

### Investigation of An Imported Family Cluster of COVID-19, Central Taiwan, January 2020

Yang Li\*, Chia-Ping Su, Wan-Ting Huang

#### Abstract

On January 30, a 44-year-old female without a history of traveling from China was confirmed as a COVID-19 patient. The patient reported fever, cough, myalgia, and headache on January 27. Her 44-year-old husband, who just returned from Wuhan, China on January 12, had mild upper respiratory symptoms on January 21. On January 30, the Taiwan Centers for Disease Control conducted epidemiological investigation to explore the source and magnitude of this outbreak. Of 31 close contacts (10 from households, 19 from hospital, and 2 other contacts), six (19%) developed symptoms during the 14-day postexposure follow-up period, but none were tested positive for SARS-CoV-2. This cluster comprised two cases of COVID-19, with transmission by infector from Wuhan (the husband).

We recommend that suspected COVID-19 patients from epidemic region should be notified, isolated and tested promptly. Close contacts of confirmed COVID-19 cases, particularly household contacts, should be quarantined and tested as early as possible to detect COVID-19 infection and prevent community spreading.

**Keywords:** COVID-19, imported, family cluster, household contact

## Investigation of A COVID-19 Contracted Musician Traveling to Australia after Visiting Taiwan, March 2020

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### Abstract

On March 5, 2020, Taiwan Centers for Disease Control received a notification that a symptomatic traveler who traveled to Australia from Taiwan had been confirmed with Coronavirus disease 2019 (COVID-19). The patient was an Australian musician who stayed in Taiwan from February 28 to March 2. After the notification, health authorities conducted epidemiologic investigation and contact tracing. The patient stayed in United Kingdom for a long period and had intermittent cough since last winter. Because United Kingdom was not listed as an epidemic warning region at that time, he was not tested nor reported for COVID-19 at the airport quarantine station or at his clinic visit in Taipei while his symptom was getting worse. During his stay in Taiwan, he attended several public events but rarely wore a mask. Among 418 contacts identified, 148 were subjected to home quarantine, 270 were advised to conduct self health management. Overall, 52 contacts were tested for COVID-19 (including 34 people tested for enhanced surveillance); all tested negative. As of March 16, no secondary transmission was identified. To avoid imported cases related infections in Taiwan, Central Epidemic Command Center immediately updated relevant disease preventing guidance for border quarantine, public gatherings and community disease prevention.

**Keywords:** COVID-19, epidemiologic investigation, contact tracing

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Weekly Data of Notifiable Infectious Diseases (by week of diagnosis)

Case diagnosis year		Week 41★		Week 1–41			
Classification	Disease Diagnosed	2020	2019	2020		2019	
				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	3	2	24	0	51	1
	Acute Viral Hepatitis type A	0	3	68	8	76	20
	Amoebiasis	3	7	197	107	267	147
	Anthrax	0	0	0	0	0	0
	Chikungunya Fever	0	0	3	3	96	75
	Cholera	0	0	1	0	0	0
	Dengue Fever	7	14	125	65	523	428
	Diphtheria	0	0	0	0	0	0
	Enterohemorrhagic E. coli Infection	0	0	0	0	1	0
	Epidemic Typhus Fever	0	0	0	0	0	0
	Hantavirus Pulmonary Syndrome	0	0	0	0	0	0
	Hemorrhagic Fever with Renal Syndrome	0	0	9	0	1	0
	Malaria	0	0	1	1	6	6
	Measles	0	0	2	2	130	52
	Meningococcal Meningitis	0	0	5	0	4	0
	Paratyphoid Fever	0	0	0	0	7	6
	Poliomyelitis	0	0	0	0	0	0
	Rubella	0	0	0	0	21	17
Shigellosis	4	3	123	21	107	37	
Typhoid fever	0	0	7	3	23	19	
West Nile Fever	0	0	0	0	0	0	
Zika virus infection	0	0	2	2	4	4	
Category III	Acute Viral Hepatitis type B	3	1	86	2	86	3
	Acute Viral Hepatitis type C	9	15	474	4	477	2
	Acute Viral Hepatitis type D	0	0	0	0	0	0
	Acute Viral Hepatitis type E	0	0	8	0	8	4
	Congenital Syphilis	0	0	0	0	0	0
	Congenital Rubella Syndrome	0	0	0	0	0	0
	Enteroviruses Infection with Severe Complications	0	4	7	0	48	1
	Haemophilus Influenza type b Infection	0	0	3	0	1	0
	Japanese Encephalitis	0	0	21	0	20	2
	Legionnaires' Disease	9	3	227	8	210	15
	Mumps	8	8	395	6	476	8
	Neonatal Tetanus	0	0	0	0	0	0
Pertussis	0	0	8	0	24	0	
Tetanus	0	0	7	0	3	0	
Category IV	Botulism	0	0	1	0	0	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	9	0	40	0	52	1
	Endemic Typhus Fever	0	0	16	0	24	3
	Herpesvirus B Infection	0	0	0	0	0	0
	Influenza Case with Severe Complications	0	33	548	6	1851	8
	Invasive Pneumococcal Disease	3	6	196	0	340	2
	Leptospirosis	8	4	69	0	98	1
	Listeriosis	0	1	107	0	149	1
	Lyme Disease	0	0	0	0	1	1
	Melioidosis	1	2	16	1	39	1
	Q Fever	0	0	12	0	18	4
	Scrub Typhus	19	8	318	1	379	4
Toxoplasmosis	3	0	10	0	13	2	
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	0	0
	Rift Valley Fever	0	0	0	0	0	0
Severe Pneumonia with Novel Pathogens	10	-	527	472	-	-	
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 2020/1/15, "Severe Pneumonia with Novel Pathogens" was listed as a Notifiable Infectious Disease.

## Suspected Clusters

- Twenty-seven clusters related to diarrhea (20), tuberculosis (3), upper respiratory tract infection (2), enterovirus (1), and varicella (1) were reported during week 41.

## Imported Infectious Diseases

- There were 21 imported cases from 9 countries during week 41.

Diseases	Countries									Total
	Indonesia	Philippines	USA	Myanmar	France	Ireland	Ukraine	India	Vietnam	
Severe Pneumonia with Novel Pathogens		4	2		1	1	1	1		10
Amoebiasis	9			1						10
Dengue Fever									1	1
Total	9	4	2	1	1	1	1	1	1	21

- As of week 41, there were 706 imported cases from 52 countries. The top 3 countries are Indonesia (150), USA (98), and Philippines (79).
- The three notifiable diseases with the highest number of imported cases are Severe Pneumonia with Novel Pathogens (472), Amoebiasis (107), and Dengue Fever (65).

## Summary of Epidemic

- **Severe Pneumonia with Novel Pathogens** : The COVID-19 pandemic is still critical, and risks of importation and local transmission persist.
- **Dengue Fever** : Taiwan is in dengue fever season. The new cases involving cluster might continue to occur. The number of breeding sites increased because of rainfall in northern Taiwan over the past few weeks. The risk of infection in the community continue.
- **Influenza-like illness** : The epidemic status is expected to increase gradually because the temperature is fluctuating.

### Weekly Data of Notifiable Infectious Diseases (by week of diagnosis)

Case diagnosis year		Week 42★		Week 1-42			
Classification	Disease Diagnosed	2020	2019	2020		2019	
				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	25	0	53	1
	Acute Viral Hepatitis type A	0	0	68	8	76	20
	Amoebiasis	4	2	201	108	269	149
	Anthrax	0	0	0	0	0	0
	Chikungunya Fever	0	4	3	3	100	79
	Cholera	0	0	1	0	0	0
	Dengue Fever	6	11	131	65	534	435
	Diphtheria	0	0	0	0	0	0
	Enterohemorrhagic E. coli Infection	0	0	0	0	1	0
	Epidemic Typhus Fever	0	0	0	0	0	0
	Hantavirus Pulmonary Syndrome	0	0	0	0	0	0
	Hemorrhagic Fever with Renal Syndrome	1	0	10	0	1	0
	Malaria	0	0	1	1	6	6
	Measles	0	3	2	2	133	53
	Meningococcal Meningitis	1	0	6	0	4	0
	Paratyphoid Fever	0	0	0	0	7	6
	Poliomyelitis	0	0	0	0	0	0
	Rubella	0	0	0	0	21	17
	Shigellosis	3	4	126	21	111	38
Typhoid fever	0	0	7	3	23	19	
West Nile Fever	0	0	0	0	0	0	
Zika virus infection	0	0	2	2	4	4	
Category III	Acute Viral Hepatitis type B	0	4	86	2	90	3
	Acute Viral Hepatitis type C	17	19	491	4	496	3
	Acute Viral Hepatitis type D	0	0	0	0	0	0
	Acute Viral Hepatitis type E	0	0	8	0	8	4
	Congenital Syphilis	0	0	0	0	0	0
	Congenital Rubella Syndrome	0	0	0	0	0	0
	Enteroviruses Infection with Severe Complications	0	1	7	0	49	1
	Haemophilus Influenza type b Infection	0	0	3	0	1	0
	Japanese Encephalitis	0	1	21	0	21	2
	Legionnaires' Disease	6	7	233	8	217	15
	Mumps	11	19	406	6	495	8
	Neonatal Tetanus	0	0	0	0	0	0
	Pertussis	0	0	8	0	24	0
Tetanus	0	0	7	0	3	0	
Category IV	Botulism	0	0	1	0	0	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	0	2	40	0	54	1
	Endemic Typhus Fever	2	0	18	0	24	3
	Herpesvirus B Infection	0	0	0	0	0	0
	Influenza Case with Severe Complications	0	52	548	6	1903	8
	Invasive Pneumococcal Disease	5	10	201	0	350	2
	Leptospirosis	2	5	71	0	103	1
	Listeriosis	7	2	114	0	151	1
	Lyme Disease	0	0	0	0	1	1
	Melioidosis	0	2	16	1	41	1
	Q Fever	0	3	12	0	21	5
	Scrub Typhus	16	2	334	1	381	4
Toxoplasmosis	1	0	11	0	13	2	
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	0	0
	Rift Valley Fever	0	0	0	0	0	0
Severe Pneumonia with Novel Pathogens	8	-	535	480	-	-	
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. Since 2020/1/15, "Severe Pneumonia with Novel Pathogens" was listed as a Notifiable Infectious Disease.

## Suspected Clusters

- Twenty-nine clusters related to diarrhea (18), varicella (6), tuberculosis (4), and upper respiratory tract infection (1) were reported during week 42.

## Imported Infectious Diseases

- There were 9 imported cases from 5 countries during week 42.

Diseases	Countries					Total
	Indonesia	China	UAE	France	Philippines	
Severe Pneumonia with Novel Pathogens	4	1	1	1	1	8
Amoebiasis	1					1
Total	5	1	1	1	1	9

- As of week 42, there were 715 imported cases from 53 countries. The top 3 countries are Indonesia (155), USA (98), and Philippines (80).
- The three notifiable diseases with the highest number of imported cases are Severe Pneumonia with Novel Pathogens (480), Amoebiasis (108), and Dengue Fever (65).

## Summary of Epidemic

- **Severe Pneumonia with Novel Pathogens** : The COVID-19 pandemic is still critical, and risks of importation and local transmission persist.
- **Dengue Fever** : Taiwan is in dengue fever season. The new cases might continue to occur. The number of breeding sites increased because of rainfall in northern Taiwan over the past few weeks. The risk of infection in the community continue.
- **Influenza-like illness** : The epidemic status is expected to increase gradually because the temperature is fluctuating.
- **Enterovirus** : The epidemic status is expected to increase gradually.

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