

The First Indigenous Hantavirus Case, Yilan County, 2019

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Abstract

On August 2019, a 25-year-old foreign fishing crew from Indonesia was reported by a hospital in Yilan county as a suspect case of hemorrhagic fever with renal syndrome (HFRS). He had early symptoms of fever, diarrhea, and vomiting, followed by complications of acute renal failure and was soon transferred to the intensive care unit. The blood samples tested for HFRS was conducted by Taiwan Centers for Disease Control and the case was confirmed with positive hantavirus antibodies. The case was hospitalized for two weeks and was the first indigenous hantavirus case in Yilan county. The health bureau immediately activated prevention control measures at the port and its surrounding community. Working environment of the case on the fishing boat was messy and greasy. One caught rat (*Rattus norvegicus*) was positive for hantavirus antibody, which indicated that the fishing boat could be the source of infection. However, infection could also occur in the community because foreign fishing crews were allowed to enter the community. Therefore, we recommended that the local authority should establish a risk management mechanism with current prevention and control procedures to eliminate the rodent population and rodent infestation in domestic ports.

Keywords: hemorrhagic fever with renal syndrome (HRFS), foreign fishing crew, *Rattus norvegicus*, quarantine of domestic ports

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

Case diagnosis year		Week 48★		Week 1–48			
Classification	Disease Diagnosed	2021	2020	2021		2020	
				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	28	0	28	0	28	0
	Acute Viral Hepatitis type A	70	0	72	8	70	0
	Amoebiasis	182	59	227	120	182	59
	Anthrax	0	0	0	0	0	0
	Chikungunya Fever	1	1	3	3	1	1
	Cholera	0	0	1	0	0	0
	Dengue Fever	12	12	138	67	12	12
	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 Pulmonary Syndrome	0	0	0	0	0	0
	Hemorrhagic Fever with Renal Syndrome	9	0	11	0	9	0
	Malaria	1	1	2	2	1	1
	Measles	0	0	2	2	0	0
	Meningococcal Meningitis	3	0	7	0	3	0
	Paratyphoid Fever	2	0	0	0	2	0
	Poliomyelitis	0	0	0	0	0	0
	Rubella	0	0	0	0	0	0
Shigellosis	116	0	145	24	116	0	
Typhoid fever	3	1	9	3	3	1	
West Nile Fever	0	0	0	0	0	0	
Zika virus infection	0	0	2	2	0	0	
Category III	Acute Viral Hepatitis type B	130	2	105	2	130	2
	Acute Viral Hepatitis type C	514	0	547	4	514	0
	Acute Viral Hepatitis type D	1	0	0	0	1	0
	Acute Viral Hepatitis type E	5	0	8	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	1	0	7	0	1	0
	Haemophilus Influenza type b Infection	1	0	3	0	1	0
	Japanese Encephalitis	28	0	21	0	28	0
	Legionnaires' Disease	329	1	264	8	329	1
	Mumps	384	1	457	6	384	1
	Neonatal Tetanus	0	0	0	0	0	0
	Pertussis	0	0	8	0	0	0
Tetanus	3	0	7	0	3	0	
Category IV	Botulism	0	0	1	0	0	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	50	0	48	0	50	0
	Endemic Typhus Fever	31	0	20	0	31	0
	Herpesvirus B Infection	0	0	0	0	0	0
	Influenza Case with Severe Complications	1	0	548	6	1	0
	Invasive Pneumococcal Disease	183	0	222	0	183	0
	Leptospirosis	80	0	82	0	80	0
	Listeriosis	155	0	125	0	155	0
	Lyme Disease	1	1	0	0	1	1
	Melioidosis	19	0	17	1	19	0
	Q Fever	8	0	13	0	8	0
	Scrub Typhus	286	0	387	1	286	0
Toxoplasmosis	15	0	16	0	15	0	
Tularemia	1	0	0	0	1	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	1	0	0	0	1	0
	Rift Valley Fever	0	0	0	0	0	0
Severe Pneumonia with Novel Pathogens	1584	1310	648	593	15844	1310	
Yellow Fever	4	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

- Fourteen clusters related to tuberculosis (8), diarrhea (5) and varicella (1) were reported during week 48.

Imported Infectious Diseases

- There were 66 imported cases from 19 countries during week 48.
 - Severe Pneumonia with Novel Pathogens** : 64 (Indonesia 22, Vietnam 10, USA 9, Cambodia 4, Australia 3, Italian 2, UK 2, the Philippines 1, Korea 1, UAE 1, Spain 1, Malaysia 1, Turkey 1, Singapore 1, Poland 1, Laos 1, Canada 1, Czech Republic 1, Myanmar 1).
 - Dengue Fever** : 1 the Philippines.
 - Typhoid Fever** : 1 undetermined.
- During week 1–48, there were 1389 imported cases from 84 countries. The top three countries are Indonesia (298), the Philippines (213), and USA (200).
- During week 1–48, the three notifiable diseases with the highest number of imported cases are Severe Pneumonia with Novel Pathogens (1310), Amoebiasis (59), and Dengue Fever (12).

Summary of Epidemic

- **Severe Pneumonia with Novel Pathogens** : The domestic epidemic of COVID-19 is in the low level. Due to the COVID-19 pandemic remaining serious globally and many countries have reported SARS-CoV-2 variant of Omicron (B.1.1.529) cases recently. The risk of imported cases of SARS-CoV-2 infection in Taiwan increase.

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

Case diagnosis year		Week 49★		Week 1–49			
Classification	Disease Diagnosed	2021	2020	2021		2020	
				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	28	0	30	0
	Acute Viral Hepatitis type A	1	1	71	0	73	8
	Amoebiasis	6	8	188	59	235	122
	Anthrax	0	0	0	0	0	0
	Chikungunya Fever	0	0	1	1	3	3
	Cholera	0	0	0	0	1	0
	Dengue Fever	0	2	12	12	140	68
	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 Pulmonary Syndrome	0	0	0	0	0	0
	Hemorrhagic Fever with Renal Syndrome	0	0	9	0	11	0
	Malaria	1	0	2	2	2	2
	Measles	0	0	0	0	2	2
	Meningococcal Meningitis	0	0	3	0	7	0
	Paratyphoid Fever	0	0	2	0	0	0
	Poliomyelitis	0	0	0	0	0	0
	Rubella	0	0	0	0	0	0
Shigellosis	2	2	118	0	147	24	
Typhoid fever	0	0	3	1	9	3	
West Nile Fever	0	0	0	0	0	0	
Zika virus infection	0	0	0	0	2	2	
Category III	Acute Viral Hepatitis type B	2	1	132	2	106	2
	Acute Viral Hepatitis type C	9	10	523	0	557	4
	Acute Viral Hepatitis type D	0	0	1	0	0	0
	Acute Viral Hepatitis type E	0	0	5	0	8	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	1	0	7	0
	Haemophilus Influenza type b Infection	0	0	1	0	3	0
	Japanese Encephalitis	0	0	28	0	21	0
	Legionnaires' Disease	14	9	343	2	273	8
	Mumps	7	6	391	1	463	6
	Neonatal Tetanus	0	0	0	0	0	0
	Pertussis	0	0	0	0	8	0
Tetanus	2	0	5	0	7	0	
Category IV	Botulism	0	0	0	0	1	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	1	0	51	0	48	0
	Endemic Typhus Fever	0	1	31	0	21	0
	Herpesvirus B Infection	0	0	0	0	0	0
	Influenza Case with Severe Complications	0	0	1	0	548	6
	Invasive Pneumococcal Disease	1	1	184	0	223	0
	Leptospirosis	0	2	80	0	84	0
	Listeriosis	2	5	157	0	130	0
	Lyme Disease	0	0	1	1	0	0
	Melioidosis	1	0	20	0	17	1
	Q Fever	0	0	8	0	13	0
	Scrub Typhus	5	7	291	0	394	1
Toxoplasmosis	0	0	15	0	16	0	
Tularemia	0	0	1	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	1	0	0	0
	Rift Valley Fever	0	0	0	0	0	0
Severe Pneumonia with Novel Pathogens	85	46	15929	1394	694	639	
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

- Seventeen clusters related to diarrhea (10), tuberculosis (5), varicella (1) and upper respiratory tract infection (1) were reported during week 49.

Imported Infectious Diseases

- There were 86 imported cases from 21 countries during week 49.
 - Severe Pneumonia with Novel Pathogens** : 84 (Indonesia 22, Vietnam 17, USA 9, the Philippines 7, Cambodia 6, Singapore 5, China 2, Ethiopia 2, Thailand 2, UK 2, Belize 1, Ghana 1, UAE 1, Malaysia 1, Eswatini 1, Nicaragua 1, Netherlands 1, Spain 1, Myanmar 1, Mongolia 1).
 - Malaria** : 1 Nigeria.
 - Legionnaires' Disease**: 1 undetermined.
- During week 1–49, there were 1475 imported cases from 84 countries. The top three countries are Indonesia (320), the Philippines (220), and USA (209).
- During week 1–49, the three notifiable diseases with the highest number of imported cases are Severe Pneumonia with Novel Pathogens (1394), Amoebiasis (59), and Dengue Fever (12).

Summary of Epidemic

- **Severe Pneumonia with Novel Pathogens** : The domestic epidemic of COVID-19 is under stable control. Due to the COVID-19 pandemic remaining serious globally and many countries have reported SARS-CoV-2 variant of Omicron cases constantly. In addition, Taiwan has detected three imported cases of Omicron variant. The risk of imported cases of SARS-CoV-2 infection in Taiwan increase.

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