

The Sanitation Surveillance of Taoyuan International Airport, Taiwan, 2014–2016

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Abstract

According to Taoyuan International Airport (TPE) sanitation surveillance data from 2014 to 2016, the major species in the adult mosquito survey is *Culex quinquefasciatus* (94.8%) as well as in the aircraft surveillance (98.5%). The major rat species in the rat surveillance is *Rattus norvegicus*. The number of captured rats had no significant differences between seasons. However, the location of rat captured was significantly associated with the living habits of their species. The results of rat's serum antibody were all negative for murine typhus, hantavirus, or yersiniosis. In addition to sustainable surveillance, distinguishing native mosquitoes or rat types from allochthonous ones, if possible, could improve the surveillance quality at points of entry to reduce the opportunity of outbreak from emerging infectious diseases in Taiwan.

Keywords: Taoyuan airport, surveillance, *Culex quinquefasciatus*, rat types, vector control

week 8–9(Feb. 17–Mar. 2, 2019)

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

Case diagnosis year		Week 8★		Week 1-8			
Classification	Disease Diagnosed	2019	2018	2019		2018	
				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	9	0	19	0
	Acute Viral Hepatitis type A	3	0	10	2	11	4
	Amoebiasis	5	4	38	16	43	16
	Anthrax	0	0	0	0	0	0
	Chikungunya Fever	0	0	0	0	1	1
	Cholera	0	0	0	0	0	0
	Dengue Fever	15	2	75	74	14	14
	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	0	0	0	0
	Malaria	0	0	1	1	0	0
	Measles	10	0	23	11	1	0
	Meningococcal Meningitis	0	0	2	0	1	0
	Paratyphoid Fever	0	0	0	0	0	0
	Poliomyelitis	0	0	0	0	0	0
Rubella	1	0	1	1	0	0	
Shigellosis	2	3	17	3	22	4	
Typhoid fever	0	0	4	4	4	2	
West Nile Fever	0	0	0	0	0	0	
Category III	Acute Viral Hepatitis type B	3	2	21	0	16	2
	Acute Viral Hepatitis type C	9	6	80	0	57	2
	Acute Viral Hepatitis type D	0	0	0	0	0	0
	Acute Viral Hepatitis type E	1	0	5	0	2	0
	Congenital Syphilis	0	0	0	0	0	0
	Congenital Rubella Syndrome	0	0	0	0	0	0
	Enteroviruses Infection with Severe Complications	0	1	3	1	6	0
	Haemophilus Influenza type b Infection	0	0	0	0	0	0
	Japanese Encephalitis	0	0	0	0	0	0
	Legionellosis	5	7	42	2	33	0
	Mumps	7	7	80	0	70	2
	Neonatal Tetanus	0	0	0	0	0	0
	Pertussis	2	0	5	0	1	0
Tetanus	0	0	0	0	2	0	
Category IV	Botulism	0	0	0	0	0	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	3	1	13	1	4	0
	Endemic Typhus Fever	0	0	1	0	3	0
	Herpesvirus B Infection	0	0	0	0	0	0
	Invasive Pneumococcal Disease	10	23	107	0	94	0
	Leptospirosis	0	0	10	0	9	0
	Listeriosis	0	1	22	0	11	0
	Lyme Disease	0	0	0	0	0	0
	Melioidosis	0	0	0	0	3	0
	Q Fever	0	0	1	0	1	0
	Scrub Typhus	8	5	60	0	72	0
	Severe Complicated Influenza	71	67	442	2	383	3
Toxoplasmosis	1	2	2	0	5	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 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	1	0	1	1	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

- Sixty-seven clusters were reported, including 3 tuberculosis clusters, 17 diarrhea clusters, 20 upper respiratory tract infection clusters, 22 influenza-like illness clusters, 3 varicella clusters, and 2 enterovirus clusters.

Imported Infectious Diseases

- There were 25 confirmed imported cases from 5 countries during week 8 of 2019.

Diseases	Countries					Total
	Indonesia	Vietnam	Malaysia	Philippines	China	
DF	5	4	3	3		15
Amoebiasis	2			1		3
Complicated Varicella		1				1
Rubella					1	1
Measles		1				1
Shigellosis	1					1
Zika virus infection		1				1
Severe Complicated Influenza					1	1
Acute Hepatitis A			1			1
Total	8	7	4	4	2	25

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

- There are 119 confirmed imported cases from 11 different countries in 2019. The top 3 countries are Vietnam (32), Indonesia (31), and Philippines (24).
- Top 3 imported diseases are Dengue Fever (74), Amoebiasis (16), and Measles (11).

Summary of Epidemic

- **Influenza** : With the 228 Peace Memorial Holiday approaching, the number of outpatient and ER visits for influenza may fluctuate; however, the epidemic is expected to gradually slow down in the community. Influenza A/H1N1 was the predominant virus type.
- **Measles** : Epidemics in neighboring countries continue to rise. There are some measles cases with unknown source of infection in Taiwan, therefore, the number of cases are expected to increase. However, it is not likely to cause a large scale epidemics.

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

Case diagnosis year		Week 9★		Week 1-9			
Classification	Disease Diagnosed	2019	2018	2019		2018	
				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	10	0	21	0
	Acute Viral Hepatitis type A	2	2	12	2	13	6
	Amoebiasis	13	0	51	19	43	16
	Anthrax	0	0	0	0	0	0
	Chikungunya Fever	0	0	0	0	1	1
	Cholera	0	0	0	0	0	0
	Dengue Fever	5	6	80	79	20	20
	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	0	0	0	0
	Malaria	0	0	1	1	0	0
	Measles	2	0	25	12	1	0
	Meningococcal Meningitis	0	1	2	0	2	0
	Paratyphoid Fever	0	0	0	0	0	0
	Poliomyelitis	0	0	0	0	0	0
Rubella	0	0	1	1	0	0	
Shigellosis	3	2	20	4	24	4	
Typhoid fever	0	0	4	4	4	2	
West Nile Fever	0	0	0	0	0	0	
Category III	Acute Viral Hepatitis type B	0	4	21	0	20	2
	Acute Viral Hepatitis type C	13	10	92	0	67	2
	Acute Viral Hepatitis type D	0	0	0	0	0	0
	Acute Viral Hepatitis type E	0	0	5	0	2	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	3	1	6	0
	Haemophilus Influenza type b Infection	0	0	0	0	0	0
	Japanese Encephalitis	0	0	0	0	0	0
	Legionellosis	1	3	43	2	36	0
	Mumps	11	16	91	0	86	2
	Neonatal Tetanus	0	0	0	0	0	0
	Pertussis	0	1	5	0	2	0
Tetanus	0	0	0	0	2	0	
Category IV	Botulism	0	0	0	0	0	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	2	2	15	1	6	0
	Endemic Typhus Fever	0	0	1	0	3	0
	Herpesvirus B Infection	0	0	0	0	0	0
	Invasive Pneumococcal Disease	6	12	113	0	106	0
	Leptospirosis	1	0	11	0	9	0
	Listeriosis	5	2	27	0	13	0
	Lyme Disease	0	0	0	0	0	0
	Melioidosis	0	0	0	0	3	0
	Q Fever	0	0	1	0	1	0
	Scrub Typhus	4	6	64	0	78	0
	Severe Complicated Influenza	55	78	497	2	461	4
Toxoplasmosis	0	0	2	0	5	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 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	1	1	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

- Thirty-three clusters were reported, including 3 tuberculosis clusters, 5 diarrhea clusters, 8 upper respiratory tract infection clusters, 12 influenza-like illness clusters, 3 fever of unknown origin clusters, and 2 varicella clusters.

Imported Infectious Diseases

- There were 10 confirmed imported cases from 3 countries during week 9 of 2019.

Diseases \ Countries	Indonesia	Thailand	Philippines	Total
DF	3	2		5
Amoebiasis	2		1	3
Measles	1			1
Shigellosis	1			1
Total	7	2	1	10

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

- There are 129 confirmed imported cases from 11 different countries in 2019. The top 3 countries are Indonesia (38), Vietnam (32), and Philippines (25).
- Top 3 imported diseases are Dengue Fever (79), Amoebiasis (19), and Measles (12).

Summary of Epidemic

- **Influenza** : The hospital resumed regular service hours after the holiday, and the temperature is reduced by the cold air mass during this week; therefore, the number of outpatient and ER visits for influenza-like illness may increase slightly. However, the epidemic is expected to continuously slow down in the community. Influenza A/H1N1 was the predominant virus type.
- **Measles** : Epidemics in neighboring countries continue to rise. There are some measles cases with unknown source of infection in Taiwan; therefore, the number of cases are expected to increase. However, it is not likely to cause a large scale epidemics.

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