8%
70-79 years old		8.0%
60-69 years old		3.6%
50-59 years old		1.3%
40-49 years old		0.4%
30-39 years old		0.2%
20-29 years old		0.2%
10-19 years old		0.2%
0-9 years old		no fatalities

Results of COVID-19 Infection

Guan et al. NEJM (2020)





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Routes of COVID-19 Transmission

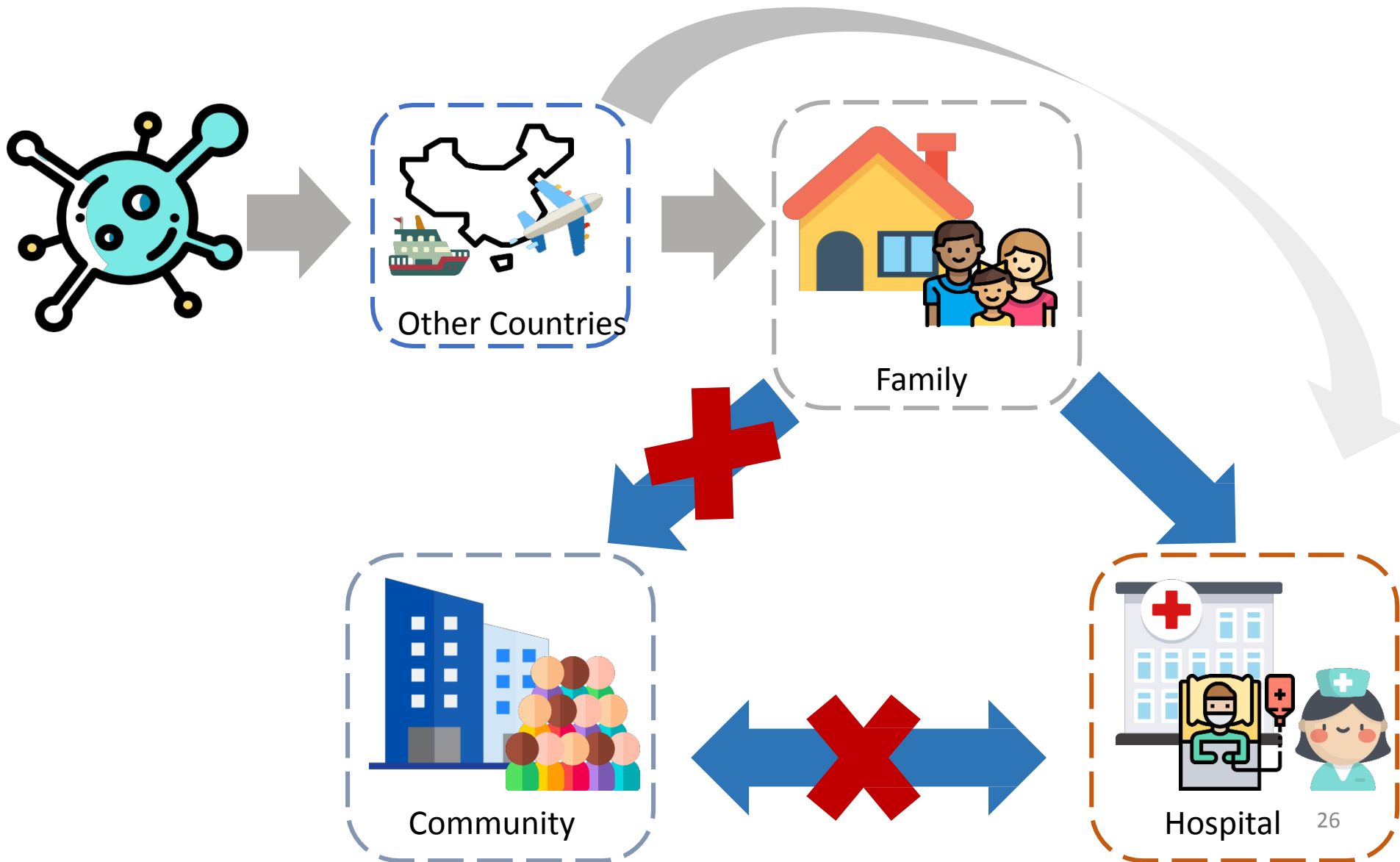
1. Air: +/-
2. Droplet: +
3. Contact: +++

Never touch your mouth, nose or eyes with your fingers.

Asymptomatic Cases Can Transmit Virus

1. 60-80% are either mild or asymptomatic and not documented
2. The ability of transmission of undocumented cases is 55% of documented cases
3. Transmission from undocumented cases account for 80% of documented cases

How to Control the Epidemics



Prevention & control of COVID-19

1. Close Border
 - 1) Isolation
 - 2) Quarantine
2. Hospital management
 - 1) Nosocomial Infection Control
 - 2) Early Detection
3. Mitigation Plan
 - 1) Population
 - Close School/Stores
 - Decrease Social Activities
 - 2) Personal
 - Mask, Hand Washing, Social Distance
 - 3) Environment
 - Cleaning Sanitation, Ventilation

Home Isolation & quarantine

CECC Measures for Following Up on Persons at Risk of Infection

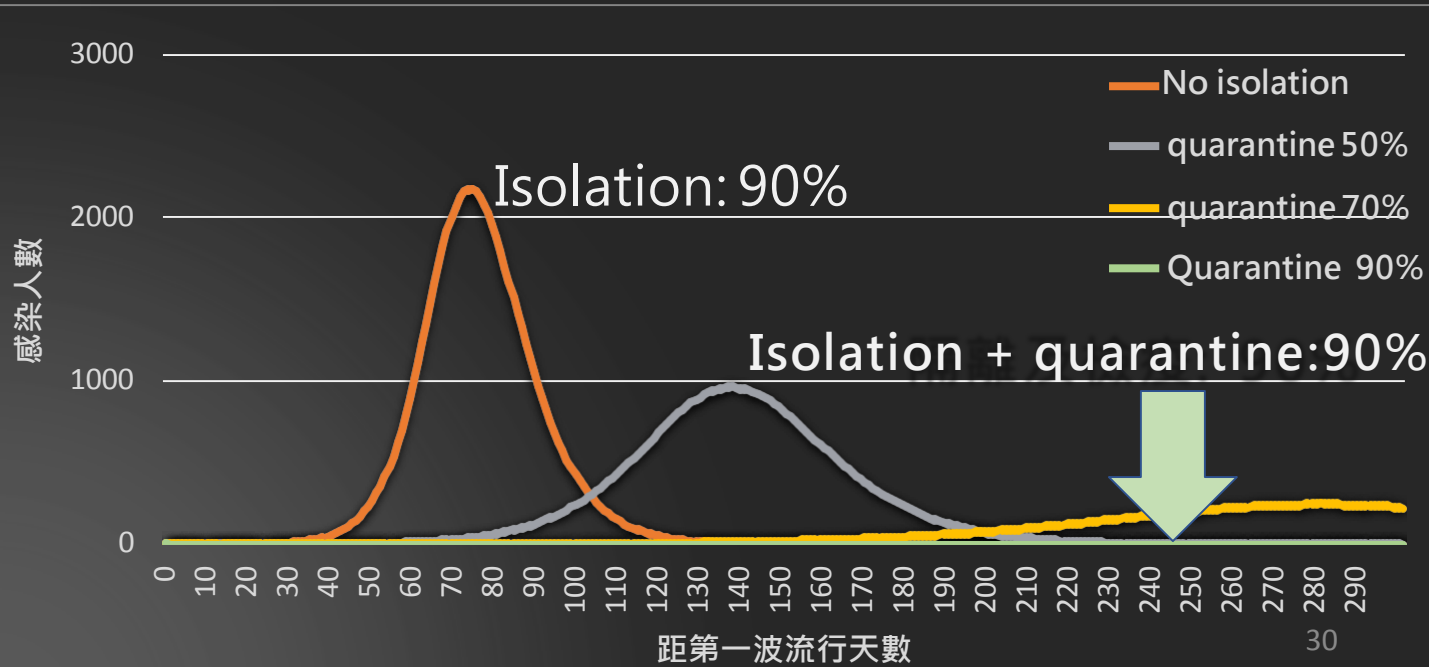
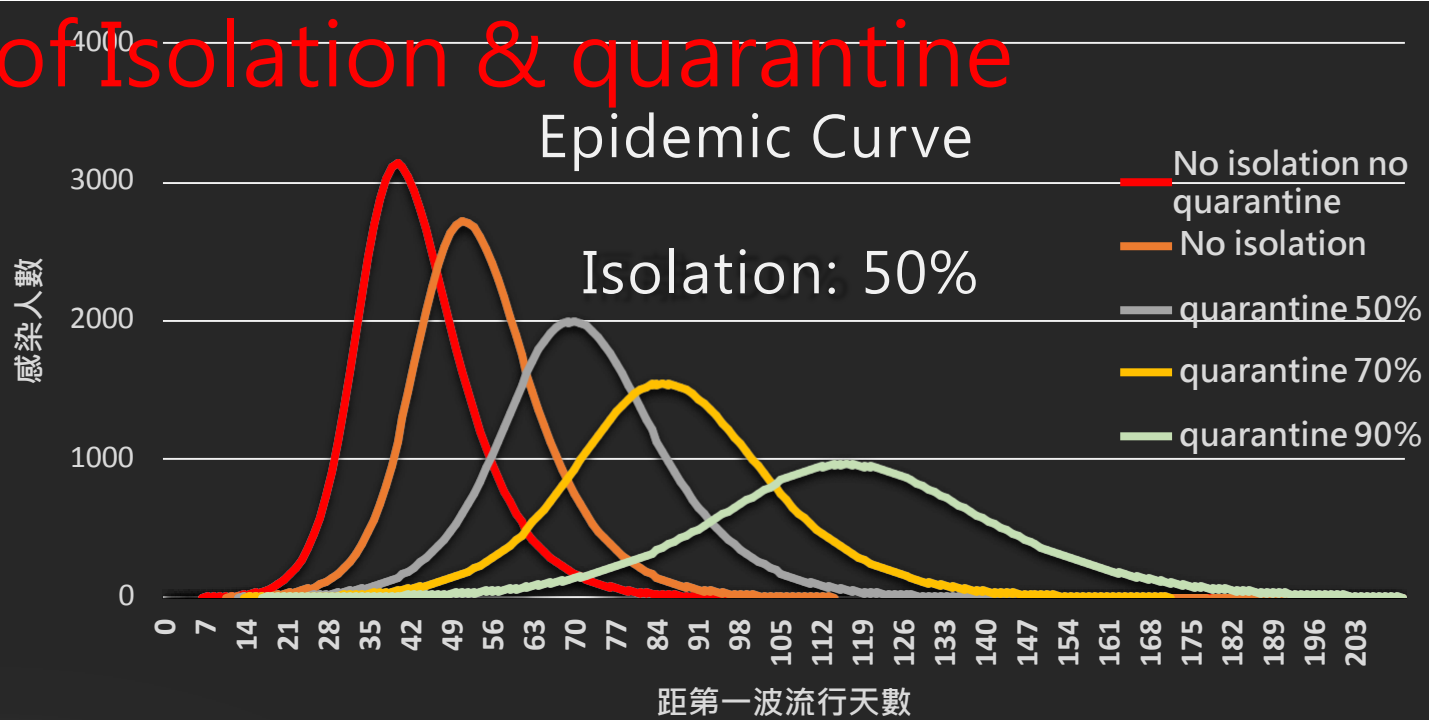
03.23.2020

Intervention	Home Isolation	Home Quarantine	Self-health management
Groups of persons	Persons who had contact with confirmed cases	People with travel history	<ol style="list-style-type: none"> 1. Reported cases who have tested negative and met criteria for being released from isolation 2. People reported and tested for COVID-19 under "COVID-19 Community-based Surveillance" 3. People returning Taiwan from countries under level 1 and level 2 travel notice before March 19
Responsible authorities	Local health authorities	Local civil affairs bureau or borough chief	Central/Local health authorities
Enforcement	Home isolation for 14 days Active monitoring twice a day	Home quarantine for 14 days Active monitoring once or twice a day	Self-health management for 14 days
Notes concerning respective measures	<ul style="list-style-type: none"> • Health authority will issue a "Home (Self) Isolation Notice" • Health authority shall check health status of the individual twice a day • During the home isolation period, the individual is to stay at home (or designated location) and not go out, and may not leave the country or use public transportation • Symptomatic individuals will be sent to the hospital for medical attention • Individuals not adhering to the CECC's prevention measures will be penalized under the Communicable Disease Control Act and, where circumstances warrant, be forcibly placed 	<ul style="list-style-type: none"> • Where the relevant authority has issued a Novel Coronavirus Health Declaration and Home Quarantine Notice, the individual is to wear a surgical mask and return home for home quarantine • The local borough chief or borough clerk shall call the individual every day during the 14-day period to ask about the individual's health status, and shall record the information obtained • During the quarantine period, the individual is to stay at home (or designated location) and not go out, and may not leave the country or use public transportation • Symptomatic individuals will be sent to designated medical facilities for tests; the relevant health authority will also begin active monitoring • Individuals not adhering to the CECC's prevention measures will be penalized under the Communicable Disease Control Act and, where circumstances warrant, be forcibly placed 	<ul style="list-style-type: none"> • Asymptomatic individuals are to avoid public places, postpone all non-essential or non-urgent medical care or examinations, and always wear a medical mask when going out; wash hands frequently, follow respiratory hygiene and cough etiquette; and take temperature twice a day, once in the morning and once in the evening. • Individuals with fever or respiratory symptoms such as coughing or running nose are to wear a medical mask, seek medical attention immediately and not to use public transport; inform the physician of your contact history, travel history, and whether anyone else has similar symptoms; wear a medical mask while returning home and avoid going out; and keep 1 meter away from others when talking to them. • After being tested for COVID-19 and returning home, individuals are to stay at home and not to go out before receiving results • Medical personnel are to stay at home and not to come to work temporarily
Legal basis	§ Article 48, Communicable Disease Control Act § Paragraph 1, Article 15, Special Act for Prevention, Relief and Revitalization Measures for Severe Pneumonia with Novel Pathogens	§ Article 58, Communicable Disease Control Act § Paragraph 2, Article 15, Special Act for Prevention, Relief and Revitalization Measures for Severe Pneumonia with Novel Pathogens	§ Article 48, Communicable Disease Control Act; Article 58, Communicable Disease Control Act § Article 67, Communicable Disease Control Act; Article 69, Communicable Disease Control Act

Home Isolation & quarantine

Intervention	Home Isolation	Home Quarantine	Self-health management
Group of Persons	Persons who had contact with confirmed cases	People with travel history	<ol style="list-style-type: none">1. Reported cases who have tested negative and met criteria for being released from isolation2. People reported and tested for COVID-19 under “COVID-19 Community-based Surveillance”3. People returning Taiwan from countries under level 1 and level 2 travel notice before March 19
Enforcement	Home isolation for 14 days Active monitoring twice a day	Home quarantine for 14 days Active monitoring once or twice a day	Self-health management for 14 days

The Effect of Isolation & quarantine



Host infection Control



衛生福利部桃園醫院在急診室外設置帳篷作為隔離區。(記者魏瑾筠攝)



▲成大醫院住院大樓實施門禁管制。（圖／翻攝自成大醫院臉書）

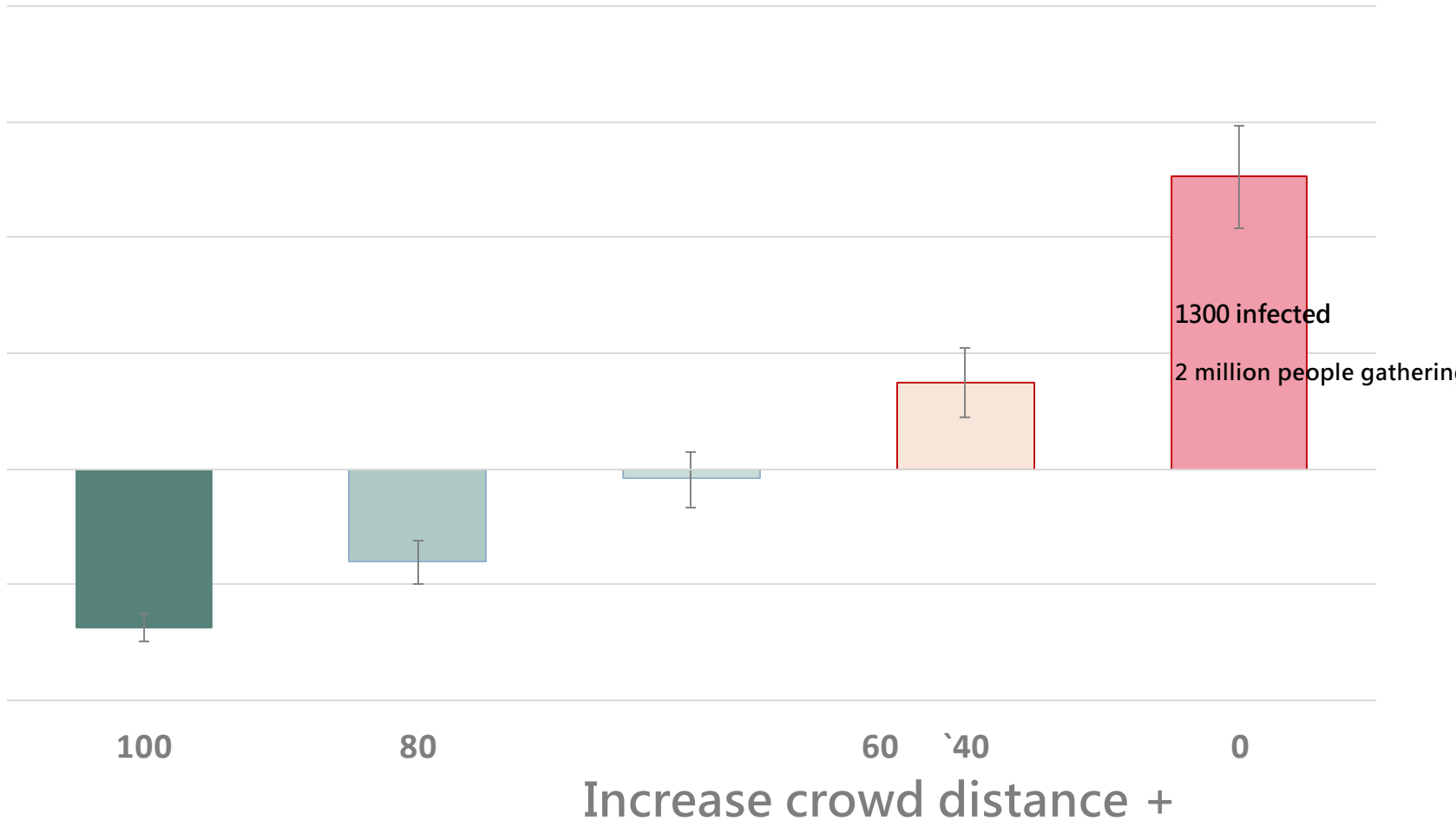
Big Activities & Prande



Risk assessment of large-scale party events and processions

Case regeneration

3
2.5
2
1.5
1
0.5
0



Prevention (Fever Screening, Isolation, Mask, Wash Hand) percentage

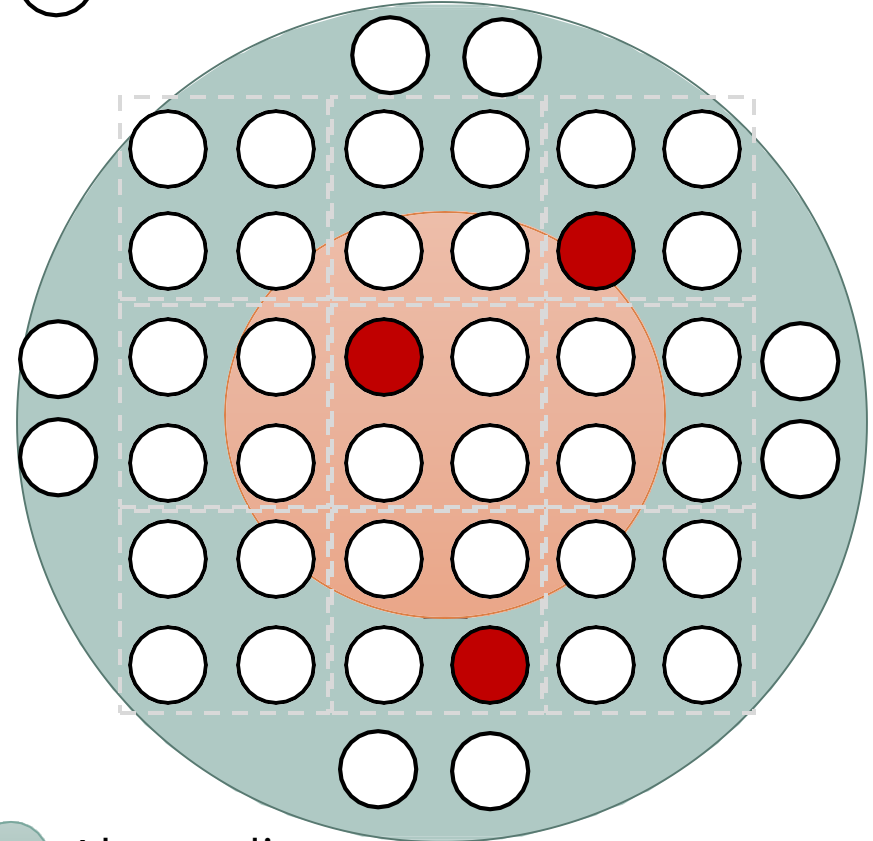
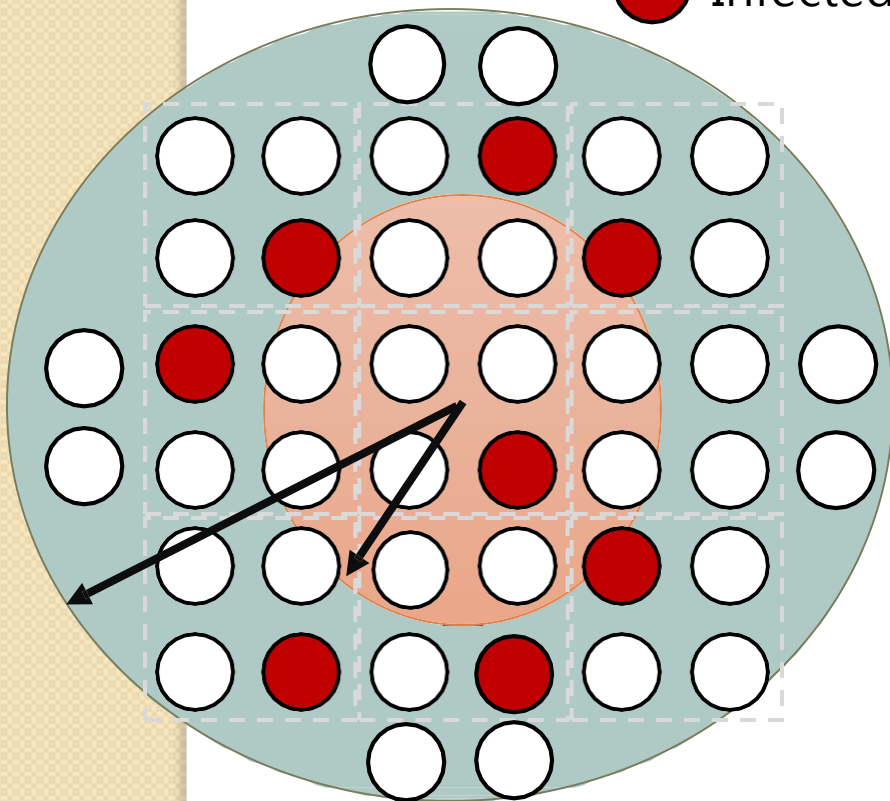
Social distance infection risk estimation

High risk of infection

Low risk of infection

● Infected

○ Infectious cases



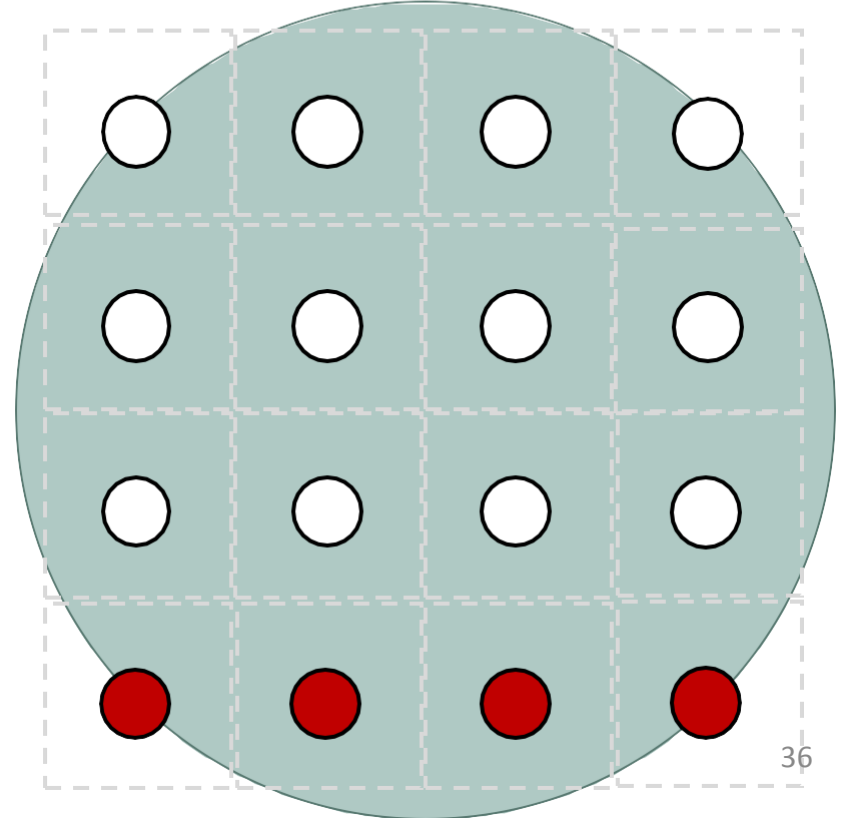
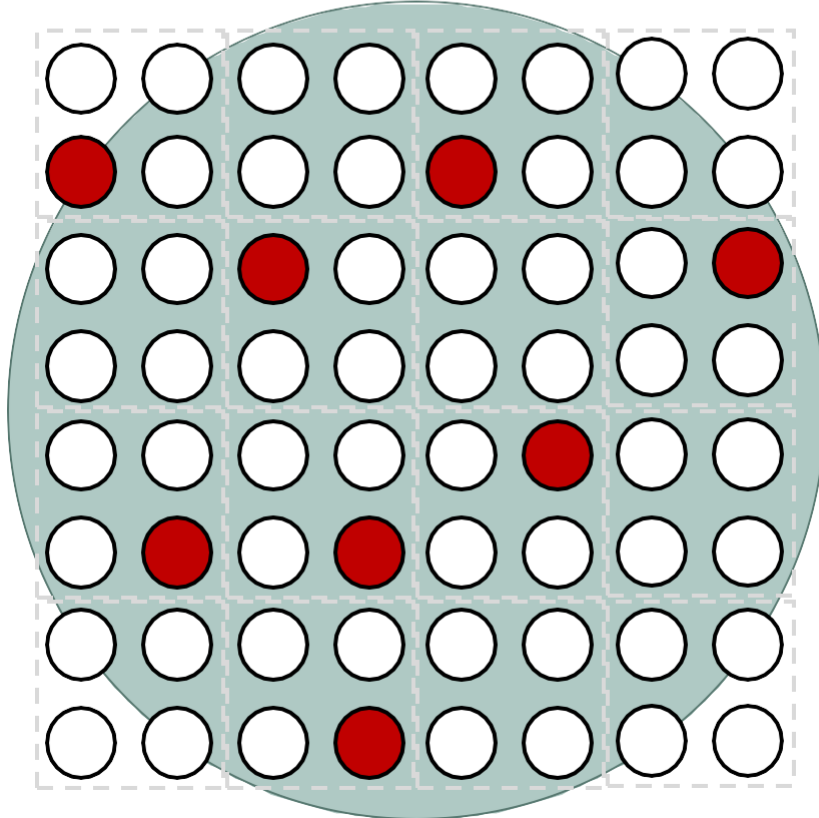
● Infection radius

● Alert radius

Decrease the Transmission in Big Activities & Prande



1. Fever Screening
2. Contact Surveillance
3. Increase Social Distance



『古芬蘭式社交』-減低傳染接觸 (Conventional Social Distancing with Finnish Contact)

社交距離 (Social Distancing)

▼一張圖秒懂芬蘭人和外國人的差異



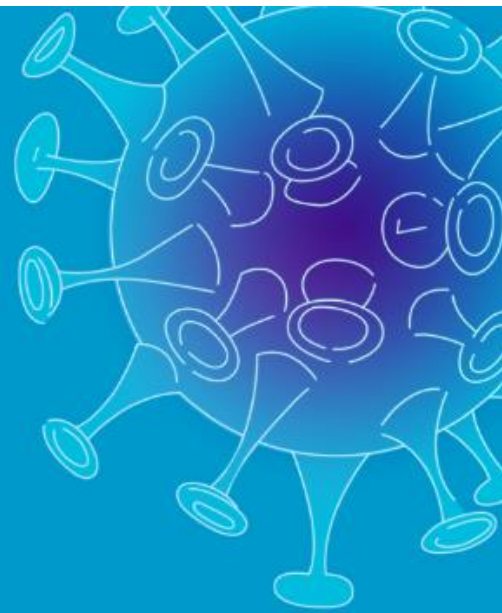
芬蘭人 -
“距離就是禮貌”，排隊至少隔1米
Distance is Politeness, 1 meter place



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Be **INFORMED**
Be **PREPARED**
Be **SMART**
Be **SAFE**



Be **READY** to fight
#COVID19

For the latest health advice, go to:
www.who.int/COVID-19



UNITED NATIONS



World Health
Organization



Be **SUPPORTIVE**
Be **CAREFUL**
Be **ALERT**
Be **KIND**

Be **READY** to fight
#COVID19

For the latest health advice, go to:
www.who.int/COVID-19



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World Health
Organization

Be **READY** for #coronavirus

WHO is giving advice on how
to protect ourselves & others:



Be **SAFE** from coronavirus infection

Be **SMART** & inform yourself about it

Be **KIND** & support one another

Learn more about #COVID19 & share with
your loved ones: www.who.int/COVID-19



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Be **SAFE** from #coronavirus

if you are 60+ or if you have an underlying condition like:



Cardiovascular disease



Respiratory condition



Diabetes

by avoiding crowded areas or places where you might interact with people who are sick.

Learn more to Be **READY** for #COVID19:
www.who.int/COVID-19



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Be **KIND** to support loved ones during #coronavirus



Check in regularly especially with those affected



Encourage them to keep doing what they enjoy



Share WHO information to manage anxieties



Provide calm and correct advice for your children

Learn more to Be **READY** for #COVID19:
www.who.int/COVID-19



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Be **KIND** to address stigma during #coronavirus



Share the latest facts & avoid
hyperbole



Show solidarity with affected
people



Tell the stories of people who have
experienced the virus

Learn more to Be **READY** for #COVID19:
www.who.int/COVID-19



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Be **KIND** to address fear during #coronavirus



Show empathy with those affected



Learn about the disease to assess the risks



Adopt practical measures to stay safe

Learn more to Be **READY** for #COVID19:
www.who.int/COVID-19



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Be **SMART** if you develop
shortness of breath:



Call your doctor



Seek care immediately!

Learn more to Be **READY** for #COVID19:
www.who.int/COVID-19



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Be **SMART** & inform yourself about #coronavirus



Follow accurate public health advice
from WHO & your local health authority



Follow the news on latest
coronavirus updates



To avoid spreading rumors, always
check the source you are getting
information from



Don't spread rumors

Learn more to Be **READY** for #COVID19:
www.who.int/COVID-19



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Wash your hands

Wash your hands with soap and running water when **hands are visibly dirty**



If your **hands are not visibly dirty**, frequently clean them by using alcohol-based hand rub or soap and water



Protect yourself and others from getting sick

Wash your hands



- after coughing or sneezing
- when caring for the sick
- before, during and after you prepare food
- before eating
- after toilet use
- when hands are visibly dirty
- after handling animals or animal waste

Protect others from getting sick

When coughing and sneezing
cover mouth and nose with
flexed elbow or tissue



Throw tissue into closed bin
immediately after use

Clean hands with alcohol-based
hand rub or soap and water
after coughing or sneezing and
when caring for the sick



Protect others from getting sick



Avoid close contact when you are experiencing cough and fever

Avoid spitting in public



If you have fever, cough and difficulty breathing **seek medical care early** and share previous travel history with your health care provider



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MEDIUM & CO
Health
for All



科學心 台灣情

Taiwan
Can Help

God Bless You
God Bless the World
Taiwan for Who
Who for Taiwan

