

An Overview of Measles Epidemic, Taiwan, January–May, 2019

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Abstract

As measles epidemics have become more severe in Southeast Asian countries since December 2018, the number of imported measles cases has gradually increased in Taiwan, leading to subsequent indigenous clusters in communities. As of May 8, 30 imported and 60 indigenous measles cases were confirmed. Among them, 69 cases (77%) were in 20–39 age group, and 62 cases (70%) were classified as cluster cases. Those clusters not only occurred in healthcare facilities, but also in restaurants, workplaces and households. This indicated that measles virus may easily spread in densely susceptible populations, especially among those born after 1981. Because the protective antibodies derived from vaccination might wane gradually, the risk of measles infections in young adults is increasing regardless international travel history. We suggested that the recommendation and promotion of MMR vaccination for high-risk groups should be strengthened, and young adults should be encouraged to test for measles antibody. Those with negative tests for measles antibody should receive one dose of MMR vaccine in order to improve the immunity.

Keywords: measles, MMR vaccine

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An Investigation of Hospital-associated Measles Outbreak, Central Taiwan, 2019

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Abstract

On March 26, 2019, Taiwan Centers for Disease Control was notified of a case of measles by a hospital in central Taiwan. The case was a 43-year-old female head nurse in the hospital. According to investigation, the primary case was a 34-year-old male who had been to China and was hospitalized in the same ward. Contact tracing showed a total of nine measles cases in the hospital, including two nurses during the first transmission, and three nurses, one patient and the patient's accompanied friend, and two contract cleaning workers. No associated cases were identified after May 1. The outbreak was under control because of active attitude and responses of the hospital, including providing measles, mumps and rubella (MMR) vaccination to hospital workers within 6 days of the outbreak, educating hospital staff about measles, and implementing infection control measures. We suggested that (1) healthcare providers should immediately report any suspect measles case and take adequate infection control measures, (2) principles of contract tracing should be implemented, and (3) high MMR coverage among healthcare workers should be maintained.

Keywords: measles, hospital, outbreak, MMR

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

Case diagnosis year		Week 20★		Week 1–20			
Classification	Disease Diagnosed	2019	2018	2018		2017	
				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	3	20	0	39	0
	Acute Viral Hepatitis type A	0	4	36	10	37	18
	Amoebiasis	15	7	133	58	122	53
	Anthrax	0	0	0	0	0	0
	Chikungunya Fever	1	0	4	4	1	1
	Cholera	0	0	0	0	0	0
	Dengue Fever	5	6	151	150	50	50
	Diphtheria	0	0	0	0	0	0
	Enterohemorrhagic E. coli Infection	0	0	1	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	0	0	1	0
	Malaria	0	0	1	1	0	0
	Measles	2	0	94	31	25	2
	Meningococcal Meningitis	0	0	2	0	5	1
	Paratyphoid Fever	0	0	2	1	1	1
	Poliomyelitis	0	0	0	0	0	0
	Rubella	0	1	13	11	4	3
Shigellosis	2	1	55	17	56	15	
Typhoid fever	1	0	9	9	7	5	
West Nile Fever	0	0	0	0	0	0	
Category III	Acute Viral Hepatitis type B	0	0	1	1	0	0
	Acute Viral Hepatitis type C	1	2	42	0	52	3
	Acute Viral Hepatitis type D	19	13	229	2	179	2
	Acute Viral Hepatitis type E	0	0	0	0	0	0
	Congenital Syphilis	0	1	6	1	4	0
	Congenital Rubella Syndrome	0	0	0	0	0	0
	Enteroviruses Infection with Severe Complications	0	0	0	0	0	0
	Haemophilus Influenza type b Infection	2	0	10	1	9	0
	Japanese Encephalitis	0	0	0	0	2	0
	Legionellosis	1	0	1	0	0	0
	Mumps	6	2	102	7	58	1
	Neonatal Tetanus	10	17	247	0	228	3
Pertussis	0	0	0	0	0	0	
Tetanus	0	0	19	0	9	0	
Category IV	Botulism	0	0	0	0	4	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	0	0	0	0	0	0
	Endemic Typhus Fever	1	2	26	1	20	0
	Herpesvirus B Infection	1	0	3	0	5	0
	Invasive Pneumococcal Disease	0	0	0	0	0	0
	Leptospirosis	8	4	206	2	229	0
	Listeriosis	2	1	18	0	15	0
	Lyme Disease	1	0	73	0	52	0
	Melioidosis	0	0	1	1	0	0
	Q Fever	0	0	4	0	6	0
	Scrub Typhus	0	1	7	1	3	0
	Severe Complicated Influenza	16	7	112	1	105	0
Toxoplasmosis	23	4	855	5	657	4	
Tularemia	1	0	7	0	6	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 Coronavirus	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
Yellow Fever	0	0	0	0	0	0	
Zika virus infection	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 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 2018/1/1, "Listeriosis" was listed as a Notifiable Infectious Disease.

Suspected Clusters

- Seventy-nine clusters were reported during week 20, including 15 tuberculosis clusters, 19 diarrhea clusters, 24 upper respiratory tract infection clusters, 16 influenza-like illness clusters, 2 varicella clusters, 1 enterovirus cluster, and 2 fever of unknown origin clusters.

Imported Infectious Diseases

- There were 15 confirmed imported cases from 7 countries during week 18 of 2019.

Diseases \ Countries	Indonesia	China	Maldives	Japan	Philippines	Total
Amoebiasis	8					8
DF	3		1		1	5
Legionellosis		1				1
Scrub Typhus	1					1
Acute Hepatitis C				1		1
Chikungunya Fever	1					1
Typhoid fever		1				1
Total	13	2	1	1	1	18

Note: The table summarized the number of imported cases that were either **confirmed** or **updated** in the given week.

- There are 315 imported cases from 19 different countries in 2019. The top 3 countries are Indonesia (117), Vietnam (46), and Philippines (39).
- Top 3 imported diseases are Dengue Fever (150), Amoebiasis (58), and Measles (31).

Summary of Epidemic

- **Measles** : Epidemics in neighboring countries continue to occur. There has been new cluster case in Taiwan; therefore, the number of cases are expected to increase. However, it is not likely to cause a large scale epidemics.
- **Japanese Encephalitis**: Taiwan is in the midst of Japanese encephalitis season. New cases are primarily in southern Taiwan. However, cases of Japanese encephalitis are also likely to occur in other counties.
- **Scrub Typhus** : Taiwan is in the midst of scrub typhus season. Most of cases get infected in eastern Taiwan and Penghu County.

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

Case diagnosis year		Week 21★		Week 1–21			
Classification	Disease Diagnosed	2019	2018	2018		2017	
				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	2	2	22	0	41	0
	Acute Viral Hepatitis type A	2	2	38	10	39	19
	Amoebiasis	8	4	141	63	126	55
	Anthrax	0	0	0	0	0	0
	Chikungunya Fever	2	0	6	6	1	1
	Cholera	0	0	0	0	0	0
	Dengue Fever	6	9	157	156	59	59
	Diphtheria	0	0	0	0	0	0
	Enterohemorrhagic E. coli Infection	0	0	1	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	0	0	1	0
	Malaria	0	0	1	1	0	0
	Measles	1	2	95	32	27	4
	Meningococcal Meningitis	0	0	2	0	5	1
	Paratyphoid Fever	0	0	2	1	1	1
Poliomyelitis	0	0	0	0	0	0	
Rubella	2	0	15	12	4	3	
Shigellosis	1	5	56	17	61	18	
Typhoid fever	0	0	9	9	7	5	
West Nile Fever	0	0	0	0	0	0	
Category III	Acute Viral Hepatitis type B	0	0	1	1	0	0
	Acute Viral Hepatitis type C	1	1	43	0	53	3
	Acute Viral Hepatitis type D	12	10	240	2	189	2
	Acute Viral Hepatitis type E	0	0	0	0	0	0
	Congenital Syphilis	0	0	6	1	4	0
	Congenital Rubella Syndrome	0	0	0	0	0	0
	Enteroviruses Infection with Severe Complications	0	0	0	0	0	0
	Haemophilus Influenza type b Infection	1	4	11	1	13	0
	Japanese Encephalitis	0	0	0	0	2	0
	Legionellosis	0	2	1	0	2	0
	Mumps	9	3	111	8	61	2
	Neonatal Tetanus	11	9	258	0	237	3
Pertussis	0	0	0	0	0	0	
Tetanus	0	1	19	0	10	0	
Category IV	Botulism	0	0	0	0	4	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	0	0	0	0	0	0
	Endemic Typhus Fever	1	1	27	1	21	0
	Herpesvirus B Infection	0	1	3	0	6	0
	Invasive Pneumococcal Disease	0	0	0	0	0	0
	Leptospirosis	7	6	213	2	235	0
	Listeriosis	3	2	21	0	17	0
	Lyme Disease	7	3	80	0	55	0
	Melioidosis	0	0	1	1	0	0
	Q Fever	0	0	4	0	6	0
	Scrub Typhus	0	1	7	1	4	0
Severe Complicated Influenza	27	6	139	2	111	0	
Toxoplasmosis	27	10	882	5	667	4	
Tularemia	0	1	7	0	7	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 Coronavirus	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
	Yellow Fever	0	0	0	0	0	0
Zika virus infection	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 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 2018/1/1, "Listeriosis" was listed as a Notifiable Infectious Disease.

Suspected Clusters

- Seventy-nine clusters were reported during week 21, including 7 tuberculosis clusters, 10 diarrhea clusters, 39 upper respiratory tract infection clusters, 18 influenza-like illness clusters, 3 varicella clusters, and 2 enterovirus clusters.

Imported Infectious Diseases

- There were 16 imported cases from 8 countries during week 21 of 2019.

Diseases \ Countries	Indonesia	Malaysia	Philippines	Vietnam	China	Maldives	Japan	Thailand	Total
	DF	1	2	1	2				
Amoebiasis	3		1						4
Chikungunya Fever		1				1			2
Measles								1	1
Legionellosis					1				1
Scrub Typhus							1		1
Rubella					1				1
Total	4	3	2	2	2	1	1	1	16

Note: The table summarized the number of imported cases that were either **confirmed** or **updated** in the given week.

- There are 331 imported cases from 19 different countries in 2019. The top 3 countries are Indonesia (121), Vietnam (48), and Philippines (41).
- Top 3 imported diseases are Dengue Fever (156), Amoebiasis (62), and Measles (32).

Summary of Epidemic

- **Measles** : Epidemics in neighboring countries continue to occur. There has been one case with unknown source of infection in Taiwan; therefore, the number of sporadic cases are expected to increase.
- **Japanese Encephalitis**: Taiwan is in the midst of Japanese encephalitis season. New cases are expected to primarily in southern Taiwan. However, cases of Japanese encephalitis are also likely to occur in other counties.

- **Scrub Typhus** : Taiwan is in the midst of scrub typhus season. Most of new cases are infected in eastern Taiwan and Penghu County.
- **Enterovirus** : The epidemic continues to increase, and is expected to reach the national baseline this week.

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