

### Epidemiologic Investigation And Prevention of Pertussis Cluster, Chiayi, 2019

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#### Abstract

In early 2019, Chiayi county confirmed a pertussis case in a baby boy. After the epidemic investigation, three family-related clusters were identified. To prevent the spread of infections, the health department immediately started the intervention. The results of the investigation showed that no correlations between the families were found. The baby cases were not immunized with pertussis vaccine. The mothers also did not get the tetanus, diphtheria toxoids and acellular pertussis vaccine (Tdap) during pregnancy. Fortunately, after the intervention, no new cases were discovered. The source of infection in this incident might be atypical or asymptomatic cases in the community. It is necessary to strengthen the alertness of seeking medical assistance early and notification from doctors. In addition, the first dose of pertussis vaccine should be given to the newborn at two months old. For many years, the Ministry of Health and Welfare has recommended that pregnant women and baby caregivers should get the Tdap vaccine so that the passive immunity and indirect protection would reduce the risk of neonatal pertussis infection. This policy should continue promoting in the future.

**Keywords:** Pertussis, family cluster, Chiayi County, Chiayi City

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

Case diagnosis year		Week 14★		Week 1–14			
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	2	8	0	8	0
	Acute Viral Hepatitis type A	1	1	18	0	28	7
	Amoebiasis	5	3	59	27	71	39
	Anthrax	0	0	0	0	0	0
	Chikungunya Fever	0	0	1	1	2	2
	Cholera	0	0	0	0	0	0
	Dengue Fever	0	1	4	4	55	55
	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	4	0	3	0
	Malaria	0	0	1	1	1	1
	Measles	0	0	0	0	2	2
	Meningococcal Meningitis	0	0	0	0	3	0
	Paratyphoid Fever	0	0	1	0	0	0
	Poliomyelitis	0	0	0	0	0	0
	Rubella	0	0	0	0	0	0
Shigellosis	7	2	56	0	48	19	
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	3	1	35	1	27	2
	Acute Viral Hepatitis type C	9	4	177	0	172	2
	Acute Viral Hepatitis type D	0	0	0	0	0	0
	Acute Viral Hepatitis type E	0	0	4	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	0	0	1	0	7	0
	Haemophilus Influenza type b Infection	0	0	0	0	1	0
	Japanese Encephalitis	0	0	0	0	0	0
	Legionnaires' Disease	4	2	94	0	65	7
	Mumps	5	10	127	1	131	6
	Neonatal Tetanus	0	0	0	0	0	0
Pertussis	0	0	0	0	8	0	
Tetanus	0	1	2	0	3	0	
Category IV	Botulism	0	0	0	0	0	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	2	0	13	0	16	0
	Endemic Typhus Fever	1	0	6	0	2	0
	Herpesvirus B Infection	0	0	0	0	0	0
	Influenza Case with Severe Complications	0	0	1	0	546	6
	Invasive Pneumococcal Disease	6	5	94	0	127	0
	Leptospirosis	0	2	11	0	11	0
	Listeriosis	2	3	45	0	32	0
	Lyme Disease	0	0	0	0	0	0
	Melioidosis	0	0	5	0	3	1
	Q Fever	0	0	0	0	1	0
	Scrub Typhus	3	1	51	0	59	1
Toxoplasmosis	0	0	4	0	0	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	0	0	0	0
	Rift Valley Fever	0	0	0	0	0	0
Severe Pneumonia with Novel Pathogens	11	72	248	227	355	304	
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

- Nineteen clusters related to diarrhea (9), tuberculosis (8), upper respiratory tract infection (1) and varicella (1) were reported during week 14.

## Imported Infectious Diseases

- There were 14 imported cases from 5 countries during week 14.

Diseases	Countries					Total
	Indonesia	Philippines	Egypt	UK	Italian	
Severe Pneumonia with Novel Pathogens	3	4	2	1	1	11
Amoebiasis	3					3
Total	6	4	2	1	1	14

- During week 1-14, there were 261 imported cases from 38 countries. The top three countries are Indonesia (72), the Philippines (71), and USA (35).
- During week 1-14, the three notifiable diseases with the highest number of imported cases are Severe Pneumonia with Novel Pathogens (227), Amoebiasis (27), and Dengue Fever (4).

## Summary of Epidemic

- **Severe Pneumonia with Novel Pathogens** : Because the COVID-19 pandemic is still critical, the number of imported cases continue to occur.
- **Diarrhea** : The epidemic status of diarrhea is expected to gradually slow down.

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

Case diagnosis year		Week 15★		Week 1–15			
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	3	0	11	0	8	0
	Acute Viral Hepatitis type A	1	0	19	0	28	7
	Amoebiasis	8	2	67	28	73	40
	Anthrax	0	0	0	0	0	0
	Chikungunya Fever	0	0	1	1	2	2
	Cholera	0	0	0	0	0	0
	Dengue Fever	0	0	4	4	55	55
	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	4	0	3	0
	Malaria	0	0	1	1	1	1
	Measles	0	0	0	0	2	2
	Meningococcal Meningitis	0	0	0	0	3	0
	Paratyphoid Fever	0	0	1	0	0	0
	Poliomyelitis	0	0	0	0	0	0
	Rubella	0	0	0	0	0	0
Shigellosis	5	4	61	0	52	19	
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	3	0	38	1	27	2
	Acute Viral Hepatitis type C	14	13	191	0	185	2
	Acute Viral Hepatitis type D	0	0	0	0	0	0
	Acute Viral Hepatitis type E	0	0	4	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	0	0	1	0	7	0
	Haemophilus Influenza type b Infection	1	0	1	0	1	0
	Japanese Encephalitis	0	0	0	0	0	0
	Legionnaires' Disease	5	5	99	0	70	7
	Mumps	14	3	141	1	134	6
	Neonatal Tetanus	0	0	0	0	0	0
	Pertussis	0	0	0	0	8	0
Tetanus	0	0	2	0	3	0	
Category IV	Botulism	0	0	0	0	0	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	1	0	14	0	16	0
	Endemic Typhus Fever	2	1	8	0	3	0
	Herpesvirus B Infection	0	0	0	0	0	0
	Influenza Case with Severe Complications	0	0	1	0	546	6
	Invasive Pneumococcal Disease	3	2	97	0	129	0
	Leptospirosis	0	1	11	0	12	0
	Listeriosis	5	2	50	0	34	0
	Lyme Disease	0	0	0	0	0	0
	Melioidosis	0	0	5	0	3	1
	Q Fever	0	0	0	0	1	0
	Scrub Typhus	3	1	54	0	60	1
Toxoplasmosis	1	0	5	0	0	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	0	0	0	0
	Rift Valley Fever	0	0	0	0	0	0
Severe Pneumonia with Novel Pathogens	16	30	264	243	385	331	
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

- Sixteen clusters related to diarrhea (7), varicella (4), tuberculosis (3) and enterovirus (2) were reported during week 15.

## Imported Infectious Diseases

- There were 21 imported cases from 14 countries during week 15.

Diseases \ Countries	Philippines	Indonesia	Bangladesh	Ethiopia	Japan	Russia	Canada	UK	Malaysia	Ireland	USA	Croatia	Indonesia	Vietnam	Total
Severe Pneumonia with Novel Pathogens	6	3	1	1	1	1	1	1	1	1	1	1	1		20
Amoebiasis														1	1
Total	6	3	1	1	1	1	1	1	1	1	1	1	1	1	21

- During week 1-15, there were 282 imported cases from 38 countries. The top three countries are Philippines (77), the Indonesia (73), and USA (36).
- During week 1-15, the three notifiable diseases with the highest number of imported cases are Severe Pneumonia with Novel Pathogens (247), Amoebiasis (28), and Dengue Fever (4).

## Summary of Epidemic

- **Severe Pneumonia with Novel Pathogens** : Because the COVID-19 pandemic is still critical, the number of imported cases continue to occur.
- **Diarrhea** : The epidemic status of diarrhea is expected to slow down.

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