

Response And Control Measures to A COVID-19 Case in A Long-Term Care Facility-Northern Region, Taiwan, March 2020

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Abstract

On March 21, 2020, the Taiwan Centers for Disease Control (Taiwan CDC) confirmed the first Coronavirus Disease-2019 (COVID-19) case in a long-term care facility in Taiwan. To understand the scale of infection immediately, mandated by the Central Epidemic Command Center (CECC), Taiwan CDC, the local health bureau and two designated hospitals collaboratively sampled all of the 81 residents and staff of the facility for COVID-19 RT-PCR test the same night. The designated laboratories completed the tests within 6 hours and the results were all negative. CECC held an emergency meeting on March 22 morning and decided to relocate the residents, staff and caregivers to two separate institutions. Quarantine, disinfection and infection control measures were set up properly. Public health officers identified and traced 142 contacts, of whom 100 were tested and all were negative for COVID-19. By the end of monitoring period on April 3, no new case was identified and a community spread was successfully blocked.

Keywords: Coronavirus Disease-2019, COVID-19, long-term care facility

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The Investigation of The Coronavirus Disease 2019 Case on Dunmu Fleet, 2020

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Abstract

An outbreak of coronavirus disease 2019 (COVID-19) occurred on crews of Dunmu Fleet after completion of their mission abroad and returning to Taiwan in mid-April, 2020. The first case was noticed because he had travel history abroad, but did not show any entry and exit records on his health ID card and he did not undergo home quarantine. So the hospital and health bureau concerned that he might have violated quarantine regulations. To clarify whether the home quarantine should be reissued, the health bureau conducted a further investigation. We found that the first case had COVID-19-like symptoms and one of his colleagues onboard also had the same symptoms. We did an emergent test and he was diagnosed as having COVID-19 on the same day. The central and local governments, as well as other ministries, collaborated immediately to prevent further transmission in the community. COVID-19 spread easily because of the confined cabin space, long voyage and lack of diagnosis equipment on ships. We suggest that all crew members should undergo a 14-day quarantine period, or under the current regulations, they should be tested on COVID-19 before disembarkation to prevent the spread of disease into community.

Keywords: Outbreak, coronavirus disease 2019 (COVID-19)

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

Case diagnosis year		Week 38★		Week 1-38			
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	0	2	20	0	46	0
	Acute Viral Hepatitis type A	1	1	62	7	70	19
	Amoebiasis	4	4	175	88	242	132
	Anthrax	0	0	0	0	0	0
	Chikungunya Fever	0	10	3	3	85	68
	Cholera	0	0	1	0	0	0
	Dengue Fever	5	11	84	63	485	400
	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	1	1	1	4	4
	Measles	0	0	2	2	128	50
	Meningococcal Meningitis	0	0	5	0	4	0
	Paratyphoid Fever	0	1	0	0	6	5
	Poliomyelitis	0	0	0	0	0	0
	Rubella	0	0	0	0	21	17
Shigellosis	1	4	111	21	101	36	
Typhoid fever	1	0	6	3	21	17	
West Nile Fever	0	0	0	0	0	0	
Zika virus infection	0	0	2	2	3	3	
Category III	Acute Viral Hepatitis type B	8	2	78	2	79	3
	Acute Viral Hepatitis type C	13	11	452	4	442	2
	Acute Viral Hepatitis type D	0	0	0	0	0	0
	Acute Viral Hepatitis type E	0	0	7	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	3	7	0	39	1
	Haemophilus Influenza type b Infection	0	0	3	0	1	0
	Japanese Encephalitis	0	0	21	0	20	2
	Legionnaires' Disease	8	7	210	8	196	13
	Mumps	9	15	361	6	437	7
	Neonatal Tetanus	0	0	0	0	0	0
Pertussis	0	1	8	0	24	0	
Tetanus	0	1	7	0	2	0	
Category IV	Botulism	0	0	1	0	0	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	1	2	31	0	48	1
	Endemic Typhus Fever	0	3	15	0	20	2
	Herpesvirus B Infection	0	0	0	0	0	0
	Influenza Case with Severe Complications	0	72	548	6	1707	7
	Invasive Pneumococcal Disease	2	4	185	0	314	2
	Leptospirosis	6	7	55	0	75	0
	Listeriosis	1	6	104	0	140	1
	Lyme Disease	0	0	0	0	1	1
	Melioidosis	1	3	14	1	34	0
	Q Fever	0	1	12	0	17	4
	Scrub Typhus	11	21	290	1	349	4
Toxoplasmosis	0	0	6	0	12	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	-	506	451	-	-	
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-nine clusters related to diarrhea (16), tuberculosis (7), varicella (5), and upper respiratory tract infection (1) were reported during week 38.

Imported Infectious Diseases

- There were 10 imported cases from 5 countries during week 38.

Diseases	Countries					Total
	Philippines	Myanmar	UK	Japan	Indonesia	
Severe Pneumonia with Novel Pathogens	4	2	1	1		8
Amoebiasis	1				1	2
Total	5	2	1	1	1	10

- As of week 38, there were 663 imported cases from 50 countries. The top 3 countries are Indonesia (129), USA (95), and UK (73).
- The three notifiable diseases with the highest number of imported cases are Severe Pneumonia with Novel Pathogens (451), Amoebiasis (88), and Dengue Fever (63).

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 number of breeding sites increased because of rainfall in many counties/cities over the past few weeks. The risk of infection in the community raise.
- **Enterovirus** : Taiwan is in enterovirus season. The number of mild symptom cases is expected to raise.

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

Case diagnosis year		Week 39★		Week 1-39			
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	1	21	0	47	1
	Acute Viral Hepatitis type A	4	1	66	8	71	20
	Amoebiasis	12	5	187	91	247	135
	Anthrax	0	0	0	0	0	0
	Chikungunya Fever	0	6	3	3	91	72
	Cholera	0	0	1	0	0	0
	Dengue Fever	10	11	94	64	496	408
	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	1	1	1	5	5
	Measles	0	1	2	2	129	51
	Meningococcal Meningitis	0	0	5	0	4	0
	Paratyphoid Fever	0	1	0	0	7	6
	Poliomyelitis	0	0	0	0	0	0
	Rubella	0	0	0	0	21	17
Shigellosis	1	2	112	21	103	37	
Typhoid fever	0	0	6	3	21	17	
West Nile Fever	0	0	0	0	0	0	
Zika virus infection	0	1	2	2	4	4	
Category III	Acute Viral Hepatitis type B	3	2	80	2	81	3
	Acute Viral Hepatitis type C	9	10	460	4	452	2
	Acute Viral Hepatitis type D	0	0	0	0	0	0
	Acute Viral Hepatitis type E	1	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	2	7	0	41	1
	Haemophilus Influenza type b Infection	0	0	3	0	1	0
	Japanese Encephalitis	0	0	21	0	20	2
	Legionnaires' Disease	2	5	212	8	201	14
	Mumps	15	12	376	6	449	8
	Neonatal Tetanus	0	0	0	0	0	0
	Pertussis	0	0	8	0	24	0
Tetanus	0	0	7	0	2	0	
Category IV	Botulism	0	0	1	0	0	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	0	3	31	0	51	1
	Endemic Typhus Fever	1	3	16	0	23	3
	Herpesvirus B Infection	0	0	0	0	0	0
	Influenza Case with Severe Complications	0	63	548	6	1770	7
	Invasive Pneumococcal Disease	3	12	188	0	326	2
	Leptospirosis	3	13	58	0	88	0
	Listeriosis	0	4	104	0	144	1
	Lyme Disease	0	0	0	0	1	1
	Melioidosis	1	1	15	1	35	0
	Q Fever	0	1	12	0	18	4
	Scrub Typhus	5	10	295	1	359	4
Toxoplasmosis	1	0	7	0	12	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	4	-	510	455	-	-	
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

- Thirty-two clusters related to diarrhea (20), tuberculosis (8), varicella (3), and upper respiratory tract infection (1) were reported during week 39.

Imported Infectious Diseases

- There were 9 imported cases from 4 countries during week 39.

Diseases	Countries				Total
	Indonesia	Myanmar	Philippines	Vietnam	
Severe Pneumonia with Novel Pathogens	1	1	2		4
Amoebiasis	3				3
Dengue Fever		1			1
Acute Hepatitis A				1	1
Total	4	2	2	1	9

- As of week 39, there were 672 imported cases from 50 countries. The top 3 countries are Indonesia (133), USA (95), Philippines (73), and UK (73).
- The three notifiable diseases with the highest number of imported cases are Severe Pneumonia with Novel Pathogens (455), Amoebiasis (91), and Dengue Fever (64).

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 many counties/cities over the past few weeks. The risk of infection in the community raise.
- **Enterovirus** : Taiwan is in enterovirus season. The number of mild symptom cases is expected to raise.
- **Diarrhea** : The epidemic status is expected to raise after the Mid-Autumn Festival.

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

Case diagnosis year		Week 40★		Week 1-40			
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	0	2	21	0	49	1
	Acute Viral Hepatitis type A	2	2	68	8	73	20
	Amoebiasis	7	13	194	97	260	145
	Anthrax	0	0	0	0	0	0
	Chikungunya Fever	0	5	3	3	96	75
	Cholera	0	0	1	0	0	0
	Dengue Fever	24	13	118	64	509	417
	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	1	1	1	6	6
	Measles	0	1	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	7	1	119	21	104	37
Typhoid fever	1	2	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	4	83	2	85	3
	Acute Viral Hepatitis type C	6	10	465	4	462	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	3	7	0	44	1
	Haemophilus Influenza type b Infection	0	0	3	0	1	0
	Japanese Encephalitis	0	0	21	0	20	2
	Legionnaires' Disease	6	6	218	8	207	14
	Mumps	11	19	387	6	468	8
	Neonatal Tetanus	0	0	0	0	0	0
	Pertussis	0	0	8	0	24	0
Tetanus	0	1	7	0	3	0	
Category IV	Botulism	0	0	1	0	0	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	0	1	31	0	52	1
	Endemic Typhus Fever	0	1	16	0	24	3
	Herpesvirus B Infection	0	0	0	0	0	0
	Influenza Case with Severe Complications	0	48	548	6	1818	7
	Invasive Pneumococcal Disease	5	8	193	0	334	2
	Leptospirosis	3	6	61	0	94	0
	Listeriosis	3	4	107	0	148	1
	Lyme Disease	0	0	0	0	1	1
	Melioidosis	0	2	15	1	37	0
	Q Fever	0	0	12	0	18	4
	Scrub Typhus	4	12	299	1	371	4
Toxoplasmosis	0	1	7	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	7	-	517	462	-	-	
Yellow Fever	0	0	0	0	0	0	

5. ★The weekly and cumulative total numbers include indigenous and imported cases of notifiable infectious diseases.
6. MDR-TB, Tuberculosis, Syphilis, Gonorrhoea, HIV Infection, AIDS, Hansen's Disease and Creutzfeldt-Jakob Disease are excluded from the table.
7. Numbers of mumps and tetanus cases are summed up by the week of report.
8. Since 2020/1/15, "Severe Pneumonia with Novel Pathogens" was listed as a Notifiable Infectious Disease.

Suspected Clusters

- Nineteen clusters related to diarrhea (13), varicella (3), tuberculosis (2), and upper respiratory tract infection (1) were reported during week 40.

Imported Infectious Diseases

- There were 13 imported cases from 5 countries during week 40.

Diseases	Countries					Total
	Indonesia	Philippines	USA	Japan	France	
Severe Pneumonia with Novel Pathogens	2	2	1	1	1	7
Amoebiasis	6					6
Total	8	2	1	1	1	13

- As of week 40, there were 685 imported cases from 50 countries. The top 3 countries are Indonesia (141), USA (96), and Philippines (75).
- The three notifiable diseases with the highest number of imported cases are Severe Pneumonia with Novel Pathogens (462), Amoebiasis (97), and Dengue Fever (64).

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.
- **Diarrhea** : The epidemic status is expected to raise after the Mid-Autumn Festival.
- **Influenza-like illness** : The epidemic status is expected to increase gradually because the temperature is fluctuating.

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