

### Assessment of Covid-19 Vaccine Procurement And Supply in Taiwan

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#### Abstract

Vaccination is the most effective way to prevent infectious diseases. Since the beginning of the COVID-19 pandemic, vaccination has been deemed to be essential in this fight against the disease. In order to provide COVID-19 vaccines to people in Taiwan, the government began its efforts to procure vaccines as soon as the candidate vaccines entered clinical trials even though information such as safety and efficacy were not available. Multiple channels were pursued by the government to gain access to vaccines, including domestic manufacturing, procurement from international manufactures and participation in the COVAX facility.

Unlike most countries, Taiwan started its national COVID-19 vaccination campaign on March 22, 2021, before domestic community outbreaks occurred in May 2021. As of July 26, 2022, around 60.58 million doses of COVID-19 vaccines arrived and were administered to 59.29 million people. The coverage rates for the completed series and a booster dose exceeded 85% and 71%, respectively, higher than the 2022 vaccination target (70%) set in the WHO Global COVID-19 Vaccination Strategy.

**Keywords:** COVID-19 vaccine, procurement, supply, immunization, coverage rate

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## Investigation of The COVID-19 Cluster Infection in A Northern Taiwan Agricultural Products Marketing Corporation in 2021

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### Abstract

In June 2021, Taiwan Centers for Disease Control received a notification that a cluster infection with COVID-19 occurred in agricultural products marketing corporation, northern Taiwan. From May 14 to July 22, 129 confirmed patients were found that working in the different markets under this agricultural marketing corporation (A market: 105 cases; B market: 24 cases).

This cluster infection was controlled by expanded identification of close contacts and screening, health monitoring, crowd control measures and entry requirement of health certificates.

Base on the report we recommended that relevant markets or companies should comply with the guideline of recommendations for epidemic prevention measures in wholesale markets, as well as make plans and implement relevant preventive measures to reduce the probability and scale of the outbreak in the market and the risk of community transmission.

**Keywords:** COVID-19, asymptomatic COVID-19 patients, wholesale food markets, social and workplace contacts

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Weekly Data of Notifiable Inases (by week of diagnosis)

Case diagnosis year		Week 31★		Week 1-31			
Classification	Disease Diagnosed	2022	2021	2022		2021	
				Total cases★	Imported cases	Total cases★	Imported cases
Category I	Plague	0	0	0	0	0	0
	Rabies	0	0	0	0	0	0
	SARS	0	0	0	0	0	0
	Smallpox	0	0	0	0	0	0
Category II	Acute Flaccid Paralysis	0	0	16	0	17	0
	Acute Viral Hepatitis type A	0	1	103	1	43	0
	Amoebiasis	2	7	120	29	116	44
	Anthrax	0	0	0	0	0	0
	Chikungunya Fever	0	0	0	0	1	1
	Cholera	0	0	0	0	0	0
	Dengue Fever	0	0	15	15	5	5
	Diphtheria	0	0	0	0	0	0
	Enterohemorrhagic E. coli Infection	0	0	0	0	0	0
	Epidemic Typhus Fever	0	0	0	0	0	0
	Hantavirus syndrome	0	0	3	0	0	0
	Malaria	0	0	2	2	1	1
	Measles	0	0	0	0	0	0
	Meningococcal Meningitis	0	0	1	0	2	0
	Paratyphoid Fever	0	0	0	0	2	0
	Poliomyelitis	0	0	0	0	0	0
	Rubella	0	0	0	0	0	0
	Shigellosis	2	1	49	2	84	0
	Typhoid fever	0	0	2	1	1	0
	West Nile Fever	0	0	0	0	0	0
Zika virus infection	0	0	0	0	0	0	
Monkeypox	1	-	3	3	-	-	
Category III	Acute Viral Hepatitis type B	1	2	59	0	89	2
	Acute Viral Hepatitis type C	12	8	269	1	344	0
	Acute Viral Hepatitis type D	0	0	0	0	0	0
	Acute Viral Hepatitis type E	0	0	7	0	5	0
	Congenital Syphilis	0	0	0	0	0	0
	Congenital Rubella Syndrome	0	0	0	0	0	0
	Enteroviruses Infection with Severe Complications	0	0	0	0	1	0
	Haemophilus Influenza type b Infection	1	0	2	0	1	0
	Japanese Encephalitis	3	2	15	0	20	0
	Legionnaires' Disease	2	7	194	1	205	0
	Mumps	10	11	130	0	260	1
	Neonatal Tetanus	0	0	0	0	0	0
	Pertussis	0	0	0	0	0	0
Tetanus	0	0	2	0	2	0	
Category IV	Botulism	0	0	0	0	0	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	2	1	17	0	32	0
	Endemic Typhus Fever	1	0	8	0	23	0
	Herpesvirus B Infection	0	0	0	0	0	0
	Influenza Case with Severe Complications	0	0	0	0	1	0
	Invasive Pneumococcal Disease	2	2	119	0	152	0
	Leptospirosis	2	2	29	0	29	0
	Listeriosis	9	1	89	0	111	0
	Lyme Disease	0	0	1	1	0	0
	Melioidosis	0	0	6	1	10	0
	Q Fever	0	1	2	0	8	0
	Scrub Typhus	11	6	137	0	151	0
Toxoplasmosis	2	0	16	0	7	0	
Tularemia	0	0	0	0	0	0	
Category V	Ebola Virus Disease	0	0	0	0	0	0
	Lassa Fever	0	0	0	0	0	0
	Marburg Hemorrhagic Fever	0	0	0	0	0	0
	Middle East Respiratory Syndrome	0	0	0	0	0	0
	Coronavirus Infections	0	0	0	0	0	0
	Novel Influenza A Virus Infections	0	0	0	0	1	0
	Rift Valley Fever	0	0	0	0	0	0
	Severe Pneumonia with Novel Pathogens	150703	94	4721747	19342	14972	591
Yellow Fever	0	0	0	0	0	0	

- ★The weekly and cumulative total numbers include indigenous and imported cases of notifiable infectious diseases.
- MDR-TB, Tuberculosis, Syphilis, Gonorrhoea, HIV Infection, AIDS, Hansen's Disease and Creutzfeldt-Jakob Disease are excluded from the table.
- Numbers of mumps and tetanus cases are summed up by the week of report.
- Since 2022/6/23, " Monkeypox " was listed as a Notifiable Infectious Disease.

## Suspected Clusters

- Five clusters related to diarrhea (3), tuberculosis (2) were reported during week 31.

## Imported Infectious Diseases

- There were 1709 imported cases from 38 countries during week 31.  
**Severe Pneumonia with Novel Pathogens:** 1708 cases from Vietnam (120), USA (87), Japan (31), the Philippines (29), Singapore (27), Thailand (23), UK (23), Germany (23), Netherlands (22), Cambodia (16), Malaysia (15), Australia (13), Indonesia (10), and the remaining 20 countries have less than 10 cases, 1168 unknowns.  
**Monkeypox:** 1 case from USA.
- During week 1–31, there were 19399 imported cases from 123 countries. The top three countries are Vietnam (2658), USA (1827), Indonesia (1105).
- During week 1–31, the notifiable diseases with the highest number of imported cases are Severe Pneumonia with Novel Pathogens (19342).

## Summary of Epidemic

- **Severe Pneumonia with Novel Pathogens :** Taiwan is in the stage of widespread transmission of COVID-19, and the epidemic slows down gradually. Omicron BA.5 subvariants has been dominant in global and spread in many countries. Because of the increase of international travel during summer vacation, the risk of imported cases in Taiwan raises.
- **Japanese Encephalitis:** Taiwan is in the midst of Japanese Encephalitis season, individuals living in all counties in Taiwan are at risk of infection.

### Weekly Data of Notifiable Inases (by week of diagnosis)

Case diagnosis year		Week 32★		Week 1-32			
Classification	Disease Diagnosed	2022	2021	2022		2021	
				Total cases★	Imported cases	Total cases★	Imported cases
Category I	Plague	0	0	0	0	0	0
	Rabies	0	0	0	0	0	0
	SARS	0	0	0	0	0	0
	Smallpox	0	0	0	0	0	0
Category II	Acute Flaccid Paralysis	1	2	17	0	19	0
	Acute Viral Hepatitis type A	3	0	106	1	43	0
	Amoebiasis	3	3	123	29	119	45
	Anthrax	0	0	0	0	0	0
	Chikungunya Fever	0	0	0	0	1	1
	Cholera	0	0	0	0	0	0
	Dengue Fever	5	0	20	20	5	5
	Diphtheria	0	0	0	0	0	0
	Enterohemorrhagic E. coli Infection	0	0	0	0	0	0
	Epidemic Typhus Fever	0	0	0	0	0	0
	Hantavirus syndrome	0	0	3	0	0	0
	Malaria	0	0	2	2	1	1
	Measles	0	0	0	0	0	0
	Meningococcal Meningitis	0	0	1	0	2	0
	Paratyphoid Fever	0	0	0	0	2	0
	Poliomyelitis	0	0	0	0	0	0
	Rubella	0	0	0	0	0	0
	Shigellosis	1	1	50	2	85	0
	Typhoid fever	0	0	2	1	1	0
	West Nile Fever	0	0	0	0	0	0
Zika virus infection	0	0	0	0	0	0	
Monkeypox	0	-	3	3	-	-	
Category III	Acute Viral Hepatitis type B	0	3	59	0	92	2
	Acute Viral Hepatitis type C	7	12	274	1	356	0
	Acute Viral Hepatitis type D	0	0	0	0	0	0
	Acute Viral Hepatitis type E	0	0	7	0	5	0
	Congenital Syphilis	0	0	0	0	0	0
	Congenital Rubella Syndrome	0	0	0	0	0	0
	Enteroviruses Infection with Severe Complications	0	0	0	0	1	0
	Haemophilus Influenza type b Infection	0	0	2	0	1	0
	Japanese Encephalitis	3	0	18	0	20	0
	Legionnaires' Disease	8	9	202	1	214	0
	Mumps	4	5	134	0	265	1
	Neonatal Tetanus	0	0	0	0	0	0
	Pertussis	0	0	0	0	0	0
Tetanus	0	1	2	0	3	0	
Category IV	Botulism	0	0	0	0	0	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	0	1	17	0	33	0
	Endemic Typhus Fever	2	1	10	0	24	0
	Herpesvirus B Infection	0	0	0	0	0	0
	Influenza Case with Severe Complications	0	0	0	0	1	0
	Invasive Pneumococcal Disease	0	1	119	0	153	0
	Leptospirosis	0	0	29	0	29	0
	Listeriosis	2	1	91	0	112	0
	Lyme Disease	0	0	1	1	0	0
	Melioidosis	1	0	7	1	10	0
	Q Fever	0	0	2	0	8	0
	Scrub Typhus	12	10	149	0	161	0
Toxoplasmosis	0	2	16	0	9	0	
Tularemia	0	0	0	0	0	0	
Category V	Ebola Virus Disease	0	0	0	0	0	0
	Lassa Fever	0	0	0	0	0	0
	Marburg Hemorrhagic Fever	0	0	0	0	0	0
	Middle East Respiratory Syndrome	0	0	0	0	0	0
	Coronavirus Infections	0	0	0	0	1	0
	Novel Influenza A Virus Infections	0	0	0	0	0	0
	Rift Valley Fever	0	0	0	0	0	0
Severe Pneumonia with Novel Pathogens	150044	72	4871703	20900	15044	631	
Yellow Fever	0	0	0	0	0	0	

- ★The weekly and cumulative total numbers include indigenous and imported cases of notifiable infectious diseases.
- MDR-TB, Tuberculosis, Syphilis, Gonorrhoea, HIV Infection, AIDS, Hansen's Disease and Creutzfeldt-Jakob Disease are excluded from the table.
- Numbers of mumps and tetanus cases are summed up by the week of report.
- Since 2022/6/23, " Monkeypox " was listed as a Notifiable Infectious Disease.

## Suspected Clusters

- Six clusters related to diarrhea (4), tuberculosis (2) were reported during week 32.

## Imported Infectious Diseases

- There were 1560 imported cases from 39 countries during week 32.
  - Severe Pneumonia with Novel Pathogens:** 1555 cases from Vietnam (113), USA (58), Thailand (42), Singapore (33), the Philippines (31), Canada (27), Japan (21), Malaysia (15), Cambodia (15), Korea (12), Hong Kong (10), and the remaining 28 countries have less than 10 cases, 1076 unknowns.
  - Dengue Fever:** 5 cases from Vietnam (3), Thailand (1), and Singapore (1).
- During week 1–32, there were 20962 imported cases from 123 countries. The top three countries are Vietnam (2776), USA (1887), Indonesia (1113).
- During week 1–32, the notifiable diseases with the highest number of imported cases are Severe Pneumonia with Novel Pathogens (20900).

## Summary of Epidemic

- **Severe Pneumonia with Novel Pathogens :** Taiwan is in the stage of widespread transmission of COVID-19. The new cases of the Omicron subvariants BA.5 continue to appear in community, and the COVID-19 cases raise in Northern Taiwan. Omicron BA.5 subvariants has been dominant in global and spread in many countries, and the increase of international travel during summer vacation, therefore it is expected that the number of imported cases and the risk for local transmission will raise.
- **Japanese Encephalitis:** Taiwan is in the midst of Japanese Encephalitis season, individuals living in all counties in Taiwan are at risk of infection.

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