

### An Outbreak of COVID-19 in a Hospital and Affiliated Nursing Home in Central Taiwan, 2021

Chih-Kai Chang<sup>1\*</sup>, Kung-Ching Wang<sup>1</sup>, Du-Ling Lin<sup>1</sup>, Pei-Fang Lai<sup>2</sup>,  
Ching-Fen Ko<sup>1</sup>, Jhy-Wen Wu<sup>1</sup>

#### Abstract

On June 1, 2021, Taiwan Centers for Disease Control was notified of a confirmed COVID-19 case. The patient was a resident of a nursing home located on the third floor of a hospital. On the following day, two other confirmed cases were diagnosed, including one patient and one medical staff in the 6<sup>th</sup>-floor ward of the hospital. In order to control the outbreak, all hospital staff received COVID-19 PCR tests, and discharged patients were followed. A total of 17 confirmed cases were identified in this outbreak, including two residents of the nursing home, one medical staff, seven inpatients, and seven caregivers in the 6<sup>th</sup>-floor ward. SARS-CoV-2 RNA was detected in the environmental samples of the nursing home and the 6<sup>th</sup>-floor ward. We could not identify the infection source of the index case, while the cases in the 6<sup>th</sup>-floor ward were related to their contact history or environmental exposure. We recommended that when a COVID-19 cluster occurs in a hospital, it is necessary to track the discharged patients as soon as possible. If a hospital lacks sufficient manpower despite applying a backup manpower plan and stopping non-emergent services, medical staff may return to work if they wear appropriate protective equipment and receive regular COVID-19 testing. In addition, enhancing disinfection of frequently touching surfaces is necessary to reduce the possibility of SARS-CoV-2 transmission through virus-contaminated environments.

**Keywords:** COVID-19, outbreak, hospital, nursing home

<sup>1</sup>Central Regional Center, Centers for Disease Control, Ministry of Health and Welfare, Taiwan

<sup>2</sup>Division of Chronic Infectious Diseases, Centers for Disease Control, Ministry of Health and Welfare, Taiwan  
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Corresponding author: Chih-Kai Chang<sup>1\*</sup>

E-mail: akie@cdc.gov.tw

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# Investigation and Prevention Measures of the First Aircraft Coronavirus Disease (COVID-19) Cluster Infection in Taiwan, December 2020

Ting-Yu Cheng<sup>\*</sup>, Fang-Tzu Chang, Kun-Bin Wu

## Abstract

On December 17, 2020, a hospital reported that a 31-year-old flight crew returned to Taiwan on December 16 was diagnosed with Coronavirus Disease (COVID-19). The Northern Regional Center of Taiwan Centers for Disease Control, Taoyuan Department of Public Health, and the crew's airline company immediately conducted an epidemiological investigation, contact tracing, and sample collection. As of January 18, 2021, a total of 154 contacts were monitored, and 106 were tested for SARS-CoV-2. Among the four confirmed cases, two were aircraft-related transmissions, one was imported, and one was a domestic case. No other domestic cases were identified by the end of the monitoring period, indicating that the outbreak did not further spread to the community.

The crew member involved in this case failed to comply with prevention and control regulations by not wearing a mask while contacting individuals at an outstation. Additionally, symptomatic individuals continued to work without wearing masks. Considering the prolonged exposure in enclosed spaces during flights without adequate protection based on the investigation findings, we recommended that personnel should wear masks throughout the entire duty period and implement relevant protective measures.

Furthermore, the Central Epidemic Command Center required the airline company to review the flight dispatch management mechanism to reduce the risk of COVID-19 transmission on board.

**Keywords:** Severe specific infectious pneumonia, novel coronavirus, COVID-19, crew, aircraft, cluster infection

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Corresponding author: Ting-Yu Cheng<sup>\*</sup>  
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week 29–week 30, 2023 (Jul.16, 2023–Jul.29, 2023)

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Weekly Data of Notifiable Inases (by week of diagnosis)

Case diagnosis year		Week 29★		Week 1–29			
Classification	Disease Diagnosed	2023	2022	2023		2022	
				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
	Cholera	0	0	1	0	0	0
Category II	Typhoid fever	0	1	2	2	2	1
	Paratyphoid Fever	1	0	7	0	0	0
	Epidemic Typhus Fever	0	0	0	0	0	0
	Shigellosis	0	1	35	10	47	3
	Amoebiasis	5	8	154	61	114	40
	Enterohemorrhagic E.coli Infection	0	0	0	0	0	0
	Anthrax	0	0	0	0	0	0
	Diphtheria	0	0	0	0	0	0
	Meningococcal Meningitis	0	0	2	0	1	0
	Poliomyelitis	0	0	0	0	0	0
	Acute Flaccid Paralysis	1	0	36	0	16	0
	Measles	0	0	2	2	0	0
	Rubella	0	0	0	0	0	0
	Dengue Fever	205	2	664	77	11	11
	West Nile Fever	0	0	0	0	0	0
	Acute Viral Hepatitis type A	1	2	53	2	103	1
	Malaria	0	0	1	1	2	2
	Chikungunya Fever	0	0	5	5	0	0
	Hantavirus syndrome	1	0	5	0	3	0
	Zika virus infection	0	0	2	2	0	0
Mpox	14	0	249	12	2	2	
Category III	Acute Viral Hepatitis type B	1	0	79	4	55	0
	Acute Viral Hepatitis type C	9	8	327	0	248	1
	Acute Viral Hepatitis type D	0	0	0	0	0	0
	Acute Viral Hepatitis type E	0	0	8	3	7	0
	Acute Viral Hepatitis, untyped	0	0	3	1	0	0
	Congenital Syphilis	0	0	0	0	0	0
	Congenital Rubella Syndrome	0	0	0	0	0	0
	Enteroviruses Infection with Severe Complications	1	0	10	0	0	0
	Haemophilus Influenza type b Infection	0	0	0	0	1	0
	Japanese Encephalitis	3	3	15	0	10	0
	Legionnaires' Disease	11	1	180	5	185	1
	Mumps	11	6	163	4	117	0
	Neonatal Tetanus	0	0	0	0	0	0
	Pertussis	0	0	0	0	0	0
Tetanus	1	0	4	0	2	0	
Category IV	Botulism	0	0	0	0	0	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	0	0	28	0	15	0
	Endemic Typhus Fever	4	1	14	0	7	0
	Herpesvirus B Infection	0	0	0	0	0	0
	Influenza Case with Severe Complications	31	0	405	4	0	0
	Invasive Pneumococcal Disease	2	2	174	1	109	0
	Leptospirosis	1	3	28	0	24	0
	Listeriosis	2	2	114	1	80	0
	Lyme Disease	0	0	0	0	1	1
	Melioidosis	3	1	11	0	5	1
	Q Fever	0	0	2	0	2	0
	Scrub Typhus	5	5	86	0	115	0
	Toxoplasmosis	1	1	20	2	14	0
	Tularemia	0	0	0	0	0	0
Severe Fever with Thrombocytopenia Syndrome	0	0	0	0	1	0	
Severe Pneumonia with Novel Pathogens	907	165,912	1,389,143	18,122	4,413,112	16,044	
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 Coronavirus Infections	0	0	0	0	0	0
	Novel Influenza A Virus Infections	0	0	1	0	0	0
	Rift Valley Fever	0	0	0	0	0	0
	Yellow Fever	0	0	0	0	0	0

1. ★The weekly and cumulative total numbers include indigenous and imported cases of notifiable infectious diseases.  
 2. MDR-TB, Tuberculosis, Syphilis, Gonorrhea, HIV Infection, AIDS, Hansen's Disease and Creutzfeldt-Jakob Disease are excluded from the table.  
 3. Numbers of Mumps and Tetanus are based on reported cases and summed up by week of report.  
 4. "Mpox" has been listed as a Notifiable Infectious Disease since June 23, 2022.  
 5. "Severe Pneumonia with Novel Pathogens": The case definition has been revised to include patients who have both a positive test for SARS-CoV-2 and associated complications since March 20, 2023. Additionally, it has been modified from Category V to Category IV since May 1, 2023.

## Suspected Clusters

- Twenty-four clusters related to Upper respiratory tract infection (10), Enterovirus (7), TB (4) and Diarrhea (3) were reported during week 29.

## Imported Infectious Diseases

- There were 8 imported cases from at least 6 countries/areas during week 29.  
**Dengue Fever:** 6 cases from Thailand (3), Malaysia (1), Vietnam (1) and Bangladesh (1).  
**Severe Pneumonia with Novel Pathogens:** 1 case from Japan.  
**Legionnaires' Disease:** 1 case from China.
- During week 1–29, there were 18,321 imported cases of notifiable diseases. The top three were Severe Pneumonia with Novel Pathogens (18,122), Dengue Fever (77) and Amoebiasis (61).
- During week 1–29, imported cases of notifiable diseases were from at least 47 countries/areas. The top three were China (3,164), Japan (719) and Korea (183).

## Summary of Epidemic

- **Severe Pneumonia with Novel Pathogens:** The epidemic is decreasing.
- **Mpox:** The risk of epidemic transmission remains.
- **Japanese Encephalitis:** In the midst of the epidemic season, the risk of new cases is expected to be detected in all counties.
- **Dengue Fever:** The epidemic is increasing, and the vector indices in some counties are high, indicating an elevated risk of epidemic transmission.

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

Case diagnosis year		Week 30★		Week 1–30			
Classification	Disease Diagnosed	2023	2022	2023		2022	
				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	Cholera	0	0	1	0	0	0
	Typhoid fever	0	0	2	2	2	1
	Paratyphoid Fever	1	0	8	0	0	0
	Epidemic Typhus Fever	0	0	0	0	0	0
	Shigellosis	2	0	37	11	47	3
	Amoebiasis	3	4	157	66	118	41
	Enterohemorrhagic E.coli Infection	0	0	0	0	0	0
	Anthrax	0	0	0	0	0	0
	Diphtheria	0	0	0	0	0	0
	Meningococcal Meningitis	1	0	3	0	1	0
	Poliomyelitis	0	0	0	0	0	0
	Acute Flaccid Paralysis	0	0	36	0	16	0
	Measles	0	0	2	2	0	0
	Rubella	0	0	0	0	0	0
	Dengue Fever	223	4	887	85	15	15
	West Nile Fever	0	0	0	0	0	0
	Acute Viral Hepatitis type A	0	0	53	2	103	1
	Malaria	0	0	1	1	2	2
	Chikungunya Fever	0	0	5	5	0	0
Hantavirus syndrome	0	0	5	0	3	0	
Zika virus infection	0	0	2	2	0	0	
Mpox	5	0	254	12	2	2	
Category III	Acute Viral Hepatitis type B	1	2	80	4	57	0
	Acute Viral Hepatitis type C	6	7	333	0	255	1
	Acute Viral Hepatitis type D	0	0	0	0	0	0
	Acute Viral Hepatitis type E	1	0	9	3	7	0
	Acute Viral Hepatitis, untyped	1	0	4	1	0	0
	Congenital Syphilis	0	0	0	0	0	0
	Congenital Rubella Syndrome	0	0	0	0	0	0
	Enteroviruses Infection with Severe Complications	1	0	11	0	0	0
	Haemophilus Influenza type b Infection	0	0	0	0	1	0
	Japanese Encephalitis	3	2	18	0	12	0
	Legionnaires' Disease	11	7	191	5	192	1
	Mumps	3	3	166	5	120	0
	Neonatal Tetanus	0	0	0	0	0	0
	Pertussis	0	0	0	0	0	0
Tetanus	0	0	4	0	2	0	
Category IV	Botulism	0	0	0	0	0	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	1	0	29	0	15	0
	Endemic Typhus Fever	3	0	17	0	7	0
	Herpesvirus B Infection	0	0	0	0	0	0
	Influenza Case with Severe Complications	17	0	422	5	0	0
	Invasive Pneumococcal Disease	3	8	177	1	117	0
	Leptospirosis	2	3	30	0	27	0
	Listeriosis	5	0	119	1	80	0
	Lyme Disease	0	0	0	0	1	1
	Melioidosis	0	1	11	0	6	1
	Q Fever	0	0	2	0	2	0
	Scrub Typhus	7	11	93	0	126	0
	Toxoplasmosis	1	0	21	2	14	0
	Tularemia	0	0	0	0	0	0
Severe Fever with Thrombocytopenia Syndrome	0	0	0	0	1	0	
Severe Pneumonia with Novel Pathogens	679	1,575,96	1,389,822	18,123	4,570,708	17,632	
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 Coronavirus Infections	0	0	0	0	0	0
	Novel Influenza A Virus Infections	0	0	1	0	0	0
	Rift Valley Fever	0	0	0	0	0	0
Yellow Fever	0	0	0	0	0	0	

1. ★The weekly and cumulative total numbers include indigenous and imported cases of notifiable infectious diseases.  
2. MDR-TB, Tuberculosis, Syphilis, Gonorrhoea, HIV Infection, AIDS, Hansen’s Disease and Creutzfeldt-Jakob Disease are excluded from the table.  
3. Numbers of mumps and tetanus cases are summed up by the week of report.  
4. "Mpox" has been listed as a Notifiable Infectious Disease since June 23, 2022.  
5. "Severe Pneumonia with Novel Pathogens": The case definition has been revised to include patients who have both a positive test for SARS-CoV-2 and associated complications since March 20, 2023. Additionally, it has been modified from Category V to Category IV since May 1, 2023.

## Suspected Clusters

- Twenty-two clusters related to Upper respiratory tract infection (10), Diarrhea (5), TB (5) and Enterovirus (2) were reported during week 30.

## Imported Infectious Diseases

- There were 13 imported cases from at least 7 countries/areas during week 30.
  - Dengue Fever:** 8 cases from Vietnam (2), Malaysia (2), Indonesia (1), Singapore (1), Thailand (1) and China (1).
  - Severe Pneumonia with Novel Pathogens:** 1 case from China (1).
  - Shigellosis:** 1 case from Indonesia (1).
  - Influenza Case with Severe Complications:** 1 case from Thailand (1).
  - Mumps:** 1 case from the Philippines (1).
  - Amoebiasis:** 1 case from Indonesia (1).
- During week 1–30, there were 18,338 imported cases of notifiable diseases. The top three were Severe Pneumonia with Novel Pathogens (18,123), Dengue Fever (85) and Amoebiasis (66).
- During week 1–30, imported cases of notifiable diseases were from at least 47 countries/areas. The top three were China (3,166), Japan (719) and Korea (183).

## Summary of Epidemic

- **Severe Pneumonia with Novel Pathogens:** The epidemic is decreasing.
- **Mpox:** The risk of epidemic transmission declines.
- **Japanese Encephalitis:** In the midst of the epidemic season, the risk of new cases is expected to be detected in all counties.
- **Dengue Fever:** During the epidemic season, recent rainfalls may lead to an increase in vector indices in some counties, and the risk of epidemic transmission rises.

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