

Analysis for Rodent Surveillance in Taichung Port, 2017–2020

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Abstract

According to the results of rodent surveillance from 2017 to 2020 in Taichung port, 94 rodents were captured, with a capture rate of 8.1%. *Rattus norvegicus* was the dominant species (62.8%) captured, followed by *Suncus murinus* (35.1%). The first season (March) had the highest positive rate of rat flea index, parasite and rat flea. The positive rates of murine typhus and hantavirus were 16% and 14.9%, respectively. Furthermore, the positive rates of these two pathogens were the highest in *Rattus norvegicus*. Besides, in the rats with longer body lengths and heavier body weights, the hantavirus positive rate was higher. Two high-risk locations that revealed high rat flea index and murine typhus positive rate were necessary to pay close attention and monitoring. We recommend that rodent control measures should be enhanced during the first season, especially in high-risk locations with high rat flea index and pathogen positive rates. At the same time, anti-flea measures should be taken when rodent control measures are implemented to reduce the risk of spreading rat-transmitted diseases.

Keywords: Taichung Port, rodent surveillance, *Rattus norvegicus*

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Received: Mar. 05, 2021

Accepted: Apr. 13, 2021

DOI: 10.6525/TEB.202310_39(19).0001

week 37–week 38, 2023 (Sep.10, 2023–Sep.23, 2023)

DOI: 10.6525/TEB.202310_39(19).0002

Weekly Data of Notifiable Inases (by week of diagnosis)

Case diagnosis year		Week 37★		Week 1–37			
Classification	Disease Diagnosed	2023	2022	2023		2022	
				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	Cholera	0	0	1	0	0	0
	Typhoid fever	1	0	7	6	2	1
	Paratyphoid Fever	1	0	12	1	0	0
	Epidemic Typhus Fever	0	0	0	0	0	0
	Shigellosis	0	0	49	12	55	3
	Amoebiasis	9	6	193	76	141	51
	Enterohemorrhagic E.coli Infection	0	0	0	0	2	0
	Anthrax	0	0	0	0	0	0
	Diphtheria	0	0	0	0	0	0
	Meningococcal Meningitis	0	0	3	0	1	0
	Poliomyelitis	0	0	0	0	0	0
	Acute Flaccid Paralysis	1	1	44	0	18	0
	Measles	0	0	2	2	1	0
	Rubella	0	0	0	0	0	0
	Dengue Fever	2,090	15	8,259	160	52	34
	West Nile Fever	0	0	0	0	0	0
	Acute Viral Hepatitis type A	1	0	64	3	112	1
	Malaria	0	0	1	1	2	2
	Chikungunya Fever	1	0	7	7	0	0
Hantavirus syndrome	0	0	6	0	3	0	
Zika virus infection	0	0	3	3	0	0	
Mpox	9	0	329	13	3	3	
Category III	Acute Viral Hepatitis type B	4	2	94	4	68	0
	Acute Viral Hepatitis type C	9	7	391	1	318	2
	Acute Viral Hepatitis type D	0	0	0	0	0	0
	Acute Viral Hepatitis type E	0	0	10	3	9	0
	Acute Viral Hepatitis, untyped	0	0	9	1	0	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	13	0	0	0
	Haemophilus Influenza type b Infection	0	0	0	0	2	0
	Japanese Encephalitis	0	0	21	0	19	0
	Legionnaires' Disease	14	9	272	7	232	1
	Mumps	5	4	192	7	152	0
	Neonatal Tetanus	0	0	0	0	0	0
	Pertussis	0	0	0	0	0	0
Tetanus	0	1	5	0	4	0	
Category IV	Botulism	0	0	0	0	0	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	0	2	33	0	21	0
	Endemic Typhus Fever	0	0	20	0	10	0
	Herpesvirus B Infection	0	0	0	0	0	0
	Influenza Case with Severe Complications	24	0	664	8	0	0
	Invasive Pneumococcal Disease	3	7	204	1	130	0
	Leptospirosis	11	2	47	0	38	0
	Listeriosis	8	5	146	2	109	0
	Lyme Disease	0	0	0	0	1	1
	Melioidosis	1	2	16	1	15	2
	Q Fever	0	0	2	0	3	0
	Scrub Typhus	5	6	126	0	176	0
	Toxoplasmosis	0	1	23	2	19	0
	Tularemia	0	0	0	0	0	0
Severe Fever with Thrombocytopenia Syndrome	0	0	0	0	1	0	
Severe Pneumonia with Novel Pathogens	293	288,354	1,392,455	18,133	5,953,201	29,767	
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 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
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 are based on reported cases and summed up by week of report.
 4. "Mpox" has been listed as a Notifiable Infectious Disease since June 23, 2022.
 5. "Severe Pneumonia with Novel Pathogens": The case definition has been revised to include patients who have both a positive test for SARS-CoV-2 and associated complications since March 20, 2023. Additionally, it has been modified from Category V to Category IV since May 1, 2023.

Suspected Clusters

- Eighty-three clusters related to Upper respiratory tract infection (64), Diarrhea (12), Enterovirus (3), TB (2), Fever of unknown origin (1), and Varicella (1) were reported during week 37.

Imported Infectious Diseases

- There were 21 imported cases from at least 8 countries / areas during week 37.
 - Dengue Fever:** 12 cases from Indonesia (3), Vietnam (3), Thailand (2), China (1), Singapore (1), the Philippines (1), and Malaysia (1).
 - Severe Pneumonia with Novel Pathogens:** 2 cases from China (1), and USA (1).
 - Amoebiasis:** 2 cases from Indonesia.
 - Typhoid fever:** 1 case from Indonesia.
 - Chikungunya Fever:** 1 case from the Philippines.
 - Influenza Case with Severe Complications:** 1 case from China.
 - Mpox:** 1 case from Thailand.
 - Legionnaires' Disease:** 1 case from China.
- During week 1–37, there were 18,454 imported cases of notifiable diseases. The top three were Severe Pneumonia with Novel Pathogens (18,133), Dengue Fever (160) and Amoebiasis (76).
- During week 1–37, imported cases of notifiable diseases were from at least 48 countries/areas. The top three were China (3,174), Japan (723) and Thailand (196).

Summary of Epidemic

- **Influenza:** The epidemic is increasing.
- **Enterovirus:** The epidemic is increasing.
- **Dengue Fever:** In the midst of the epidemic season, the risk of epidemic transmission is increasing.

Weekly Data of Notifiable Inases (by week of diagnosis)

Case diagnosis year		Week 38		Week 1–38			
Classification	Disease Diagnosed	2023	2022	2023		2022	
				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
	Cholera	0	0	1	0	0	0
Category II	Typhoid fever	0	1	7	6	3	1
	Paratyphoid Fever	0	0	12	1	0	0
	Epidemic Typhus Fever	0	0	0	0	0	0
	Shigellosis	1	0	50	12	55	3
	Amoebiasis	9	5	202	82	146	51
	Enterohemorrhagic E.coli Infection	0	0	0	0	2	0
	Anthrax	0	0	0	0	0	0
	Diphtheria	0	0	0	0	0	0
	Meningococcal Meningitis	0	0	3	0	1	0
	Poliomyelitis	0	0	0	0	0	0
	Acute Flaccid Paralysis	0	1	44	0	19	0
	Measles	0	0	2	2	1	0
	Rubella	0	0	0	0	0	0
	Dengue Fever	1,938	4	10,195	165	56	37
	West Nile Fever	0	0	0	0	0	0
	Acute Viral Hepatitis type A	2	1	66	4	113	1
	Malaria	0	0	1	1	2	2
	Chikungunya Fever	0	0	7	7	0	0
	Hantavirus syndrome	0	0	6	0	3	0
	Zika virus infection	0	0	3	3	0	0
Mpox	6	0	335	13	3	3	
Category III	Acute Viral Hepatitis type B	2	3	96	4	71	0
	Acute Viral Hepatitis type C	10	12	401	1	330	2
	Acute Viral Hepatitis type D	0	0	0	0	0	0
	Acute Viral Hepatitis type E	0	0	10	3	9	0
	Acute Viral Hepatitis, untyped	0	0	9	1	0	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	13	0	0	0
	Haemophilus Influenza type b Infection	0	0	0	0	2	0
	Japanese Encephalitis	0	0	21	0	19	0
	Legionnaires' Disease	14	4	286	7	236	1
	Mumps	5	5	197	7	157	0
	Neonatal Tetanus	0	0	0	0	0	0
Pertussis	0	0	0	0	0	0	
Tetanus	0	0	5	0	4	0	
Category IV	Botulism	0	0	0	0	0	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	1	2	34	0	23	0
	Endemic Typhus Fever	0	0	20	0	10	0
	Herpesvirus B Infection	0	0	0	0	0	0
	Influenza Case with Severe Complications	50	0	714	10	0	0
	Invasive Pneumococcal Disease	2	1	206	1	131	0
	Leptospirosis	1	4	48	0	42	0
	Listeriosis	3	1	149	2	110	0
	Lyme Disease	0	0	0	0	1	1
	Melioidosis	1	1	17	1	16	2
	Q Fever	0	0	2	0	3	0
	Scrub Typhus	10	32	136	0	208	0
	Toxoplasmosis	0	0	23	2	19	0
	Tularemia	0	0	0	0	0	0
Severe Fever with Thrombocytopenia Syndrome	0	0	0	0	1	0	
Severe Pneumonia with Novel Pathogens	248	279,647	1,392,703	18,133	6,232,848	31,349	
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 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
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. "Mpox" has been listed as a Notifiable Infectious Disease since June 23, 2022.
5. "Severe Pneumonia with Novel Pathogens": The case definition has been revised to include patients who have both a positive test for SARS-CoV-2 and associated complications since March 20, 2023. Additionally, it has been modified from Category V to Category IV since May 1, 2023.

Suspected Clusters

- One hundred six clusters related to Upper respiratory tract infection (91), Diarrhea (9), Varicella (3), TB (2) and Enterovirus (1) were reported during week 38.

Imported Infectious Diseases

- There were 11 imported cases from at least 6 countries / areas during week 38.
 - Dengue Fever:** 6 cases from Vietnam (3), China (2), Thailand (1).
 - Amoebiasis:** 3 cases from Indonesia (2), and Malaysia (1).
 - Influenza Case with Severe Complications:** 2 cases from Japan (1), and Thailand (1).
- During week 1–38, there were 18,468 imported cases of notifiable diseases. The top three were Severe Pneumonia with Novel Pathogens (18,133), Dengue Fever (165) and Amoebiasis (82).
- During week 1–38, imported cases of notifiable diseases were from at least 48 countries/areas. The top three were China (3,175), Japan (724) and Thailand (198).

Summary of Epidemic

- **Influenza:** In the midst of the epidemic period, the epidemic is increasing.
- **Enterovirus:** In the midst of the epidemic period, the epidemic is similar to the previous week.
- **Dengue Fever:** In currently in the epidemic period, the risk of transmission remains high.

The Taiwan Epidemiology Bulletin series of publications is published by Centers for Disease Control, Ministry of Health and Welfare, Taiwan (R.O.C.) since Dec. 15, 1984.

Publisher: Jen-Hsiang Chuang

Editor-in-Chief: Yung-Ching Lin

Executive Editor: Hsueh-Ju Chen, Hsin-Lun Lee

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Telephone No: +886-2-2395-9825

Website: <https://www.cdc.gov.tw/En>

Suggested Citation:

[Author].[Article title].Taiwan Epidemiol Bull 2023;39:[inclusive page numbers]. [DOI]