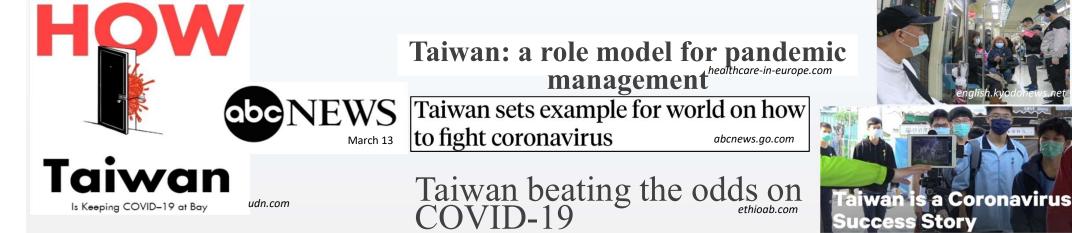
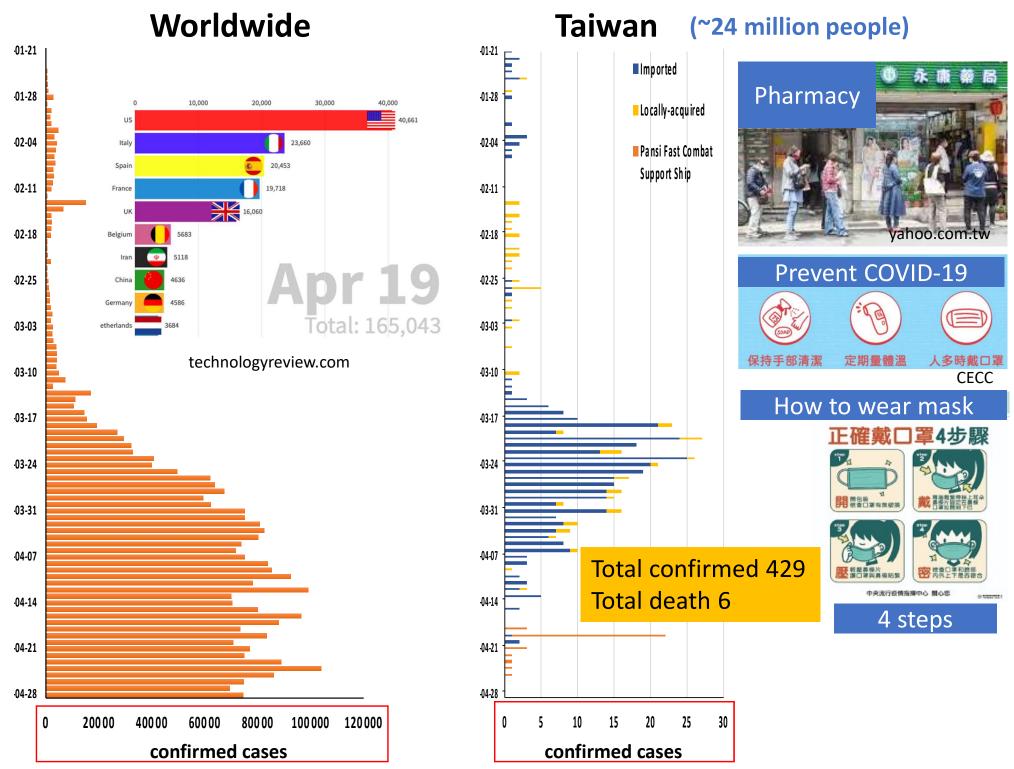
Taiwan's experience in the response to COVID-19

Sheng-Fang Su, Ph.D.

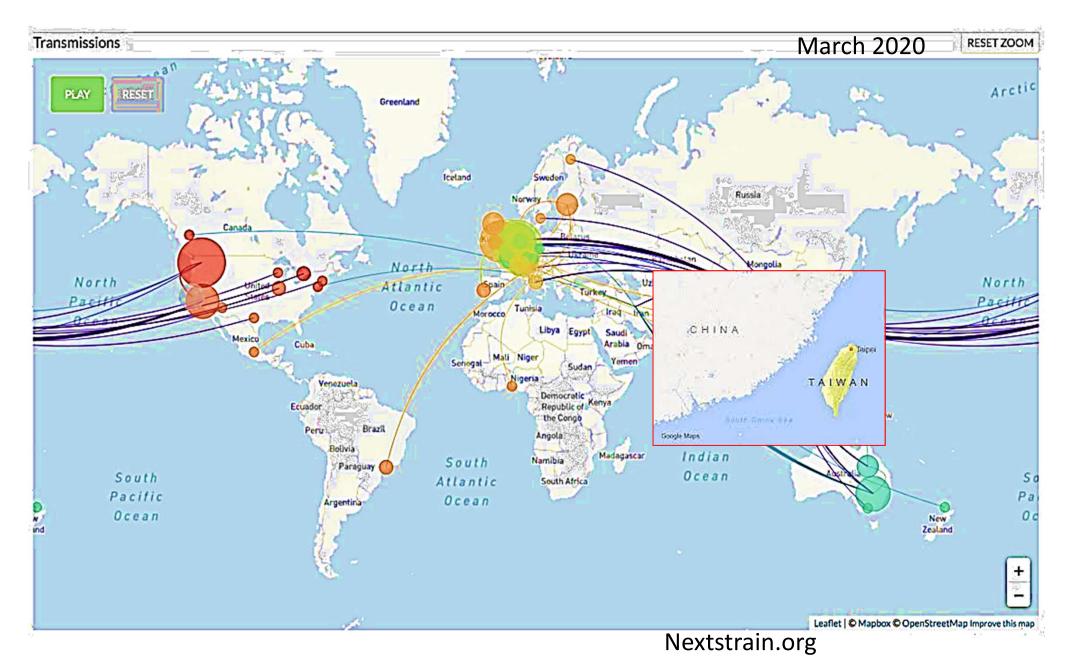
Graduate Institute of Oncology, National Taiwan University College of Medicine; YongLin Scholar, YongLin Institute of Health, National Taiwan University, Taiwan

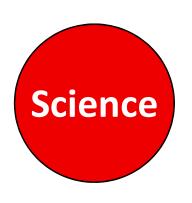




Su SF, Han YY. Journal of Global Health. 2020 Jun 10(1):010380.

COVID-19 transmission map





31 December, 2019

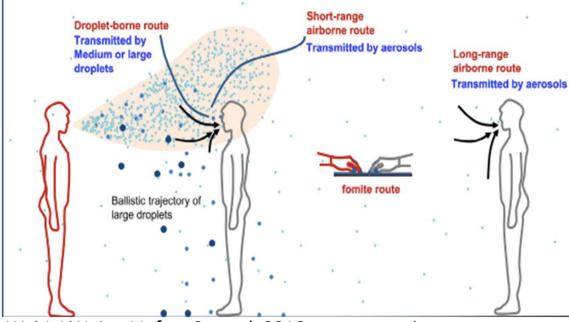
Taiwan CDC:

"News resources today indicate that at least seven atypical pneumonia cases were reported in Wuhan, China. Their health authorities replied to the media that the cases were believed not SARS; however, the samples are still under examination, and the cases have been isolated for treatment"

- suspected atypical pneumonia
- human-to-human transmission via droplets and aerosols
- severe acute respiratory syndrome (SARS)

Meselson M. N Engl J Med 2020

• coronavirus

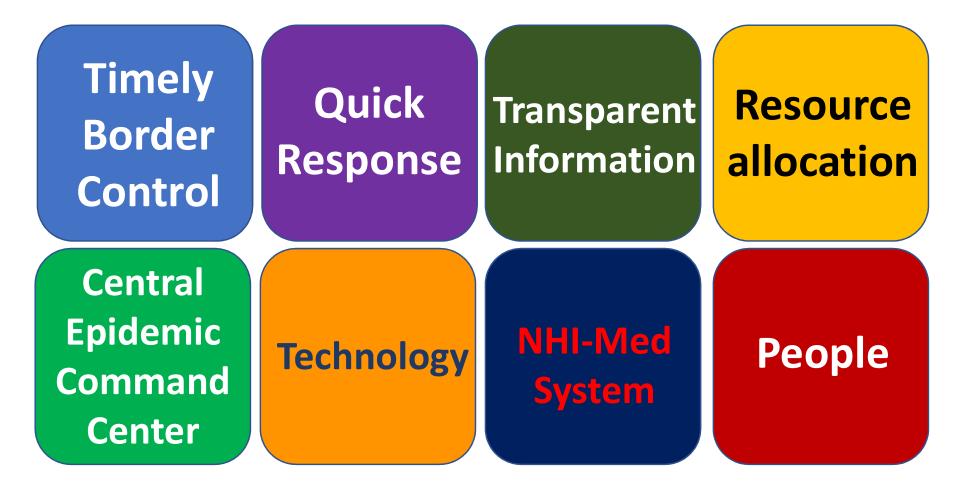




Japanese black light experiment showed how quickly a virus like covid-19 can spread at a restaurant.

Wei J, Li Y. Am J Infect Control. 2016 assaygenie.com

Key factors of Taiwanese first phase of defense



Modified from TW CDC

Timely Border Control

Taiwanese first line of defense

- Awareness of suspected cases
- Government organization and response lacksquare

CECC activation and epidemic control (Central epidemic command center)

Border controls

Entry Quarantine System COVID-19 Health Declaration Card COVID-19 Home Quarantine Notice

Travel ban and entry restrictions

COVID-19 Travel Health Notices for International Destinations

> Level 3 Warning Avoid all non-essential travel to this destination

All countries



Entry restrictions for

foreigners to Taiwan

OVID-19 outbreak

in response to

Mar 21

→ 入境檢疫系統 - 疾病管制署 https://hdhq.mohw.gov.tw	COVID-19 Health Declaration and Home Quarantine Notice
御生福利部 た た な た な た の た た た た た た た た た た た た た	世名(本人或法定代理人觀葉) 身分證/獲照號碼 ID card No./ Passport No. Name (Signed by the informed case or legal representative) 國籍 Nationality 中華民國 R.O.C. (Taiwan) 中国大陸 China 」中華民國 R.O.C. (Taiwan) □中国大陸 China 」中華民國 R.O.C. (Taiwan) □中国大陸 China 」● 基本 Hong Kong □米超醫心性Passport No. 「基志 Hong Kong □米超醫心性Passport No. 「基志 Hong Kong □米超醫症(咳嗽、守殘差(菜)) 点以下症狀(CB服養者亦須填「足」)? Have you had fever, respiratory symptoms(cough, shortness of breath, etc.) or following symptoms during the past 14 days? (fo those who had taken medications, please answer "Yes") ○香 No □ 量 Yes: □●愛索 Cough □魚溝水(海寨 Ramny/stuff) nose □●受急深 Shortness of breath □ 國家 Darthac □● → *愛菜客 Suo of smell or tastc □●分息急 Khortness of breath □ 國義 Darthac □● → *愛菜客 Suo of smell or tastc □●分息急 Khortness of breath □ 國家 Darthac □● → *愛菜客 Shortness of breath □●愛急客 Shortness of breath □ 國家 Darthac □● → *愛菜客 State □●愛急客 Shortness of breath □ 國家 Darthac □● ★ * * Natae □● @ 意 * # * # * # * # * # * # * # * # * # *
提醒您: 請詳閱重點聲明事項,並確實填寫旅客入境健康 聲明。 如無法使用電子系統服務,請填寫紙本「旅客入 境健康聲明暨居家檢疫通知書」或「健康聲明 卡」。 Please be reminded to: Read the declaration items thoroughly and fill in the passenger health declaration. Please fill in the "Health Declaration Card" in writing if you cannot fill the form through the electronic process. 	certificate issued for testing conducted within three days before boarding? 【史 Yes □ 香 No 依據臺灣法令規定, 您為居家檢疫對象, 請遵守 以下規定: へ 抵臺後全程佩戴口罩, 儘速返室且不得描 東大眾運輸: 客族防疫車隊、入众性防疫病 南, 請圭勃出示本通知書收執聯。 二、留在家中不外出, 亦不得出境或出國。 至、自主详育記録鐵溫及健康狀況及配合。要 之關"旋旋機機制(包含排臺灣, 本機門資進 行個人活動範囲)全電子監督) 四、所有入技成客。活同住者有差年人(≧65 歲) 幼童(≦6 歲)、慢性疾病患者(か心童營疾病) 橡索或素肺部疾病等), 美國人產畢業聚結構 According to have a mercuined to take bone quantime and abde by the following requirements: 2.5 自主詳算記線鐵溫及健康狀況及配合。要 c關"旋旋線機劃(包含排臺灣, 本機門資進 行個人活動範囲)全電子監督) and macking measures (including using Taiwan's cell phag、大量水液素電完成层室蒸検索。 五、如有發換、咳嗽、腹瀉、喚哧愛異常意其他 在行身種完成。請做果 等力成素 像素愛具常意其他 在行身種流過: 輪機服音, 上最差成素 and macking measures (including using Taiwan's cell phag、大量、咳素、酸塩素、食素酸素 agente balthroom) of You live with Geldery people 65 years old o udary to me quarantine fiy vuo dare is delety people 65 years old o udarg, bare advaka, adverse agente balthroom) of You live with Geldery people 65 years old o udars, context with he loal health authorites or and udars, context with le loal health authorites or and udar and mack, context with le loal health authorites or and udar and mack context with le loal health authorites agente balthroom) of You live with Geldery people 65 years old o udar and mack ontext with le loal health authorites or and agente balthroom) agente balthroom) agente balthroom) agente balthroom) adde the loal health authorites or and agente balthroom) agente balthroom) agente balthroom) agente balthroom) agente balthroom) agente balthroom) agente balthroom)

TW CDC

<text><text>

- Warning, advises against all non-essential travel
- Requiring inbound travelers to undergo a 14-day home quarantine
- Expanding community-based monitoring
 Connecting community quarantine
- Establishing a name-based rationing system for face masks distribution
- Strengthening laboratory diagnostic capacity
 Epidemic prevention supplies
- Health education and outreach
- March 5 Guidelines for large-scale public gatherings to prevent widespread community transmissions

Rapid actions and efficient management

Check in at counter for foreigners

Quick

Response

After Repo disembarking

Report at Overseas Students Reception Counter

Quarantine Taxi Quarantine Hotel



Entry quarantine procedures

Automatic 30-day extension for foreigners entering Taiwan on or before March 21 with visa waiver, visitor visa, or landing visa. No application is required Overstayers excepted Click here for detailed information

Taiwan to ban airline passenger transits through the country starting March 24 until April 7



In order to stop the spread of COVID-19 through air transport

The CECC has announced that it will suspend the transit of airline passengers through Taiwan from 00:00 Taipei Standard Time (GMT+8) on March 24 (Tuesday) until April 7 to decrease the cross-border movement of people and to reduce the risk of disease transmission

2020.03.22 時間:19:30

CAUTION

If you have Fever, Cough or Shortness of Breath upon your arrival, whether you are taking any cough suppressants/antipyretics or not, Please inform quarantine officers at the airport immediately.



			🖊 Taiwan 🔿
_	ec 31 an 1		CDC reporting email to WHO IHR of atypical pneumonia cases being isolated for treatment; Onboard quarantine inspection of direct flights from Wuhan; board quarantine inspection
	2 5 7		"5 Do's and 6 Don'ts" guidelines for travelers planning to visit China; hospital infection control
21	-		CDC organized advisory committee in China Level 1 travel notice for Wuhan; Quarantine practices at airports and ports
	9 10 13 14 16		Onboard quarantine of all direct flights arriving from Wuhan since Dec 31 (14 flights, 1317 passengers and cabin crews have been inspected) Class 5 infection disease
			Two experts visit Wuhan; Level 2 travel notice for Wuhan The activation of CECC
	20 21		First imported case from Wuhan identified through onboard quarantine; Level 3 travel notice for Wuhan
	22 23 24		Emergency meeting of TW National Security Council; surgical masks distributed to the local convenience stores
	25		Active health surveillance for close contacts; recommendations for temperature check, hand washing, avoid touching eyes, nose, and mouth, and avoid going to crowed public places
	26 28		Restrictions on entry of Chinese citizens Level 3 travel notice for China; avoid non-essential travels to China
	29 30		Guidance for public transportation, public gatherings, schools and educational institutions
	31		Mask requisitions to fulfill the needs of livelihood
F	eb 2 3 4 5		Travelers with China travel history avoid visiting hospitals and conduct self-health management for 14 days
	5 6 7		Name-based rationing system for mask purchase Map alert of the locations visited by passengers of the Diamond Princess cruise
	10 11		14-day home quarantine for entering travelers from or transiting through the endemic areas
	13		China, Hong Kong, Macao prohibited from entering TW; Health declaration form for travelers
	16 22 24 26 28		Taiwanese on Diamond Princess cruise ship under onboard quarantine/14-day central quarantine 14-day self-health management for travelers from Level 1,2 countries
N	lar 2 9		14-day home quarantine for travelers from Italy, Iran Guidelines for large-scale public gatherings
А	10 11 13		Online ordering mechanism for mask name-based system
	15 16 17		
	18 19 20 22 25 30		14-day home quarantine for entering travelers from 27 European countries or Dubai 14-day home quarantine for all inbound travelers; Foreigners entry restrictions Travel notice Level 3 for all countries Transit flights suspension
	10 10		Social distancing measures; quarantine hotels COVID-19 testing for all inbound travelers having symptoms in the past 14 days; LINE Bot system All clubs suspend operations Crowed control imposed
	14 15		Quarantine hotels for inbound travelers from Europe and USA
	18 24		Online ordering of 3D child-size masks 19 navy members confirmed aboard the combat ship Home quarantine for inbound travelers from Southeast Asia

Su SF, Han YY. Journal of Global Tealth. 2020 Jun 10(1):010380.

Thorough Border Control

Charter plane operation

Feb 3 Over 200 Taiwanese stranded in Wuhan return to Taiwan
Onboard quarantine procedure

Fever screening, nucleic acid amplification testing

Positive → negative pressure isolation wards
Negative → designated quarantine sites → 14-day period quarantine designated transport vehicles

Luggage disinfection



 Feb 8 Quarantine personnel board SuperStar Aquarius

Personal protective equipment









Transparent Information

Taiwan CDC picture card





Taiwan Centers for Disease Control 衛生福利部疾病管制署

Health education

ATTENTION Coronavirus disease 2019 (COVID-19)



Wear surgical masks when coughing or sneezing. Wash hands thoroughly with soap.



Avoid crowded places, including hospitals.

Click to see communication resources in 7 languages

Community-based prevention and control

Disease butler Chat robot DeepQ LINE@

- Temperature check
- Alcohol disinfection
- Bleach disinfection
- Wear mask when using public transport
- Regularly wash hands
- Social distancing
- Immediately report
- Punishments for spreading disinformation

1922 Communicable Disease Reporting and Consultation hotline





Epidemic prevention transport service and quarantine hotel/center

- Transportation plan from the airport
- Taxi service for quarantine-bound travelers
- Contracted hospitals for compulsory transfer to hospital of suspected cases from ports of entry
- Government aids
- Fines of between NT\$100,000 (US\$3,334) and NT\$1 million



NHI-Med System

Clinical management

- Ministry of Health and Welfare/Taiwan
 Centers for Disease Control
- List of designated isolation hospitals and responding hospitals of the Communicable Disease Control Medical Network (CDCMN)
- Interim guidelines for clinical management of COVID-19 infection
- Medical device supplies
- Limit the size of work units
- Maintain a high bed-per-capita ratio
- Integration of health and immigration databases to track travelers with Covid-19 symptoms
- Nationalized Healthcare System
- Wearing masks, checking temperatures, filling in or reporting travel/contact history when entering hospitals
- Separate entrances and exits



NTUH pandemic clinic

Entering hospital



https://healthcare_in-eur

Before entering the Taipei Medical University Hospital, visitors must pass an infrared thermometer checkpoint and present their personal health card Source:

Central production and distribution of masks/medical supplies

- Domestic face mask production
- Name-Based Mask Distribution System
- Online mask ordering
- eMask + NIH card

(National Health Insurance





The NHIA releases the updates on the mask stocks of every single NHI-contracted pharmacy on the Government Open Data Platform and provides the information of the NHIcontracted pharmacies on the NHIA website.





covid19.mohw.gov.tw

Technology

The government's open data platform

 ∇

兒童口里 82片

哪裡買口罩 (02/07 14:48 政府開放資料平台提供)

娸淇藥局 醫療・81 公尺

展佑藥局 器療・388 公尺

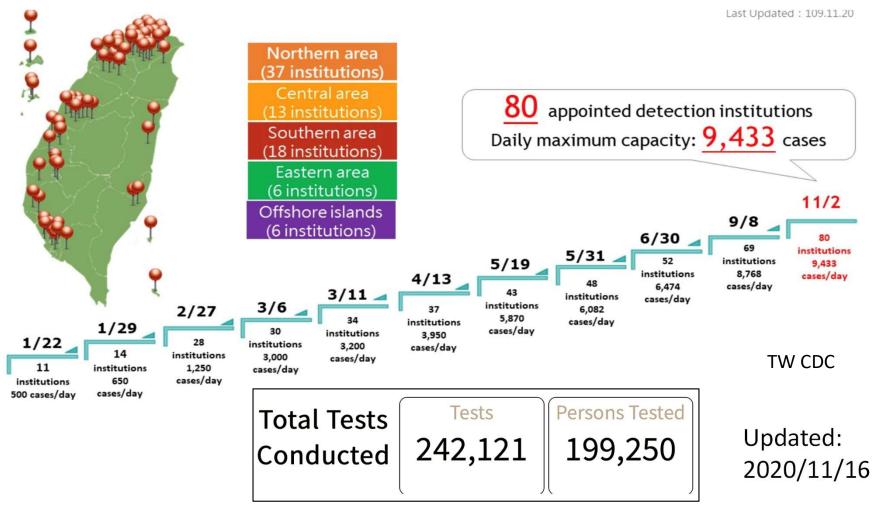
成人口罩 138片

- LINE SPOT Query the location and quantity of masks sold
- App to track local mask supplies
- Disease butler



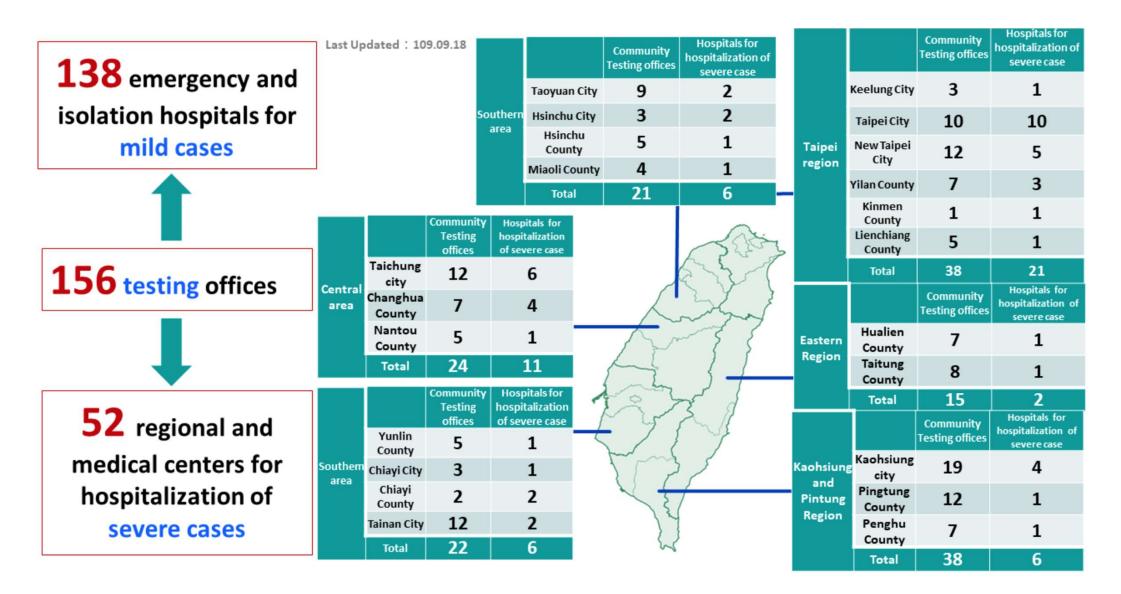


National testing network



including reported suspected COVID-19 cases (from January 15, 2020), sentinel laboratory surveillance (from January 2020), outbreak surveillance (from October 2019), test-negative for severe complicated influenza cases (since October 2019), people who had previously unexplained pneumonia, and self-paid SARS-CoV-2 testings (since 2020/4/20).

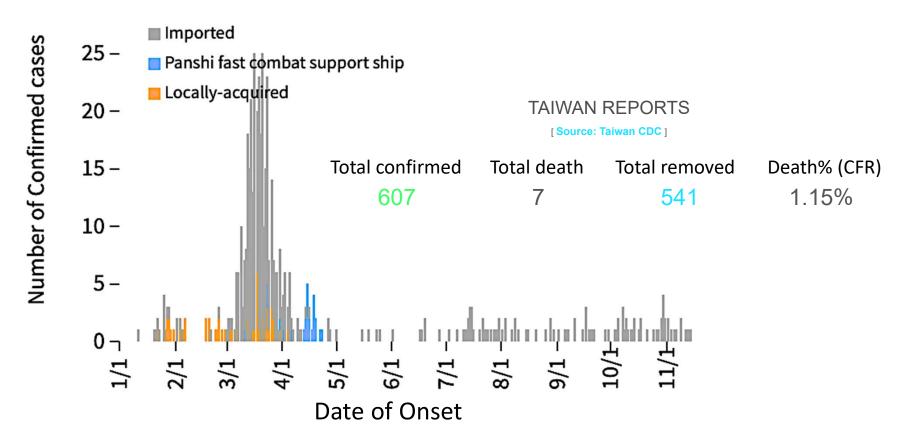
Community surveillance network



TW CDC

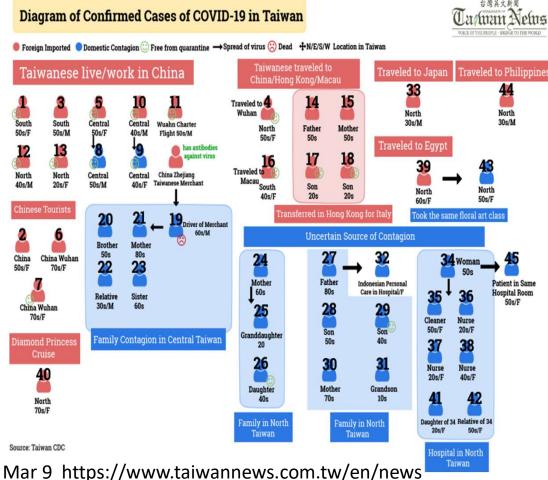
Taiwan marked no locally transmitted coronavirus cases for 220 days, as of ~24 million people's total number of infections reported stands at 607 and the COVID-19 death toll at seven (as of Nov 19)

Number of Confirmed Cases of COVID-19



https://sites.google.com/cdc.gov.tw/2019-ncov/taiwan

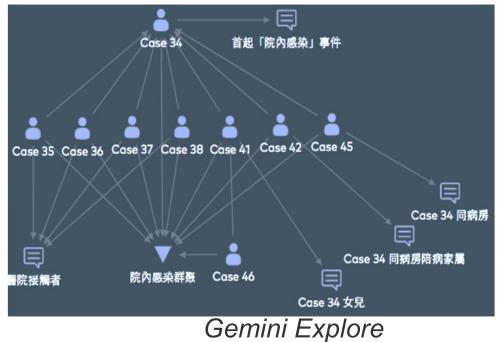
Contact tracing



 All close contacts were quarantined at home for 14 days after their last exposure to the index case

- CDC outbreak investigation team
- thorough epidemiological investigation

The definition of a close contact was a person who did not wear appropriate personal protection equipment (PPE) while having face-to-face contact with a confirmed case for more than 15 minutes during the investigation period.



Isolation/Quarantine measures

CECC Measures for Following Up on Persons at Risk of Infection

03.19.2020

Intervention	Home Isolation	Home Quarantine	Self-health management	
Groups of persons	Persons who had contact with confirmed cases	People with travel history	 Applicants who had been approved to travel to Hong Kong or Macao Reported cases who have tested negative and met criteria for being released from isolation People reported and tested for COVID-19 under "COVID-19 Community-based Surveillance" 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	 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 	 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 	 Asymptomatic individuals are to avoid going out and wear a surgical mask as required when going out; maintain personal hygiene and observe cough etiquette; and take the temperature twice a day. Individuals with fever or respiratory symptoms such as coughing or running nose are to wear a surgical mask, seek medical attention immediately and not to use public transport; infom the physician of your contact history, travel history, an whether anyone else has similar symptoms; wear a surgical 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, Article15, Special Act for Prevention, Relief and Revitalization Measures for Severe Pneumonia with Novel Pathogens 	 § Article 58, Communicable Disease Control Act § Paragraph 2, Article15, 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 	

Central Epidemic Command Center



Communicable Disease Reporting and Consultation Hotline : (1922

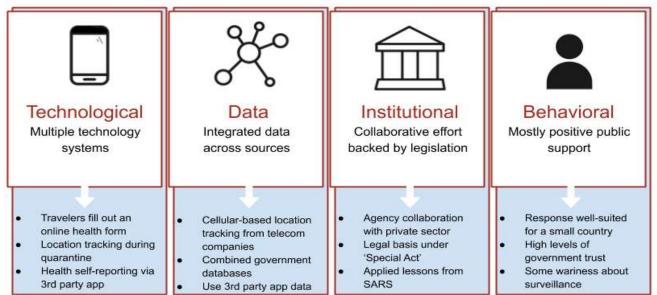


Digital Quarantine System

- Document
- Home (Self) isolation notice for contacts of COVID-19 confirmed cases
- Self-Health Management Notice



Technology



• Sep 14 around 250,000 people have been quarantined

Epidemic prevention kit

All and vals in this is ubmit to

home quarantine



https://cyber.harvard.edu/story/2020-07/country-spotlight-taiwans-digital-quarantine-system

- Those who violate home quarantine orders will be fined NT\$100,000 to NT\$1 million (around USD \$33,000).
- LINE Epidemic Prevention (Home Quarantine Monitoring System) http://line.me/R/ti/p/%40591bumsp

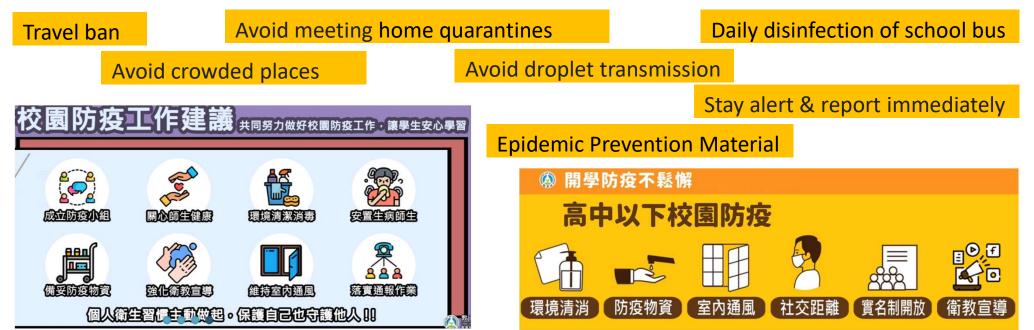


COVID-19 preparedness measures on campus

Ministry of Education (MOE)/School Health Information:

- Feb 19 conduct cleaning and disinfection procedures on campuses before the start of school semester

- Offer masks, alcohol, forehead thermometer
- Feb 20 one confirmed case/class, the class is suspended for 14 days; a school has two confirmed cases, and the whole school is closed for 14 days
- Campus Access Control Policy
- Coronavirus Task Force Activation In Health assessment form
- Suspension of nonessential physical meetings/club activities on campus
- Suspension of gatherings of 100 people or more
- MOE and NTU's Guidelines on COVID-19 Prevention for the Coming Holidays



International assistance

- Taiwan donated up to 17 million masks to the US, Europe, and diplomatic allies.
- Taiwan donated polymerase chain reaction test machines, infrared thermometers, medical masks, and forehead thermometers to the Republic of the Marshall Islands, Tuvalu, the Republic of Nauru, and the Republic of Palau.
- Taiwanese can send face masks to overseas relatives.
- April 22 Taiwan MOFA donated 500,000 surgical masks to Canada.







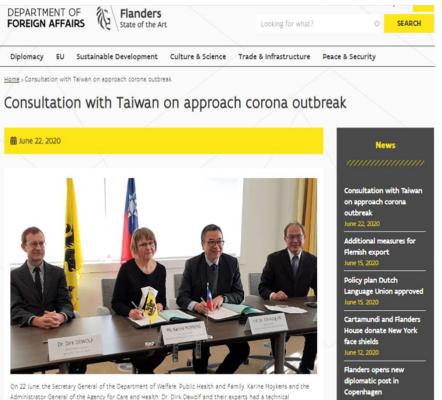
International collaboration

- May 15 Taiwan held virtual forum Review of COVID-19 prevention and control strategies with the United States, Japan, Canada and other countries for combating COVID-19
- May 3 Taiwan MOHW had a bilateral meeting with Israel, discussing over the disease prevention policies

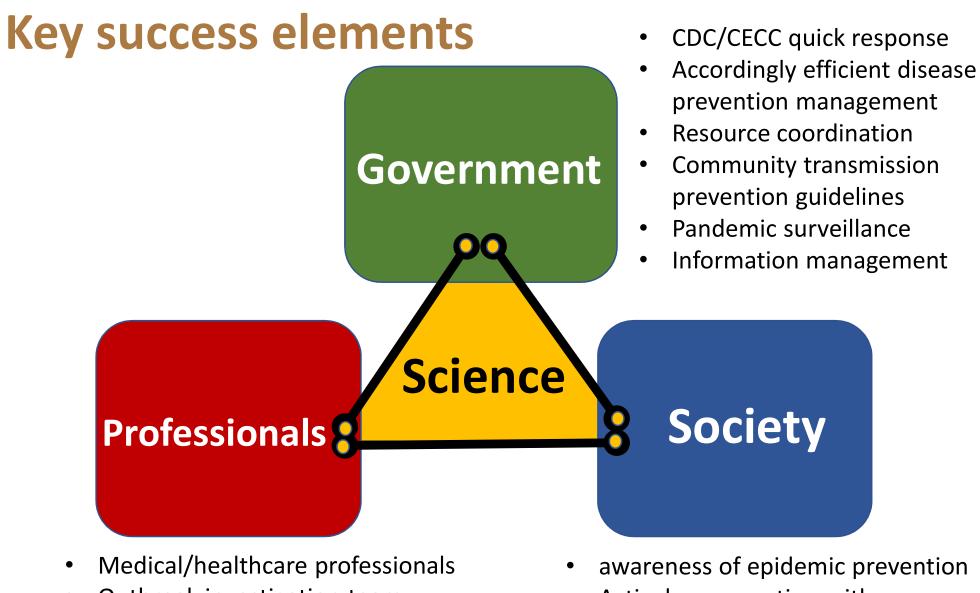


- Jun 16 TFDA held international virtual meeting on the experience of combating against COVID-19
- Jun 22 Taiwan-Belgium had a virtual meeting, discussing the key to Taiwan's successful response in combating COVID-19





consultation with the Taiwanese Ministry of Health and Welfare (MOHW).



- Outbreak investigation team
- Public health professionals
- Technology team
- NHI-MediCloud System
- Mechanical tool team

- Actively cooperation with government policies and measures
- Self-health management

Stimulus voucher

- The triple stimulus voucher program was launched on July 15 for not only Taiwanese citizens but also their foreign spouses with resident permits
- Domestic travel subsidy program









- Ministry of Economic: Compensation regulation, Relief funds, and revitalization
- Price of government-rationed face masks to be lowered next year NT\$40 (US\$1.40) for 10 masks

Post-COVID lifestyle



Taiwan Centers for Disease Control 衛生福利部疾病管制署

Epidemic prevention new life campaign guideline



- Social distancing
- Name-based system
- **Environmental disinfection**
- Wear mask







bcc.com.tw





people must wear masks





2020.12.01

Religious and worship places

Sports and

From December 1,

Entertainment

Offices and business venues











must keep practicing social distancing. Charles Ad seenal it

Acknowledgement

- Taiwan CDC/CECC
- Front-line anti-epidemic heroes
- Dr. Chien-Jen Chen, Dr. Yueh-Ying Han, Dr. Huei-Wen Chen and Mr. Nathan Peluso



