

Outbreak Control of Dengue Fever in Taichung City, 2018

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Abstract

In August 2018, Taichung City experienced the largest outbreak of dengue fever since 1995, with a total of 113 cases. The outbreak was difficult to control due to the lack of knowledge about dengue fever among the public, the rainy season, and the outdoor hot spots where breeding sites were hard to reach and difficult to eliminate. Outdoor breeding sites elimination should focus on people's staying places. Chemical control should be done at places where equipment is accessible. In addition to closing the farm, the farm leaser list can be obtained through the landlord, warning signs should be displayed in orchards and mountainous areas to restrict people from entry, and education of personal protective measures for residents or farmers nearby should be carried out. It is also critical to avoid occupational injuries on personnel such as dengue fever infection and chemical poisoning. The outbreak was under control in December 2018 after continuous control and prevention management.

Keywords: Taichung City, dengue fever, farm, orchards

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

Case diagnosis year		Week 29★		Week 1–29			
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	1	0	16	0	18	0
	Acute Viral Hepatitis type A	2	2	42	0	47	7
	Amoebiasis	4	6	109	34	136	81
	Anthrax	0	0	0	0	0	0
	Chikungunya Fever	0	0	1	1	3	3
	Cholera	0	0	0	0	0	0
	Dengue Fever	0	0	5	5	61	61
	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	1	0	8	0	8	0
	Malaria	0	0	1	1	1	1
	Measles	0	0	0	0	2	2
	Meningococcal Meningitis	0	0	2	0	5	0
	Paratyphoid Fever	0	0	2	0	0	0
	Poliomyelitis	0	0	0	0	0	0
	Rubella	0	0	0	0	0	0
Shigellosis	1	2	81	0	91	21	
Typhoid fever	0	0	1	0	5	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	83	2	52	2
	Acute Viral Hepatitis type C	13	12	335	0	355	3
	Acute Viral Hepatitis type D	0	0	0	0	0	0
	Acute Viral Hepatitis type E	0	0	5	0	6	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	2	2	16	0	13	0
	Legionnaires' Disease	6	8	189	0	144	8
	Mumps	8	14	243	1	270	6
	Neonatal Tetanus	0	0	0	0	0	0
	Pertussis	0	0	0	0	8	0
Tetanus	0	0	2	0	6	0	
Category IV	Botulism	0	0	0	0	1	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	0	0	30	0	30	0
	Endemic Typhus Fever	0	0	21	0	9	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	0	148	0	157	0
	Leptospirosis	2	1	24	0	25	0
	Listeriosis	2	2	110	0	80	0
	Lyme Disease	0	0	0	0	0	0
	Melioidosis	2	0	10	0	8	1
	Q Fever	0	0	7	0	9	0
	Scrub Typhus	5	15	138	0	195	1
Toxoplasmosis	0	0	7	0	2	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	1	0	0	0
	Rift Valley Fever	0	0	0	0	0	0
Severe Pneumonia with Novel Pathogens	182	3	14763	557	454	399	
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

- Seven clusters related to tuberculosis (5) and diarrhea (2) were reported during week 29.

Imported Infectious Diseases

- There were 30 imported cases from 13 countries during week 29.

Diseases \ Countries	Indonesia	USA	UAE	Spain	Philippines	Myanmar	Switzerland	Argentina	Poland	Denmark	Cambodia	China	UK	Total
Severe Pneumonia with Novel Pathogens	9	6	2	2	2	2	1	1	1	1	1	1	1	30
Total	9	6	2	2	2	2	1	1	1	1	1	1	1	30

- During week 1–29, there were 601 imported cases from 58 countries. The top three countries are the Philippines (164), Indonesia (134), and USA (60).
- During week 1–29, the three notifiable diseases with the highest number of imported cases are Severe Pneumonia with Novel Pathogens (557), Amoebiasis (34), and Dengue Fever (5).

Summary of Epidemic

- **Severe Pneumonia with Novel Pathogens** : The epidemic has been in low level.
- **Japanese Encephalitis** : Taiwan is in the midst of Japanese Encephalitis season. Individuals living in all counties/cities in Taiwan are at risk of infection.

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

Case diagnosis year		Week 30★		Week 1–30			
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	1	0	17	0	18	0
	Acute Viral Hepatitis type A	1	2	43	0	49	7
	Amoebiasis	0	6	109	35	142	84
	Anthrax	0	0	0	0	0	0
	Chikungunya Fever	0	0	1	1	3	3
	Cholera	0	0	0	0	0	0
	Dengue Fever	0	3	5	5	64	61
	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	8	0	8	0
	Malaria	0	0	1	1	1	1
	Measles	0	0	0	0	2	2
	Meningococcal Meningitis	0	0	2	0	5	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	3	83	0	94	21	
Typhoid fever	0	0	1	0	5	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	4	1	87	2	53	2
	Acute Viral Hepatitis type C	7	9	342	0	364	3
	Acute Viral Hepatitis type D	0	0	0	0	0	0
	Acute Viral Hepatitis type E	0	1	5	0	7	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	2	3	18	0	16	0
	Legionnaires' Disease	9	7	198	0	151	8
	Mumps	6	6	249	1	276	6
	Neonatal Tetanus	0	0	0	0	0	0
	Pertussis	0	0	0	0	8	0
Tetanus	0	0	2	0	6	0	
Category IV	Botulism	0	0	0	0	1	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	1	0	31	0	30	0
	Endemic Typhus Fever	2	1	23	0	10	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	3	149	0	160	0
	Leptospirosis	3	2	27	0	27	0
	Listeriosis	0	5	110	0	85	0
	Lyme Disease	0	0	0	0	0	0
	Melioidosis	0	0	10	0	8	1
	Q Fever	0	1	7	0	10	0
	Scrub Typhus	7	10	145	0	205	1
Toxoplasmosis	0	0	7	0	2	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	1	0	0	0
	Rift Valley Fever	0	0	0	0	0	0
Severe Pneumonia with Novel Pathogens	117	4	14880	570	458	403	
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

- Three clusters related to diarrhea (2) and tuberculosis (1) were reported during week 30.

Imported Infectious Diseases

- There were 13 imported cases from 6 countries during week 30.

Diseases	Countries							Total
	USA	Indonesia	Philippines	Mexico	India	Cambodia	*Other	
Severe Pneumonia with Novel Pathogens	5	3	1	1	1	1	1	13
Total	5	3	1	1	1	1	1	13

*The case was defined acquire COVID-19 infection imported case and COVID-19 infection directly from unspecified country.

- During week 1–30, there were 615 imported cases from 58 countries. The top three countries are the Philippines (166), Indonesia (137), and USA (65).
- During week 1–30, the three notifiable diseases with the highest number of imported cases are Severe Pneumonia with Novel Pathogens (570), Amoebiasis (35), and Dengue Fever (5).

Summary of Epidemic

- **Severe Pneumonia with Novel Pathogens** : The epidemic continues to be low level.
- **Japanese Encephalitis** : Taiwan is in the midst of Japanese Encephalitis season. Individuals living in all counties/cities in Taiwan are at risk of infection.

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