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Statistics of Communicable Diseases and Surveillance Report

2019

Annual
November 2020

Centers for Disease Control,
Ministry of Health and Welfare,
R.O.C. (Taiwan)

Statistics of Communicable Diseases and Surveillance Report Republic of China

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Contents

Explanatory Notes

1. Taiwan in this Report includes Taiwan Island, Penghu, Kinmen and Matsu.
2. The Report includes the notifiable diseases* and other relevant communicable diseases. Individual cases were reported by medical care institutions and physicians through the case reporting system for communicable diseases. Alternatively, medical care institutions and physicians also reported cases by submitting a “Report of cases of communicable and emerging infectious disease, include suspected cases”** by post/fax to the local health authority that then completed the case reporting process online.
3. Definitions of terms used in the Report:
   (1) Notifiable diseases: Communicable diseases listed in Article 3, Communicable disease Control Act.
   (2) Reported cases: Cases of communicable disease or suspected cases detected by physicians while diagnosing and treating patients, and statistic of reported cases using the “Report of cases of communicable and emerging infectious disease, include suspected cases” form.
   (3) Confirmed cases: For most notifiable diseases, reported cases that are diagnosed or found positive by Taiwan CDC’s laboratory or other verified institutions are determined as confirmed cases. For some notifiable diseases, confirmation of infection should meet the clinical symptoms and epidemiological criteria. For a few notifiable diseases, confirmation of infection should be determined by an expert meeting. Please refer to the “Case definition for Notifiable Communicable Diseases” to see the case definition of each disease.
   (4) Unspecified hepatitis: Cases that are non-A / non-B hepatitis and that can neither be classified as hepatitis C, D or E.
4. Analysis standards:
   (1) By locality: The actual residential locality of the confirmed case. For the tables of analysis of time intervals, the statistics is based on the reporting locality.
   (2) By age group: The actual age of the confirmed case. The ages of the syphilis, congenital syphilis, gonorrhea, HIV infection, AIDS, Hansen’s disease and Creutzfeldt-Jakob disease cases were calculated based on the day of diagnosis. The ages of the TB and MDR-TB (multi-drug resistant tuberculosis) cases were calculated based on the day the case was reported and the day the case was registered with Taiwan CDC respectively.
   (3) By month: The actual disease onset month of the confirmed case. The disease onset months of the syphilis, congenital syphilis, gonorrhea, HIV infection, AIDS, Hansen’s disease and Creutzfeldt-Jakob disease cases were calculated based on the month of diagnosis. The disease onset months of the TB and MDR-TB cases

were calculated based on the month the case was reported and the month the case was registered with Taiwan CDC respectively.

(4) By year: The actual disease onset year of the confirmed case. The disease onset years of the syphilis, congenital syphilis, gonorrhea, HIV infection, AIDS, Hansen's disease and Creutzfeldt-Jakob disease cases were calculated based on the year of diagnosis. The disease onset years of the TB and MDR-TB cases were calculated based on the year the case was reported and the year the case was registered with Taiwan CDC respectively.

(5) By week: The epidemiological week. Please refer to Appendix 3 for further details.

(6) In the 1999 annual statistics report, the tuberculosis statistics included only confirmed cases of open (active) and non-open (non-active) pulmonary tuberculosis, but not cases of pulmonary tuberculosis complicated with non-pulmonary tuberculosis. In compliance with the amendment made to the Communicable Diseases Control Act in 1999 and the intensified control of open pulmonary tuberculosis, CDC began to include and tabulate open pulmonary tuberculosis (including open pulmonary tuberculosis and open pulmonary tuberculosis with pulmonary and non-pulmonary complications) and other tuberculosis (all tuberculosis cases except the aforementioned open pulmonary tuberculosis) in the tuberculosis statistics. For international comparison, Tuberculosis has been categorized as smear positive and others in 2006. As WHO modified the definition, we have generated the statistical data without category to make consistent baseline over the years.

(7) Starting from 2002, only Taiwanese HIV infection and AIDS cases are analyzed.

(8) From 2000 to 2005, Mumps and Varicella had been reported with secondary data; and had been reported with detailed information since January 1, 2006.

(9) Mid-Year Population: The mid-year population comes from the Ministry of the Interior and which is used to calculate the incidence rate of diseases.

(10) Beginning in 2002, the historical information will not be amended. Any correction made to such information will be listed in the appendix. The analysis baseline in 2019 was based on the data before May 1, 2020.

5. Symbols: "-" for no reported cases; "…" for not under surveillance.
6. Figures may not sum up to the total due to rounding.

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* Please see Appendix 1 for classification of communicable diseases.

** Please see Appendix 2 for the form of "Report of cases of communicable and emerging infectious disease, include suspected cases".

PART I

Summary Tables and Graphs for Confirmed Cases

◎ **Abbreviations and Symbols Used in Table**

– No reported cases

… Not under surveillance

Table 1 Number of confirmed cases of notifiable diseases — by locality, 2019

Unit: Person

Area / Locality	Midyear population	Category I				Category II	
		Smallpox	Plague	SARS	Rabies	Diphtheria	Typhoid[1] Fever
Total	23,596,027	-	-	-	-	-	21
Taipei Area							
Taipei City	2,656,807	-	-	-	-	-	2
New Taipei City	4,007,207	-	-	-	-	-	1
Keelung City	369,524	-	-	-	-	-	2
Yilan County	454,700	-	-	-	-	-	1
Kinmen County	139,729	-	-	-	-	-	-
Lienchiang County	13,073	-	-	-	-	-	-
Northern Area							
Taoyuan City	2,234,955	-	-	-	-	-	3
Hsinchu City	447,219	-	-	-	-	-	-
Hsinchu County	560,472	-	-	-	-	-	1
Miaoli County	547,161	-	-	-	-	-	3
Central Area							
Taichung City	2,809,578	-	-	-	-	-	3
Changhua County	1,275,313	-	-	-	-	-	1
Nantou County	495,572	-	-	-	-	-	-
Southern Area							
Yunlin County	683,664	-	-	-	-	-	-
Chiayi City	268,156	-	-	-	-	-	-
Chiayi County	505,091	-	-	-	-	-	-
Tainan City	1,882,369	-	-	-	-	-	2
Kao-Ping Area							
Kaohsiung City	2,773,366	-	-	-	-	-	1
Pingtung County	822,295	-	-	-	-	-	-
Penghu County	104,824	-	-	-	-	-	1
Eastern Area							
Hualien County	327,108	-	-	-	-	-	-
Taitung County	217,850	-	-	-	-	-	-
Others	-	-	-	-	-	-	-

Note: [1]17 cases of typhoid fever were imported.

Table 1 *(Continued)* Number of confirmed cases of notifiable diseases — by locality, 2019

Unit: Person

Area / Locality	Category II						
	Dengue[1] Fever	Meningococcal Meningitis	Paratyphoid [1] Fever	Poliomyelitis	Acute[1,2] Flaccid Paralysis	Shigellosis[1]	Amoebiasis[1]
Total	640	8	8	-	64	147	352
Taipei Area							
Taipei City	97	3	1	-	5	25	60
New Taipei City	97	1	3	-	16	43	63
Keelung City	4	-	-	-	1	2	6
Yilan County	5	-	-	-	1	2	6
Kinmen County	-	-	-	-	-	-	1
Lienchiang County	1	-	-	-	-	-	-
Northern Area							
Taoyuan City	63	-	-	-	6	24	25
Hsinchu City	16	-	-	-	-	2	9
Hsinchu County	9	-	-	-	1	5	10
Miaoli County	2	-	-	-	1	-	7
Central Area							
Taichung City	70	2	1	-	8	14	27
Changhua County	22	-	3	-	2	7	15
Nantou County	8	-	-	-	2	3	3
Southern Area							
Yunlin County	11	-	-	-	1	2	7
Chiayi City	2	-	-	-	1	-	1
Chiayi County	5	-	-	-	2	1	7
Tainan City	66	-	-	-	5	6	22
Kao-Ping Area							
Kaohsiung City	140	2	-	-	8	6	56
Pingtung County	11	-	-	-	2	4	17
Penghu County	2	-	-	-	-	-	-
Eastern Area							
Hualien County	6	-	-	-	1	1	7
Taitung County	3	-	-	-	1	-	3
Others	-	-	-	-	-	-	-

Note: [1]The total case number of the following diseases includes imported cases: dengue fever (540), paratyphoid fever (6), acute flaccid paralysis (1), shigellosis (44) and amoebiasis (195).

[2]No wild poliovirus was detected since 1984. Nationwide surveillance of acute flaccid paralysis has been used for detecting cases of poliomyelitis after implementing the “Eradication Program for Measles, Congenital Rubella Syndrome, Poliomyelitis and Neonatal Tetanus” since 1992.

Table 1 *(Continued)* Number of confirmed cases of notifiable diseases — by locality, 2019

Unit: Person

Area / Locality	Midyear population	Category II						
		Malaria[1]		Measles[1]	Acute [1] Hepatitis A	Enterohaemorrhagic E. coli Infection	Hantavirus Syndrome	
		Indigenous	Imported				Hemorrhagic[1] Fever with Renal Syndrome	Hantavirus Pulmonary Syndrome
Total	23,596,027	-	7	141	107	1	3	-
Taipei Area								
Taipei City	2,656,807	-	2	32	15	-	-	-
New Taipei City	4,007,207	-	1	43	24	-	1	-
Keelung City	369,524	-	-	2	1	-	-	-
Yilan County	454,700	-	1	-	5	-	1	-
Kinmen County	139,729	-	-	-	1	-	-	-
Lienchiang County	13,073	-	-	-	-	-	-	-
Northern Area								
Taoyuan City	2,234,955	-	-	18	6	-	-	-
Hsinchu City	447,219	-	-	6	5	-	-	-
Hsinchu County	560,472	-	-	3	2	-	-	-
Miaoli County	547,161	-	-	-	5	-	-	-
Central Area								
Taichung City	2,809,578	-	1	16	15	-	-	-
Changhua County	1,275,313	-	-	6	4	-	-	-
Nantou County	495,572	-	-	3	1	-	-	-
Southern Area								
Yunlin County	683,664	-	-	1	3	1	-	-
Chiayi City	268,156	-	-	-	-	-	-	-
Chiayi County	505,091	-	-	-	5	-	-	-
Tainan City	1,882,369	-	2	4	3	-	-	-
Kao-Ping Area								
Kaohsiung City	2,773,366	-	-	5	8	-	1	-
Pingtung County	822,295	-	-	1	3	-	-	-
Penghu County	104,824	-	-	-	-	-	-	-
Eastern Area								
Hualien County	327,108	-	-	-	-	-	-	-
Taitung County	217,850	-	-	1	1	-	-	-
Others	-	-	-	-	-	-	-	-

Note: [1]The total case number of the following diseases includes imported cases: malaria (7), measles (59), acute hepatitis A (26) and hemorrhagic fever with renal syndrome (1).

Table 1 *(Continued)* Number of confirmed cases of notifiable diseases — by locality, 2019

Unit: Person

Area / Locality	Category II							
	Cholera	Rubella[1]	MDR-TB[3]	Chikungunya[1] Fever	West Nile Fever	Epidemic Typhus Fever	Anthrax	Zika Virus[1,7] Infection
Total	-	25	79	116	-	-	-	4
Taipei Area								
Taipei City	-	5	9	25	-	-	-	1
New Taipei City	-	5	14	45	-	-	-	-
Keelung City	-	1	2	1	-	-	-	-
Yilan County	-	-	-	3	-	-	-	-
Kinmen County	-	-	-	-	-	-	-	-
Lienchiang County	-	-	-	-	-	-	-	-
Northern Area								
Taoyuan City	-	3	5	15	-	-	-	2
Hsinchu City	-	2	-	1	-	-	-	-
Hsinchu County	-	1	4	4	-	-	-	-
Miaoli County	-	1	2	-	-	-	-	-
Central Area								
Taichung City	-	3	7	11	-	-	-	1
Changhua County	-	-	7	1	-	-	-	-
Nantou County	-	-	2	1	-	-	-	-
Southern Area								
Yunlin County	-	-	2	-	-	-	-	-
Chiayi City	-	-	1	-	-	-	-	-
Chiayi County	-	-	4	2	-	-	-	-
Tainan City	-	-	4	-	-	-	-	-
Kao-Ping Area								
Kaohsiung City	-	4	3	7	-	-	-	-
Pingtung County	-	-	6	-	-	-	-	-
Penghu County	-	-	-	-	-	-	-	-
Eastern Area								
Hualien County	-	-	6	-	-	-	-	-
Taitung County	-	-	1	-	-	-	-	-
Others	-	-	-	-	-	-	-	-

Note: [1]The total case number of the following diseases includes imported cases: rubella (18), chikungunya fever (95) and Zika virus infection (4).

[3]The caseload of MDR-TB was calculated based on CDC's registration date.

[7]Zika virus infection was changed from Category 5 Communicable Diseases to Category 2 on April 1, 2019.

Table 1 *(Continued)* Number of confirmed cases of notifiable diseases — by locality, 2019

Unit: Person

Area / Locality	Midyear population	Category III					
		Pertussis	Tetanus[4]	Japanese[1] Encephalitis	Tuberculosis[3]	Congenital Rubella Syndrome	Acute[1] Hepatitis B
Total	23,596,027	32	6	21	8,732	-	111
Taipei Area							
Taipei City	2,656,807	-	-	-	725	-	10
New Taipei City	4,007,207	5	-	-	1,350	-	24
Keelung City	369,524	-	-	-	146	-	1
Yilan County	454,700	1	-	-	174	-	1
Kinmen County	139,729	-	-	-	16	-	-
Lienchiang County	13,073	-	-	-	1	-	-
Northern Area							
Taoyuan City	2,234,955	5	1	4	653	-	14
Hsinchu City	447,219	-	-	-	111	-	3
Hsinchu County	560,472	6	-	1	190	-	4
Miaoli County	547,161	-	-	-	148	-	4
Central Area							
Taichung City	2,809,578	4	1	3	888	-	17
Changhua County	1,275,313	-	2	2	574	-	2
Nantou County	495,572	-	-	-	234	-	-
Southern Area							
Yunlin County	683,664	-	-	1	331	-	3
Chiayi City	268,156	2	-	2	69	-	-
Chiayi County	505,091	6	1	1	183	-	4
Tainan City	1,882,369	-	1	-	678	-	6
Kao-Ping Area							
Kaohsiung City	2,773,366	-	-	5	1,367	-	16
Pingtung County	822,295	-	-	2	571	-	1
Penghu County	104,824	-	-	-	19	-	-
Eastern Area							
Hualien County	327,108	-	-	-	186	-	1
Taitung County	217,850	3	-	-	118	-	-
Others	-	-	-	-	-	-	-

Note: [1]The total case number of the following diseases includes imported cases: Japanese encephalitis (2) and acute hepatitis B (4).

[3]The caseload calculation of tuberculosis was based on notification date.

[4]Calculation for tetanus was based on reported cases only.

Table 1 *(Continued)* Number of confirmed cases of notifiable diseases — by locality, 2019

Unit: Person

Area / Locality	Category III						
	Acute Hepatitis				Mumps[4]	Legionnaires'[1] Disease	Invasive Haemophilus Influenzae Type b Infection
	C[1]	D	E[1]	Un-specified			
Total	626	-	7	-	594	281	3
Taipei Area							
Taipei City	82	-	2	-	69	43	1
New Taipei City	115	-	4	-	73	54	-
Keelung City	10	-	-	-	12	5	-
Yilan County	11	-	-	-	14	4	-
Kinmen County	3	-	-	-	1	2	-
Lienchiang County	-	-	-	-	-	-	-
Northern Area							
Taoyuan City	71	-	1	-	62	36	-
Hsinchu City	3	-	-	-	8	2	-
Hsinchu County	13	-	-	-	20	9	-
Miaoli County	11	-	-	-	30	10	-
Central Area							
Taichung City	78	-	-	-	64	22	-
Changhua County	16	-	-	-	22	6	-
Nantou County	16	-	-	-	27	2	-
Southern Area							
Yunlin County	15	-	-	-	6	10	-
Chiayi City	9	-	-	-	4	6	-
Chiayi County	10	-	-	-	9	6	-
Tainan City	36	-	-	-	55	12	-
Kao-Ping Area							
Kaohsiung City	74	-	-	-	78	27	-
Pingtung County	23	-	-	-	5	13	2
Penghu County	1	-	-	-	13	-	-
Eastern Area							
Hualien County	23	-	-	-	11	11	-
Taitung County	6	-	-	-	11	1	-
Others	-	-	-	-	-	-	-

Note: [1]The total case number of the following diseases includes imported cases: acute hepatitis C (4), acute hepatitis E (4) and Legionnaires' disease (15).

[4]Calculation for mumps was based on reported cases only.

Table 1 *(Continued)* Number of confirmed cases of notifiable diseases — by locality, 2019

Unit: Person

Area / Locality	Midyear population	Category III							
		Syphilis[5]	Congenital[5] syphilis	Gonorrhea[5]	Neonatal Tetanus	Enteroviruses[1] Infection with Severe Complications	HIV[6] Infection	AIDS[6]	Hansen's[5] Disease
Total	23,596,027	9,397	-	4,523	-	69	1,755	1,005	10
Taipei Area									
Taipei City	2,656,807	1,281	-	847	-	2	226	119	1
New Taipei City	4,007,207	1,937	-	1,174	-	21	406	219	5
Keelung City	369,524	162	-	101	-	1	17	19	-
Yilan County	454,700	262	-	32	-	1	15	8	-
Kinmen County	139,729	9	-	6	-	-	-	-	-
Lienchiang County	13,073	1	-	-	-	-	-	-	-
Northern Area									
Taoyuan City	2,234,955	1,072	-	487	-	4	185	124	-
Hsinchu City	447,219	180	-	86	-	1	37	15	1
Hsinchu County	560,472	159	-	154	-	1	44	28	-
Miaoli County	547,161	127	-	67	-	2	16	5	-
Central Area									
Taichung City	2,809,578	1,043	-	313	-	11	201	104	-
Changhua County	1,275,313	312	-	98	-	4	41	31	3
Nantou County	495,572	132	-	82	-	-	15	10	-
Southern Area									
Yunlin County	683,664	160	-	103	-	1	19	17	-
Chiayi City	268,156	89	-	44	-	1	9	6	-
Chiayi County	505,091	111	-	61	-	2	27	18	-
Tainan City	1,882,369	619	-	219	-	8	122	66	-
Kao-Ping Area									
Kaohsiung City	2,773,366	1,093	-	482	-	7	281	147	-
Pingtung County	822,295	341	-	58	-	-	49	37	-
Penghu County	104,824	34	-	9	-	-	1	1	-
Eastern Area									
Hualien County	327,108	162	-	57	-	1	32	23	-
Taitung County	217,850	111	-	43	-	1	12	8	-
Others	-	-	-	-	-	-	-	-	-

Note: [1]1 case of enterovirus infection with severe complications was imported.

[5]The caseload calculation of syphilis, congenital syphilis, gonorrhea and Hansen's disease were based on diagnosis date.

[6]The caseload calculation of HIV infection and AIDS were based on diagnosis date, and foreign nationality cases were excluded.

Table 1 *(Continued)* Number of confirmed cases of notifiable diseases — by locality, 2019

Unit: Person

Area / Locality	Category IV								
	Herpesvirus B Infection	Leptospirosis[1]	Melioidosis[1]	Botulism	Invasive[1] Pneumococcal Disease	Q[1] Fever	Endemic[1] Typhus Fever	Lyme Disease	Tularemia
Total	-	111	46	-	447	23	30	-	-
Taipei Area									
Taipei City	-	6	1	-	40	-	-	-	-
New Taipei City	-	18	2	-	88	-	2	-	-
Keelung City	-	-	-	-	10	-	-	-	-
Yilan County	-	1	-	-	12	-	-	-	-
Kinmen County	-	-	-	-	-	-	-	-	-
Lienchiang County	-	-	-	-	-	-	-	-	-
Northern Area									
Taoyuan City	-	3	2	-	32	1	-	-	-
Hsinchu City	-	2	-	-	5	-	-	-	-
Hsinchu County	-	6	-	-	11	-	-	-	-
Miaoli County	-	5	-	-	6	-	-	-	-
Central Area									
Taichung City	-	5	12	-	58	2	4	-	-
Changhua County	-	2	-	-	33	2	4	-	-
Nantou County	-	2	2	-	12	-	1	-	-
Southern Area									
Yunlin County	-	1	1	-	17	-	1	-	-
Chiayi City	-	-	-	-	3	-	-	-	-
Chiayi County	-	2	2	-	11	-	-	-	-
Tainan City	-	3	-	-	20	2	2	-	-
Kao-Ping Area									
Kaohsiung City	-	23	18	-	41	13	9	-	-
Pingtung County	-	24	6	-	28	3	7	-	-
Penghu County	-	1	-	-	2	-	-	-	-
Eastern Area									
Hualien County	-	7	-	-	12	-	-	-	-
Taitung County	-	-	-	-	6	-	-	-	-
Others	-	-	-	-	-	-	-	-	-

Note: [1]The total case number of the following diseases includes imported cases: leptospirosis (1), melioidosis (1), invasive pneumococcal disease (2), Q fever (5) and endemic typhus fever (3).

Table 1 *(Continued)* Number of confirmed cases of notifiable diseases — by locality, 2019

Unit: Person

Area / Locality	Midyear population	Category IV						
		Scrub[1] Typhus	Complicated[1] Varicella	Toxoplasmosis[1]	Severe[1] Complicated Influenza	Creutzfeldt-[5] Jakob Disease	Brucellosis	Listeriosis[1]
Total	23,596,027	449	57	16	2,325	-	-	164
Taipei Area								
Taipei City	2,656,807	21	8	1	204	-	-	11
New Taipei City	4,007,207	32	13	2	420	-	-	25
Keelung City	369,524	4	2	-	25	-	-	1
Yilan County	454,700	12	-	2	69	-	-	5
Kinmen County	139,729	12	-	-	15	-	-	-
Lienchiang County	13,073	4	-	-	-	-	-	-
Northern Area								
Taoyuan City	2,234,955	9	12	4	230	-	-	17
Hsinchu City	447,219	3	1	-	21	-	-	5
Hsinchu County	560,472	9	1	-	29	-	-	6
Miaoli County	547,161	3	-	-	66	-	-	6
Central Area								
Taichung City	2,809,578	25	3	1	196	-	-	23
Changhua County	1,275,313	6	-	1	92	-	-	7
Nantou County	495,572	12	3	-	60	-	-	2
Southern Area								
Yunlin County	683,664	2	-	-	95	-	-	5
Chiayi City	268,156	3	-	-	28	-	-	5
Chiayi County	505,091	5	1	-	69	-	-	2
Tainan City	1,882,369	9	5	2	259	-	-	18
Kao-Ping Area								
Kaohsiung City	2,773,366	51	6	1	235	-	-	16
Pingtung County	822,295	14	-	1	93	-	-	3
Penghu County	104,824	67	1	-	8	-	-	1
Eastern Area								
Hualien County	327,108	65	1	1	55	-	-	3
Taitung County	217,850	81	-	-	56	-	-	3
Others	-	-	-	-	-	-	-	-

Note:[1]The total case number of the following diseases includes imported cases: scrub typhus (7), complicated varicella (1), toxoplasmosis (4), influenza case with severe complications (10) and listeriosis(1).

[5]The caseload calculation of Creutzfeldt-Jakob disease was based on diagnosis date.

Table 1 *(Continued)* Number of confirmed cases of notifiable diseases — by locality, 2019

Unit: Person

Area / Locality	Category V						
	Rift Valley Fever	Marburg Haemorrhagic Fever	Yellow Fever	Ebola Virus Disease	Lassa Fever	Middle East Respiratory Syndrome Coronavirus Infections	Novel Influenza A Virus Infections
Total	-	-	-	-	-	-	-
Taipei Area							
Taipei City	-	-	-	-	-	-	-
New Taipei City	-	-	-	-	-	-	-
Keelung City	-	-	-	-	-	-	-
Yilan County	-	-	-	-	-	-	-
Kinmen County	-	-	-	-	-	-	-
Lienchiang County	-	-	-	-	-	-	-
Northern Area							
Taoyuan City	-	-	-	-	-	-	-
Hsinchu City	-	-	-	-	-	-	-
Hsinchu County	-	-	-	-	-	-	-
Miaoli County	-	-	-	-	-	-	-
Central Area							
Taichung City	-	-	-	-	-	-	-
Changhua County	-	-	-	-	-	-	-
Nantou County	-	-	-	-	-	-	-
Southern Area							
Yunlin County	-	-	-	-	-	-	-
Chiayi City	-	-	-	-	-	-	-
Chiayi County	-	-	-	-	-	-	-
Tainan City	-	-	-	-	-	-	-
Kao-Ping Area							
Kaohsiung City	-	-	-	-	-	-	-
Pingtung County	-	-	-	-	-	-	-
Penghu County	-	-	-	-	-	-	-
Eastern Area							
Hualien County	-	-	-	-	-	-	-
Taitung County	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-

Table 2 Number of confirmed cases and incidence[8] rate of notifiable diseases — by age group, 2019

Unit: Person

Disease	＜1 yr		1-4 yrs		5-14 yrs		15-24 yrs		25-39 yrs	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
Category I										
Smallpox	-	-	-	-	-	-	-	-	-	-
Plague	-	-	-	-	-	-	-	-	-	-
SARS	-	-	-	-	-	-	-	-	-	-
Rabies	-	-	-	-	-	-	-	-	-	-
Category II										
Diphtheria	-	-	-	-	-	-	-	-	-	-
Typhoid Fever[1]	-	-	1	0.12	1	0.05	6	0.21	13	0.25
Dengue Fever[1]	-	-	2	0.24	32	1.57	115	4.08	249	4.77
Meningococcal Meningitis	1	0.59	-	-	-	-	2	0.07	-	-
Paratyphoid Fever[1]	-	-	-	-	-	-	2	0.07	4	0.08
Poliomyelitis	-	-	-	-	-	-	-	-	-	-
Acute Flaccid Paralysis[1,2]	8	4.72	31	3.77	25	1.23	-	-	-	-
Shigellosis[1]	-	-	2	0.24	1	0.05	21	0.74	97	1.86
Amoebiasis[1]	-	-	-	-	2	0.10	56	1.99	196	3.76
Malaria[1]										
Indigenous	-	-	-	-	-	-	-	-	-	-
Imported	-	-	-	-	-	-	-	-	2	0.04
Measles[1]	9	5.31	6	0.73	4	0.20	23	0.82	89	1.71
Acute Hepatitis A[1]	-	-	-	-	2	0.10	8	0.28	19	0.36
Enterohaemorrhagic *E. coli* Infection	-	-	-	-	-	-	1	0.04	-	-
Hantavirus Syndrome										
Hemorrhagic Fever with Renal Syndrome[1]	-	-	-	-	-	-	-	-	1	0.02
Hantavirus Pulmonary Syndrome	-	-	-	-	-	-	-	-	-	-
Cholera	-	-	-	-	-	-	-	-	-	-
Rubella[1]	-	-	-	-	-	-	2	0.07	9	0.17
MDR-TB[3]	-	-	-	-	1	0.00	3	0.10	4	0.10
Chikungunya Fever[1]	-	-	1	0.12	2	0.10	16	0.57	29	0.56

Note: [1]The total case number of the following diseases includes imported cases: typhoid fever (17), dengue fever (540), paratyphoid fever (6), acute flaccid paralysis (1), shigellosis (44), amoebiasis (195), malaria (7), measles (59), acute hepatitis A (26), hemorrhagic fever with renal syndrome (1), rubella (18) and chikungunya fever (95).

[2]No wild poliovirus was detected since 1984. Nationwide surveillance of acute flaccid paralysis has been used for detecting cases of poliomyelitis after implementing the “Eradication Program for Measles, Congenital Rubella Syndrome, Poliomyelitis and Neonatal Tetanus” since 1992.

[3]The caseload of MDR-TB was calculated based on CDC's registration date.

[8]Incidence rate indicates the number of new confirmed cases per 100,000 population.

Table 2 *(Continued)* Number of confirmed cases and incidence[8] rate of notifiable diseases — by age group, 2019

Unit: Person

Disease	40-64 yrs		≥ 65 yrs		Age not stated		Total	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate
Category I								
Smallpox	-	-	-	-	-	-	-	-
Plague	-	-	-	-	-	-	-	-
SARS	-	-	-	-	-	-	-	-
Rabies	-	-	-	-	-	-	-	-
Category II								
Diphtheria	-	-	-	-	-	-	-	-
Typhoid Fever[1]	-	-	-	-	-	-	21	0.09
Dengue Fever[1]	192	2.13	50	1.42	-	-	640	2.71
Meningococcal Meningitis	1	0.01	4	0.11	-	-	8	0.03
Paratyphoid Fever[1]	2	0.02	-	-	-	-	8	0.03
Poliomyelitis	-	-	-	-	-	-	-	-
Acute Flaccid Paralysis[1,2]	-	-	-	-	-	-	64	0.27
Shigellosis[1]	22	0.24	4	0.11	-	-	147	0.62
Amoebiasis[1]	81	0.90	17	0.48	-	-	352	1.49
Malaria[1]								
Indigenous	-	-	-	-	-	-	-	-
Imported	5	0.06	-	-	-	-	7	0.03
Measles[1]	10	0.11	-	-	-	-	141	0.60
Acute Hepatitis A[1]	49	0.54	29	0.82	-	-	107	0.45
Enterohaemorrhagic *E. coli* Infection	-	-	-	-	-	-	1	0.00
Hantavirus Syndrome								
Hemorrhagic Fever with Renal Syndrome[1]	1	0.01	1	0.03	-	-	3	0.01
Hantavirus Pulmonary Syndrome	-	-	-	-	-	-	-	-
Cholera	-	-	-	-	-	-	-	-
Rubella[1]	14	0.16	-	-	-	-	25	0.11
MDR-TB[3]	30	0.30	41	1.20	-	-	79	0.30
Chikungunya Fever[1]	53	0.59	15	0.43	-	-	116	0.49

Note: [1]The total case number of the following diseases includes imported cases: typhoid fever (17), dengue fever (540), paratyphoid fever (6), acute flaccid paralysis (1), shigellosis (44), amoebiasis (195), malaria (7), measles (59), acute hepatitis A (26), hemorrhagic fever with renal syndrome (1), rubella (18) and chikungunya fever (95).

[2]No wild poliovirus was detected since 1984. Nationwide surveillance of acute flaccid paralysis has been used for detecting cases of poliomyelitis after implementing the “Eradication Program for Measles, Congenital Rubella Syndrome, Poliomyelitis and Neonatal Tetanus” since 1992.

[3]The caseload of MDR-TB was calculated based on CDC's registration date.

[8]Incidence rate indicates the number of new confirmed cases per 100,000 population.

Table 2 *(Continued)* Number of confirmed cases and incidence[8] rate of notifiable diseases — by age group, 2019

Unit: Person

Disease	＜1 yr		1-4 yrs		5-14 yrs		15-24 yrs		25-39 yrs	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
Category II										
West Nile Fever	-	-	-	-	-	-	-	-	-	-
Epidemic Typhus Fever	-	-	-	-	-	-	-	-	-	-
Anthrax	-	-	-	-	-	-	-	-	-	-
Zika Virus Infection[1,7]	-	-	1	0.12	-	-	2	0.07	-	-
Category III										
Pertussis	18	10.63	2	0.24	-	-	3	0.11	6	0.12
Tetanus[4]	-	-	1	0.12	-	-	-	-	1	0.02
Japanese Encephalitis[1]	-	-	-	-	-	-	-	-	3	0.06
Tuberculosis[3]	4	2.40	11	1.30	21	1.00	261	9.30	602	11.50
Congenital Rubella Syndrome	-	-	-	-	-	-	-	-	-	-
Acute Hepatitis										
B[1]	1	0.59	-	-	-	-	13	0.46	37	0.71
C[1]	1	0.59	-	-	-	-	30	1.06	226	4.33
D	-	-	-	-	-	-	-	-	-	-
E[1]	-	-	-	-	-	-	-	-	-	-
Unspecified	-	-	-	-	-	-	-	-	-	-
Mumps[4]	5	2.95	91	11.06	239	11.73	42	1.49	73	1.40
Legionnaires' Disease[1]	-	-	1	0.12	-	-	3	0.11	5	0.10
Invasive Haemophilus Influenzae Type b Infection	-	-	1	0.12	-	-	-	-	-	-
Syphilis[5]	-	-	-	-	3	0.15	1,030	36.53	4,088	78.37
Congenital Syphilis[5]	-	-	-	-	-	-	-	-	-	-
Gonorrhea[5]	1	0.59	-	-	15	0.74	1,407	49.90	2,355	45.15
Neonatal Tetanus	-	-	-	-	-	-	-	-	-	-
Enteroviruses Infection with Severe Complications[1]	12	7.08	36	4.37	19	0.93	2	0.07	-	-
HIV Infection[6]	-	-	-	-	2	0.10	374	13.26	1,036	19.86
AIDS[6]	-	-	-	-	3	0.15	103	3.65	558	10.70

Note: [1]The total case number of the following diseases includes imported cases: Zika virus infection (4), Japanese encephalitis (2), acute hepatitis B (4), acute hepatitis C (4), acute hepatitis E (4), Legionnaires' disease (15) and enterovirus infection with severe complications (1).
[3]The caseload calculation of tuberculosis was based on notification date.
[4]Calculation for tetanus and mumps were based on reported cases only.
[5]The caseload calculation of syphilis, congenital syphilis, and gonorrhea were based on diagnosis date.
[6]The caseload calculation of HIV infection and AIDS were based on diagnosis date, and foreign nationality cases were excluded.
[7]Zika virus infection was changed from Category 5 Communicable Diseases to Category 2 on April 1, 2019.
[8] Incidence rate indicates the number of new confirmed cases per 100,000 population.

Table 2 *(Continued)* Number of confirmed cases and incidence[8] rate of notifiable diseases — by age group, 2019

Unit: Person

Disease	40-64 yrs		≥ 65 yrs		Age not stated		Total	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate
Category II								
West Nile Fever	-	-	-	-	-	-	-	-
Epidemic Typhus Fever	-	-	-	-	-	-	-	-
Anthrax	-	-	-	-	-	-	-	-
Zika Virus Infection[1,7]	1	0.01	-	-	-	-	4	0.02
Category III								
Pertussis	2	0.02	1	0.03	-	-	32	0.14
Tetanus[4]	-	-	4	0.11	-	-	6	0.03
Japanese Encephalitis[1]	16	0.18	2	0.06	-	-	21	0.09
Tuberculosis[3]	2,775	30.80	5,058	143.70	-	-	8,732	37.00
Congenital Rubella Syndrome	-	-	-	-	-	-	-	-
Acute Hepatitis								
B[1]	47	0.52	13	0.37	-	-	111	0.47
C[1]	230	2.55	139	3.95	-	-	626	2.65
D	-	-	-	-	-	-	-	-
E[1]	3	0.03	4	0.11	-	-	7	0.03
Unspecified	-	-	-	-	-	-	-	-
Mumps[4]	108	1.20	36	1.02			594	2.52
Legionnaires' Disease[1]	129	1.43	143	4.06	-	-	281	1.19
Invasive Haemophilus Influenzae Type b Infection	1	0.01	1	0.03	-	-	3	0.01
Syphilis[5]	2,177	24.16	2,099	59.63	-	-	9,397	39.82
Congenital Syphilis[5]	-	-	-	-	-	-	-	-
Gonorrhea[5]	691	7.67	54	1.53	-	-	4,523	19.17
Neonatal Tetanus	-	-	-	-	-	-	-	-
Enteroviruses Infection with Severe Complications[1]	-	-	-	-	-	-	69	0.29
HIV Infection[6]	330	3.66	13	0.37	-	-	1,755	7.44
AIDS[6]	326	3.62	15	0.43	-	-	1,005	4.26

Note: [1]The total case number of the following diseases includes imported cases: Zika virus infection (4), Japanese encephalitis (2), acute hepatitis B (4), acute hepatitis C (4), acute hepatitis E (4), Legionnaires' disease (15) and enterovirus infection with severe complications (1).

[3]The caseload calculation of tuberculosis was based on notification date.

[4]Calculation for tetanus and mumps were based on reported cases only.

[5]The caseload calculation of syphilis, congenital syphilis, and gonorrhea were based on diagnosis date.

[6]The caseload calculation of HIV infection and AIDS were based on diagnosis date, and foreign nationality cases were excluded.

[7]Zika virus infection was changed from Category 5 Communicable Diseases to Category 2 on April 1, 2019.

[8] Incidence rate indicates the number of new confirmed cases per 100,000 population.

Table 2 *(Continued)* Number of confirmed cases and incidence[8] rate of notifiable diseases — by age group, 2019

Unit: Person

Disease	＜1 yr		1-4 yrs		5-14 yrs		15-24 yrs		25-39 yrs	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
Category III										
Hansen's Disease[5]	-	-	-	-	-	-	-	-	6	0.12
Category IV										
Herpesvirus B Infection	-	-	-	-	-	-	-	-	-	-
Leptospirosis[1]	-	-	-	-	-	-	8	0.28	18	0.35
Melioidosis[1]	-	-	-	-	-	-	3	0.11	2	0.04
Botulism	-	-	-	-	-	-	-	-	-	-
Invasive Pneumococcal Disease[1]	3	1.77	36	4.37	14	0.69	7	0.25	45	0.86
Q Fever[1]	-	-	-	-	-	-	-	-	6	0.12
Endemic Typhus Fever[1]	-	-	-	-	-	-	2	0.07	7	0.13
Lyme Disease	-	-	-	-	-	-	-	-	-	-
Tularemia	-	-	-	-	-	-	-	-	-	-
Scrub Typhus[1]	-	-	3	0.36	13	0.64	39	1.38	83	1.59
Complicated Varicella[1]	3	1.77	1	0.12	1	0.05	16	0.57	12	0.23
Toxoplasmosis[1]	-	-	-	-	-	-	2	0.07	8	0.15
Influenza Case with Severe Complications[1]	11	6.49	54	6.56	66	3.24	31	1.10	113	2.17
Creutzfeldt-Jakob Disease[5]	-	-	-	-	-	-	-	-	-	-
Brucellosis	-	-	-	-	-	-	-	-	-	-
Listeriosis[1]	1	0.59	1	0.12	-	-	2	0.07	11	0.21
Category V										
Rift Valley Fever	-	-	-	-	-	-	-	-	-	-
Marburg Haemorrhagic Fever	-	-	-	-	-	-	-	-	-	-
Yellow Fever	-	-	-	-	-	-	-	-	-	-
Ebola Virus Disease	-	-	-	-	-	-	-	-	-	-
Lassa Fever	-	-	-	-	-	-	-	-	-	-
Middle East Respiratory Syndrome Coronavirus Infections	-	-	-	-	-	-	-	-	-	-
Novel Influenza A Virus Infections	-	-	-	-	-	-	-	-	-	-

Note: [1]The total case number of the following diseases includes imported cases: leptospirosis (1), melioidosis (1), invasive pneumococcal disease (2), Q fever (5), endemic typhus fever (3), scrub typhus (7), complicated varicella (1), toxoplasmosis (4), influenza case with severe complications (10) and listeriosis(1).

[5]The caseload calculation of Hansen's disease and Creutzfeldt-Jakob disease were based on diagnosis date.

[8]Incidence rate indicates the number of new confirmed cases per 100,000 population.

Table 2 *(Continued)* Number of confirmed cases and incidence[8] rate of notifiable diseases — by age group, 2019

Unit: Person

Disease	40-64 yrs		≥ 65 yrs		Age not stated		Total	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate
Category III								
Hansen's Disease[5]	3	0.03	1	0.03	-	-	10	0.04
Category IV								
Herpesvirus B Infection	-	-	-	-	-	-	-	-
Leptospirosis[1]	58	0.64	27	0.77	-	-	111	0.47
Melioidosis[1]	23	0.26	18	0.51	-	-	46	0.19
Botulism	-	-	-	-	-	-	-	-
Invasive Pneumococcal Disease[1]	147	1.63	195	5.54	-	-	447	1.89
Q Fever[1]	14	0.16	3	0.09	-	-	23	0.10
Endemic Typhus Fever[1]	12	0.13	9	0.26	-	-	30	0.13
Lyme Disease	-	-	-	-	-	-	-	-
Tularemia	-	-	-	-	-	-	-	-
Scrub Typhus[1]	213	2.36	98	2.78	-	-	449	1.90
Complicated Varicella[1]	22	0.24	2	0.06	-	-	57	0.24
Toxoplasmosis[1]	6	0.07	-	-	-	-	16	0.07
Influenza Case with Severe Complications[1]	917	10.18	1,133	32.18	-	-	2,325	9.85
Creutzfeldt-Jakob Disease[5]	-	-	-	-	-	-	-	-
Brucellosis	-	-	-	-	-	-	-	-
Listeriosis[1]	51	0.57	98	2.78	-	-	164	0.70
Category V								
Rift Valley Fever	-	-	-	-	-	-	-	-
Marburg Haemorrhagic Fever	-	-	-	-	-	-	-	-
Yellow Fever	-	-	-	-	-	-	-	-
Ebola Virus Disease	-	-	-	-	-	-	-	-
Lassa Fever	-	-	-	-	-	-	-	-
Middle East Respiratory Syndrome Coronavirus Infections	-	-	-	-	-	-	-	-
Novel Influenza A Virus Infections	-	-	-	-	-	-	-	-

Note: [1]The total case number of the following diseases includes imported cases: leptospirosis (1), melioidosis (1), invasive pneumococcal disease (2), Q fever (5), endemic typhus fever (3), scrub typhus (7), complicated varicella (1), toxoplasmosis (4), influenza case with severe complications (10) and listeriosis(1).

[5]The caseload calculation of Hansen's disease and Creutzfeldt-Jakob disease were based on diagnosis date.

[8]Incidence rate indicates the number of new confirmed cases per 100,000 population.

Table 3 Number of confirmed cases of notifiable diseases — by month, 2019

Unit: Person

Disease	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
Category I													
Smallpox	-	-	-	-	-	-	-	-	-	-	-	-	-
Plague	-	-	-	-	-	-	-	-	-	-	-	-	-
SARS	-	-	-	-	-	-	-	-	-	-	-	-	-
Rabies	-	-	-	-	-	-	-	-	-	-	-	-	-
Category II													
Diphtheria	-	-	-	-	-	-	-	-	-	-	-	-	-
Typhoid Fever[1]	-	1	1	3	3	3	5	2	2	1	-	-	21
Dengue Fever[1]	35	38	24	31	40	66	120	89	57	61	49	30	640
Meningococcal Meningitis	2	-	-	-	-	-	-	2	-	2	1	1	8
Paratyphoid Fever[1]	-	-	1	1	-	1	2	1	1	-	-	1	8
Poliomyelitis	-	-	-	-	-	-	-	-	-	-	-	-	-
Acute Flaccid Paralysis[1.2]	7	4	4	4	5	7	8	6	5	7	2	5	64
Shigellosis[1]	9	10	13	16	13	11	14	8	13	10	15	15	147
Amoebiasis[1]	31	28	28	24	39	26	27	25	30	35	29	30	352
Malaria[1]													
Indigenous	-	-	-	-	-	-	-	-	-	-	-	-	-
Imported	-	-	-	-	-	-	1	1	3	-	1	1	7
Measles[1]	10	17	19	43	10	4	9	13	4	4	1	7	141
Acute Hepatitis A[1]	6	9	12	8	6	9	6	13	4	13	10	11	107
Enterohaemorrhagic *E. coli* Infection	-	-	-	1	-	-	-	-	-	-	-	-	1
Hantavirus Syndrome													
Hemorrhagic Fever with Renal[1] Syndrome	-	-	-	-	-	-	-	1	-	-	1	1	3
Hantavirus Pulmonary Syndrome	-	-	-	-	-	-	-	-	-	-	-	-	-
Cholera	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubella[1]	-	2	4	5	5	2	1	1	1	-	3	1	25
MDR-TB[3]	7	3	11	3	6	9	8	6	5	9	5	7	79
Chikungunya Fever[1]	-	-	-	1	6	-	20	45	29	7	7	1	116

Note: [1]The total case number of the following diseases includes imported cases: typhoid fever (17), dengue fever (540), paratyphoid fever (6), acute flaccid paralysis (1), shigellosis (44), amoebiasis (195), malaria (7), measles (59), acute hepatitis A (26), hemorrhagic fever with renal syndrome (1), rubella (18) and chikungunya fever (95).

[2]No wild poliovirus was detected since 1984. Nationwide surveillance of acute flaccid paralysis has been used for detecting cases of poliomyelitis after implementing the “Eradication Program for Measles, Congenital Rubella Syndrome, Poliomyelitis and Neonatal Tetanus” since 1992.

[3]The caseload of MDR-TB was calculated based on CDC's registration date.

Table 3 *(Continued)* Number of confirmed cases of notifiable diseases — by month, 2019

Unit: Person

Disease	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
Category II													
West Nile Fever	-	-	-	-	-	-	-	-	-	-	-	-	-
Epidemic Typhus Fever	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthrax	-	-	-	-	-	-	-	-	-	-	-	-	-
Zika Virus Infection[1,7]	-	1	-	-	-	-	2	-	1	-	-	-	4
Category III													
Pertussis	3	6	10	-	1	2	1	-	1	1	3	4	32
Tetanus[4]	-	-	-	-	-	-	1	-	1	1	2	1	6
Japanese Encephalitis[1]	-	-	-	-	7	5	7	1	1	-	-	-	21
Tuberculosis[3]	767	588	735	751	787	711	760	808	620	751	763	691	8,732
Congenital Rubella Syndrome	-	-	-	-	-	-	-	-	-	-	-	-	-
Acute Hepatitis													
B[1]	11	8	7	9	5	12	10	10	8	12	10	9	111
C[1]	46	39	55	42	60	60	47	49	41	58	56	73	626
D	-	-	-	-	-	-	-	-	-	-	-	-	-
E[1]	1	1	1	-	1	-	-	1	-	1	-	1	7
Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-
Mumps[4]	48	36	68	57	58	38	52	39	55	60	37	46	594
Legionnaires' Disease[1]	29	14	26	17	28	19	29	17	28	20	22	32	281
Invasive Haemophilus Influenzae Type b Infection	-	-	-	-	-	-	1	-	-	-	1	1	3
Syphilis[5]	891	572	870	778	851	725	829	778	752	855	673	823	9,397
Congenital Syphilis[5]	-	-	-	-	-	-	-	-	-	-	-	-	-
Gonorrhea[5]	366	325	328	330	354	337	407	362	411	439	389	475	4,523
Neonatal Tetanus	-	-	-	-	-	-	-	-	-	-	-	-	-
Enteroviruses Infection with[1] Severe Complications	3	1	1	5	3	8	8	12	11	9	5	3	69
HIV Infection[6]	217	142	157	170	146	129	143	140	115	149	110	137	1,755
AIDS[6]	99	92	93	100	95	68	87	81	72	86	66	66	1,005

Note: [1]The total case number of the following diseases includes imported cases: Zika virus infection (4), Japanese encephalitis (2), acute hepatitis B (4), acute hepatitis C (4), acute hepatitis E (4), Legionnaires' disease (15) and enterovirus infection with severe complications (1).

[3]The caseload calculation of tuberculosis was based on notification date.

[4]Calculation for tetanus and mumps were based on reported cases only.

[5]The caseload calculation of syphilis, congenital syphilis, and gonorrhea were based on diagnosis date.

[6]The caseload calculation of HIV infection and AIDS were based on diagnosis date, and foreign nationality cases were excluded.

[7]Zika virus infection was changed from Category 5 Communicable Diseases to Category 2 on April 1, 2019.

Table 3 *(Continued)* Number of confirmed cases of notifiable diseases — by month, 2019

Unit: Person

Disease	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
Category III													
Hansen's Disease[5]	-	-	2	-	-	1	2	2	1	1	-	1	10
Category IV													
Herpesvirus B Infection	-	-	-	-	-	-	-	-	-	-	-	-	-
Leptospirosis[1]	4	2	2	6	6	14	16	26	20	11	1	3	111
Melioidosis[1]	-	-	1	2	1	2	11	16	7	3	3	-	46
Botulism	-	-	-	-	-	-	-	-	-	-	-	-	-
Invasive Pneumococcal Disease[1]	60	40	36	40	28	19	27	32	38	32	37	58	447
Q Fever[1]	1	-	6	1	2	4	1	2	5	1	-	-	23
Endemic Typhus Fever[1]	1	-	1	1	1	7	4	6	5	2	2	-	30
Lyme Disease	-	-	-	-	-	-	-	-	-	-	-	-	-
Tularemia	-	-	-	-	-	-	-	-	-	-	-	-	-
Scrub Typhus[1]	24	16	10	41	49	67	51	50	51	39	27	24	449
Complicated Varicella[1]	8	6	6	3	4	3	8	7	5	3	2	2	57
Toxoplasmosis[1]	-	1	3	-	1	1	2	2	1	2	2	1	16
Influenza Case with Severe Complications[1]	254	256	136	133	113	163	239	243	263	133	131	261	2,325
Creutzfeldt-Jakob Disease[5]	-	-	-	-	-	-	-	-	-	-	-	-	-
Brucellosis	-	-	-	-	-	-	-	-	-	-	-	-	-
Listeriosis[1]	15	16	18	18	16	21	10	15	16	6	8	5	164
Category V													
Rift Valley Fever	-	-	-	-	-	-	-	-	-	-	-	-	-
Marburg Haemorrhagic Fever	-	-	-	-	-	-	-	-	-	-	-	-	-
Yellow Fever	-	-	-	-	-	-	-	-	-	-	-	-	-
Ebola Virus Disease	-	-	-	-	-	-	-	-	-	-	-	-	-
Lassa Fever	-	-	-	-	-	-	-	-	-	-	-	-	-
Middle East Respiratory Syndrome Coronavirus Infections	-	-	-	-	-	-	-	-	-	-	-	-	-
Novel Influenza A Virus Infections	-	-	-	-	-	-	-	-	-	-	-	-	-

Note: [1]The total case number of the following diseases includes imported cases: leptospirosis (1), melioidosis (1), invasive pneumococcal disease (2), Q fever (5), endemic typhus fever (3), scrub typhus (7), complicated varicella (1), toxoplasmosis (4), influenza case with severe complications (10) and listeriosis(1).

[5]The caseload calculation of Hansen's disease and Creutzfeldt-Jakob disease were based on diagnosis date.

Table 4 Number of confirmed cases and incidence[8] rate of notifiable diseases — by sex, 2019

Unit: Person

Disease	Female		Male		Sex not stated		Total	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate
Category I								
Smallpox	-	-	-	-	-	-	-	-
Plague	-	-	-	-	-	-	-	-
SARS	-	-	-	-	-	-	-	-
Rabies	-	-	-	-	-	-	-	-
Category II								
Diphtheria	-	-	-	-	-	-	-	-
Typhoid Fever[1]	13	0.11	8	0.07	-	-	21	0.09
Dengue Fever[1]	275	2.31	365	3.12	-	-	640	2.71
Meningococcal Meningitis	4	0.03	4	0.03	-	-	8	0.03
Paratyphoid Fever[1]	5	0.04	3	0.03	-	-	8	0.03
Poliomyelitis	-	-	-	-	-	-	-	-
Acute Flaccid Paralysis[1,2]	24	0.20	40	0.34	-	-	64	0.27
Shigellosis[1]	36	0.30	111	0.95	-	-	147	0.62
Amoebiasis[1]	158	1.33	194	1.66	-	-	352	1.49
Malaria[1]								
Indigenous	-	-	-	-	-	-	-	-
Imported	3	0.03	4	0.03	-	-	7	0.03
Measles[1]	60	0.50	81	0.69	-	-	141	0.60
Acute Hepatitis A[1]	64	0.54	43	0.37	-	-	107	0.45
Enterohaemorrhagic *E. coli* Infection	-	-	1	0.01	-	-	1	0.00
Hantavirus Syndrome								
Hemorrhagic Fever with Renal Syndrome[1]	2	0.02	1	0.01	-	-	3	0.01
Hantavirus Pulmonary Syndrome	-	-	-	-	-	-	-	-
Cholera	-	-	-	-	-	-	-	-
Rubella[1]	7	0.06	18	0.15	-	-	25	0.11
MDR-TB[3]	17	0.10	62	0.50	-	-	79	0.30
Chikungunya Fever[1]	76	0.64	40	0.34	-	-	116	0.49

Note: [1]The total case number of the following diseases includes imported cases: typhoid fever (17), dengue fever (540), paratyphoid fever (6), acute flaccid paralysis (1), shigellosis (44), amoebiasis (195), malaria (7), measles (59), acute hepatitis A (26), hemorrhagic fever with renal syndrome (1), rubella (18) and chikungunya fever (95).

[2]No wild poliovirus was detected since 1984. Nationwide surveillance of acute flaccid paralysis has been used for detecting cases of poliomyelitis after implementing the “Eradication Program for Measles, Congenital Rubella Syndrome, Poliomyelitis and Neonatal Tetanus” since 1992.

[3]The caseload of MDR-TB was calculated based on CDC's registration date.

[8]Incidence rate indicates the number of new confirmed cases per 100,000 population.

Table 4 *(Continued)* Number of confirmed cases and incidence[8] rate of notifiable diseases — by sex, 2019

Unit: Person

Disease	Female		Male		Sex not stated		Total	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate
Category II								
West Nile Fever	-	-	-	-	-	-	-	-
Epidemic Typhus Fever	-	-	-	-	-	-	-	-
Anthrax	-	-	-	-	-	-	-	-
Zika Virus Infection[1,7]	1	0.01	3	0.03	-	-	4	0.02
Category III								
Pertussis	18	0.15	14	0.12	-	-	32	0.14
Tetanus[4]	4	0.03	2	0.02	-	-	6	0.03
Japanese Encephalitis[1]	8	0.07	13	0.11	-	-	21	0.09
Tuberculosis[3]	2,717	22.90	6,015	51.40	-	-	8,732	37.00
Congenital Rubella Syndrome	-	-	-	-	-	-	-	-
Acute Hepatitis								
B[1]	39	0.33	72	0.61	-	-	111	0.47
C[1]	165	1.39	461	3.94	-	-	626	2.65
D	-	-	-	-	-	-	-	-
E[1]	2	0.02	5	0.04	-	-	7	0.03
Unspecified	-	-	-	-	-	-	-	-
Mumps[4]	258	2.17	336	2.87	-	-	594	2.52
Legionnaires' Disease[1]	56	0.47	225	1.92	-	-	281	1.19
Invasive Haemophilus Influenzae Type b Infection	1	0.01	2	0.02	-	-	3	0.01
Syphilis[5]	1,805	15.18	7,592	64.84	-	-	9,397	39.82
Congenital Syphilis[5]	-	-	-	-	-	-	-	-
Gonorrhea[5]	339	2.85	4,184	35.73	-	-	4,523	19.17
Neonatal Tetanus	-	-	-	-	-	-	-	-
Enteroviruses Infection with Severe Complications[1]	21	0.18	48	0.41	-	-	69	0.29
HIV Infection[6]	45	0.38	1,710	14.60	-	-	1,755	7.44
AIDS[6]	35	0.29	970	8.28	-	-	1,005	4.26

Note: [1]The total case number of the following diseases includes imported cases: Zika virus infection (4), Japanese encephalitis (2), acute hepatitis B (4), acute hepatitis C (4), acute hepatitis E (4), Legionnaires' disease (15) and enterovirus infection with severe complications (1).

[3]The caseload calculation of tuberculosis was based on notification date.

[4]Calculation for tetanus and mumps were based on reported cases only.

[5]The caseload calculation of syphilis, congenital syphilis, and gonorrhea were based on diagnosis date.

[6]The caseload calculation of HIV infection and AIDS were based on diagnosis date, and foreign nationality cases were excluded.

[7]Zika virus infection was changed from Category 5 Communicable Diseases to Category 2 on April 1, 2019.

[8] Incidence rate indicates the number of new confirmed cases per 100,000 population.

Table 4 *(Continued)* Number of confirmed cases and incidence[8] rate of notifiable diseases — by sex, 2019

Unit: Person

Disease	Female		Male		Sex not stated		Total	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate
Category III								
Hansen's Disease[5]	8	0.07	2	0.02	-	-	10	0.04
Category IV								
Herpesvirus B Infection	-	-	-	-	-	-	-	-
Leptospirosis[1]	17	0.14	94	0.80	-	-	111	0.47
Melioidosis[1]	5	0.04	41	0.35	-	-	46	0.19
Botulism	-	-	-	-	-	-	-	-
Invasive Pneumococcal Disease[1]	152	1.28	295	2.52	-	-	447	1.89
Q Fever[1]	2	0.02	21	0.18	-	-	23	0.10
Endemic Typhus Fever[1]	6	0.05	24	0.20	-	-	30	0.13
Lyme Disease	-	-	-	-	-	-	-	-
Tularemia	-	-	-	-	-	-	-	-
Scrub Typhus[1]	183	1.54	266	2.27	-	-	449	1.90
Complicated Varicella[1]	15	0.13	42	0.36	-	-	57	0.24
Toxoplasmosis[1]	9	0.08	7	0.06	-	-	16	0.07
Influenza Case with Severe Complications[1]	952	8.01	1,373	11.73	-	-	2,325	9.85
Creutzfeldt-Jakob Disease[5]	-	-	-	-	-	-	-	-
Brucellosis	-	-	-	-	-	-	-	-
Listeriosis[1]	90	0.76	74	0.63	-	-	164	0.70
Category V								
Rift Valley Fever	-	-	-	-	-	-	-	-
Marburg Haemorrhagic Fever	-	-	-	-	-	-	-	-
Yellow Fever	-	-	-	-	-	-	-	-
Ebola Virus Disease	-	-	-	-	-	-	-	-
Lassa Fever	-	-	-	-	-	-	-	-
Middle East Respiratory Syndrome Coronavirus Infections	-	-	-	-	-	-	-	-
Novel Influenza A Virus Infections	-	-	-	-	-	-	-	-

Note: [1]The total case number of the following diseases includes imported cases: leptospirosis (1), melioidosis (1), invasive pneumococcal disease (2), Q fever (5), endemic typhus fever (3), scrub typhus (7), complicated varicella (1), toxoplasmosis (4), influenza case with severe complications (10) and listeriosis(1).

[5]The caseload calculation of Hansen's disease and Creutzfeldt-Jakob disease were based on diagnosis date.

[8]Incidence rate indicates the number of new confirmed cases per 100,000 population

Table 5 Number of confirmed cases of notifiable diseases — by year, 2010-2019

Unit: Person

Disease	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Category I										
Smallpox	-	-	-	-	-	-	-	-	-	-
Plague	-	-	-	-	-	-	-	-	-	-
SARS	-	-	-	-	-	-	-	-	-	-
Rabies	-	-	1	1	-	-	-	-	-	-
Category II										
Diphtheria	-	-	-	-	-	-	-	-	-	-
Typhoid Fever[1]	33	49	26	19	25	29	14	16	17	21
Dengue Fever[1]	1,896	1,702	1,478	860	15,732	43,784	743	343	533	640
Meningococcal Meningitis	7	5	6	6	3	3	8	12	6	8
Paratyphoid Fever[1]	12	6	8	9	8	3	6	4	8	8
Poliomyelitis	-	-	-	-	-	-	-	-	-	-
Acute Flaccid Paralysis[1,2]	49	45	51	25	29	19	41	61	66	64
Shigellosis[1]	172	203	155	155	132	186	225	162	172	147
Amoebiasis[1]	262	256	258	270	300	350	314	378	334	352
Malaria[1]										
Indigenous	-	-	-	-	-	-	-	-	-	-
Imported	21	17	12	13	19	8	13	7	7	7
Measles[1]	12	33	9	8	26	29	14	6	40	141
Acute Hepatitis A[1]	110	104	99	139	117	171	1133	369	88	107
Enterohaemorrhagic *E. coli* Infection	-	-	-	-	-	-	-	-	-	1
Hantavirus Syndrome										
Hemorrhagic Fever with Renal Syndrome[1]	1	-	1	-	2	2	4	-	1	3
Hantavirus Pulmonary Syndrome	-	-	-	-	-	-	-	-	-	-
Cholera	5	3	5	7	4	10	9	2	7	-
Rubella[1]	21	60	12	7	7	7	4	3	10	25
MDR-TB[3]	156	154	140	129	112	117	112	103	120	79
Chikungunya Fever[1]	13	1	5	29	7	4	14	11	7	116

Note: [1]The total case number of the following diseases in 2018 includes imported cases: typhoid fever (17), dengue fever (540), paratyphoid fever (6), acute flaccid paralysis (1), shigellosis (44), amoebiasis (195), malaria (7), measles (59), acute hepatitis A (26), hemorrhagic fever with renal syndrome (1), rubella (18) and chikungunya fever (95).

[2]No wild poliovirus was detected since 1984. Nationwide surveillance of acute flaccid paralysis has been used for detecting cases of poliomyelitis after implementing the “Eradication Program for Measles, Congenital Rubella Syndrome, Poliomyelitis and Neonatal Tetanus” since 1992.

[3]The caseload of MDR-TB was calculated based on CDC's registration date.

Table 5 *(Continued)* Number of confirmed cases of notifiable diseases — by year, 2010-2019

Unit: Person

Disease	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Category II										
West Nile Fever	-	-	-	-	-	-	-	-	-	-
Epidemic Typhus Fever	-	-	-	-	-	-	-	-	-	-
Anthrax	-	-	-	-	-	-	-	-	-	-
Zika Virus Infection[1,14]	…	…	…	…	…	…	13	4	3	4
Category III										
Pertussis	61	77	54	51	78	70	17	34	30	32
Tetanus[4]	12	10	17	24	9	12	14	11	4	6
Japanese Encephalitis[1]	33	22	32	16	18	30	23	25	37	21
Tuberculosis[3]	13,237	12,634	12,338	11,528	11,326	10,711	10,328	9,759	9,179	8,732
Congenital Rubella Syndrome	-	-	-	-	-	-	-	1	-	-
Acute Hepatitis										
B[1]	172	163	97	97	120	125	118	151	143	111
C[1]	41	34	34	10	205	217	207	325	510	626
D	1	-	-	-	1	2	2	-	-	-
E[1]	7	12	9	9	9	8	16	13	10	7
Unspecified	13	10	10	5	1	2	-	-	-	-
Mumps[4]	1,125	1,171	1,061	1,170	880	773	616	636	600	594
Legionnaires' Disease[1]	102	97	88	115	135	153	114	188	211	281
Invasive Haemophilus Influenzae Type b Infection	12	9	3	10	4	3	14	6	5	3
Syphilis[5]	6,482	6,372	5,896	6,346	6,986	7,471	8,725	9,835	9,808	9,397
Congenital Syphilis[5,6]	…	…	…	…	…	…	1	-	-	-
Gonorrhea[5]	2,265	1,978	1,983	2,155	2,622	3,587	4,469	4,601	4,209	4,523
Neonatal Tetanus	-	-	-	-	-	-	-	-	-	-
Enteroviruses Infection with Severe Complications[1]	16	59	153	12	6	6	33	24	36	69
HIV Infection[7]	1,796	1,967	2,224	2,244	2,236	2,327	2,396	2,514	1,992	1,755
AIDS[7]	1,087	1,075	1,280	1,430	1,387	1,440	1,412	1,390	1,091	1,005

Note: [1]The total case number of the following diseases in 2018 includes imported cases: Zika virus infection (4), Japanese encephalitis (2), acute hepatitis B (4), acute hepatitis C (4), acute hepatitis E (4), Legionnaires' disease (15) and enterovirus infection with severe complications (1).

[3]The caseload calculation of tuberculosis was based on notification date.

[4]Calculation for tetanus and mumps were based on reported cases only.

[5]The caseload calculation of syphilis, congenital syphilis, and gonorrhea were based on diagnosis date.

[6]Congenital Syphilis has been included in the list of notifiable diseases since April 1, 2016.

[7]The caseload calculation of HIV infection and AIDS were based on diagnosis date, and foreign nationality cases were excluded.

[14]Zika virus infection has been included in Category 2 Communicable Diseases since January 22, 2016, was reclassified as Category 5 on February 2, 2016, and changed from Category 5 Communicable Diseases to Category 2 on April 1, 2019.

Table 5 *(Continued)* Number of confirmed cases of notifiable diseases — by year, 2010-2019

Unit: Person

Disease	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Category III										
Hansen's Disease[5]	5	5	13	7	9	16	10	10	7	10
Category IV										
Herpesvirus B Infection	-	-	-	-	-	-	-	-	-	-
Leptospirosis[1]	77	55	91	82	98	81	130	101	96	111
Melioidosis[1]	45	45	29	19	37	32	55	26	23	46
Botulism	11	6	-	1	-	2	6	-	-	-
Invasive Pneumococcal Disease[1]	737	837	749	625	587	524	592	454	459	447
Q Fever[1]	89	35	53	48	42	43	45	18	20	23
Endemic Typhus Fever[1]	42	26	37	27	21	35	13	38	22	30
Lyme Disease	-	-	1	-	2	2	2	1	3	-
Tularemia	-	1	-	-	-	-	-	-	-	-
Scrub Typhus[1]	402	322	460	538	414	494	488	422	386	449
Complicated Varicella[1,8]	…	…	…	…	55	54	40	32	54	57
Toxoplasmosis[1]	5	5	12	15	12	13	10	21	17	16
Influenza Case with Severe Complications[1,9]	882	1,481	1,595	965	1,721	857	2,084	1359	1,196	2,325
Creutzfeldt-Jakob Disease[5]	-	-	-	-	-	-	-	-	-	-
Brucellosis[10]	…	…	-	-	-	1	-	-	-	-
Listeriosis[1,11]	…	…	…	…	…	…	…	…	168	164
Category V										
Rift Valley Fever	-	-	-	-	-	-	-	-	-	-
Marburg Haemorrhagic Fever	-	-	-	-	-	-	-	-	-	-
Yellow Fever	-	-	-	-	-	-	-	-	-	-
Ebola Virus Disease	-	-	-	-	-	-	-	-	-	-
Lassa Fever	-	-	-	-	-	-	-	-	-	-
Middle East Respiratory Syndrome Coronavirus Infections[12]	…	…	-	-	-	-	-	-	-	-
Novel Influenza A Virus Infections[13]	…	…	…	…	-	-	-	1	-	-

Note: [1]The total case number of the following diseases in 2018 includes imported cases: leptospirosis (1), melioidosis (1), invasive pneumococcal disease (2), Q fever (5), endemic typhus fever (3), scrub typhus (7), complicated varicella (1), toxoplasmosis (4), influenza case with severe complications (10) and listeriosis(1).

[5]The caseload calculation of Hansen's disease and Creutzfeldt-Jakob disease were based on diagnosis date.

[8]"Varicella" was revised the notifiable condition into "complicated varicella", and has been validated since January 1, 2014.

[9]"Severe Complicated Influenza" has changed name to "influenza case with severe complications" since November, 2019.

[10]Brucellosis has been included in the list of notifiable diseases since February 7, 2012.

[11]Listeriosis has been included in Category IV notifiable disease since January 1, 2018.

[12]"Severe acute respiratory infections associated with novel coronavirus" has been included in the list of notifiable diseases since October 3, 2012 which has been renamed as "Middle East respiratory syndrome coronavirus infections" since June 7, 2013.

[13]Novel Influenza A Virus Infections has been included in the list of notifiable diseases since July 1, 2014.

Table 6 Analysis of time intervals between diagnosis and reporting for notifiable diseases — by locality, 2019

Unit: Day

Locality	2018			2019						
	No.	Average	Median	No.	Average	Median	<=24 hours		>24 hours	
							No.	%	No.	%
Total	9,984	0.3	0	15,530	0.3	0	15,467	99.6	63	0.4
Taipei City	759	0.2	0	1,113	0.2	0	1,099	98.7	14	1.3
New Taipei City	1,334	0.2	0	1,873	0.2	0	1,857	99.1	16	0.9
Keelung City	61	0.1	0	89	0.2	0	89	100.0	-	-
Yilan County	76	0.1	0	152	0.2	0	151	99.3	1	0.7
Kinmen County	12	0.2	0	10	0.2	0	10	100.0	-	-
Lienchiang County	1	0.0	0	2	0.5	1	2	100.0	-	-
Taoyuan City	521	0.2	0	810	0.3	0	799	98.6	11	1.4
Hsinchu City	96	0.2	0	160	0.2	0	160	100.0	-	-
Hsinchu County	101	0.2	0	202	0.2	0	199	98.5	3	1.5
Miaoli County	132	0.2	0	143	0.2	0	143	100.0	-	-
Taichung City	1,396	0.4	0	1,078	0.4	0	1,073	99.5	5	0.5
Changhua County	262	0.2	0	304	0.3	0	303	99.7	1	0.3
Nantou County	151	0.2	0	170	0.3	0	169	99.4	1	0.6
Yunlin County	120	0.3	0	163	0.2	0	161	98.8	2	1.2
Chiayi City	35	0.1	0	40	0.3	0	40	100.0	-	-
Chiayi County	112	0.3	0	110	0.2	0	110	100.0	-	-
Tainan City	618	0.2	0	1,681	0.2	0	1,679	99.9	2	0.1
Kaohsiung City	3,386	0.3	0	6,358	0.4	0	6,352	99.9	6	0.1
Pingtung County	415	0.4	0	600	0.3	0	600	100.0	-	-
Penghu County	44	0.3	0	31	0.4	0	31	100.0	-	-
Hualien County	270	0.5	1	318	0.3	0	318	100.0	-	-
Taitung County	82	0.3	0	123	0.2	0	122	99.2	1	0.8

Note: Listed infectious diseases should be reported within 24 hours, which was not included MDR-TB, HIV infection and AIDS.

Table 7 Analysis of time intervals between reporting and reports received from local health bureaus for notifiable diseases — by locality, 2019

Unit: Day

Locality	2018			2019						
	No.	Average	Median	No.	Average	Median	<=24 hours		>24 hours	
							No.	%	No.	%
Total	9,984	0.1	0	15,530	0.0	0	15,529	100.0	1	0.0
Taipei City	759	0.1	0	1,113	0.1	0	1,113	100.0	-	-
New Taipei City	1,334	0.1	0	1,873	0.1	0	1,872	99.9	1	0.1
Keelung City	61	0.1	0	89	0.1	0	89	100.0	-	-
Yilan County	76	0.1	0	152	0.0	0	152	100.0	-	-
Kinmen County	12	0.3	0	10	0.1	0	10	100.0	-	-
Lienchiang County	1	0.0	0	2	0.5	1	2	100.0	-	-
Taoyuan City	521	0.1	0	810	0.0	0	810	100.0	-	-
Hsinchu City	96	0.1	0	160	0.1	0	160	100.0	-	-
Hsinchu County	101	0.1	0	202	0.1	0	202	100.0	-	-
Miaoli County	132	0.0	0	143	0.0	0	143	100.0	-	-
Taichung City	1,396	0.1	0	1,078	0.1	0	1,078	100.0	-	-
Changhua County	262	0.1	0	304	0.1	0	304	100.0	-	-
Nantou County	151	0.0	0	170	0.0	0	170	100.0	-	-
Yunlin County	120	0.0	0	163	0.0	0	163	100.0	-	-
Chiayi City	35	0.0	0	40	0.0	0	40	100.0	-	-
Chiayi County	112	0.0	0	110	0.0	0	110	100.0	-	-
Tainan City	618	0.1	0	1,681	0.0	0	1,681	100.0	-	-
Kaohsiung City	3,386	0.0	0	6,358	0.0	0	6,358	100.0	-	-
Pingtung County	415	0.0	0	600	0.0	0	600	100.0	-	-
Penghu County	44	0.1	0	31	0.0	0	31	100.0	-	-
Hualien County	270	0.0	0	318	0.0	0	318	100.0	-	-
Taitung County	82	0.3	0	123	0.1	0	123	100.0	-	-

Note: Listed infectious diseases should be reported within 24 hours, which was not included MDR-TB, HIV infection and AIDS.

Table 8 Analysis of time intervals between reports received from local health bureaus to Taiwan CDC for notifiable diseases — by locality, 2019

Unit: Day

Locality	2018			2019						
	No.	Average	Median	No.	Average	Median	<=24 hours		>24 hours	
							No.	%	No.	%
Total	9,984	0.0	0	15,530	0.0	0	15,529	100.0	1	0.0
Taipei City	759	0.0	0	1,113	0.0	0	1,112	99.9	1	0.1
New Taipei City	1,334	0.0	0	1,873	0.0	0	1,873	100.0	-	-
Keelung City	61	0.0	0	89	0.0	0	89	100.0	-	-
Yilan County	76	0.0	0	152	0.0	0	152	100.0	-	-
Kinmen County	12	0.0	0	10	0.0	0	10	100.0	-	-
Lienchiang County	1	0.0	0	2	0.0	0	2	100.0	-	-
Taoyuan City	521	0.0	0	810	0.0	0	810	100.0	-	-
Hsinchu City	96	0.0	0	160	0.0	0	160	100.0	-	-
Hsinchu County	101	0.0	0	202	0.0	0	202	100.0	-	-
Miaoli County	132	0.0	0	143	0.0	0	143	100.0	-	-
Taichung City	1,396	0.0	0	1,078	0.0	0	1,078	100.0	-	-
Changhua County	262	0.0	0	304	0.0	0	304	100.0	-	-
Nantou County	151	0.0	0	170	0.0	0	170	100.0	-	-
Yunlin County	120	0.0	0	163	0.0	0	163	100.0	-	-
Chiayi City	35	0.0	0	40	0.0	0	40	100.0	-	-
Chiayi County	112	0.0	0	110	0.0	0	110	100.0	-	-
Tainan City	618	0.0	0	1,681	0.0	0	1,681	100.0	-	-
Kaohsiung City	3,386	0.0	0	6,358	0.0	0	6,358	100.0	-	-
Pingtung County	415	0.0	0	600	0.0	0	600	100.0	-	-
Penghu County	44	0.0	0	31	0.0	0	31	100.0	-	-
Hualien County	270	0.0	0	318	0.0	0	318	100.0	-	-
Taitung County	82	0.0	0	123	0.0	0	123	100.0	-	-

Note: Listed infectious diseases should be reported within 24 hours, which was not included MDR-TB, HIV infection and AIDS.

Table 9 National Immunization coverage — by counties/cities

Unit: person, person, %

Vaccines	Hepatitis B						DTaP-Hib-IPV					
Birth cohort	2018			2018			2018			2017		
Dose	2nd dose			3rd dose			3rd dose			4th dose		
Locality	Target population	Vaccinated population	Vaccination coverage	Target population	Vaccinated population	Vaccination coverage	Target population	Vaccinated population	Vaccination coverage	Target population	Vaccinated population	Vaccination coverage
Total	183,453	181,538	98.96	183,453	180,588	98.44	183,453	180,322	98.29	197,663	189,814	96.03
New Taipei City	29,444	29,049	98.66	29,444	28,998	98.49	29,444	28,970	98.39	30,863	29,820	96.62
Taipei City	22,843	22,569	98.80	22,843	22,416	98.13	22,843	22,395	98.04	25,403	24,216	95.33
Taoyuan City	22,284	22,123	99.28	22,284	21,914	98.34	22,284	21,879	98.18	23,637	22,787	96.40
Taichung City	24,285	23,997	98.81	24,285	23,863	98.26	24,285	23,820	98.09	27,109	25,870	95.43
Tainan City	12,977	12,826	98.84	12,977	12,790	98.56	12,977	12,774	98.44	14,793	14,258	96.38
Kaohsiung City	20,204	20,059	99.28	20,204	19,931	98.65	20,204	19,899	98.49	21,251	20,364	95.83
Yilan County	3,090	3,062	99.09	3,090	3,047	98.61	3,090	3,040	98.38	3,378	3,257	96.42
Hsinchu County	5,156	5,103	98.97	5,156	5,065	98.24	5,156	5,046	97.87	5,814	5,590	96.15
Miaoli County	3,432	3,401	99.10	3,432	3,375	98.34	3,432	3,370	98.19	3,895	3,719	95.48
Changhua County	10,695	10,617	99.27	10,695	10,591	99.03	10,695	10,582	98.94	10,732	10,476	97.61
Nantou County	3,097	3,067	99.03	3,097	3,050	98.48	3,097	3,042	98.22	3,119	2,933	94.04
Yunlin County	4,280	4,257	99.46	4,280	4,235	98.95	4,280	4,230	98.83	4,607	4,462	96.85
Chiayi County	2,551	2,526	99.02	2,551	2,503	98.12	2,551	2,503	98.12	2,776	2,679	96.51
Pingtung County	4,831	4,787	99.09	4,831	4,759	98.51	4,831	4,757	98.47	5,264	5,006	95.10
Taitung County	1,525	1,511	99.08	1,525	1,504	98.62	1,525	1,502	98.49	1,521	1,490	97.96
Hualien County	2,376	2,343	98.61	2,376	2,328	97.98	2,376	2,313	97.35	2,404	2,273	94.55
Penghu County	815	800	98.16	815	805	98.77	815	804	98.65	927	892	96.22
Keelung City	2,124	2,112	99.44	2,124	2,100	98.87	2,124	2,099	98.82	2,198	2,151	97.86
Hsinchu City	4,318	4,258	98.61	4,318	4,252	98.47	4,318	4,238	98.15	4,796	4,539	94.64
Chiayi City	1,920	1,893	98.59	1,920	1,885	98.18	1,920	1,875	97.66	2,063	1,962	95.10
Kinmen County	1,069	1,041	97.38	1,069	1,043	97.57	1,069	1,051	98.32	997	956	95.89
Lienchiang County	137	137	100.00	137	134	97.81	137	133	97.08	116	114	98.28

Note 1. Source: National Immunization Information System.

2. Vaccination period: Before December 2019.

3. Data was calculated in April 2020.

Table 9 *(Continued)* National Immunization coverage — by counties/cities

Unit: person, person, %

Vaccines	PCV13						BCG		
Birth cohort	2018			2017			2018		
Dose	2nd dose			3rd dose			single dose		
Locality	Target population	Vaccinated population	Vaccination coverage	Target population	Vaccinated population	Vaccination coverage	Target population	Vaccinated population	Vaccination coverage
Total	183,453	180,167	98.21	197,660	190,532	96.39	183,453	180,050	98.15
New Taipei City	29,447	28,870	98.04	30,866	29,726	96.31	29,444	28,864	98.03
Taipei City	22,836	22,333	97.80	25,392	24,429	96.21	22,843	22,100	96.75
Taoyuan City	22,278	21,897	98.29	23,628	22,833	96.64	22,284	21,944	98.47
Taichung City	24,291	23,870	98.27	27,114	26,140	96.41	24,285	23,823	98.10
Tainan City	12,983	12,763	98.31	14,797	14,208	96.02	12,977	12,760	98.33
Kaohsiung City	20,206	19,888	98.43	21,253	20,472	96.33	20,204	19,886	98.43
Yilan County	3,091	3,028	97.96	3,379	3,247	96.09	3,090	3,029	98.03
Hsinchu County	5,156	5,065	98.24	5,814	5,644	97.08	5,156	5,066	98.25
Miaoli County	3,431	3,361	97.96	3,897	3,755	96.36	3,432	3,389	98.75
Changhua County	10,691	10,574	98.91	10,729	10,488	97.75	10,695	10,577	98.90
Nantou County	3,098	3,042	98.19	3,121	2,978	95.42	3,097	3,050	98.48
Yunlin County	4,278	4,223	98.71	4,608	4,482	97.27	4,280	4,233	98.90
Chiayi County	2,552	2,501	98.00	2,776	2,681	96.58	2,551	2,500	98.00
Pingtung County	4,830	4,756	98.47	5,264	5,041	95.76	4,831	4,755	98.43
Taitung County	1,525	1,496	98.10	1,520	1,474	96.97	1,525	1,508	98.89
Hualien County	2,376	2,303	96.93	2,406	2,267	94.22	2,376	2,340	98.48
Penghu County	814	804	98.77	926	902	97.41	815	805	98.77
Keelung City	2,124	2,088	98.31	2,198	2,120	96.45	2,124	2,097	98.73
Hsinchu City	4,321	4,254	98.45	4,797	4,596	95.81	4,318	4,259	98.63
Chiayi City	1,919	1,880	97.97	2,063	1,988	96.36	1,920	1,880	97.92
Kinmen County	1,069	1,038	97.10	996	948	95.18	1,069	1,050	98.22
Lienchiang County	137	133	97.08	116	113	97.41	137	135	98.54

Note 1. Source: National Immunization Information System.
2. Vaccination period: Before December 2019.
3. Data was calculated in April 2020.

Table 9 *(Continued)* National Immunization coverage — by counties/cities

Unit: person, person, %

Vaccines	Varicella			MMR			Japanese encephalitis, live chimeric					
Birth cohort	2017			2017			2017			2016		
Dose	single dose			1st dose			1st dose			2nd dose[4]		
Locality	Target population	Vaccinated population	Vaccination coverage	Target population	Vaccinated population	Vaccination coverage	Target population	Vaccinated population	Vaccination coverage	Target population	Vaccinated population	Vaccination coverage
Total	197,663	194,833	98.57	197,663	195,418	98.86	197,663	192,617	97.45	210,482	191,384	90.93
New Taipei City	30,863	30,436	98.62	30,863	30,557	99.01	30,863	30,146	97.68	32,603	29,447	90.32
Taipei City	25,403	24,962	98.26	25,403	25,060	98.65	25,403	24,494	96.42	27,888	25,191	90.33
Taoyuan City	23,637	23,279	98.49	23,637	23,337	98.73	23,637	23,092	97.69	24,086	22,513	93.47
Taichung City	27,109	26,725	98.58	27,109	26,808	98.89	27,109	26,357	97.23	29,413	26,295	89.40
Tainan City	14,793	14,561	98.43	14,793	14,600	98.70	14,793	14,429	97.54	15,842	14,236	89.86
Kaohsiung City	21,251	20,945	98.56	21,251	21,011	98.87	21,251	20,724	97.52	22,528	21,013	93.28
Yilan County	3,378	3,318	98.22	3,378	3,330	98.58	3,378	3,288	97.34	3,689	3,466	93.96
Hsinchu County	5,814	5,750	98.90	5,814	5,759	99.05	5,814	5,670	97.52	6,453	5,659	87.70
Miaoli County	3,895	3,846	98.74	3,895	3,850	98.84	3,895	3,800	97.56	4,300	3,947	91.79
Changhua County	10,732	10,634	99.09	10,732	10,656	99.29	10,732	10,568	98.47	10,965	10,301	93.94
Nantou County	3,119	3,076	98.62	3,119	3,083	98.85	3,119	3,044	97.60	3,323	2,893	87.06
Yunlin County	4,607	4,559	98.96	4,607	4,572	99.24	4,607	4,519	98.09	4,692	4,349	92.69
Chiayi County	2,776	2,745	98.88	2,776	2,746	98.92	2,776	2,717	97.87	2,744	2,448	89.21
Pingtung County	5,264	5,192	98.63	5,264	5,209	98.96	5,264	5,129	97.44	5,550	4,927	88.77
Taitung County	1,521	1,505	98.95	1,521	1,508	99.15	1,521	1,504	98.88	1,575	1,371	87.05
Hualien County	2,404	2,370	98.59	2,404	2,377	98.88	2,404	2,334	97.09	2,686	2,331	86.78
Penghu County	927	917	98.92	927	919	99.14	927	905	97.63	845	762	90.18
Keelung City	2,198	2,183	99.32	2,198	2,187	99.50	2,198	2,158	98.18	2,551	2,399	94.04
Hsinchu City	4,796	4,705	98.10	4,796	4,713	98.27	4,796	4,656	97.08	5,272	4,692	89.00
Chiayi City	2,063	2,034	98.59	2,063	2,040	98.89	2,063	2,005	97.19	2,405	2,148	89.31
Kinmen County	997	975	97.79	997	980	98.29	997	964	96.69	964	892	92.53
Lienchiang County	116	116	100.00	116	116	100.00	116	114	98.28	108	104	96.30

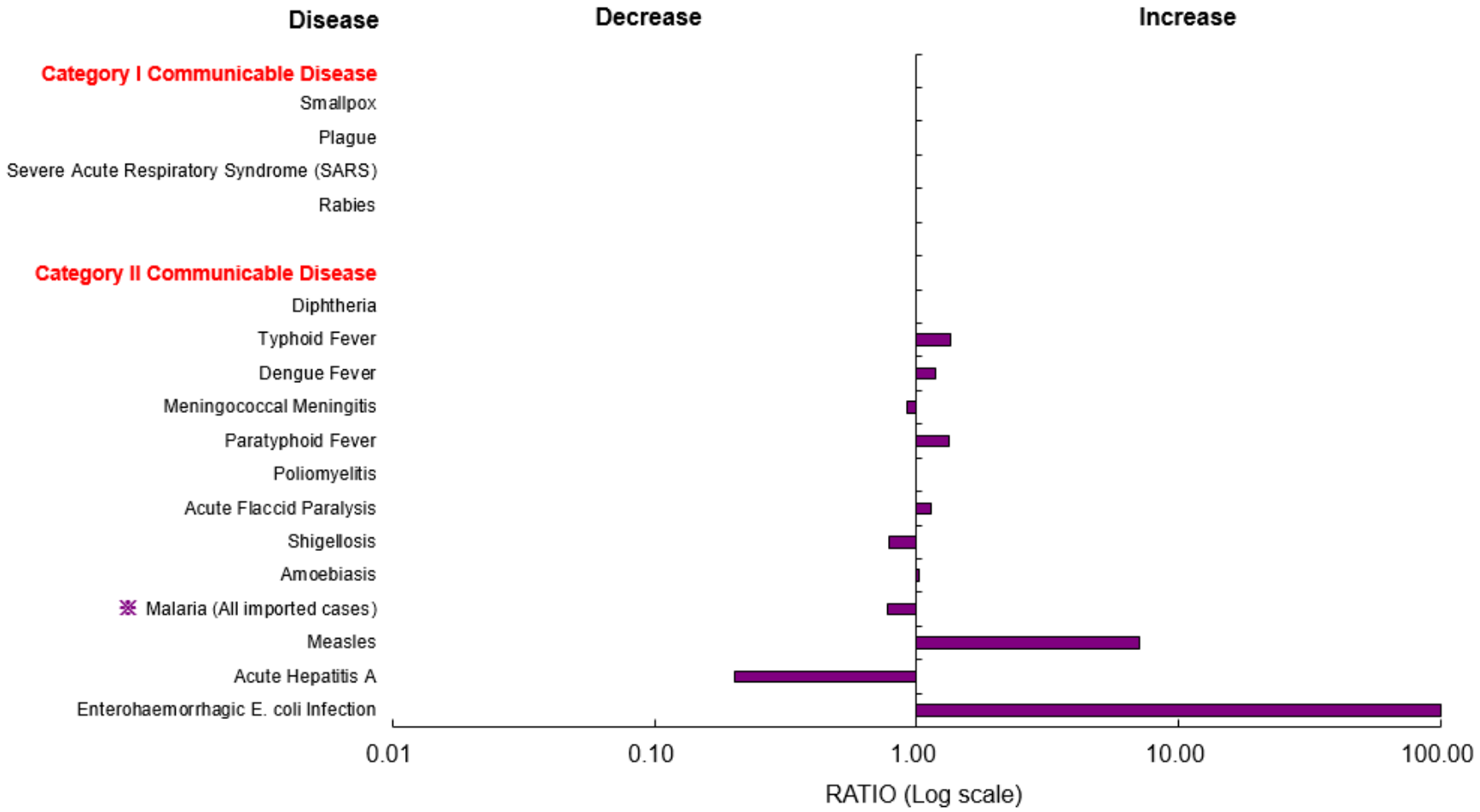
Note 1. Source: National Immunization Information System.
2. Vaccination period: Before December 2019.
3. Data was calculated in April 2020.
4. Due to the transition from inactivated Japanese encephalitis vaccine to live chimeric vaccine, some children will complete the second dose until age of 5.

Table 9 *(Continued)* National Immunization coverage — by counties/cities

Unit: person, person, %

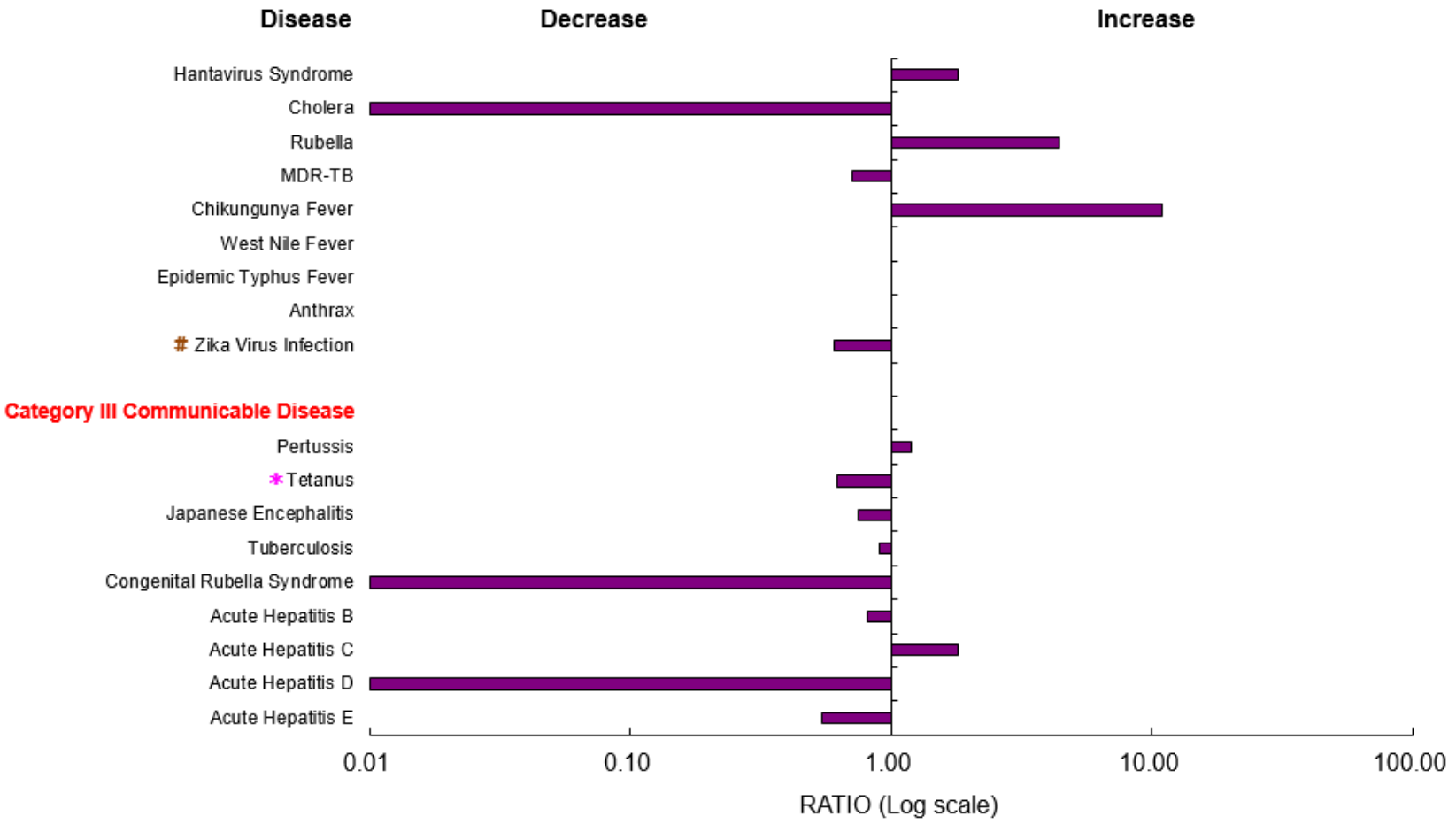
Vaccines	DTaP-IPV			MMR		
Birth cohort	First grade of elementary school					
Locality	Target population	Vaccinated population	Vaccination coverage	Target population	Vaccinated population	Vaccination coverage
Total	217,881	210,232	96.49	217,881	211,801	97.21
New Taipei City	37,006	35,639	96.31	37,006	35,834	96.83
Taipei City	24,734	23,755	96.04	24,734	23,912	96.68
Taoyuan City	23,756	22,874	96.29	23,756	23,091	97.20
Taichung City	29,241	28,283	96.72	29,241	28,450	97.29
Tainan City	16,932	16,305	96.30	16,932	16,423	96.99
Kaohsiung City	23,647	23,036	97.42	23,647	23,147	97.89
Yilan County	3,861	3,656	94.69	3,861	3,711	96.11
Hsinchu County	6,874	6,620	96.30	6,874	6,712	97.64
Miaoli County	5,063	4,826	95.32	5,063	4,892	96.62
Changhua County	11,040	10,783	97.67	11,040	10,864	98.41
Nantou County	3,831	3,652	95.33	3,831	3,706	96.74
Yunlin County	5,316	5,151	96.90	5,316	5,198	97.78
Chiayi County	3,224	3,123	96.87	3,224	3,160	98.01
Pingtung County	6,067	5,918	97.54	6,067	5,957	98.19
Taitung County	1,695	1,647	97.17	1,695	1,652	97.46
Hualien County	2,660	2,528	95.04	2,660	2,552	95.94
Penghu County	668	660	98.80	668	658	98.50
Keelung City	2,889	2,827	97.85	2,889	2,835	98.13
Hsinchu City	5,897	5,625	95.39	5,897	5,694	96.56
Chiayi City	2,590	2,487	96.02	2,590	2,511	96.95
Kinmen County	803	755	94.02	803	760	94.65
Lienchiang County	87	82	94.25	87	82	94.25

Note 1. Source: National Immunization Information System.
2. Vaccination period: Before December 2019.
3. Data was calculated in April 2020.



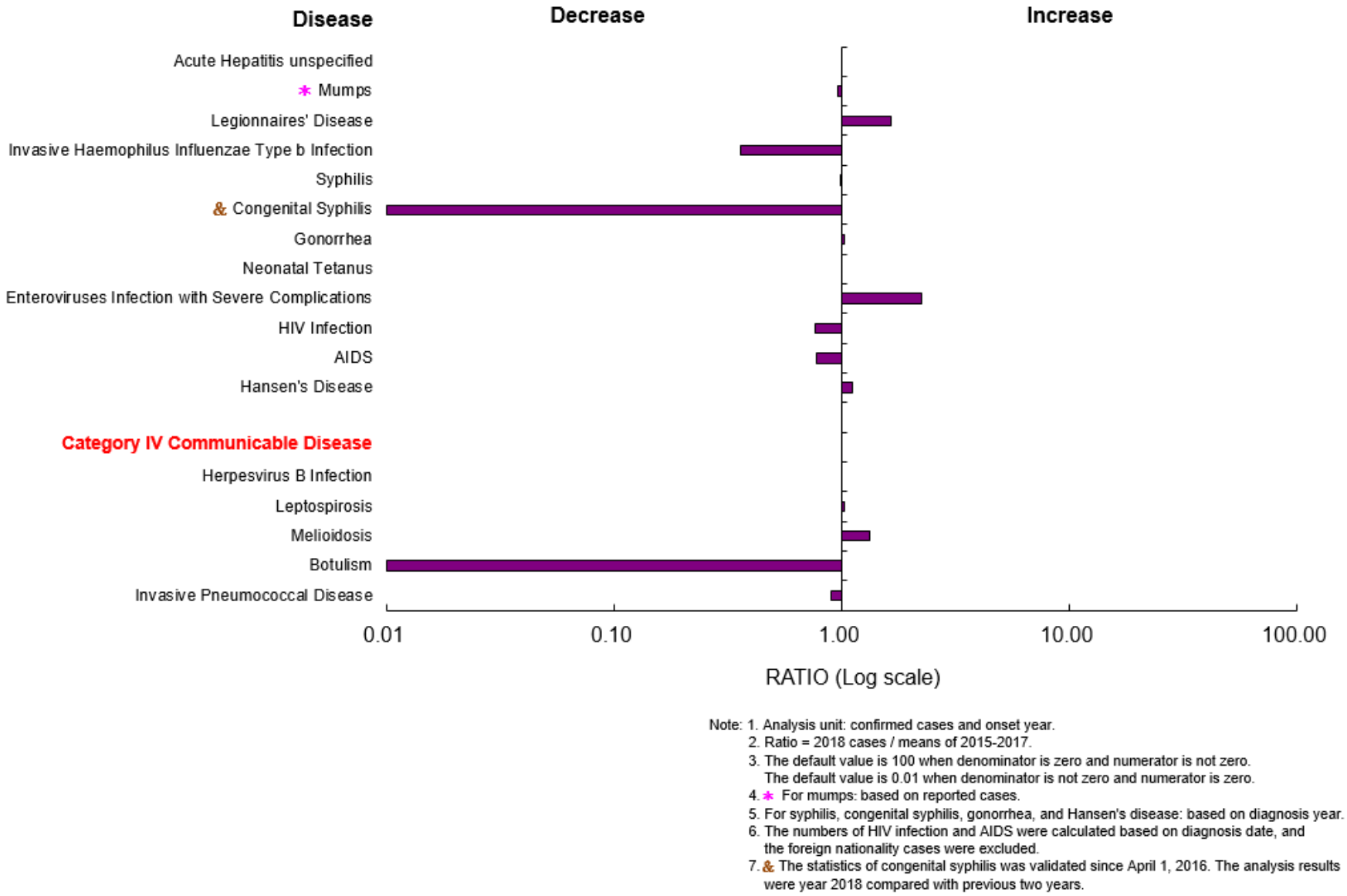
Note: 1. Analysis unit: confirmed cases and onset year.
2. Ratio = 2018 cases / means of 2015-2017.
3. The default value is 100 when denominator is zero and numerator is not zero. The default value is 0.01 when denominator is not zero and numerator is zero.
4. ※ The World Health Organization (WHO) has declared Taiwan as a malaria eradication region in 1965.

Figure 1. Comparison of 2019 total confirmed cases of notifiable diseases with historical data



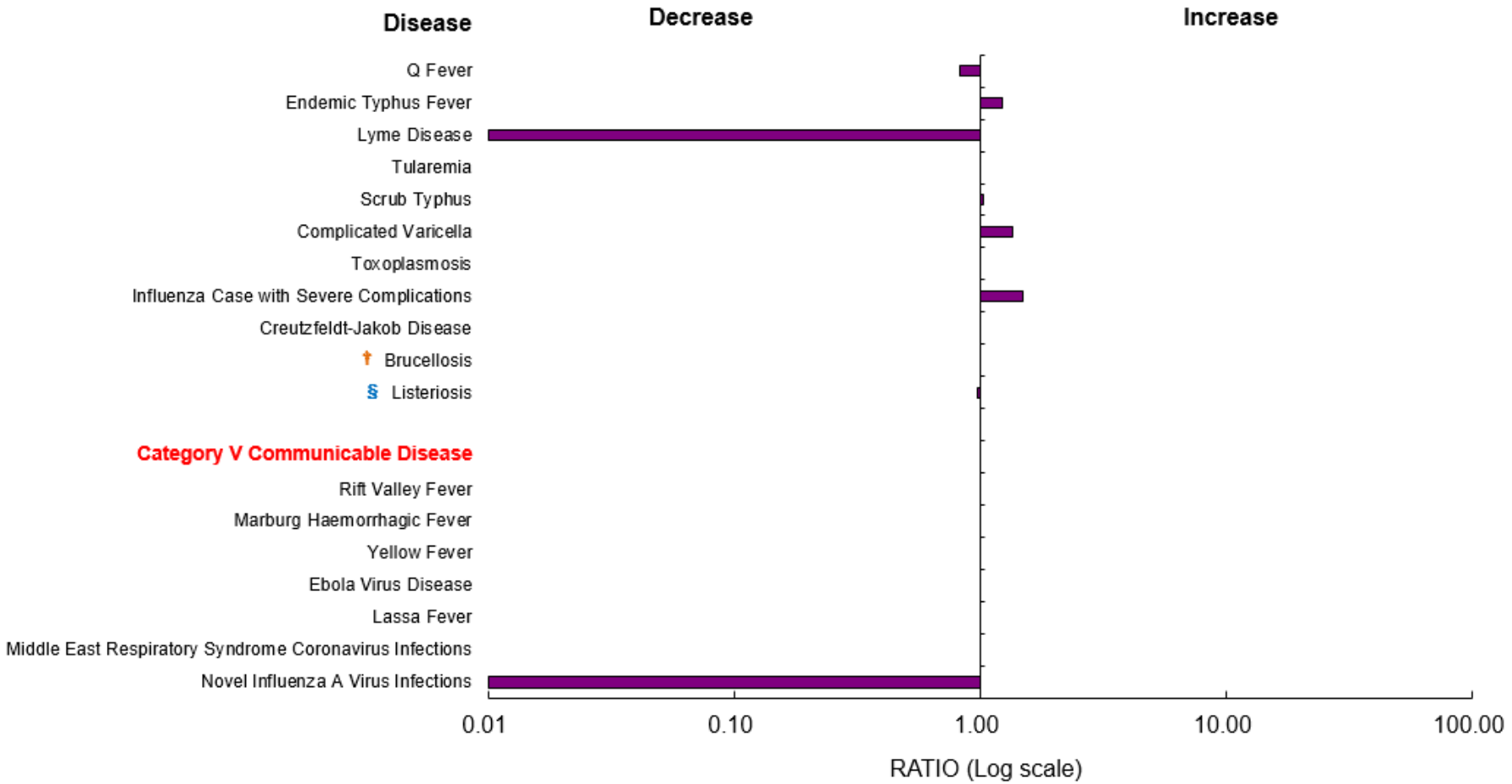
Note: 1. Analysis unit: confirmed cases and onset year.
2. Ratio = 2018 cases / means of 2015-2017.
3. The default value is 100 when denominator is zero and numerator is not zero.
The default value is 0.01 when denominator is not zero and numerator is zero.
4. * For tetanus: based on reported cases.
5. For MDR-TB and tuberculosis: based on CDC's registration year and notification year respectively.
6. # The statistics of Zika virus infection was validated since January 22, 2016, and the disease was changed from Category 5 Communicable Diseases to Category 2 on April 1, 2019.

Figure 1. (*Continued*) Comparison of 2019 total confirmed cases of notifiable diseases with historical data



Note: 1. Analysis unit: confirmed cases and onset year.
2. Ratio = 2018 cases / means of 2015-2017.
3. The default value is 100 when denominator is zero and numerator is not zero.
The default value is 0.01 when denominator is not zero and numerator is zero.
4. * For mumps: based on reported cases.
5. For syphilis, congenital syphilis, gonorrhea, and Hansen's disease: based on diagnosis year.
6. The numbers of HIV infection and AIDS were calculated based on diagnosis date, and the foreign nationality cases were excluded.
7. & The statistics of congenital syphilis was validated since April 1, 2016. The analysis results were year 2018 compared with previous two years.

Figure 1. (*Continued*) Comparison of 2019 total confirmed cases of notifiable diseases with historical data



Note: 1. Analysis unit: confirmed cases and onset year.
2. Ratio = 2018 cases / means of 2015-2017.
3. The default value is 100 when denominator is zero and numerator is not zero.
The default value is 0.01 when denominator is not zero and numerator is zero.
4. For Creutzfeldt-Jakob disease: based on diagnosis date.
5. † In 2012, brucellosis was first classified as a notifiable disease in Taiwan. The first ever case confirmed in Taiwan was an imported one in 2015, there was no case in 2016-2018.
6. § The statistics of LIsteriosis was validated since January 1, 2018, hence the analysis results were year 2019 compared with previous years.

Figure 1. (*Continued*) Comparison of 2019 total confirmed cases of notifiable diseases with historical data

PART II

Specific Surveillance Systems

◎ **Abbreviations and Symbols Used in Table**

– No reported cases

… Not under surveillance

Taiwan Nosocomial Infections Surveillance System

I. Preface

The "nosocomial infection" is limited to describing infections that acquired in hospitals, while the "healthcare-associated infection" (HAI) generally refers to infections that patients acquire while receiving treatment for medical or surgical conditions. HAIs may occur in all settings of care, including hospitals, long-term care facilities, homecare facilities, or outpatient departments. In order to respond to continuous evolving in the contents of medical services and the expansion of surveillance range, "healthcare-associated infection" instead of "nosocomial infection" was commonly used internationally as well as in the definition of infection surveillance in the acute care settings that published by the US CDC in 2008. To monitor the occurrence of HAIs effectively, to evaluate the epidemiologic trend of HAIs in Taiwan, and to analyze surveillance data using well-recognized indicators, so that all the information could be made use of collectively to serve as important references for policy making, Taiwan CDC had revised and launched the Taiwan Nosocomial Infections Surveillance System (TNIS System) in 2007. Moreover, strengthening in functions and the utility of the surveillance system is continuously going on. TNIS system not only helps to gather demographic data as well as laboratory results of pathogen identified and antimicrobial susceptibility test for each HAI case, but also provides simple analytical function, so that reporting hospitals can analyze their own data on line as a reference in developing quality improvement initiatives.

II. Objectives

1. Establish the epidemiological database of HAI in Taiwan
2. Discovery of HAI trends
3. Facilitation of inter- and intra-hospital comparisons that can be used for quality improvement activities
4. Assistance for hospitals in developing the appropriate surveillance mechanism that permits timely recognition of infection control problems

III. Reporting methods, data analysis, and feedback

TNIS system adopts voluntary reporting, and each hospital may provide their data either through web-based entry or convey their data electronically through interchange platform. The web-based report mechanism mainly serves for the

hospitals which lack HAI surveillance system of their own. Hospital staff enters the HAI data on the TNIS system website directly. The other mechanism, conveying surveillance data electronically through interchange platform, serves for the hospitals which had built their own HAI surveillance system. However, to enable interoperability between hospital information systems (HIS) and TNIS system, infection control practitioner has to work on vocabularies mapping from local to standard codes and hospital information technology staff has to bridge the connection between the two systems and make the electronic data pack in a standard format according to the working instruction issued by Taiwan CDC. Through this mechanism, surveillance data could be routinely transferred from hospital information systems to the TNIS system automatically. This can save the hospital staff a lot of time because they would not need to repeatedly enter the data to both of hospital surveillance system and TNIS system. At present, more than 500 hospitals enrolled in TNIS system. Hospitals may use TNIS system to manage HAI cases and generate individual hospital reports. Also, Taiwan CDC periodically feedback hospitals with national report as a reference for inter- and intra-hospital comparisons, hope to facilitate hospitals to improve their quality in controlling HAIs and to safeguard the wellbeing of healthcare workers and the general public.

IV. Healthcare-associated infection surveillance data analysis content

1. Number of medical centers and regional hospitals contributing ICU HAI data in this report in 2019.
2. Distribution of HAI rates by type of location in the ICUs of medical centers and regional hospitals in 2019.
3. Distribution of device-associated infection rates in the ICUs of medical centers and regional hospitals in 2019.
4. Distribution of major sites of HAI in ICU patients from medical centers and regional hospitals in 2019.
5. Common pathogens of HAI for patients in the ICUs of medical centers in 2019.
6. Common pathogens of HAI for patients in the ICUs of regional hospitals in 2019.
7. Antimicrobial resistance proportions of selected pathogens of HAI in the ICUs of medical centers and regional hospitals in 2019.

V. Surveillance method and main results

All the analytical results in this report were derived from TNIS system database with data updated to July 20, 2020. In 2019, there were 22 medical centers (190 ICU

units) and 82 regional hospitals (268 ICU units) reported both HAI cases and the number of patient-days to TNIS system for at least one calendar month (Table 10). The distributions of HAI rate ((number of HAIs/number of patient-days) ×1000‰) in ICUs of medical centers and regional hospitals are shown in Table 11. There were 5,020 episodes of HAI events occurred during 833,648 patient-days in the ICUs of 21 medical centers; the rate of infections was 6.0‰. However, in the ICUs of the 82 regional hospitals, there were 4,097 episodes of HAI events occurred during 852,459 patient-days; the rate of infections was 4.8‰. The HAI rates of ICUs were higher in medical centers than those in regional hospitals by corresponding types of ICU. The distributions of device-associated infection rate in ICUs ((number of device-associated infections/ number of device-days) ×1000‰) are shown in Figure 2. The pooled mean of central line-associated bloodstream infection (CLABSI) rates was 3.5‰ in medical centers and 2.7‰ in regional hospitals, and the pooled mean of catheter-associated urinary tract infection (CAUTI) rates were 3.0‰ and 2.5‰ respectively, the rate of CAUTI and the rate of CLABSI in ICUs of medical centers are higher than those in regional hospitals; the pooled mean of ventilator-associated pneumonia (VAP) rates in regional hospitals is higher than that in medical centers, which are 0.8‰ and 0.6‰ respectively.

The distribution of site-specific HAIs in ICUs is shown in Table 12, with the bloodstream infections topped the list in medical centers (41.9%), followed by urinary tract (33.0%), and other (11.8%). In regional hospitals, the urinary tract infections topped the list (38.8%), followed by bloodstream infections (35.1%), and pneumonia (14.3%).The common pathogens for HAIs in ICUs are shown in Table 13 and Table 14. The top three pathogens in the ICUs were *Klebsiella pneumoniae*, *Escherichia coli*, *Enterococcus faecium* in medical centers and *Escherichia coli*, *Klebsiella pneumoniae*, *Candida albicans* in regional hospitals. The proportions of antimicrobial resistance among selected pathogens identified from patients in the ICUs with HAIs are shown in Figure 3. In the ICUs of medical centers, the proportion of *Acinetobacter baumannii* isolates those were resistant to carbapenem (CRAB) is 74.2%, the proportion of *K. pneumoniae* isolates those were resistant to carbapenem (CRKP) is 40.0%, the proportion of *Pseudomonas aeruginosa* isolates those were resistant to carbapenem (CRPA) is 25.5%, the proportion of *Enterococci* isolates those were resistant to vancomycin (VRE) is 48.1%, and the proportion of *Staphylococcus aureus* isolates those were resistant to oxacillin (MRSA) is 61.9%. Meanwhile, the antimicrobial resistance proportions of selected pathogens isolated from patients acquired HAIs in the ICUs of regional hospitals were 74.4%, 34.3%, 17.8%, 47.0% and 62.7% for CRAB, CRKP, CRPA, VRE and MRSA, respectively.

VI. 2019 Data analysis of HAI in the ICUs of medical centers and regional hospitals

Table 10 Number of medical centers and regional hospitals contributing ICU HAI data in this report, 2019

Hospital level	1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
	No. of hospitals	No. of HAIs	No. of hospitals	No. of HAIs	No. of hospitals	No. of HAIs	No. of hospitals	No. of HAIs
Medical center	22	1,291	22	1,298	22	1,280	21	1,217
Regional hospital	81	1,080	79	990	82	1047	81	992

Note: Data updated to 2020/7/20

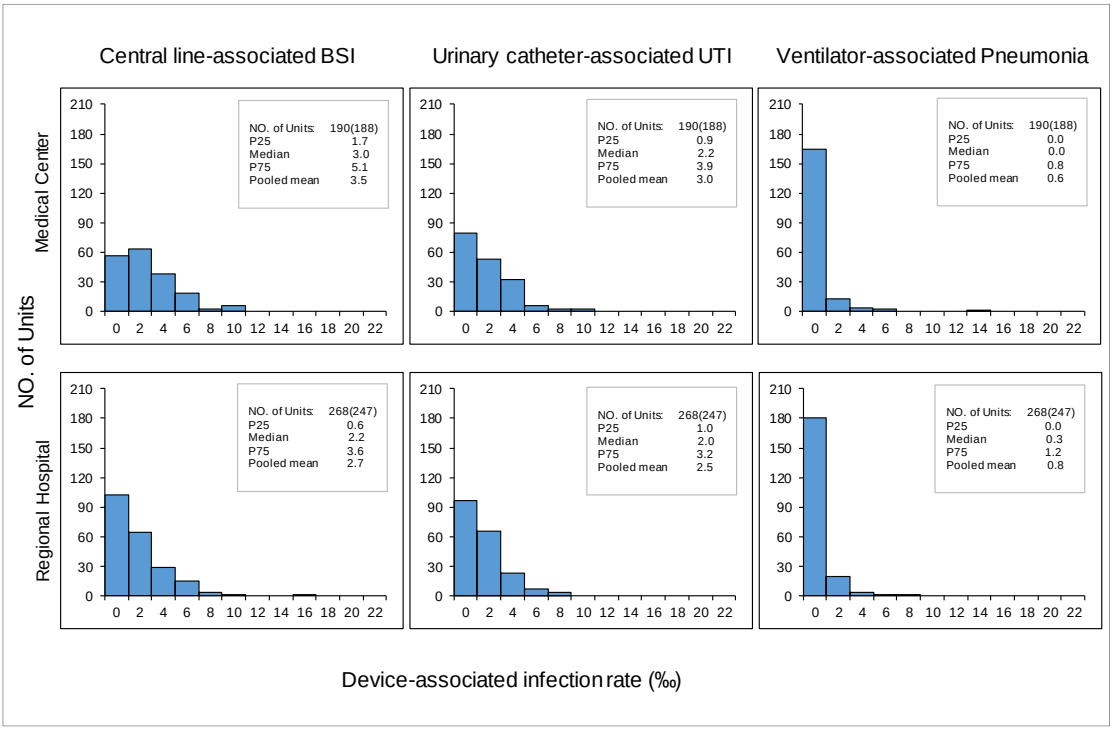
Table 11 Distribution of healthcare-associated infection rates by type of locations in the ICUs of medical centers and regional hospitals, 2019

Hospital level	Type of locations	No. of units[1]	No. of HAIs	Patient -days	HAI Rate[2] (‰)	Percentile		
						25th	50th	75th
Medical center	Medical ICU	46(46)	1,748	231,323	7.6	4.8	6.2	10.0
	Surgical ICU	63(61)	1,697	249,232	6.8	5.4	6.7	8.7
	Cardiology ICU	15(15)	364	66,723	5.5	-	5.3	-
	Pediatric ICU	43(43)	415	171,661	2.4	1.1	1.9	3.8
	Medical/surgical ICU	23(23)	796	114,709	6.9	4.3	5.9	9.2
	Total	190(188)	5,020	833,648	6.0	3.3	5.6	8.4
Regional hospital	Medical ICU	52(50)	1,108	249,493	4.4	2.8	3.8	5.6
	Surgical ICU	48(46)	1,025	168,690	6.1	3.8	5.3	7.8
	Cardiology ICU	11(8)	132	27,955	4.7	-	3.9	-
	Pediatric ICU	67(58)	58	54,578	1.1	0.0	0.0	1.3
	Medical/surgical ICU	90(85)	1,774	351,743	5.0	3.1	4.5	6.4
	Total	268(247)	4,097	852,459	4.8	1.7	3.8	5.9

Note: 1. Units with patient-days<50 are not included in percentile distribution; the number in parentheses is the number of units meeting minimum requirement for percentile distribution.

2. The number of units<20 only provide 50th percentile distribution; the number of units≤1 not provide percentile distribution.

3. Healthcare-associated infection rate= (number of HAIs/number of patient-days) ×1000‰. For every unit, monthly data was included for analysis only when the patient days and number of HAI cases were both available.



Note: 1. device-associated infection rate= (number of HAIs/number of device-days) ×1000‰;
2. UTI, urinary tract infection; BSI, bloodstream infection;
3. Units with device-days<50 are not included in percentile distribution; the number in parentheses is the number of units meeting minimum requirement for percentile distribution.

Figure 2 Distribution of device-associated infection rates in the ICUs of medical centers and regional hospitals, 2019

Table12 Distribution of major types of healthcare-associated infection in the ICU patients from medical centers and regional hospitals, 2019

Types of infection	Medical center		Regional hospital	
	No.	%	No.	%
Bloodstream	2132	41.9	1443	35.1
Urinary tract	1679	33.0	1596	38.8
Pneumonia	454	8.9	586	14.3
Surgical site	222	4.4	205	5.0
Other	599	11.8	279	6.8
Total	5,086	100	4,109	100

Note: proportion of specific infection type= (number of specific infection type /number of overall infection)×100%

Table 13 Common pathogens of healthcare-associated infections in the ICUs of medical centers, 2019

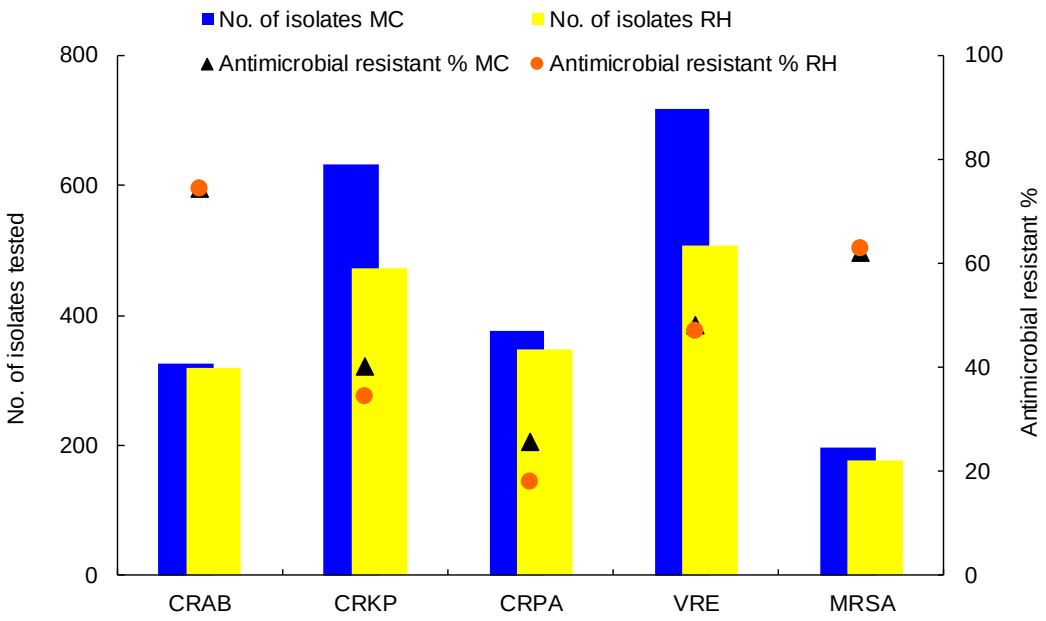
Pathogens	Total		Types of Infection									
			Bloodstream		Urinary tract		Pneumonia		Surgical site		Others	
	Rank	No.	Rank	No.	Rank	No.	Rank	No.	Rank	No.	Rank	No.
Klebsiella pneumoniae	1	647	1	310	6	184	2	71	2	42	4	40
Escherichia coli	2	509	5	123	1	328	8	13	4	28	9	17
Enterococcus faecium	3	502	2	247	4	189	23	1	3	35	5	30
Candida spp.	4	448	3	238	5	188	23	1	16	4	9	17
Candida albicans	5	430	7	122	3	258	13	6	9	14	5	30
Pseudomonas aeruginosa	6	382	5	123	7	113	1	74	1	44	7	28
Yeast-like	7	378	20	26	2	318	16	4	7	16	11	14
Acinetobacter baumannii	8	330	4	210	10	43	3	39	9	14	8	24
Enterobacter spp.	9	206	10	103	9	50	6	24	6	20	13	9
E.cloacae		127		64		29		18		12		4
Other *Enterobacter* spp. or NOS		79		39		21		6		8		5
Enterococcus faecalis	9	206	11	83	8	89			5	23	12	11
OTHERS		1,807		1,011		162		177		130		327
Total		5,845		2,596		1,922		410		370		547

Note: 1. Isolates of the same species of bacteria, regardless of antimicrobial susceptibility pattern, are counted only once per patient per infection. That is, no duplicate isolates are included.
2. NOS: not otherwise specified.

Table 14 Common pathogens of healthcare-associated infections in the ICUs of regional hospitals, 2019

Pathogens	Total		Types of Infection									
			Bloodstream		Urinary tract		Pneumonia		Surgical site		Others	
	Rank	No.	Rank	No.	Rank	No.	Rank	No.	Rank	No.	Rank	No.
Escherichia coli	1	512	5	101	1	350	7	20	2	31	10	10
Klebsiella pneumoniae	2	509	1	197	4	175	3	92	3	30	7	15
Candida albicans	3	446	8	89	2	304	8	18	8	19	5	16
Pseudomonas aeruginosa	4	384	9	88	6	131	1	111	1	38	5	16
Acinetobacter baumannii	5	354	2	155	9	54	2	93	3	30	4	22
Enterococcus faecium	6	345	3	116	3	191	16	3	6	24	9	11
Candida spp.	7	284	6	100	5	161	15	4	12	7	8	12
Staphylococcus aureus	8	200	4	104	13	13	4	43	9	14	2	26
Enterobacter spp.	9	192	10	87	11	43	5	31	7	22	11	9
E.cloacae		140		70		32		16		14		8
Other *Enterobacter* spp. or NOS		52		17		11		15		8		1
Enterococcus faecalis	10	175	11	60	8	88			5	25	16	2
OTHERS		1,214		579		312		104		89		130
Total		4,615		1,676		1,822		519		329		269

Note: 1. Isolates of the same species of bacteria, regardless of antimicrobial susceptibility pattern, are counted only once per patient per infection. That is, no duplicate isolates are included.
2. NOS: not otherwise specified.



Note: 1. "Antimicrobial resistant %" indicates the % of Isolates with susceptibility tested to be intermediate or resistant to the antimicrobial specified.

2. CRAB: carbapenem (imipenem or meropenem)-resistant *Acinetobacter baumannii*;
CRKP: carbapenem (imipenem, meropenem, or ertapenem)-resistant *Klebsiella pneumoniae*;
CRPA: carbapenem (imipenem or meropenem)-resistant *Pseudomonas aeruginosa*;
VRE: vancomycin-resistant *enterococci* (*Enterococcus faecalis*, *Enterococcus faecium*...etc.);
MRSA: oxacillin-resistant *Staphylococcus aureus*.

Figure 3 Antimicrobial resistances of selected pathogens of healthcare-associated infections in the ICUs of medical centers(MC) and regional hospitals(RH), 2019

School-based Surveillance System

I. Introduction

School children, who are in close contact with each other and pass infections around, are more susceptible to the communicable diseases. This is one of the main ways microorganisms circulate in campuses and communities, causing outbreaks of infectious diseases. To monitor the trends of communicable diseases in a multifaceted way, Taiwan Centers for Disease Control (Taiwan CDC) launched a pilot program for elementary schools to monitor and report symptoms and infectious diseases in February 2001. As of 2019, a total of 748 elementary schools enrolling students from kindergarten to 6th grade voluntarily participated in the system.

The school-based surveillance system is a simple, flexible, specific and sensitive communicable disease reporting system that can effectively reflect epidemic trends, detect possible outbreaks and facilitate timely adoption of control measures, in order to contain the spread of communicable diseases in elementary schools.

In addition, these data are used to analyze and estimate the scope and magnitude of diseases at the school and regional levels, which can aid the early detection of disease clusters in communities. As a result, the school-based surveillance system serves the dual purposes of safeguarding the health of school children and achieving control of communicable diseases.

II. Objectives of surveillance system

1. Understand and establish the long-term trends of communicable diseases in schools and detect aberration in surveillance data.
2. Detect early epidemic trends in communities.
3. Provide references for assessing the disease burden.

III. Diseases under surveillance

Diseases and symptoms reported under the school-based surveillance system include influenza like illness, hand-foot-and-mouth disease or herpangina, diarrhea, fevers, acute hemorrhagic conjunctivitis, varicella and other internal medicine diseases on a weekly basis.

IV. Reporting method, data analysis and data feedback

Schools participate in the surveillance system on a voluntary basis. The health care workers in public elementary schools report weekday data online by every Monday during each semester. Assigned officers at the Regional Centers of CDC observe the data completion and whether there are possible clusters of other communicable diseases. The weekly data are compiled, analyzed, and displayed as figures and periodically post on the CDC official website. In addition, the released“ Sentinel Surveillance Weekly Report” on the website of the school-based surveillance system disseminate to the reporting schools, relevant health and education facilities.

V. Selective analysis of reportable diseases

1. Influenza-like illness

■ Case definition:

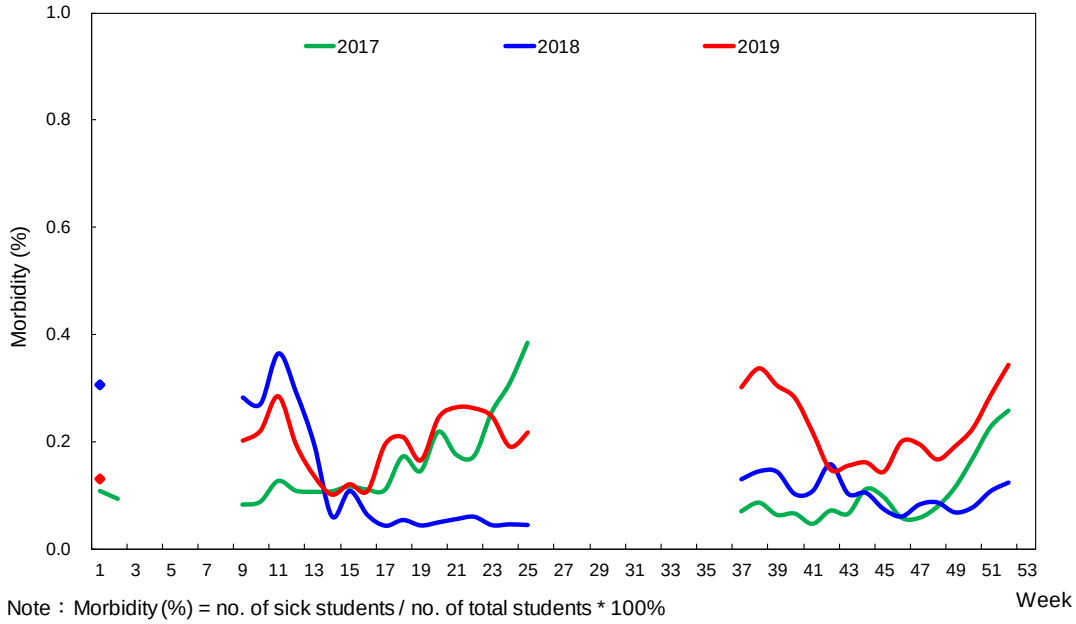
Acute respiratory infection with the following symptoms:

(1) Sudden onset, with fever (ear temperature≧38°C) and respiratory infection; and

(2) Muscular soreness or headache or extreme fatigue.

■ Epidemic analysis:

According to CDC school-based surveillance system, the morbidities of influenza-like illness among schools were between 0.10% and 0.34% in 2019. Overall, the trend in 2019 was higher than that in 2017 and 2018.



Note：Morbidity (%) = no. of sick students / no. of total students * 100%

Figure 4 ILI morbidity reported by the School-based Surveillance System, 2017-2019

2. Hand-foot-and-mouth disease (HFMD) or herpangina

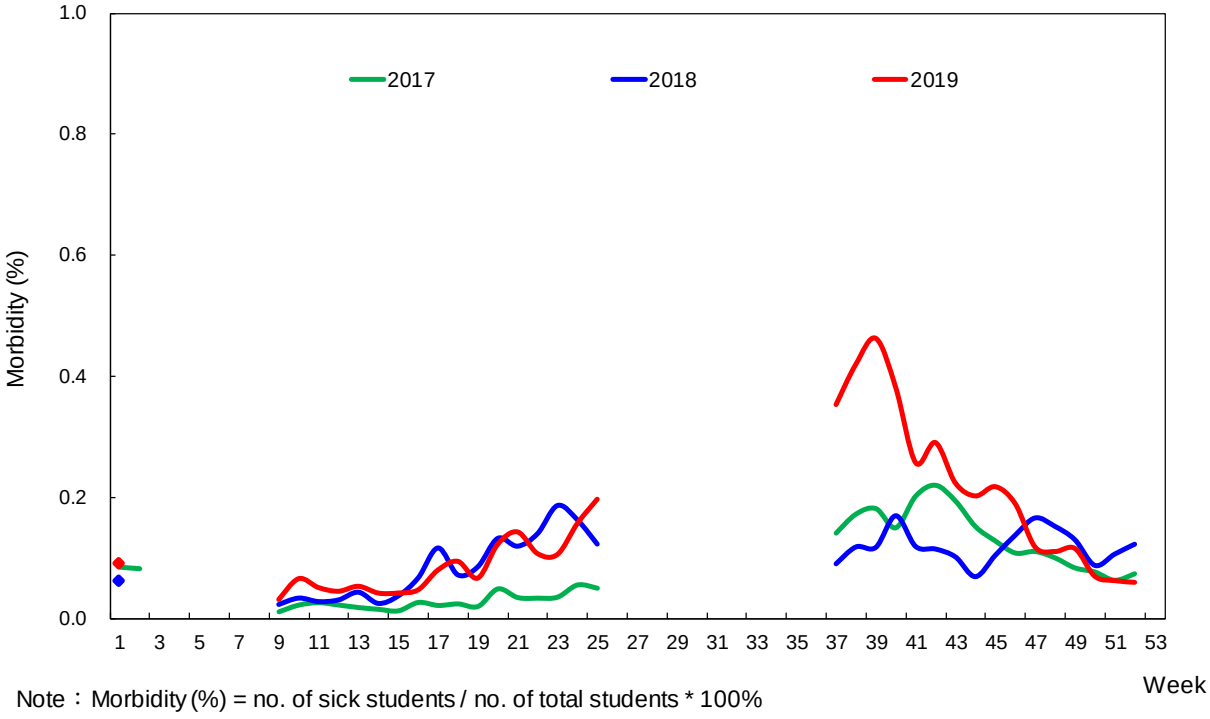
■ Case definition:

(1) Case definition of hand-foot-and-mouth disease: Vesicular lesions or rashes appear on mouth, palms, soles, and/or knees and buttocks.

(2) Case definition of herpangina: Fever and vesicular lesions or ulcer in pharyngeal area.

■ Epidemic analysis:

According to CDC school-based surveillance system, the morbidities of hand-foot-mouth disease or herpangina among schools were between 0.03% and 0.46% in 2019. Overall, the trend in 2019 was higher than that in 2017 and 2018.



Note：Morbidity (%) = no. of sick students / no. of total students * 100%

Figure 5 Hand-foot-mouth disease (HFMD) or herpangina morbidity reported by the School-based Surveillance System, 2017-2019

3. Diarrhea

■ Case definition:

Diarrhea three times or more per day, and accompanied by more than one of following symptoms:

(1) Vomiting

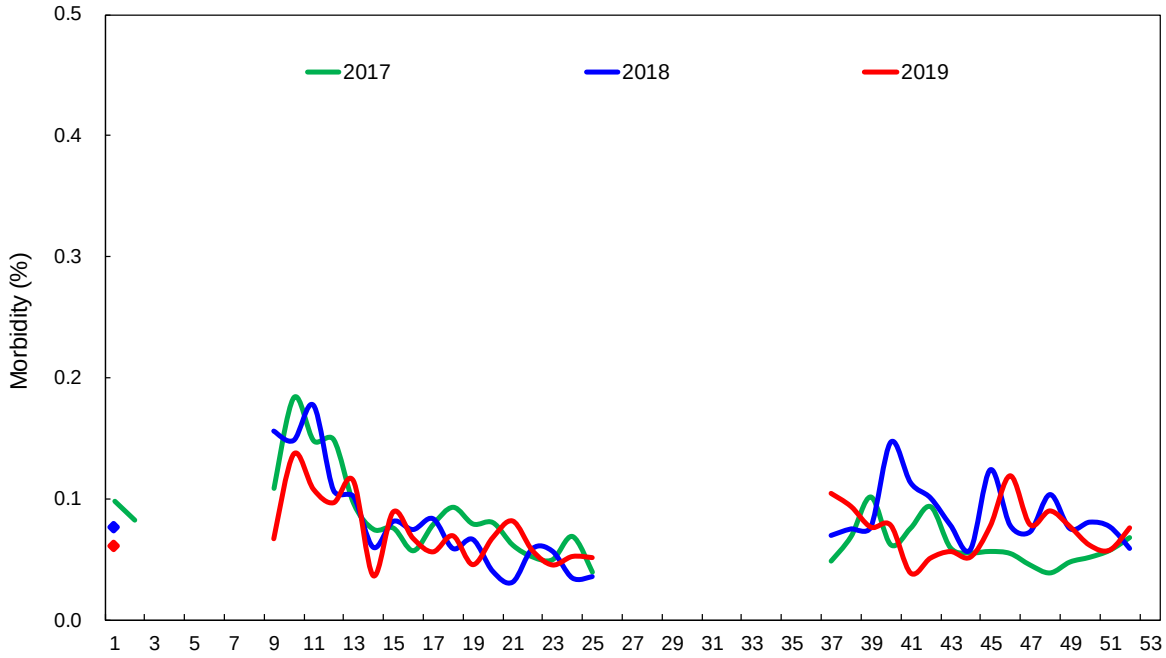
(2) Fever

(3) Mucous stool or hematochezia

(4) Watery diarrhea.

■ Epidemic analysis:

According to CDC school-based surveillance system, the morbidities of diarrhea among schools were between 0.04% and 0.14% in 2019. The trend of diarrhea in 2019 was similar to the past two years.



Note：Morbidity (%) = no. of sick students / no. of total students * 100%

Figure 6 Diarrhea morbidity reported by the School-based Surveillance System, 2017-2019

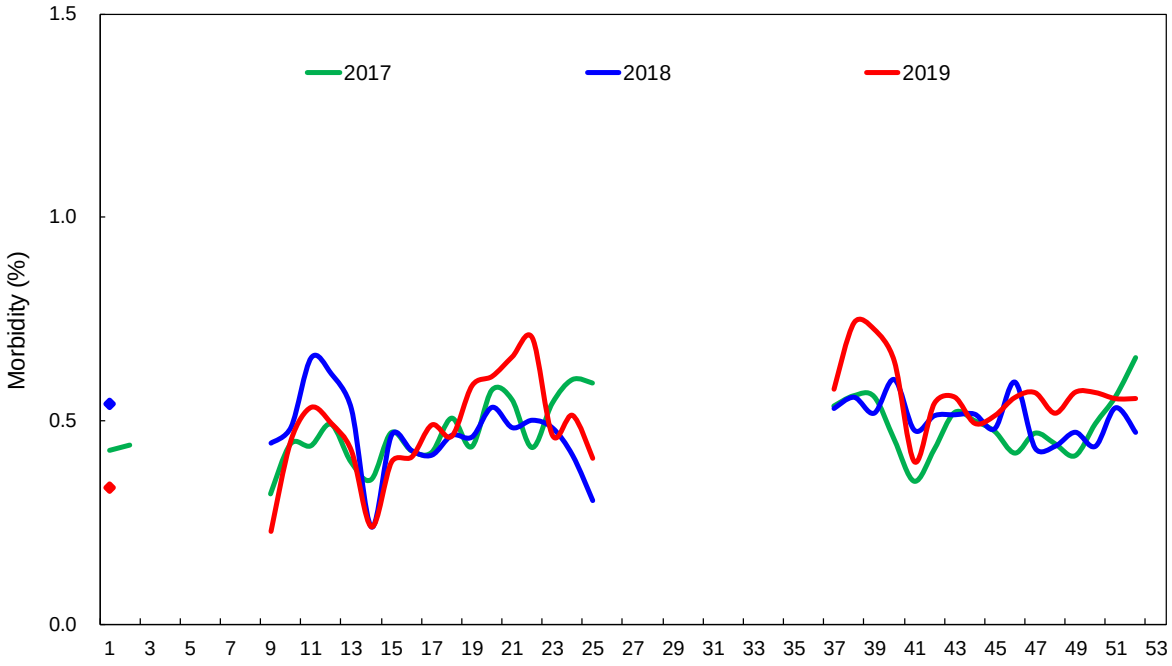
4. Fever

■ Case definition:

Fever (ear temperature≧38°C) but free of the illness or symptoms of influenza-like illness, diarrhea, hand-foot-mouth disease or herpangina.

■ Epidemic analysis:

According to CDC school-based surveillance system, the morbidities of fever among schools were between 0.23% and 0.74% in 2019. The trend of fever in 2019 was similar to the past two years.



Note：Morbidity (%) = no. of sick students / no. of total students * 100%

Figure 7 Fever Morbidity Reported by the School-based Surveillance System, 2017-2019

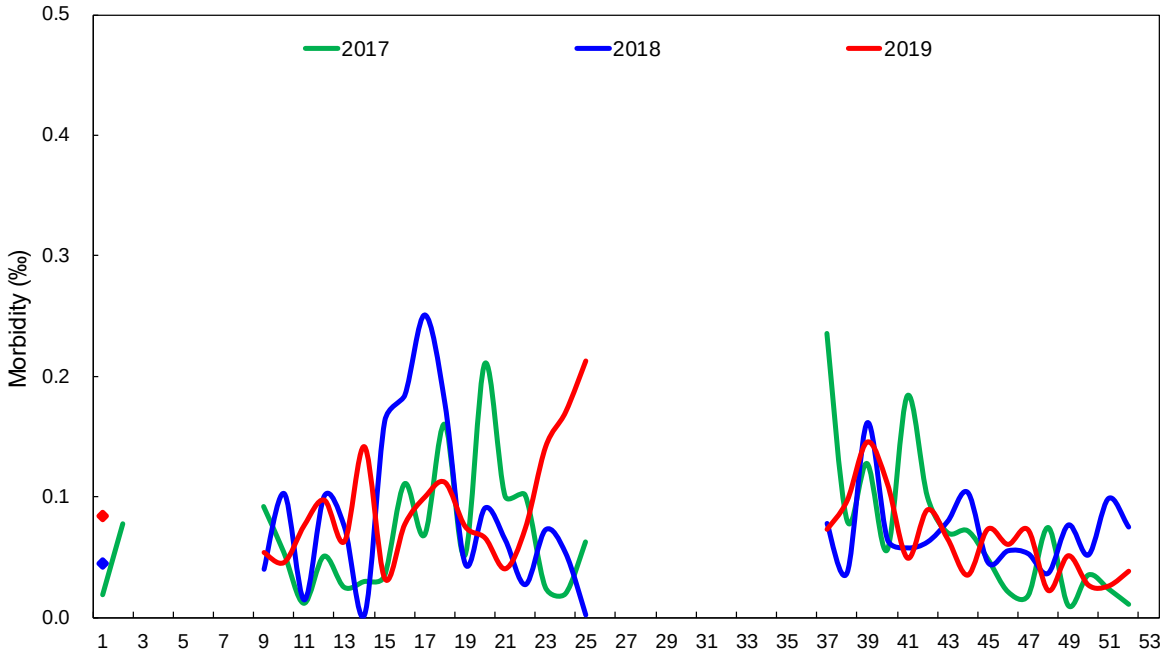
5. Acute hemorrhagic conjunctivitis (AHC)

■ Case definition:

Prickly, burning sensation of eyes, increased sensitivity to light, increased amount of tears, foreign body sensation, blurred vision; conjunctivas in bright redness, sometimes with subconjunctival hemorrhage; large amount of viscous discharge from the eyes; sometimes preauricular lymph node swelling and tenderness.

■ Epidemic analysis:

According to CDC school-based surveillance system, the morbidities of Acute hemorrhagic conjunctivitis (AHC) among schools were between 0.02‰ and 0.21‰ in 2019.The morbidities of week 1, week 14 and week 23 to week 25 in 2019 were higher than the same period of 2017 and 2018. Overall, the trend in 2019 was similar to the past two years.



Note：Morbidity (‰) = no. of sick students / no. of total students * 1000‰

Figure 8 AHC morbidity reported by the School-based Surveillance System, 2017-2019

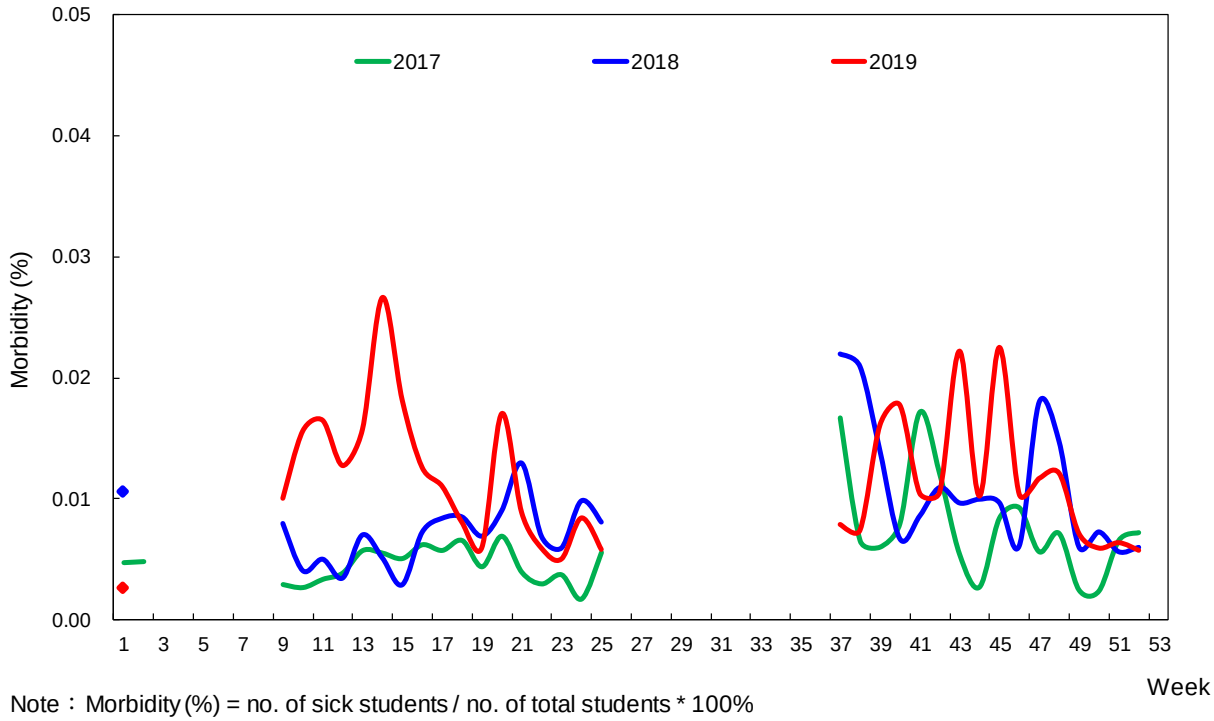
6. Varicella:

■ Case definition:

Appearance of blisters of all sizes throughout the whole body and may go along with fever as a potential clinical symptom.

■ Epidemic analysis:

According to CDC school-based surveillance system, the morbidities of varicella among schools were between 0.003% and 0.027% in 2019. Overall, the trend in 2019 was higher than that in 2017 and 2018.



Note：Morbidity (%) = no. of sick students / no. of total students * 100%

Figure 9 Varicella morbidity reported by the School-based Surveillance System, 2017-2019

Laboratory Surveillance System

I. Origin

The island-wide outbreak of enterovirus epidemic in Taiwan in 1998 exposed the inadequacy of our virology laboratories in both quality and quantity. Thus the Department of Health (DOH) has been establishing contract virology laboratories across Taiwan since March 1999 and endeavors to improve Taiwan's capacity for virus testing and cultivate professionals in the field. Currently, contract laboratories are playing an important role in the monitoring of enterovirus and influenza viruses in communities. The laboratory surveillance targets mainly the prevalent types of enterovirus and influenza viruses to shed light on the activities of important virus strains in different seasons. Such information provides useful references in the formulation of epidemic prevention policies, and moreover, contributes to the construction of a valuable native viral genome database and a biomaterial database in Taiwan.

II. Distribution and responsibility areas of contracted laboratories

In 2019, there were a total of eight contracted laboratories for viral diseases across the country. Their locations and coverage areas are as follows: In northern Taiwan, National Taiwan University (coverage area: Taipei City, Kinmen County, and Lienchiang County), Chang Gung University (coverage area: Taoyuan City, Hsinchu County, Hsinchu City and Miaoli County), Tri-Service General Hospital (coverage area: New Taipei City, Keelung City, Yilan County, and specimens from military hospitals); in central Taiwan, Taichung Veterans General Hospital (coverage area: Taichung City), Changhua Christian Hospital (coverage area: Changhua County, Yunlin County and Nantou County); in southern Taiwan, National Cheng Kung University Hospital (coverage area: Chiayi County, Chiayi City and Tainan City), Kaohsiung Medical University Chung-Ho Memorial Hospital (coverage area: Kaohsiung City, Pingtung County, and Penghu County); and in eastern Taiwan, Hualien Tzu Chi Hospital (coverage area: Hualien County and Taitung County).

III. Sources of specimens and testing process

Sources of specimens at the contracted laboratories come mainly from outpatients, emergency and inpatients patients at medical centers within the areas covered by the laboratories, as well as from 165 specimen collection stations nationwide. Specimens are collected from patients with suspected influenza or enteroviral infections. The former should meet the criteria for influenza-like illness (symptoms including fever above 38°C, cough, sore throat or muscular pain; patients with mild rhinitis, tonsillitis, and bronchitis are excluded). The latter should be patients with hand-foot-mouth disease or herpangina, and their specimens should be collected within three days after the onset of illness. Generally, specimen collection stations send two specimens to the regional contracted laboratories every week.

1. Collection of specimens

Specimens collected by contract laboratories in 2019 totaled 10,026, which represents an average of 836 per month. The contracted laboratories in northern Taiwan received the largest number of specimens with 3,693 cases, followed by central Taiwan with 2,793 cases, southern Taiwan with 2,362 cases, whereas laboratories in eastern Taiwan received the fewest specimens with 1,178 cases.

2. Prevalence of enterovirus

In 2019, 1,308 strains of enterovirus were isolated. After typing by immunofluorescence assay (IFA), it was found the dominant type was Coxsackie virus A (931 strains or 71.2%), the majority constituted type CVA10 290 strains, CVA4 181 strains and CVA2 164 strains; Echovirus (53 strains or 4.1%), the majority constituted type Echovirus 6 41 strains; Coxsackie virus B (46 strains or 3.5%), the majority constituted type CVB4 27 strains; Enterovirus Type 71 (227 strains or 17.4%) and 51 isolates (3.9%) were non-polio enterovirus (NPEV). After typing of NPEV by gene sequencing, it was found the majority of NPEV were CVA8, followed by Echovirus18, EVD68 and Rhinovirus 49 in sequence. (See Figure 10 Strain ratios of enterovirus isolates from specimens collected by the sentinel physicians, 2019).

To sum up, the top five types of enterovirus isolated in 2019 were CVA10 (22.1%), EV71 (17.3%), CVA4 (13.8%), CVA2(12.5%), and CVA6 (12.1%). (See Figure 11 Strain ratios of enterovirus isolates from specimens collected by the sentinel physicians, 2019).

3. Prevalence of influenza virus

In 2019, 2,204 strains of influenza virus were isolated, including 434 strains of influenza A subtype H3 (21.4%), 382 strains (18.9%) of type B and 1,208 strains of H1N1 (59.7%). H1N1 was the most prevalent strain in 2019; during weeks 1-13 of the year, H1N1 was the most prevalent strains, followed by influenza B, whereas after week 30, influenza H1N1 became the most prevalent. (see Figure 12 Isolation situations of influenza viruses from specimens collected by the sentinel physicians, 2019).

After typing of isolated virus strains by gene sequencing, it was found that of seasonal influenza A viruses, all H1N1 subtype viruses were predominantly A/Brisbane/02/2018, and H3N2 subtype were predominantly A/Singapore/INFIMH-16-0019/2016, while the rest were A/Switzerland/8060/2017 and A/Hong Kong/4801/2014. Of the influenza B viruses, B/Colorado/06/2017(B/Vic) was the dominant type and some were B/Washington/02/2019(B/Vic) and B/PHUKET/3073/2013(B/Yam).

To sum up, influenza virus types isolated in 2019 were in sequence, INFA H1N1（59.9%）, H3 (21.1%), and INFB (19.0%) (see Figure 13 Strain ratios of influenza virus isolates from specimens collected by the sentinel physicians, 2018).

4. Epidemic situations of other respiratory tract viruses

Respiratory tract viruses other than influenza virus isolated totaled 1,000 cases, including Adenovirus 463 strains (46.3%), Parainfluenza virus 217 strains (21.7%), Herpes simplex virus (HSV) 224 strains (22.4%), Respiratory syncytial virus (RSV) 66 strains (6.6%), and Cytomegalovirus (CMV) 30 strains (3.0%) (see Figure 14 Positive isolation rates for respiratory tract viruses from specimens collected by the sentinel physicians, 2019).

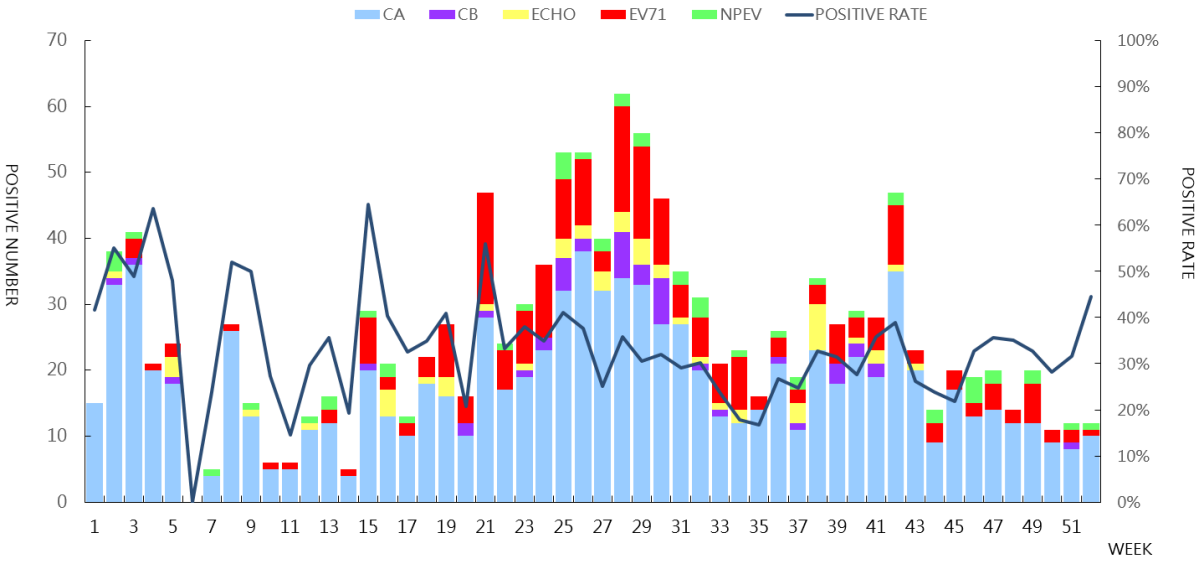


Figure 10 Enterovirus positive isolation rates in specimens collected by the sentinel physicians, 2019

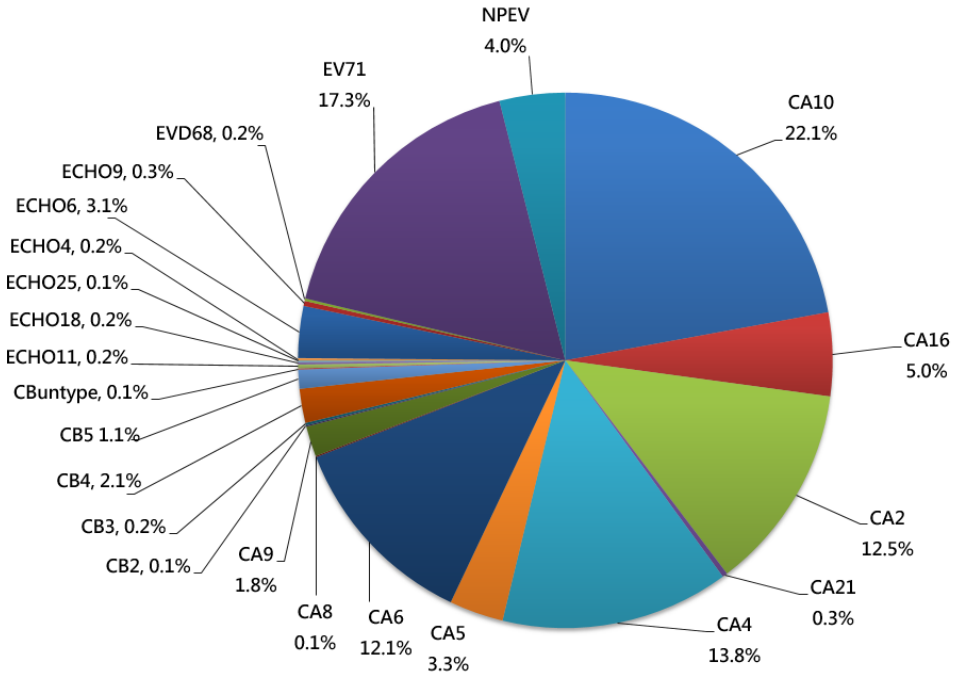


Figure 11 Strain ratios of enterovirus isolates from specimens collected by the sentinel physicians, 2019

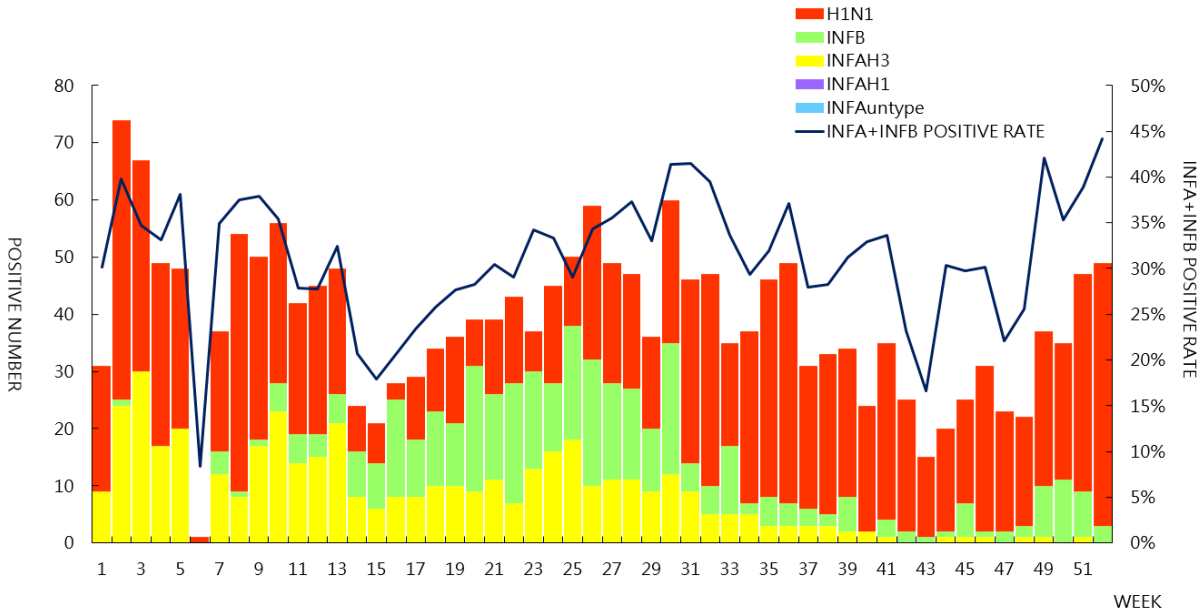


Figure 12 Isolation situations of influenza viruses from specimens collected by the sentinel physicians, 2019

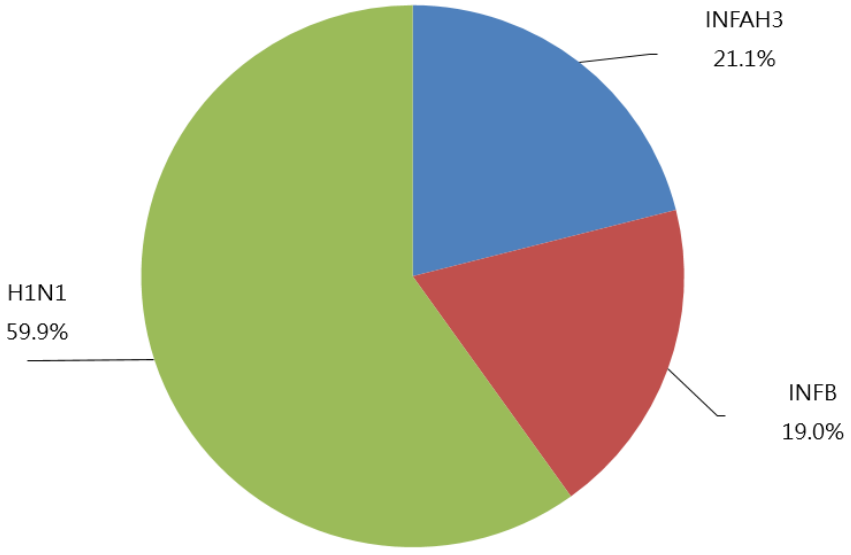


Figure 13 Strain ratios of influenza virus isolates from specimens collected by the sentinel physicians, 2019

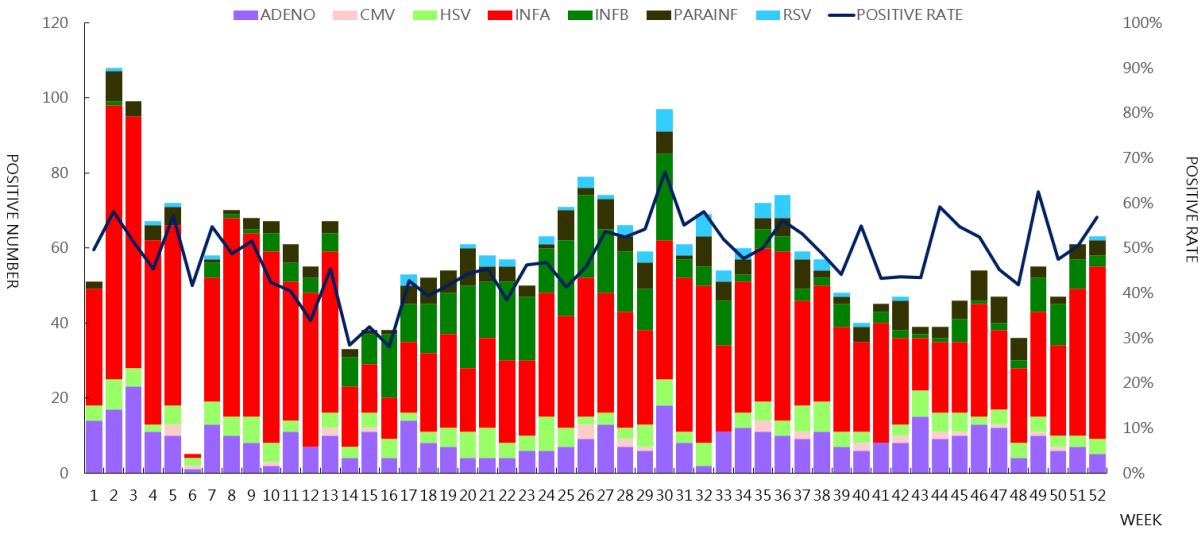


Figure 14 Positive isolation rates for respiratory tract viruses from specimens collected by the sentinel physicians, 2019

Quarantine Surveillance

I. Health examination of migrant workers

To prevent the importation of infectious diseases by migrant workers affecting the health of the population, all legally imported workers are required to submit a health certificate issued by an authorized foreign hospital before applying for an entry visa. They are also required to undergo health examination at a designated hospital within 3 working days after entry and within 30 days before or after the days of 6, 18 and 30 months of the employment permit effective date in order to ensure their health condition. The designated items of health examination for migrant workers in 2019 include chest X-ray examination for tuberculosis, examination for Hansen's disease, serological test for syphilis, stool examination for intestinal parasites, and physical examination. In addition, either proof of positive antibody or vaccination certificate for measles and rubella is required in the health examination conducted in the authorized hospitals.

To prevent the importation of typhoid fever by Indonesian workers, symptoms query of typhoid fever has been included in the health examination before entry since October 15, 2009. Besides, symptoms query and stool culture examination of typhoid fever have also been included in the health examination within 3 working days after entry in the meanwhile.

Within 815,914 person-times health examinations for migrant workers conducted in Taiwan in 2019, 5,107 person-times were failed, representing a failed rate of 0.63%. Stool examination for intestinal parasite accounted for the highest failed rate with 0.56% (4,553 person-times), followed by chest X-ray examination for tuberculosis with 0.05% (389 person-times) (Table 15).

II. Health declaration of inbound passengers

To prevent the imported infectious disease through aircrafts and ships into Taiwan, Taiwan CDC in accordance with the “Communicable Diseases Control Act” and “Regulations Governing Quarantine at Ports” implements necessary quarantine measures--in particular, the follow-up and surveillance of suspect passengers with symptoms. On December 1, 2004, new regulations took effect that all inbound passengers with suspected symptoms of communicable diseases should fill in the “Communicable Disease Survey Form.”

From January to December of 2019, the person times of inbound passengers was 29,033,313 in total and 27,335 of them showing symptoms were then subject to follow-up and surveillance by local health authority. The “Communicable Disease Survey Form” and body temperature screening measures have identified 241 cases of dengue fever, 31 cases of chikungunya fever and 1 case of ZIKA virus infection(Table 16).

Table 15 Physical examinations status of migrant workers, 2019

Unit：Number of Persons, Person Time, %

Country	Number of Persons		Failed	X-ray	Syphilis	Parasites	Hansen's disease	Mental condition	Others
Thailand	At Entry	18,369	185	5	3	177	-	-	-
			1.01%	0.03%	0.02%	0.96%	-	-	-
	Periodic	59,096	377	27	10	340	-	-	-
			0.64%	0.05%	0.02%	0.58%	-	-	-
Indonesia	At Entry	58,115	622	31	20	571	-	-	-
			1.07%	0.05%	0.03%	0.98%	-	-	-
	Periodic	239,219	1,036	141	58	833	4	-	-
			0.43%	0.06%	0.02%	0.35%	0.002%	-	-
Philippines	At Entry	32,621	508	4	10	494	-	-	-
			1.56%	0.01%	0.03%	1.51%	-	-	-
	Periodic	150,575	594	84	38	472	-	-	-
			0.39%	0.06%	0.03%	0.31%	-	-	-
Vietnam	At Entry	59,929	785	29	11	755	-	-	-
			1.31%	0.05%	0.02%	1.26%	-	-	-
	Periodic	197,985	1,000	68	21	911	-	-	-
			0.51%	0.03%	0.01%	0.46%	-	-	-
Others	At Entry	3	-	-	-	-	-	-	-
			-	-	-	-	-	-	-
	Periodic	2	-	-	-	-	-	-	-
			-	-	-	-	-	-	-
Total	At Entry	169,037	2,100	69	44	1,997	-	-	-
			1.24%	0.04%	0.03%	1.18%	-	-	-
	Periodic	646,877	3,007	320	127	2,556	4	-	-
			0.46%	0.05%	0.02%	0.40%	0.001%	-	-
Total (Person Time)		815,914	5,107	389	171	4,553	4	-	-
			0.63%	0.05%	0.02%	0.56%	0.00%	-	-

Note: The data of physical examination at entry was provided by the Ministry of Labor; the data of periodic physical examination was provided by the local health competent authorities.

Table 16 Statistic of CDC "Communicable Diseases Survey Form" in 2019

Unit：Number of Person Time

Month	Person time of inbound passengers	Cases with symptom		Cases sample taking			Traveling country
		Case No.	Case percentage (%)	Case No.	Notifiable disease	Notifiable disease Case No.	
Jan.	2,239,963	3,999	0.18	440	Dengue fever	19	Indonesia, Cambodia, Thailand, Malaysia, Philippines, Vietnam
Feb.	2,268,437	2,579	0.11	428	Dengue fever	20	Indonesia, Thailand, Malaysia, Philippines, Vietnam
					ZIKA virus infection	1	Vietnam
Mar.	2,535,254	2,189	0.09	340	Dengue fever	13	Indonesia, Thailand, Malaysia, Vietnam
Apr.	2,569,051	2,364	0.09	398	Dengue fever	14	Indonesia, Thailand, Malaysia, Maldives, Philippines, Singapore, Myanmar
					Chikungunya fever	1	Indonesia
May.	2,451,075	1,836	0.07	325	Dengue fever	18	Indonesia, Malaysia, Maldives, Philippines, Vietnam
					Chikungunya fever	3	Indonesia, Malaysia, Philippines
Jun.	2,432,790	1,948	0.08	406	Dengue fever	16	Indonesia, Cambodia, Thailand, Philippines, Vietnam, Singapore
Jul.	2,620,130	2,688	0.10	569	Dengue fever	37	Indonesia, Cambodia, Thailand, Malaysia, Philippines, Vietnam, Myanmar
					Chikungunya fever	8	India, Thailand, Myanmar
Aug.	2,531,698	2,235	0.09	532	Dengue fever	26	Indonesia, India, Honduras, Cambodia, Thailand, Philippines, Vietnam, Myanmar
					Chikungunya fever	10	Thailand, Maldives, Myanmar
Sep.	2,209,661	1,616	0.07	433	Dengue fever	21	Cambodia, Thailand, Malaysia, Philippines, Vietnam, Singapore, Myanmar
					Chikungunya fever	4	Thailand, Myanmar
Oct.	2,418,243	1,798	0.07	463	Dengue fever	18	Vietnam, Philippines, Myanmar, Thailand, Indonesia, Cambodia, Malaysia
					Chikungunya fever	3	Myanmar
Nov.	2,348,254	1,591	0.07	387	Dengue fever	23	China, Japan, United States, Vietnam, Cambodia, Singapore, Thailand, Maldives, Malaysia, Philippines, Indonesia, India
					Chikungunya fever	2	Myanmar
Dec.	2,408,757	2,492	0.10	487	Dengue fever	16	Indonesia, Philippines, Vietnam, Myanmar, Sri Lanka
Total	29,033,313	27,335	0.09	5,208		273	

Note : 1. The data of inbound passenger number was provided by Taiwan National Immigration Agency.

2. The data of cases with symptom was provided by Taiwan CDC National Symptom Surveillance System.

Mosquito Surveillance

Taiwan is located in tropical and subtropical climate zone with hot and humid weather, and hence a fertile ground for mosquito breeding. Major mosquito vectors in Taiwan include Aedes aegypti and Aedes albopictus that can spread dengue fever and Anopheles minimus that can spread malaria.

I. Dengue fever carrying mosquito

The dengue fever carrying mosquito surveillance has been set up since the outbreak of dengue fever in the south of Taiwan in 1988. An analysis of the surveys of mosquito vectors conducted in 2019 finds the following: the health bureaus of all counties and cities conducted 40,950 wards/villages, including 25,401 wards/villages in Level 0, 12,174 wards/villages in Level I, 2,555 wards/villages in Level II, 666 wards/villages in Level III, 116 wards/villages in Level IV, 36 wards/villages in Level V, 1 wards/villages in Level VI, 0 wards/village in Level VII, and 1 wards/villages in Level VIII (Table 17). The number of wards/villages above Level II in the range of 1.8~15.9% displayed one peak from May to September (Figure 15).

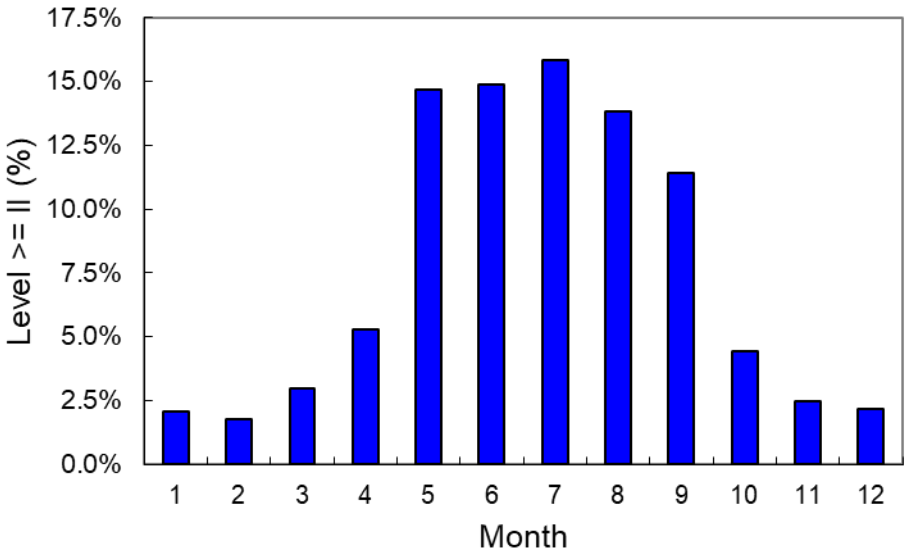


Figure 15 The percentage of wards/villages with Dengue fever vector by month in 2019

Table 17 Distribution of Breteua index, 2019

Locality	Villages (No. of times)	Breteua Index								
		0	1	2	3	4	5	6	7	8
Taichung City	1,192	328	670	114	59	18	3	-	-	-
Taipei City	1,559	936	601	20	2	-	-	-	-	-
Taitung County	911	568	292	27	12	10	1	-	-	1
Tainan City	10,325	6,966	2,688	498	149	21	3	-	-	-
Yilan County	1,148	993	152	3	-	-	-	-	-	-
Hualien County	1,117	979	91	44	2	1	-	-	-	-
Kinmen County	63	52	10	1	-	-	-	-	-	-
Nantou County	743	265	440	31	5	1	1	-	-	-
Pingtung County	4,166	2,225	1,500	387	51	3	-	-	-	-
Miaoli County	531	122	338	70	1	-	-	-	-	-
Taoyuan County	523	264	220	26	12	1	-	-	-	-
Kaohsiung City	6,711	2,947	2,538	965	206	33	22	-	-	-
Keelung City	340	290	31	19	-	-	-	-	-	-
Lienchiang County	17	17	-	-	-	-	-	-	-	-
Yunlin County	706	524	151	24	6	1	-	-	-	-
New Taipei City	3,449	2,681	753	12	3	-	-	-	-	-
Hsinchu City	459	270	171	13	3	-	1	1	-	-
Hsinchu County	692	578	94	11	9	-	-	-	-	-
Chiayi City	1,192	396	537	172	80	6	1	-	-	-
Chiayi County	2,490	2,104	371	8	7	-	-	-	-	-
Changhua County	1,182	725	362	75	16	4	-	-	-	-
Penghu County	1,434	1,171	164	35	43	17	4	-	-	-
Total	40,950	25,401	12,174	2,555	666	116	36	1	0	1

II. Malaria vector mosquitoes

In 2019 mosquito light traps were hanged for collection of adult mosquitoes in 9 Counties, 65 townships and 157 villages, including Zuozhen Dist., Nanhua Dist., Xinhua Dist., Nanxi Dist., Longqi Dist. and Guanmiao Dist. in Tainan City; Checheng Township and Manzhou Township in Pingtung County; Sanxin Township, Datong Township, Wujie Township, Dongshan Township, Zhuangwei Township, Yilan city, Nanao Township, Yuanshan Township, Toucheng Township, Jiaoxi Township, Luodong Township and Suao Township in Yilan County; Dawu Township, Taimali Township, Taitung City, Chenggong Township, Chishang Township, Beinan Township, Yanping Township, Donghe Township, Jingfeng Township, Changbing Township, Hairui Township, Daren Township, Luyeh Township, Ludao Township, Guanshan Township and Lanyu Township in Taitung County; Yuli Township, Guangfu Township, Jian Township, Xiulin Township, Zhuoxi Township, Hualien City, Fuli Township, Xincheng Township, Ruisui Township, Wanrong Township, Shoufeng Township, Fenglin Township and Fengbin Township in Hualien County; Dapu Township, Zhongpu Township, Liujiao Township, Puzi City, Zhuqi Township, Meishan Township, Lucao Township, Fanlu Township, Xingang Township and Yizhu Township in Chiayi County; Liugui Dist. and Mituo Dist. in Kaohsiung City; Houli Dist. and Shalu Dist. in Taichung City; Luzhu Dist. and Guanyin Dist. in Taoyuan City. The survey result showed that 3 counties, 5 townships and 6 villages had collected adult *An. minimus* (Table 18 and Figure 16). Chengshan Village of Zuozhen Dist. in Tainan City had the highest density with the record of catching 8 *An. minimus* per trap-night in September.

Table 18 The number of adult mosquitoes of *Anopheles minimus* collected in 2019

County	Township	*An. minimus* (No.)	Villages (No.)	Villages with *An. minimus*
Pingtung County	Checheng	3	1	Wenquan
	Manzhou	1	1	Jiupeng
Tainan City	Longqi	13	2	Tuqi、Longchuan
	Zuozhen	11	1	Chengshan
Hualien County	Shoufeng	7	1	Gonghe
Total	**5 townships**	**35**	**6**	

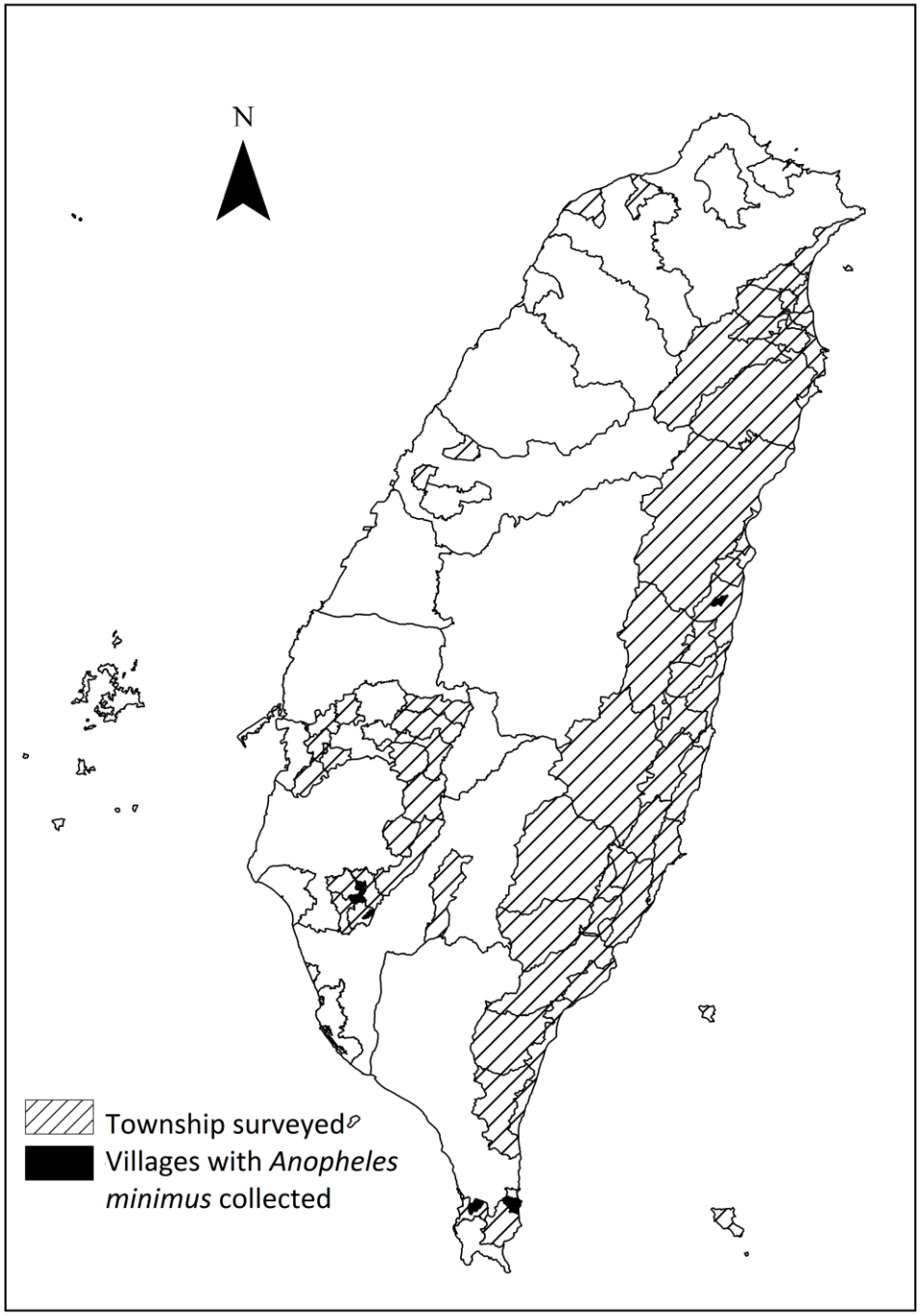


Figure 16 Distribution of *Anopheles minimus*, 2019

Symptom Surveillance System

I. Introduction

Severe acute respiratory syndrome (SARS), a global health alert beginning in March 2003, also affected Taiwan and caused public panic and unprecedentedly crippled the economy. In December of the same year, avian influenza had spread across Korea, Japan and Vietnam. Since then, countries around the world reported several high/low pathogenic avian influenza (HPAI/LPAI) outbreaks. Based on the concept of disease clusters with similar clinical symptoms, Centers for Disease Control implemented the Symptom Surveillance System in 2003, in order to detect the emergence or unusual trends of infectious diseases, and take control measures promptly. Health authorities report to the system while individuals of a cluster develop similar symptoms that follow the reporting criteria. In addition, the system boosted the capacity for monitoring imported diseases and report symptomatic cases by quarantine stations at ports of entry.

The occurrence of emerging outbreaks of the 2009 H1N1 influenza pandemic, human infections with novel influenza viruses such as influenza A(H7N9) and A(H5N1), and Middle East Respiratory Syndrome Coronavirus attracted worldwide concerns and caused considerable panic worldwide. We update the monitored symptoms if needed. The followings are the symptoms of diseases to be reported currently: influenza-like illness, diarrhea, upper respiratory infection, fever of unknown origin, patients with coughing lasting for more than three weeks, enterovirus, and varicella.

II. Objectives of surveillance system

1. To step up the surveillance of inbound travelers at airports and ports to achieve the goal of fighting communicable diseases outside the country.
2. Effectively control cluster events and activate related prevention programs in a timely manner.

III. Reporting method and data analysis

Public health authorities or quarantine officers of the CDC should report these suspected cluster events whihin their jurisdictions. In addition, the quarantine officers of the CDC should report individual suspected case who meets the case definitions. Internet is the main way to report. If it is not available, reportng in paper form and faxing to the CDC divisions is acceptable.

Public health officers of local authorities and CDC are able to access data of reports, specimen submission forms and test results in the system for analysis.

IV. Description of reportable diseases

■ Influenza-like illness (ILI) clustering

1. Case definition: Patients with influenza-like illness and includes criteria for person, time and place that are suspected as a cluster with spreading concern.

※ Definition of influenza-like illness for reporting purpose: The patients should meet all the following conditions:

(1) Sudden onset, with fever (tympanic temperature≧38°C) and respiratory tract infection;

(2) Muscular soreness, headache or extreme fatigue; and

(3) Runny nose, tonsillitis and bronchitis (common cold) should be excluded.

2. Epidemic analysis of ILI clusters: In 2019, a total of 646 clusters of influenza-like illness were reported. Laboratory confirmed clusters included 86 events of A (H1N1) infection, 51 events of A (H3N2) infection, 13 events of influenza B infection, 1 event of A (H1N1) and A (H3N2) co-infection, 416 events of Influenza viruses (RIDTs) and 1 event of other pathogens infection (1 event of adenovirus infection). The other events were negative or had no specimens taken. Schools had the highest number of influenza-like illness clusters, followed by populous institutions, hospitals, and others (including business places, family, dormitory and cram school).

Table 19 Test results for influenza-like illness clustering incidents in 2019

No. of Clusters	Test results							
	Influenza A (H1N1) viruses	Influenza A (H3N2) viruses	Influenza B viruses	Influenza A (H1N1) + A(H3N2) viruses	Influenza viruses (RIDTs*)	Others**	Negative	No specimen
646	86	51	13	1	416	1	17	61

Note:* Rapid influenza diagnostic tests, include 336 events of influenza A (RIDTs), 75 events of influenza B (RIDTs), 5 events of influenza A and influenza B (RIDTs).

** Include 1 event of adenovirus infection.

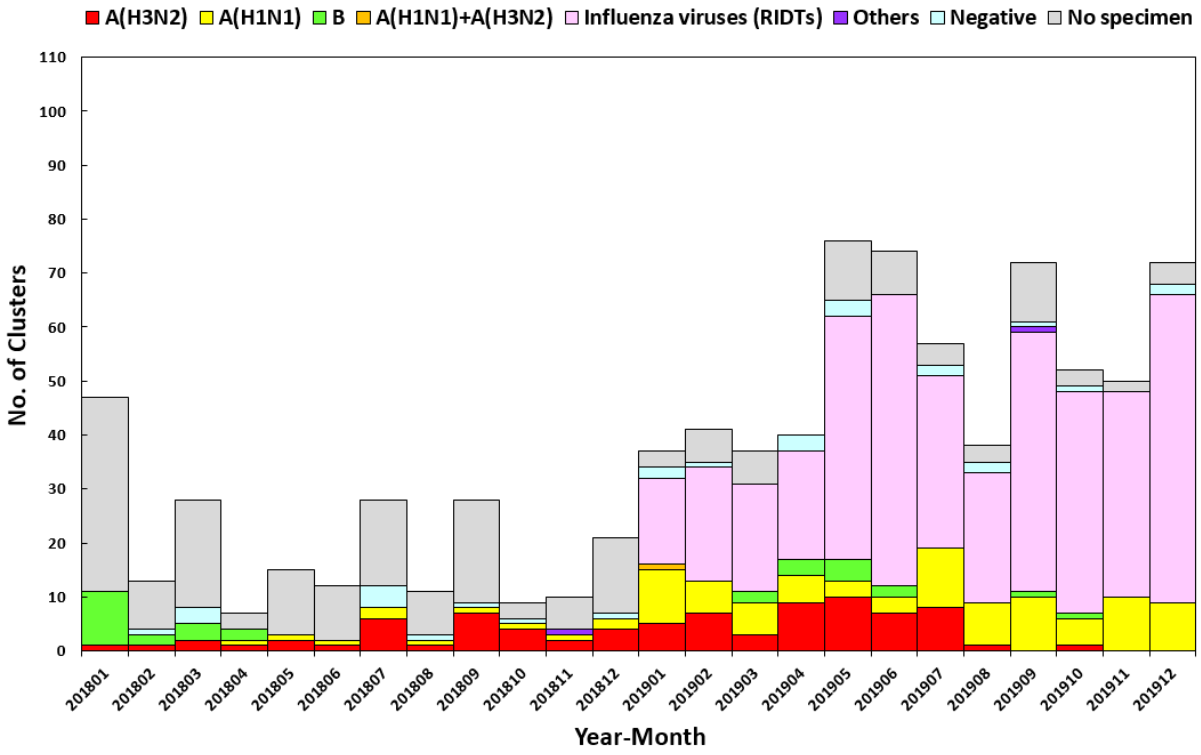


Figure 17 Evolutional trends of influenza-like illness clustering incidents in 2018-2019

Table 20 Distribution of clusters of influenza-like illness cases (by location) in 2019

Institution categories	No. of Clusters
schools	347
populous institutions	162
hospitals	119
others	10
military camps	7
hospitality industry	1
Total	646

■ Diarrhea clustering

1. Case definition : Excluding patients with diarrhea associated with notifiable diseases; including patients with intestinal symptoms and criteria for person, time and place that are suspected as cluster infection with the concern of spreading.

※ Intestinal symptoms: Diarrhea three times or more a day, and accompanied by vomiting or fever, or mucus or blood-tinged in stools, or watery diarrhea

※ Patients of suspected food poisoning events that report to product management distribution system (PMDS) and obtained the event ID, are able to submit specimens through reporting to the Symptom Surveillance System.

※ Up to eight specimens collected from patients in the same event are accepted, unless it is an unusual event.

2. Epidemic analysis of diarrhea clusters: In 2019, a total of 586 diarrhea cluster events were reported. Clusters that were tested positive include 348 events of Norovirus infection, 1 event of Norovirus and Rotavirus co-infection, and 76 events of other pathogens infection (the major causes were *Staphylococcus aureus, Salmonella, Vibrio parahaemolyticus* and *Bacillus cereus*). The other events were negative or had no specimens taken. Schools had the highest number of diarrheal clusters, followed by hospitality industry, populous institutions, tour groups, others (including business places, family, camp and cram school), hospitals, and military bases.

Table 21 Test results for diarrhea clustering incidents in 2019

No. of Clusters	Test results				
	Norovirus	Norovirus and Rotavirus	Others*	Negative	No specimen
586	348	1	76	160	1

Note: *Include 26 events of Staphylococcus aureus infection, 21 events of Salmonella infection, 9 events of Vibrio parahaemolyticus and Staphylococcus aureus co-infection, 8 events of Vibrio parahaemolyticus infection, 8 events of Bacillus cereus, 2 events of Staphylococcus aureus and Bacillus cereus co-infection, 2 events of Vibrio parahaemolyticus and Salmonella co-infection.

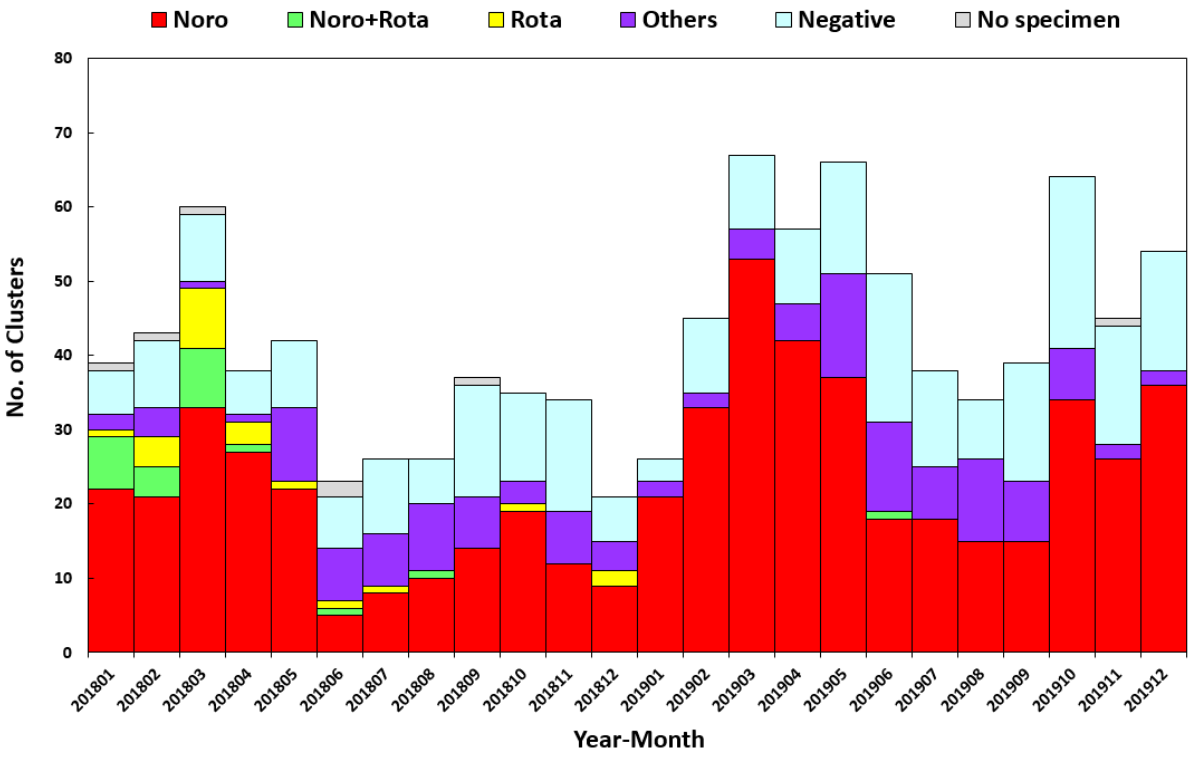


Figure 18 Evolutional trends of diarrhea clustering incidents in 2018-2019

Table 22 Distribution of clusters of diarrhea cases (by location) in 2019

Institution categories	No. of Clusters
schools	283
hospitality industry	158
populous institutions	46
tour groups	41
others	33
hospitals	19
military camps	6
Total	586

■ Upper respiratory tract infection (URI) clustering

1. Case definition : Patients with symptoms of upper respiratory tract infection and includes criteria for person, time and place that are suspected as cluster infection with the concern of spreading.

2. Epidemic analysis of URI clusters: In 2019, a total of 487 URI cluster events were reported. Clusters that were tested positive include 75 events of A (H1N1) infection, 58 events of A (H3N2) infection, 72 events of influenza B infection, 1 event of A (H1N1) and A (H3N2) co-infection, 1 event of A (H3N2) and influenza B co-infection, 163 events of influenza viruses (RIDTs) infection, and 15 events of other pathogens infection (the major causes were adenovirus infection and RSV). The other events were negative or had no specimens taken. Schools had the highest number of URI clusters, followed by populous institutions, hospitals, others (including cram school and business places) and military camps.

Table 23 Test results for upper respiratory tract infection clustering incidents in 2019

No. of Clusters	Test results								
	Influenza A (H1N1) viruses	Influenza A (H3N2) viruses	Influenza B viruses	Influenza A (H1N1) + A (H3N2) viruses	Influenza A (H3N2) + B viruses	Influenza viruses (RIDTs*)	Others**	Negative	No specimen
487	75	58	72	1	1	163	15	65	37

Note:* Rapid influenza diagnostic tests, include 107 events of influenza A (RIDTs), 45 events of influenza B (RIDTs), 11 events of influenza A and influenza B co-infection.

**Include 8 events of RSV infection, 6 events of adenovirus infection, 1 event of enterovirus infection.

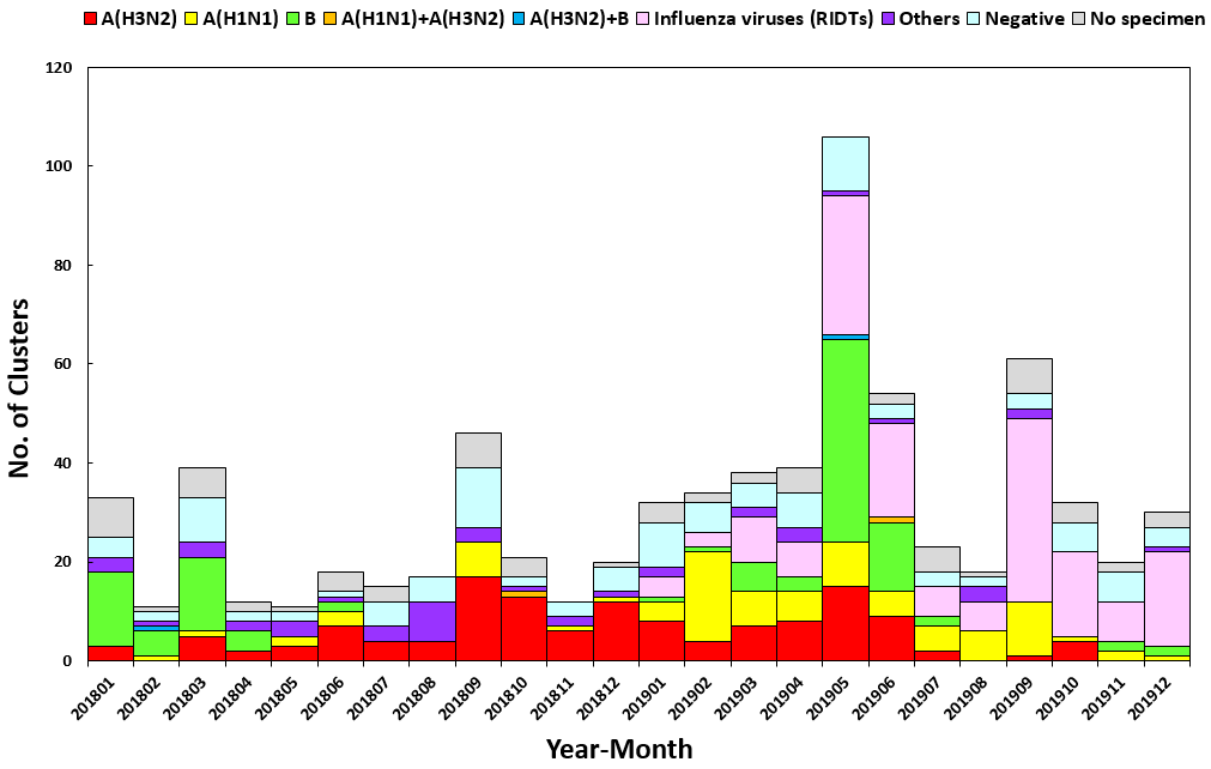


Figure 19 Evolutional trends of upper respiratory tract infection clustering incidents in 2018-2019

Table 24 Distribution of clusters of upper respiratory tract infection cases (by location) in 2019

Institution categories	No. of Clusters
schools	339
populous institutions	91
hospitals	44
others	9
military camps	4
Total	487

■ Fever of unknown origin (FUO) clustering

1. Case definition: Patients with fever of unknown cause and includes criteria for person, time and place that are suspected as cluster infection with the concern of spreading.
2. Epidemic analysis of FUO clusters: In 2019, a total of 25 events of fever of unknown origin cluster were reported. Clusters that were tested positive include 4 events of influenza A (H3N2) infection, 1 event of influenza B, 4 events of influenza A (RIDTs) infection, 1 event of influenza B (RIDTs) infection, 4 events of influenza A (swH1) infection, 1 event of Coxsackie A2 infection. The other events were negative or had no specimens taken. Populous institutions had the highest number of FUO clusters, followed by schools and hospitals.

■ Clustering of patients with coughing lasting more than three weeks

1. Case definition: Patients with coughing lasting more than three weeks and includes criteria for person, time and place that are suspected as cluster infection with the concern of spreading.
2. Epidemic analysis of clusters of patients with coughing lasting more than three weeks: There was no cluster of patients with coughing lasting more than three weeks reported in 2019.

■ Enterovirus clustering

1. Case definition: Patients and their contacts who are among high risk groups for enterovirus infection with severe complications, involved in a suspected cluster of enterovirus infection in places such as nurseries and neonatal wards in hospitals, baby care centers and homes of puerperal care, excepting schools. Officers at local Department of Health and Regional Center of CDC are responsible for collecting specimens from selected patients and submit to Research and Diagnostic Center, CDC.
2. Epidemic analysis of enterovirus clusters: In 2019, a total of 48 events of enterovirus clusters were reported. Cluster that was tested positive include 16 events of Coxsackie A6 infection, 4 events of Coxsackie A4 infection, 4 events of Coxsackie A10 infection, 4 events of Coxsackie A2 infection, 2 events of Enterovirus 71 infection, 1 event of ADENO and Coxsackie A6 co-infection, 1 event of Coxsackie A6 and Enterovirus 71 co-infection, 1 event of Coxsackie A5 infection, 1 event of Coxsackie A2 and Coxsackie A6

co-infection. The other events were negative or had no specimens taken. Populous institutions had the highest number of Enterovirus clusters.

■ Varicella clustering

1. Case definition: A suspected varicella cluster of patients developing acute exacerbation of papules and blisters symptoms that occurs in populous institutions such as ships, aircraft, preschools, schools, barracks, prisons, etc. and includes criteria for person, time and place that with the concern of spreading.
2. Epidemic analysis of varicella clusters: In 2019, a total of 146 events of varicella cluster were reported. Schools had the highest number of varicella clusters, followed by others (including tutoring center and business places), populous institutions, hospitals, and military camps.

Table 25 Distribution of clusters of varicella cases (by location) in 2019

Institution categories	No. of Clusters
schools	131
others	8
populous institutions	3
hospitals	2
military camps	2
Total	146

Real-time Outbreak and Disease Surveillance System

I. Purpose of surveillance

Through the “Real-time Outbreak and Disease Surveillance (RODS)” system, 181 responsibility hospitals nationwide automatically transfer ICD-10-CM (International Classification of Diseases, Clinical Modification, Tenth Revision) coded diagnostic information of patients seen on an emergency basis to Taiwan CDC to help early and rapid analysis of irregularities in the prevalence of diseases or syndromes.

The RODS system aims to detect early possible outbreak of communicable diseases in the communities, and track the trends and predict the prevalence of diseases. The reportable diseases under RODS included influenza-like illness, enterovirus infection and acute diarrhea in 2007. The reportable diseases in 2008 through 2019 include routine surveillance of acute hemorrhagic conjunctivitis in addition to the reportable items in 2007.

II. Data analysis methods

The 181 responsibility hospitals across the country provide daily real-time information of emergency patients via the Internet directly. The format of the report contains the fields of patient’s basic data, ID of reporting hospital, time of admission, chief complaint, ICD-9-CM and ICD-10-CM medical diagnosis code. Taiwan CDC compiles and analyzes RODS data weekly, determines the trends in the prevalence of diseases, produces statistical charts and posts them on the website.

III. Findings

■ Enterovirus

Epidemic analysis:

In 2019, Taiwan saw a spike in enterovirus infection prevalence. Based on the 2019 emergency enterovirus infection surveillance data, the permillage of enterovirus visits throughout the year ranged from 1.00 ‰ to 12.48 ‰. The overall trend of prevalence in 2019 is slightly higher compared with 2018 (0.52 ‰ to 6.67 ‰). The epidemic condition picking up starting in early May and reaching its peak of prevalence on the end of September. The high spike in enterovirus infection prevalence is lower than last year, the trend of epidemic declined down from October until December.【Note: permillage of enterovirus visits= (person-time of emergency room enterovirus cases / total person-time of emergency room cases)

*1000‰】

■ **Influenza-like illness**

Epidemic analysis:

In 2019, the percentage of influenza-like illness visits reported by emergence rooms ranged from 8.79 % to 21.75%. the trend of epidemic prevalence was similar to 2018 (from 7.45 % to 23.61%). The epidemic condition picking up starting in early January to early February, and peaking around the Chinese New Year holiday of 2019, which hospitals and clinics were closed. That was probably why percentage of influenza-like illness visits displayed an apparent peak. Afterwards, the epidemic slowed down from early February, and slowly grown on December. 【Note: percentage of influenza-like illness = (person-time of emergency room influenza-like illness cases / total person-time of emergency room cases) *100%】

■ **Acute diarrhea**

Epidemic analysis:

In 2019, the percentage of acute diarrhea visits reported by emergence rooms ranged from 2.88 % to 9.04 %. The peak in 2019 was lower in comparison with the surveillance figures in 2018 (2.94% to 9.28%). Diarrhea epidemic typically reaches the peak of prevalence in the Chinese New Year. Based on the 7-day moving average of percentage of diarrhea visits, the surveillance trend rose gradually starting on January and high peaked at the end of February. Afterwards, the epidemic slowed down in late April. There was another small peak on September, and revealed the descending trend.【Note: percentage of acute diarrhea visits= (person-time of emergency room acute diarrhea cases / total person-time of emergency room cases) *100%】

■ **Acute Hemorrhagic Conjunctivitis**

Epidemic analysis:

In 2019, the permillage of acute hemorrhagic conjunctivitis visits reported by emergence rooms ranged from 0.63‰ to 7.47‰. The overall trend is higher compared with 2018 (permillage of visits ranged from 0.56‰ to 6.83‰). Based on the 7-day moving average of percentage of acute hemorrhagic conjunctivitis, the surveillance trend typically reaches the peak of prevalence in the Chinese New Year, and the peak close to last year. After Chinese New Year, the overall epidemic condition obviously declined and similar to 2018.【Note: permillage of acute hemorrhagic conjunctivitis visits = (person-time of emergency room acute hemorrhagic conjunctivitis cases / total person-time of emergency room cases)

*1000‰】

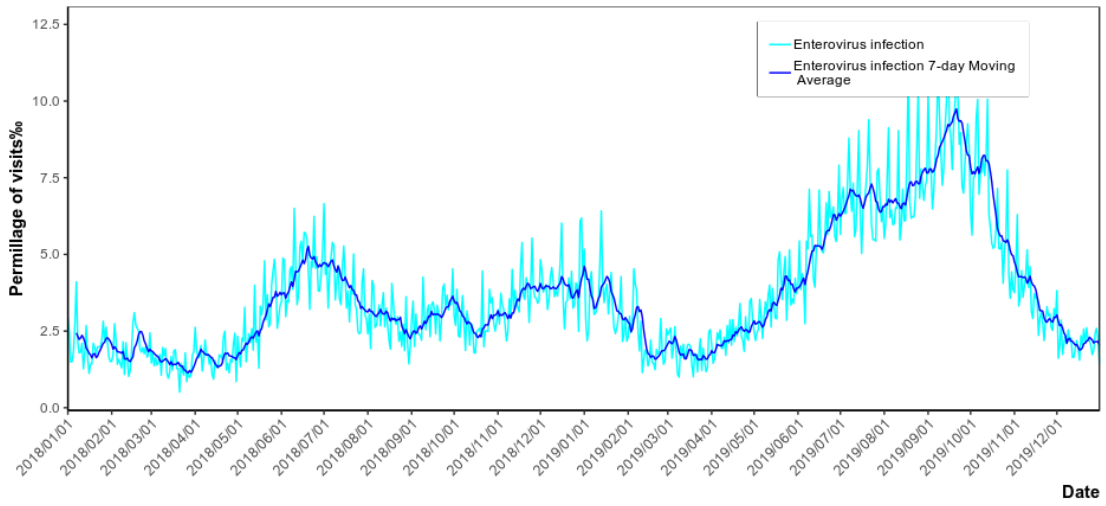


Figure 20 Daily Permillage of Emergency Department of Enterovirus Visits & 7-day Moving Average

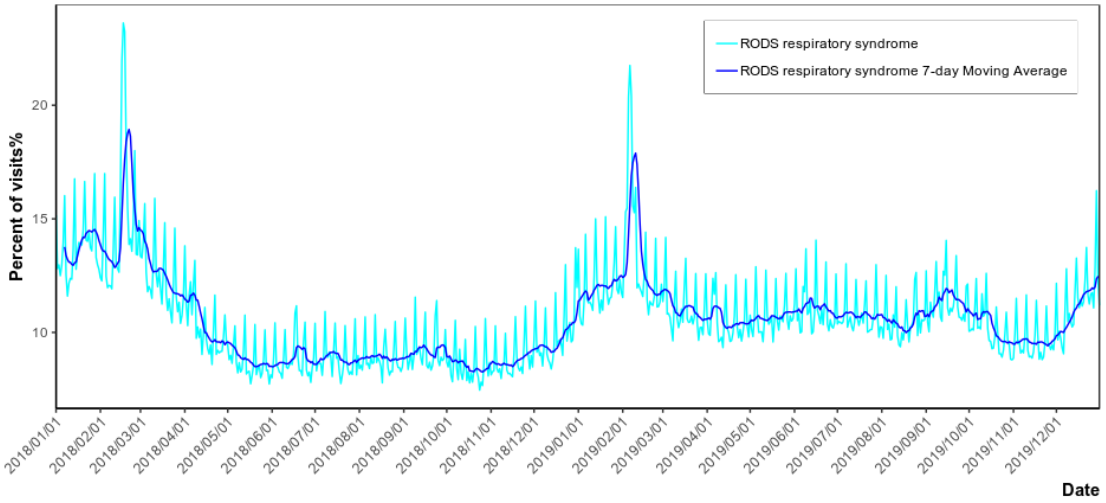


Figure 21 Daily Percentage of Emergency Department of Respiratory Visits & 7-day Moving Average

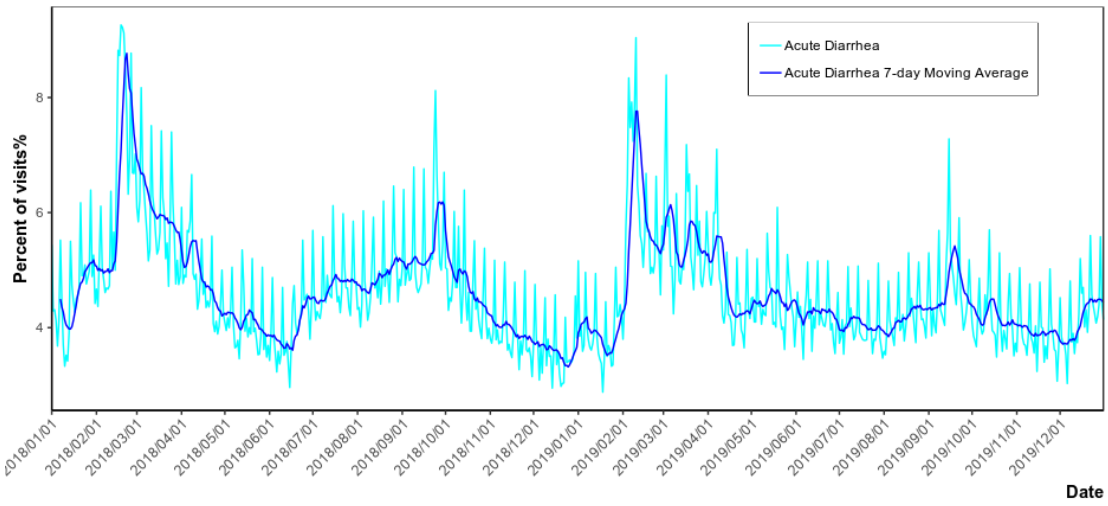


Fig 22 Daily Percentage of Emergency Department of Acute Diarrhea Visits & 7-day Moving Average

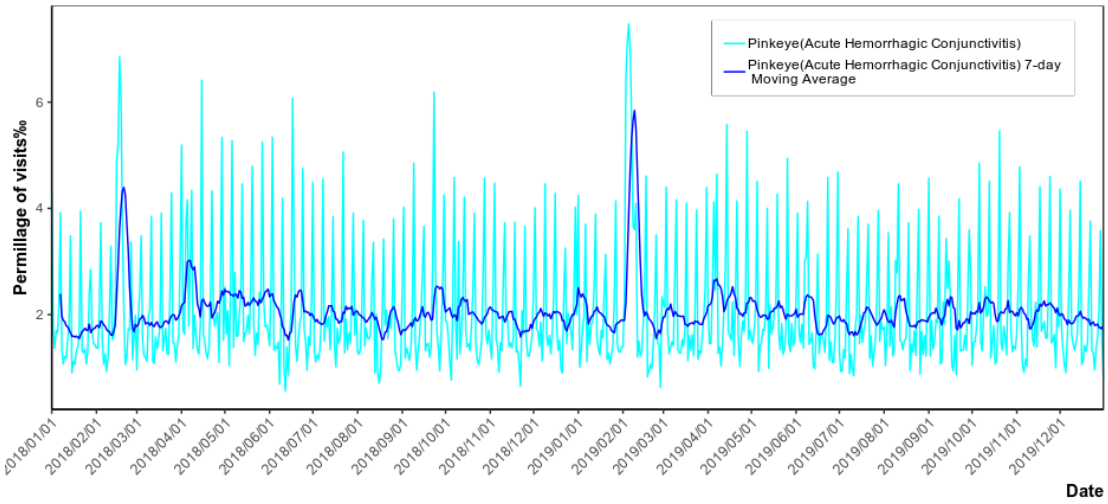


Fig 23 Daily Permillage of Emergency Department of Acute Hemorrhagic Conjunctivitis Visits & 7-day Moving Average

Disease Surveillance using National Health Insurance Data

I. Introduction

To strength Taiwan’s surveillance capacity for specific diseases, Taiwan CDC and the Bureau of National Health Insurance (BNHI) embark on horizontal cooperation, under which, the BNHI compiles the outpatient, inpatient and emergency room data uploaded by hospitals and clinics through the National Health Insurance (NHI) IC cards. Taiwan CDC conducts daily, routine surveillance of specific diseases based on the comprehensive and highly representative secondary statistical data compiled by BNHI to assess the magnitude of an epidemic condition.

II. Purpose of surveillance

The NHI data routine surveillance monitors diseases that are commonly seen in Taiwan every year, including influenza and enterovirus infection. Surveillance and analysis of NHI outpatient information helps grasp readily the state of an epidemic. This routine surveillance, together with the "Real-time Outbreak and Disease Surveillance (RODS)" system, construct and play the role of “mild symptoms surveillance” of influenza-like illness and enterovirus infection to facilitate full assessment of epidemics and grasp the trends of prevalence.

III. Data analysis method

From the surveillance data received daily, Taiwan CDC extracts representative ICD-10-CM (International Classification of Diseases, Clinical Modification, Tenth Revision) coded diagnostic data, including secondary data on admission date, hospital districts, age groups, and codes of outpatient/inpatient/emergency department. Due to the bigger fluctuation seen in daily inpatient/outpatient visit data following analysis, the routine disease surveillance is carried out by calculating the 7-day moving average to obtain a relatively gentle prevalence curve.

IV. Findings

1. Influenza-like illness (ILI)

In 2019, between 667 and 20,447 person-times visited the hospitals for influenza-like illness on an outpatient basis every day, which was lower than the number of outpatient visits (ranging between 809 and 24,719 person-times a day) in 2018. Observing the trends in epidemic prevalence based on the 7-day moving average curve of outpatient visits due to influenza-like illness, the overall epidemic condition of influenza-like illness had a peak in early January. Afterwards, the epidemic slowed down from end-February, and slowly grown on December. The epidemic prevalence of 2019 occurred later than 2018, mainly in February, and there was non-significant epidemic in June and July in 2019.

2. Enterovirus infections

In 2019, between 60 and 4,783 person-times visited the hospitals for enterovirus infection on an outpatient basis every day, which was higher in comparison with the number of outpatient visits in 2018(ranging between 30 and 2,670 person-times a day). Observing the trends in epidemic prevalence based on the 7-day moving average curve of outpatient visits due to enterovirus infection, it is found the epidemic condition picked up quickly in May, reach a spike during early July, and then dropped off suddenly in middle-July. After that, gradually grown in August, and had another peak at end-September.

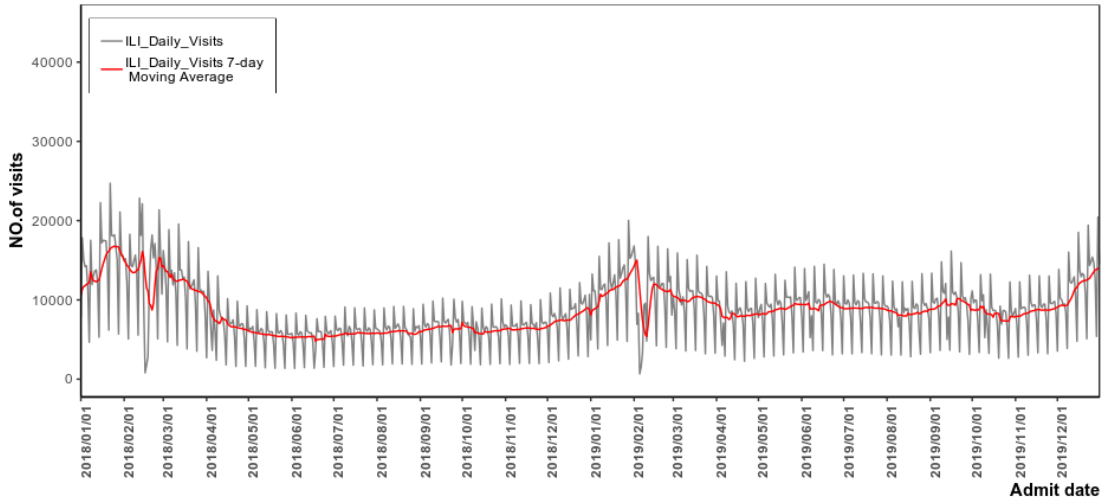


Figure 24 Daily influenza-like illness visits and the 7-day moving average trend, 2018-2019

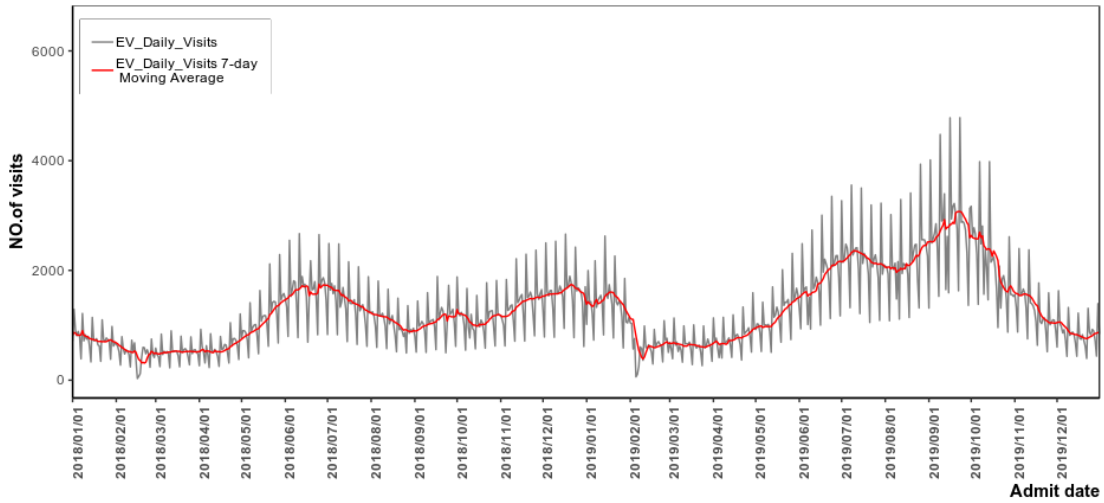


Figure 25 Daily enterovirus visits and the 7-day moving average trend, 2018-2019

Pneumonia and Influenza Mortality Surveillance

I. Introduction

Many parts of the world reported outbreaks of pandemic influenza A (H1N1) starting from April 2009. Based on the purpose of real-time surveillance and early warning for communicable diseases, Taiwan CDC embarks on inter-agency collaboration with the Department of Statistics, Ministry of Health and Welfare (MOHW). Taiwan CDC receives daily mortality data electronically from the Department of Statistics to analyze the number of deaths with underlying cause listed as pneumonia or influenza (P&I).

II. Purpose of surveillance

Pneumonia is a common complication of influenza infection. The great majority of influenza mortality is caused by secondary bacterial pneumonia or viral pneumonia. Thus, pneumonia should be included in influenza related mortality surveillance for analysis. The P&I mortality surveillance system was established in response to the H1N1 epidemic in 2009. In addition to the P&I mortality surveillance system, there are other systems including "Real-Time Outbreak and Disease Surveillance System (RODS)", "Disease surveillance using National Health Insurance data", "Contracted Laboratory Surveillance System", and "Notifiable Disease Surveillance System" in Taiwan CDC. These surveillance data all together provide information on influenza surveillance. It is expected that with routine operations, Taiwan CDC collects, compiles, and analyzes information on influenza epidemic to achieve the objectives and effects of real-time control and early warning.

III. Data analysis methods

Taiwan CDC conducts weekly surveillance of the trends in P&I mortality by searching cause of death with keywords "pneumonia, common cold or flu" in combination with cause of death determination rules. Due to the bigger fluctuation seen in weekly P&I mortality data, routine surveillance is carried out by using 4-week moving average values that include the current week and the preceding three weeks to obtain better data stability and remove wide fluctuation.

IV. Findings

Based on the P&I mortality surveillance data of Taiwan CDC, the weekly deaths in 2019 and 2018 attributed to P&I ranged from 380 to 530 and from 330 to 600, respectively. The majority of P&I deaths occurred in 65 years old and above, accounting for 89.3% and 89.2% of P&I deaths in 2019 and 2018, respectively. According to the 4-week moving average curve of P&I deaths, the P&I death trend has increased since the beginning of 2019, and peaked during weeks 1-18, and then remained roughly flat. In 2018, there was a sharper peak during weeks 1-19.

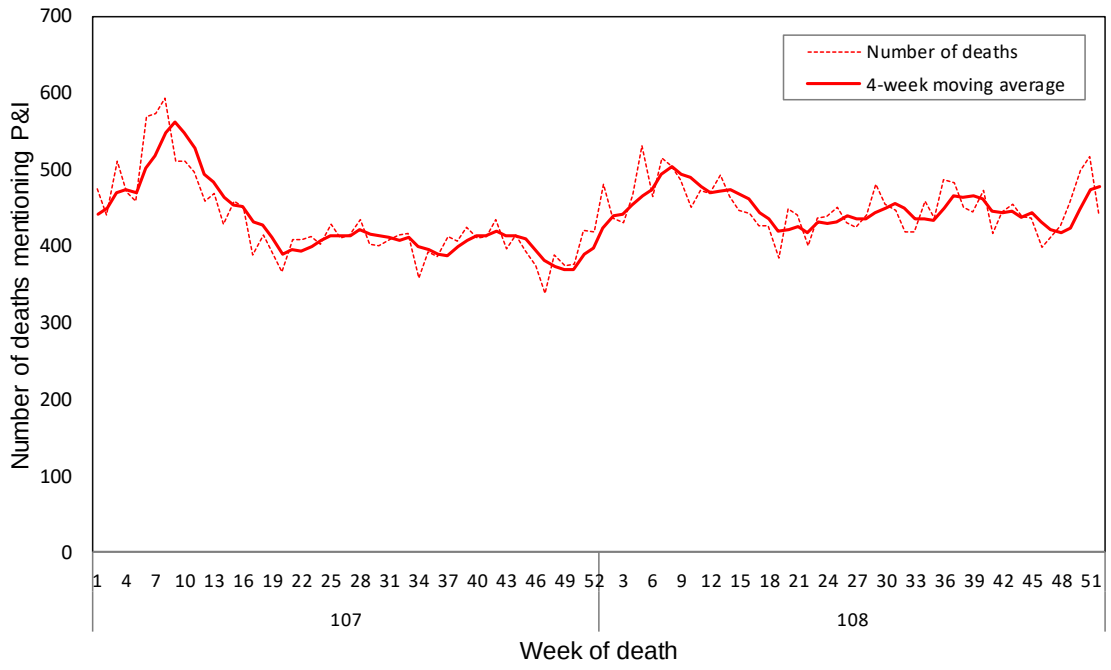


Figure 26 The surveillance trend of pneumonia and influenza mortality, 2018-2019

PART III

Surveillance Reports of Selected Diseases

◎ **Abbreviations and Symbols Used in Table**

– No reported cases

… Not under surveillance

Measles

In 2019, 141 confirmed cases of measles (incidence rate: 0.60 per 100,000 population) were reported, which represented a decrease compared to 40 confirmed cases (incidence rate: 0.17 per 100,000 population) in 2018. The data of confirmed cases in 2019 are analyzed as follows:

(1) By gender

There were 81 male cases (57.4%) and 60 female cases (42.6%) with male to female ratio of 1.4:1.0.

(2) By age group

There were 89 cases in 25-39 years age group, 23 cases in 15-24 years age group, 10 cases in 40-64 years age group, 9 cases in 0-1 years age group, 6 cases in 1-6 years age group, and 4 cases in 5-14 years age group.

(3) By month

There were 43 cases in April, 19 cases in March, 17 cases in February, 13 cases in August, 10 cases each in January and May, 9 cases in July, 7 cases in December, 4 cases each in June, September and October, and 1 case in November.

(4) By residential region

New Taipei City had 43 cases reported, followed by Taipei City with 32 cases, Taoyuan City with 18 cases, Taichung City with 16 cases, Hsinchu City and Changhua County each with 6 cases, Kaohsiung City with 5 cases, Tainan City with 4 cases, Hsinchu County and Nantou County each with 3 cases, Keelung City with 2 cases, and Yunlin County, Pingtung County and Taitung County each with 1 case, while the other cities and counties had no confirmed cases.

The incidence rate of confirmed cases per 100,000 population was the highest in Hsinchu City (1.34), followed by Taipei City (1.20) and New Taipei City (1.07).

(5) Imported cases and countries of infection

There were 59 imported cases of measles in 2019, including 19 cases from Vietnam, 16 cases from Thailand, 8 cases from Philippines, 4 cases from China, 3 cases from Cambodia, 2 cases each from Indonesia and Korea, and 1 case each from Japan, Hong Kong, Myanmar, New Zealand and Italy.

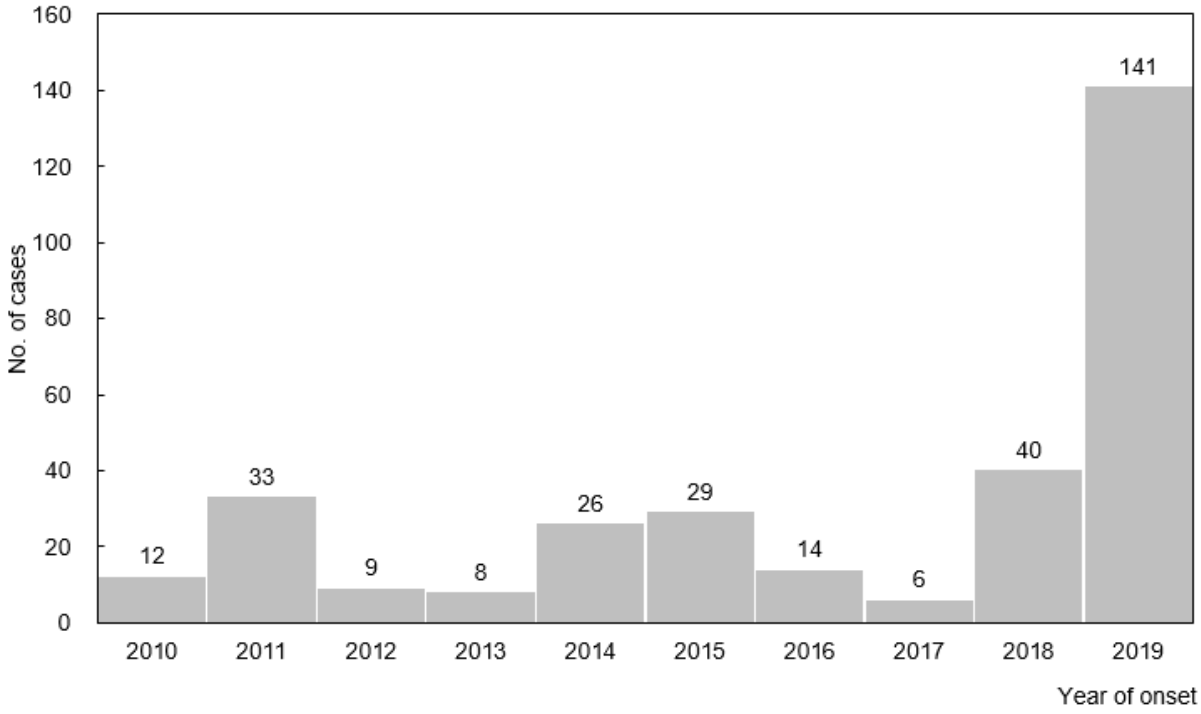


Figure 27 Number of confirmed measles cases, 2010-2019

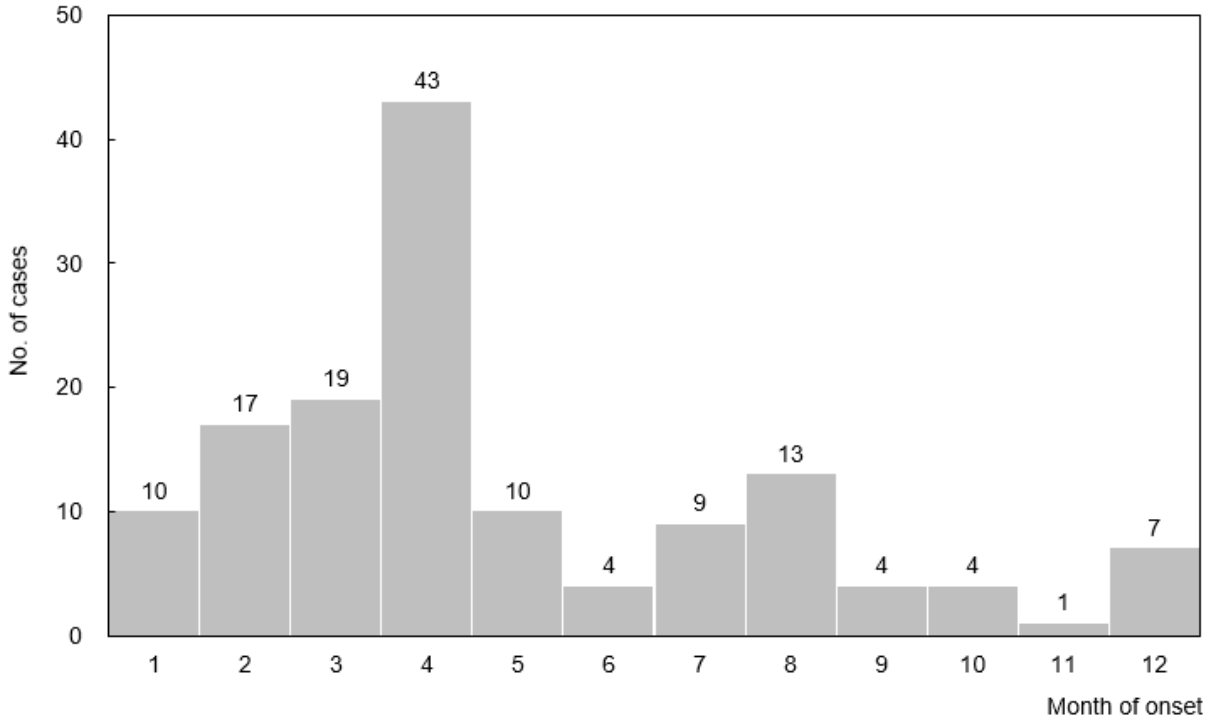


Figure 28 Number of confirmed measles cases, 2019

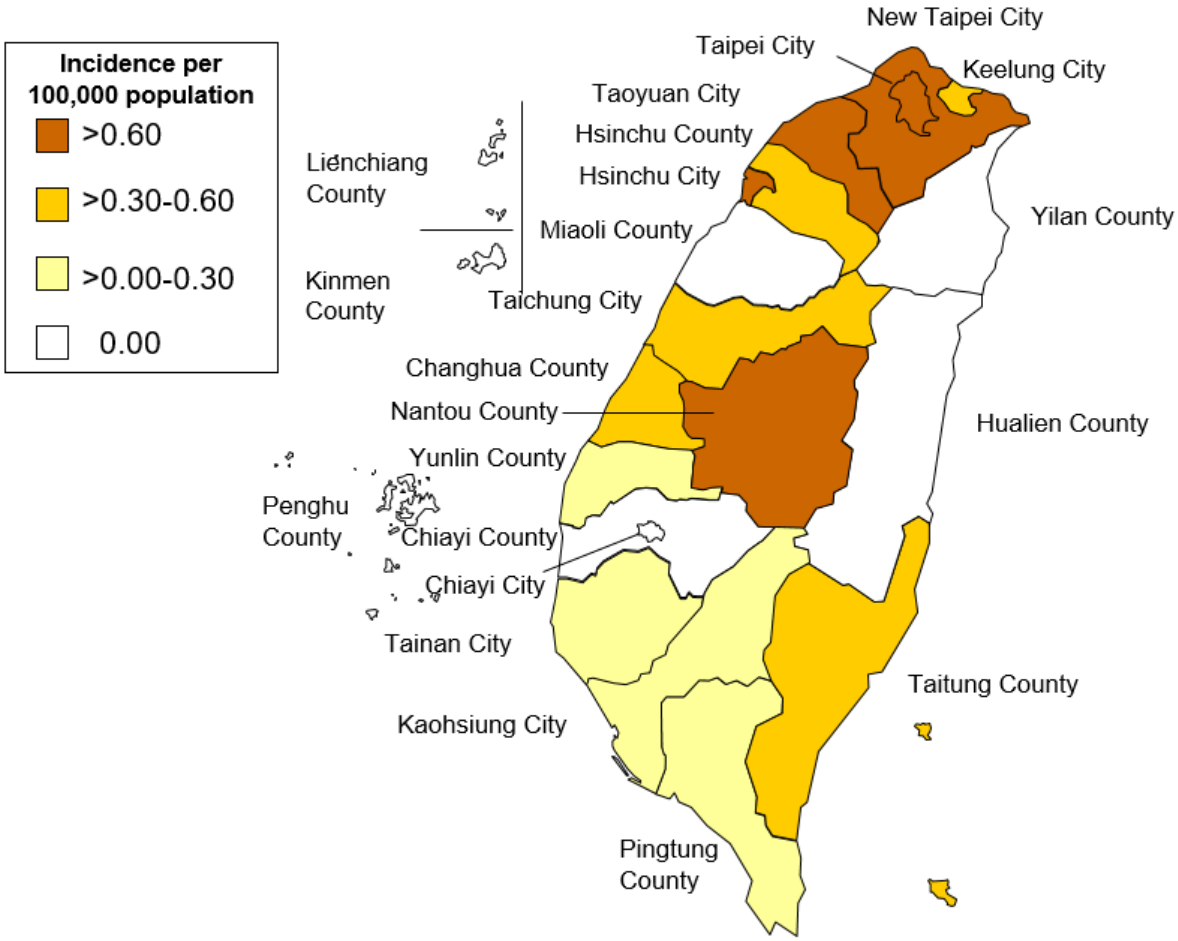


Figure 29 Geographical distribution by incidence of confirmed measles cases, 2019

Pertussis

In 2019, 32 confirmed cases of pertussis (incidence rate: 0.14 per 100,000 population) were reported, which represented an increase compared to 30 confirmed cases (incidence rate: 0.13 per 100,000 population) in 2018. The data of confirmed cases in 2019 are analyzed as follows:

(1) By gender

There were 14 male cases (43.8%) and 18 female cases (56.3%) with male to female ratio of 0.8:1.0.

(2) By age group

There were 18 cases in 0-1 years age group, 6 cases in 25-39 years age group, 3 cases in 15-24 years age group, 2 cases each in 1-4 and 40-64 years age group, and 1 case in 65 years and over age groups.

Of the 18 cases in 0-1 years age group, 7 cases were 1 month old, 6 cases were 2 months old, 3 cases were 3 months, and 2 cases were 4 months old.

(3) By month

There were 10 cases in March, 6 cases in February, 4 cases in December, 3 cases each in January and November, 2 cases in June, and 1 case each in May, July, September and October. There were no confirmed cases in the other months.

(4) By residential region

Hsinchu County and Chiayi County had the highest number of incidents with 6 cases reported, followed by Taoyuan City and New Taipei City each with 5 cases, Taichung City with 4 cases, Taitung County with 3 cases, Chiayi City with 2 cases, and Yilan County with 1 case. The other cities and counties had no confirmed cases.

The incidence rate of confirmed cases per 100,000 population was the highest in Taitung County (1.38), followed by Chiayi County (1.19) and Hsinchu County (1.07).

(5) Imported cases and countries of infection

There were no imported cases of Pertussis in 2019.

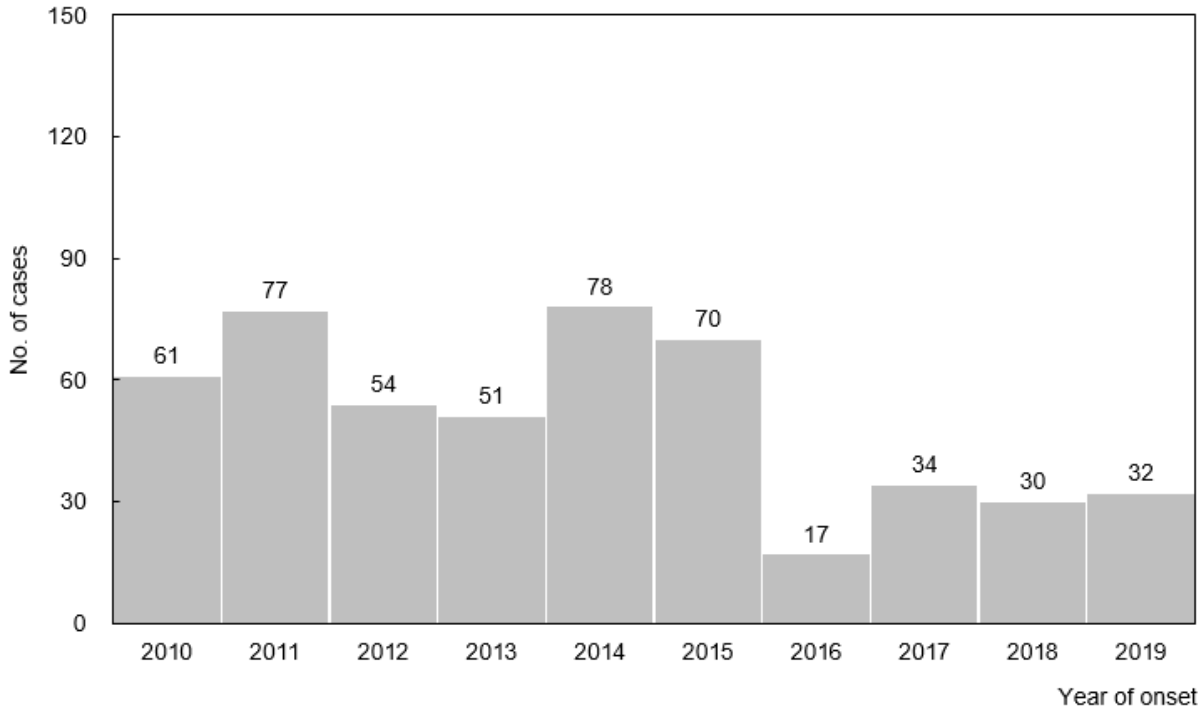


Figure 30 Number of confirmed pertussis cases, 2010-2019

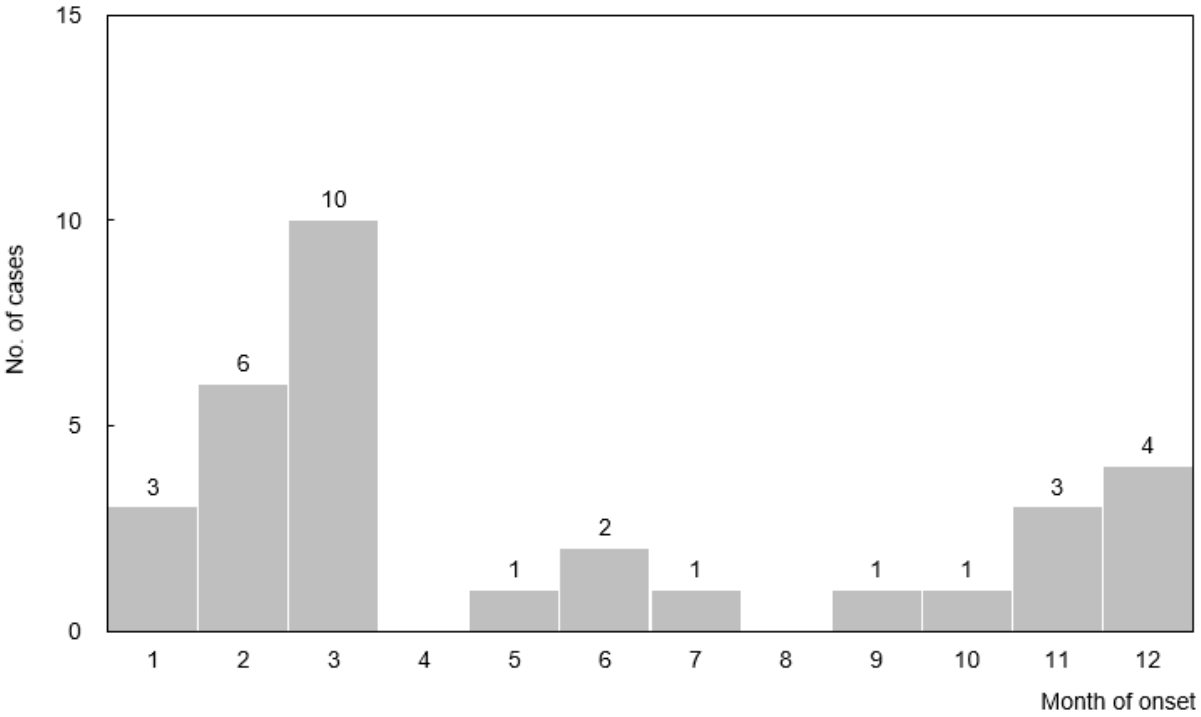


Figure 31 Number of confirmed pertussis cases, 2019

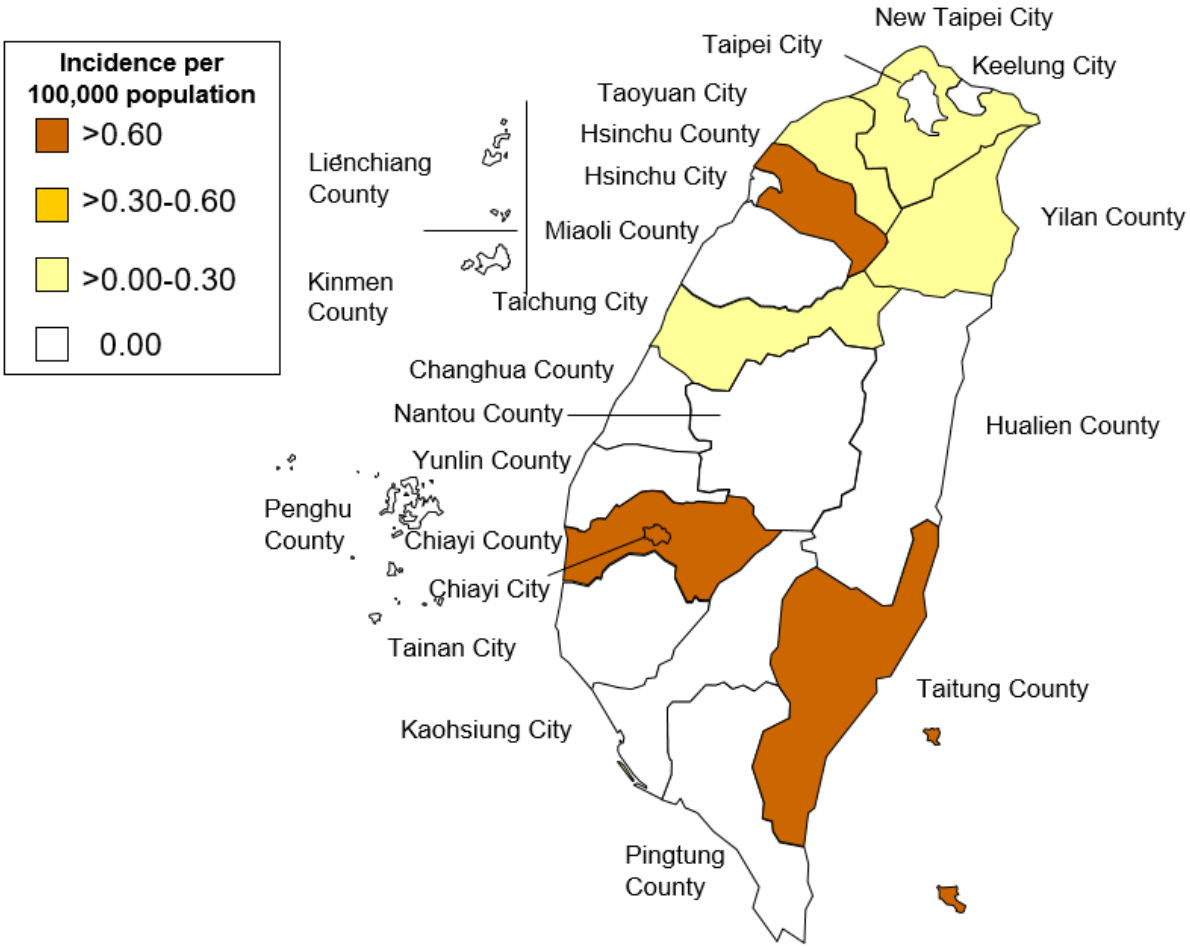


Figure 32 Geographical distribution by incidence of confirmed pertussis cases, 2019

Meningococcal Meningitis

In 2019, 8 confirmed cases of meningococcal meningitis (incidence rate: 0.03 per 100,000 population) were reported, which represented an increase compared to 6 confirmed cases (incidence rate: 0.03 per 100,000 population) in 2018. The data of confirmed cases in 2019 are analyzed as follows:

(1) By gender

There were 4 male cases (50.0%) and 4 female cases (50.0%) with male to female ratio of 1.0:1.0.

(2) By age group

There were 4 cases in 65 years and over age groups, 2 cases in 15-24 years age group, and 1 case each in 0-1 and 40-64 years age groups.

(3) By month

There were 2 cases each in January, August and October, and 1 case each in November and December.

(4) By residential region

Confirmed cases were reported in 4 cities and counties, including Taipei City with 3 cases, Taichung City and Kaohsiung City each with 2 cases, and New Taipei City with 1 case. The other cities and counties had no confirmed cases.

The incidence rate of confirmed cases per 100,000 population was the highest in Taipei City (0.11), followed by Taichung City and Kaohsiung City (0.07 respectively).

(5) Imported cases and countries of infection

There were no imported cases of Meningococcal Meningitis in 2019.

(6) By serogroup

Following laboratory confirmation, 4 confirmed cases were caused by serogroup B meningococcal infection, 1 case by serogroup Y, and 1 case by serogroup W135. The other 2 cases were undetermined.

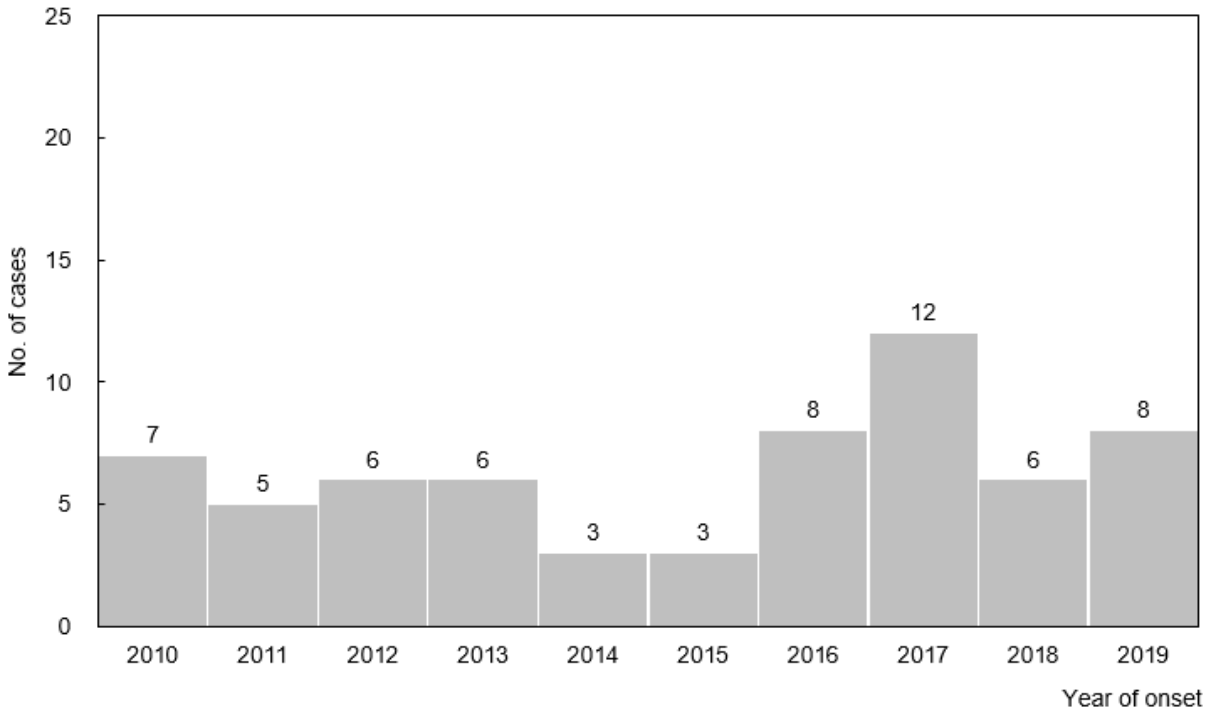


Figure 33 Number of confirmed meningococcal meningitis cases, 2010-2019

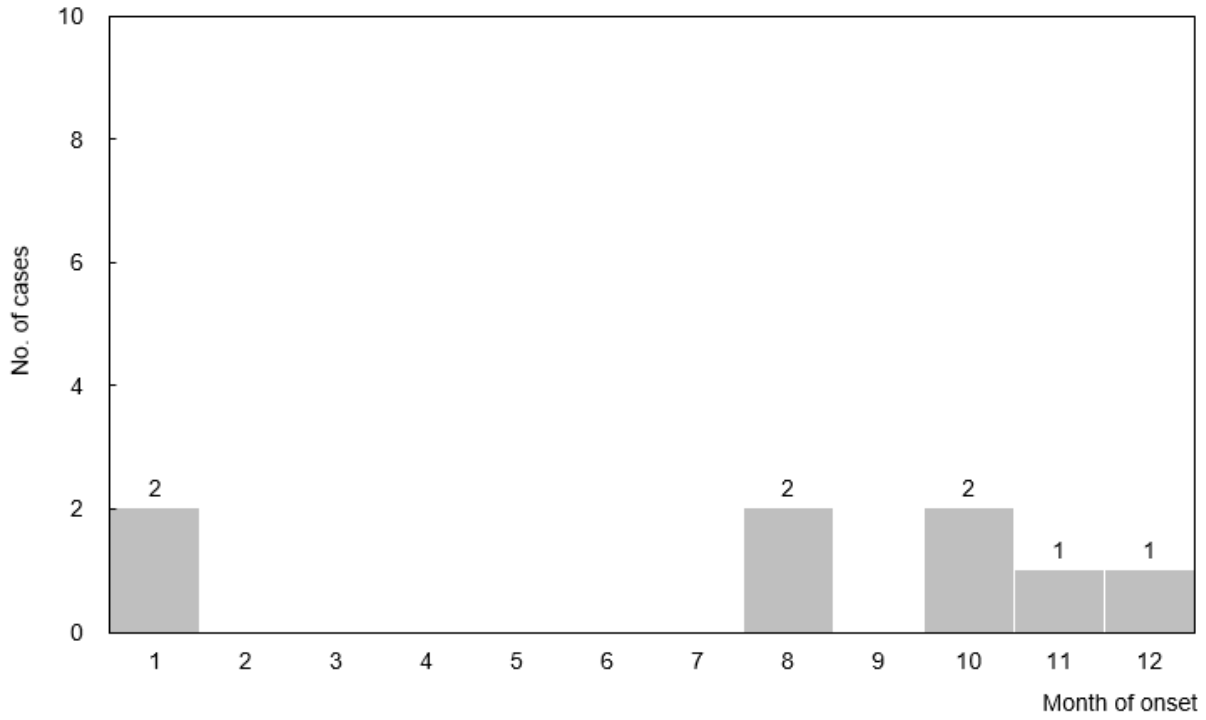


Figure 34 Number of confirmed meningococcal meningitis cases, 2019

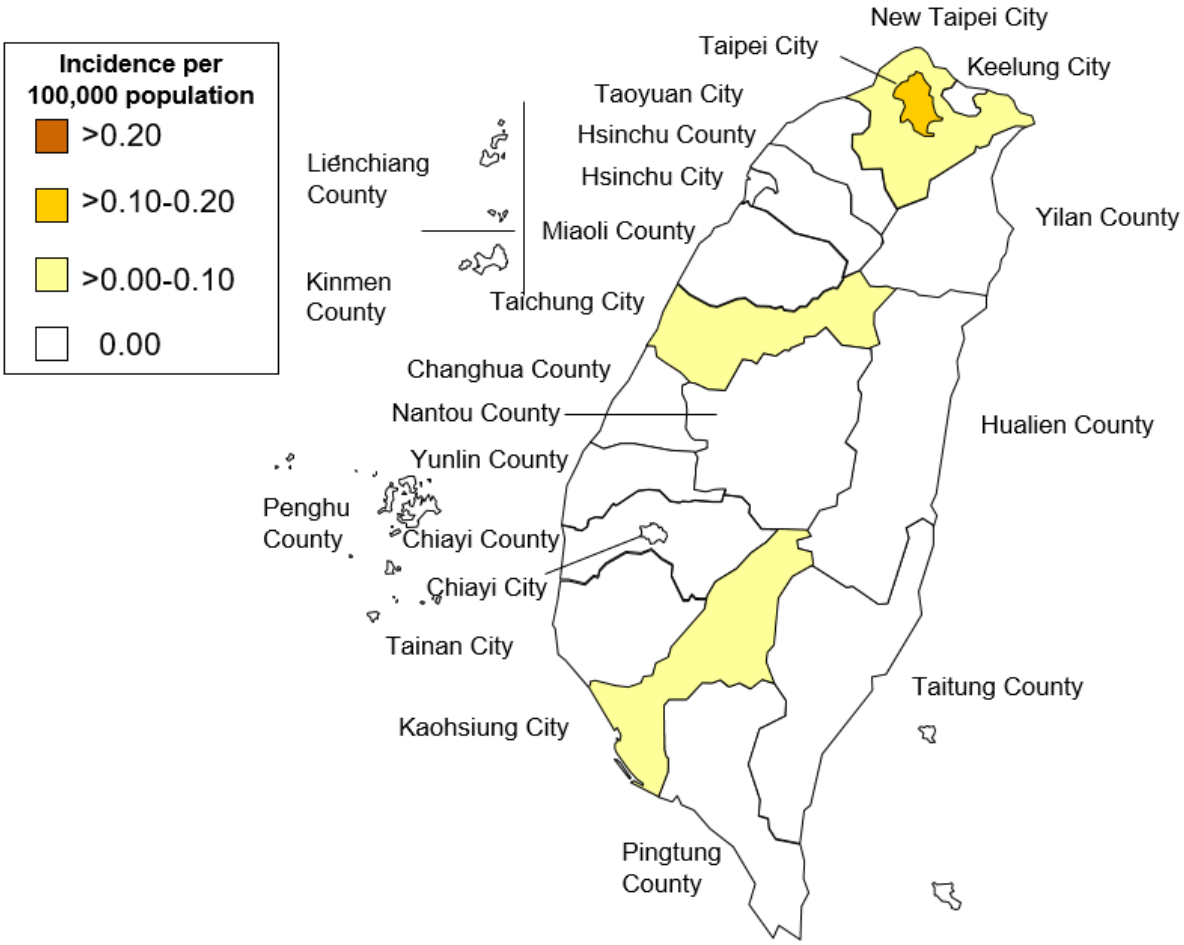


Figure 35 Geographical distribution by incidence of confirmed meningococcal meningitis cases, 2019

Japanese Encephalitis

In 2019, 21 confirmed cases of Japanese encephalitis (incidence rate: 0.09 per 100,000 population) were reported, which represented an decrease compared to 37 confirmed cases (incidence rate: 0.16 per 100,000 population) in 2018. The data of confirmed cases in 2019 are analyzed as follows:

(1) By gender

There were 13 male cases (61.9%) and 8 female cases (38.1%) with male to female ratio of 1.6:1.0.

(2) By age group

There were 16 cases in 40-64 years age group, 3 cases in 25-39 years age group, and 2 cases in 65 years and over age group.

(3) By month

The cases occurred mostly in warm seasons, with 7 cases each in May and July, 5 cases in June, and 1 case each in August and September.

(4) By residential region

Kaohsiung City had the highest number of incidents with 5 confirmed cases reported, followed by Taoyuan City with 4 cases, Taichung City with 3 cases, Pingtung County, Chiayi City and Changhua County each with 2 cases, and Yunlin County, Hsinchu County and Chiayi County each with 1 case, whereas the other cities and counties had no confirmed cases.

The incidence rate of confirmed cases per 100,000 population was the highest in Chiayi City (0.75), followed by Pingtung County (0.24) and Chiayi County (0.20).

(5) Imported cases and countries of infection

There were 2 imported cases of Japanese encephalitis in 2019, including 1 case each from China and Japan.

(6) By clinical symptoms

Among the confirmed cases, 20 cases had fever, 12 cases had disorder of consciousness, 6 cases each had psychological symptoms (delirium, unconsciousness, etc.) or headache, 4 cases had vomiting, 3 cases had stiff necks, 2 cases had dystonia.

(7) Residential condition or neighboring environment

Among the confirmed cases, 14 cases lived nearby paddy fields, 13 cases lived nearby pigpens, 8 cases lived nearby pigeonries, 4 cases lived nearby duck or chicken farms, and 1 case lived nearby the pond.

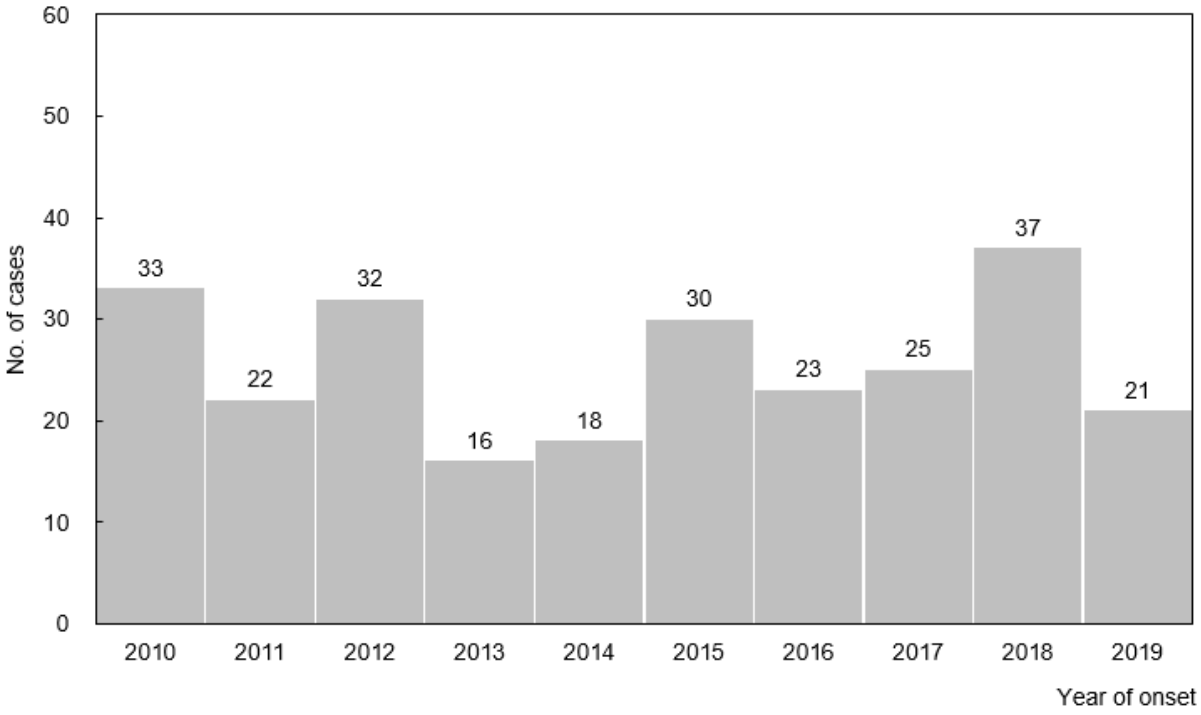


Figure 36 Number of confirmed Japanese encephalitis cases, 2010-2019

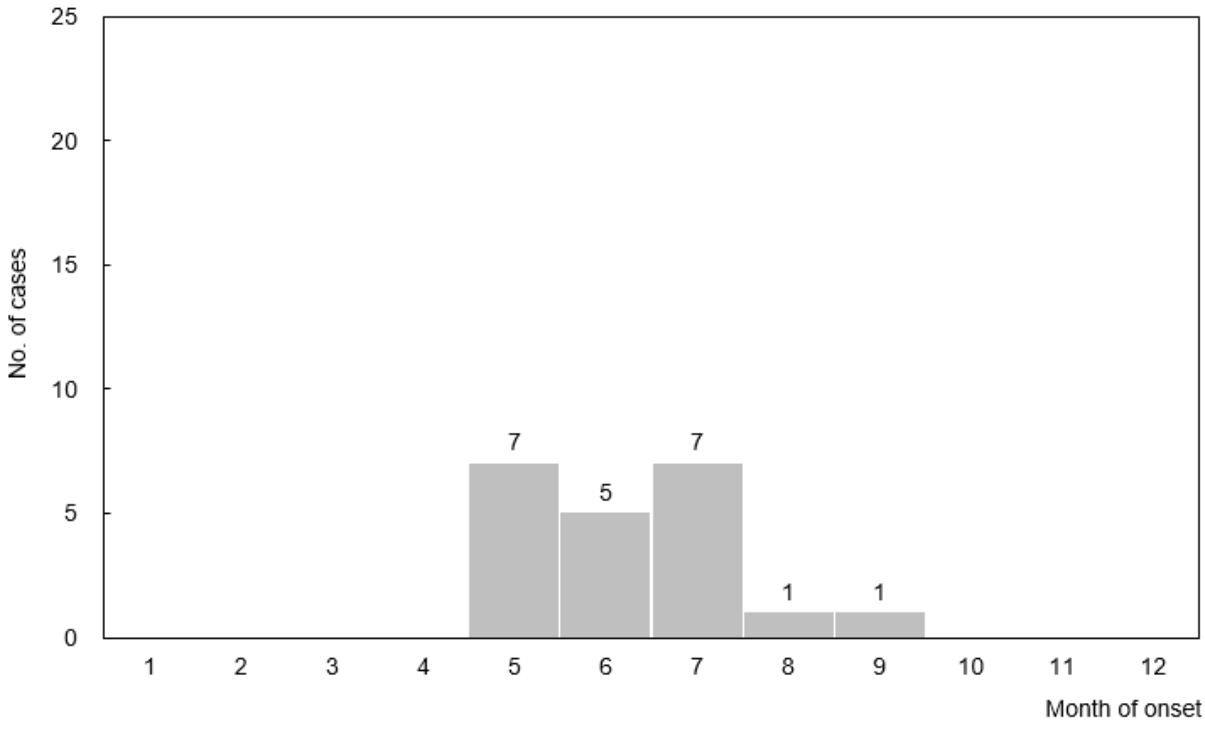


Figure 37 Number of confirmed Japanese encephalitis cases, 2019

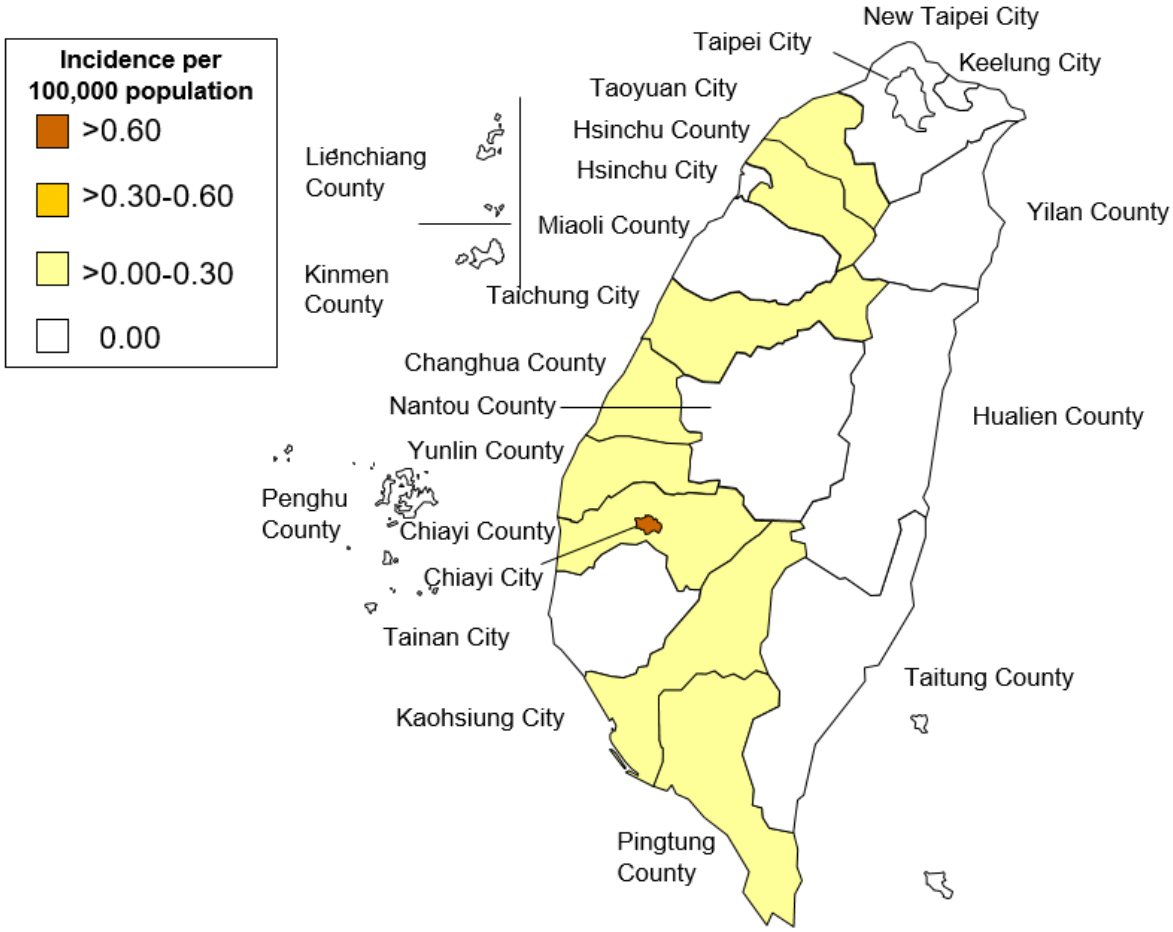


Figure 38 Geographical distribution by incidence of confirmed Japanese encephalitis cases, 2019

Acute Hepatitis A

In 2019, 107 confirmed cases of acute hepatitis A (incidence rate: 0.45 per 100,000 population) were reported, which represented a increase compared to 88 confirmed cases (incidence rate: 0.37 per 100,000 population) in 2018. The data of confirmed cases in 2019 are analyzed as follows:

(1) By gender

There were 43 male cases (40.2%) and 64 female cases (59.8%) with male to female ratio of 0.7:1.0.

(2) By age group

There were 49 cases in 60-64 years age group, 29 cases in 65 years and over age group, 19 cases in 25-39 years age group, 8 cases in 15-24 years age group, and 2 cases in 5-14 years age group.

(3) By month

Acute hepatitis A cases were reported in each month of the year. The highest number of cases (13) were reported in August and October, followed by 12 cases in March, 11 cases in December, 10 cases in November, 9 cases each in February and June, 8 cases in April, 6 cases each in January, May and July, and 4 cases in September.

(4) By residential region

Except Hualien County, Lienchiang County, Chiayi City and Penghu County, all cities and counties had confirmed cases in 2019. New Taipei City had the highest number of incidents with 24 cases reported, followed by Taichung City and Taipei City each with 15 cases, Kaohsiung City with 8 cases, and Taoyuan City with 6 cases. The other cities and counties all had less than 5 cases reported.

The incidence rate of confirmed cases per 100,000 population was the highest in Hsinchu City (1.12), followed by Yilan County (1.10) and Chiayi County (0.99).

(5) Imported cases and countries of infection

There were 26 imported cases of acute hepatitis A in 2019, including 5 cases from Korea, 4 cases from Japan, 3 cases each from Indonesia, Malaysia and Philippines, 2 cases from China, 1 case each from Canada, Cambodia, Sri Lanka, Morocco, Macao and France.

(6) By clinical symptoms

An epidemiological survey of 107 confirmed cases showed that in cases with symptoms (multiple answers are allowed) ,46.7% (50 cases) had

tiredness, 45.8%(49 cases) had jaundice, 43.9% (47 cases) had abdominal pain, 39.3% (42 cases) had poor appetite, 38.3% (41 cases) had fever, 30.8% (33 cases) had nausea, 24.3% (26 cases) had abdominal discomfort, 28.0% (30 cases) had tea-colored urine, and 34.3% (26 cases) had vomiting.

(7) Source of drinking water and dietary habits

The epidemiological investigation of 107 confirmed cases showed that the major sources of drinking water (multiple answers are allowed) were tap water in 57.0% of cases (61 person-times), filtered water in 35.5% of cases (38 person-times), packaged water in 16.8% of cases (18 person-times), and spring water or self-service water in 16.8% of cases (18 person-times). As for dietary habits (multiple answers allowed), eating in home were identified in the largest percentage of cases, accounting for 41.1% (44 person-times), followed by in restaurants in 25.2% of cases (27 person-times) and from street vendors in 19.6% of cases (21 person-times).

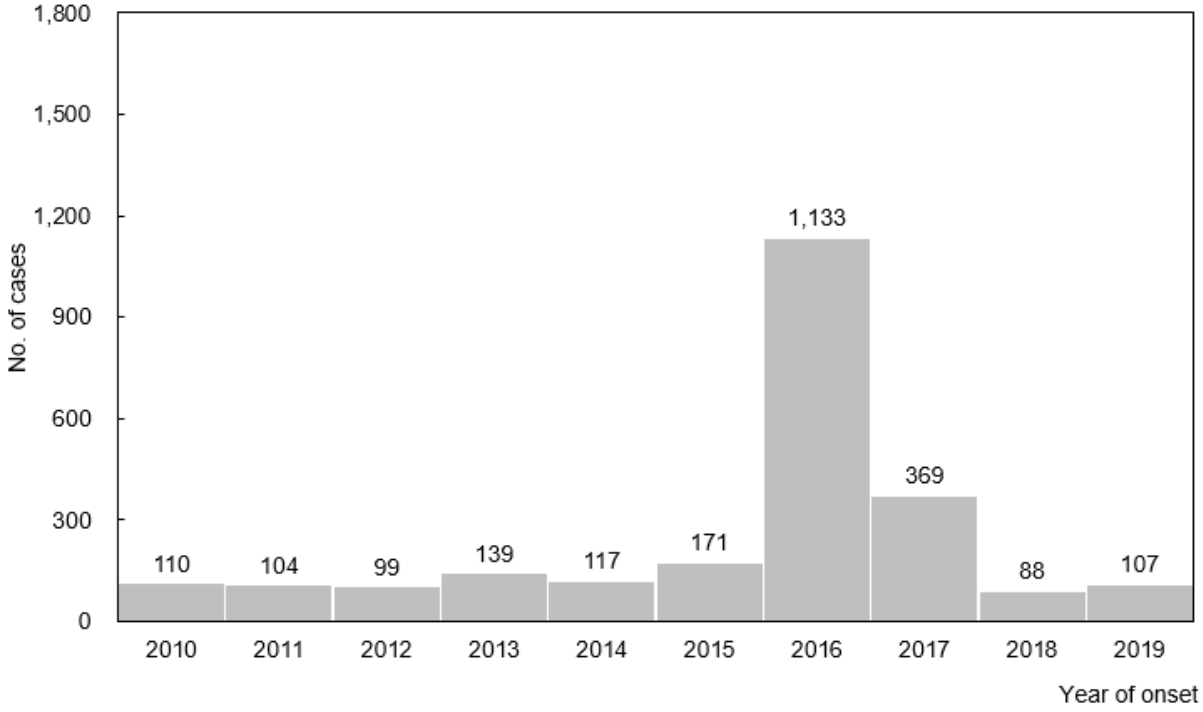


Figure 39 Number of confirmed acute hepatitis A cases, 2010-2019

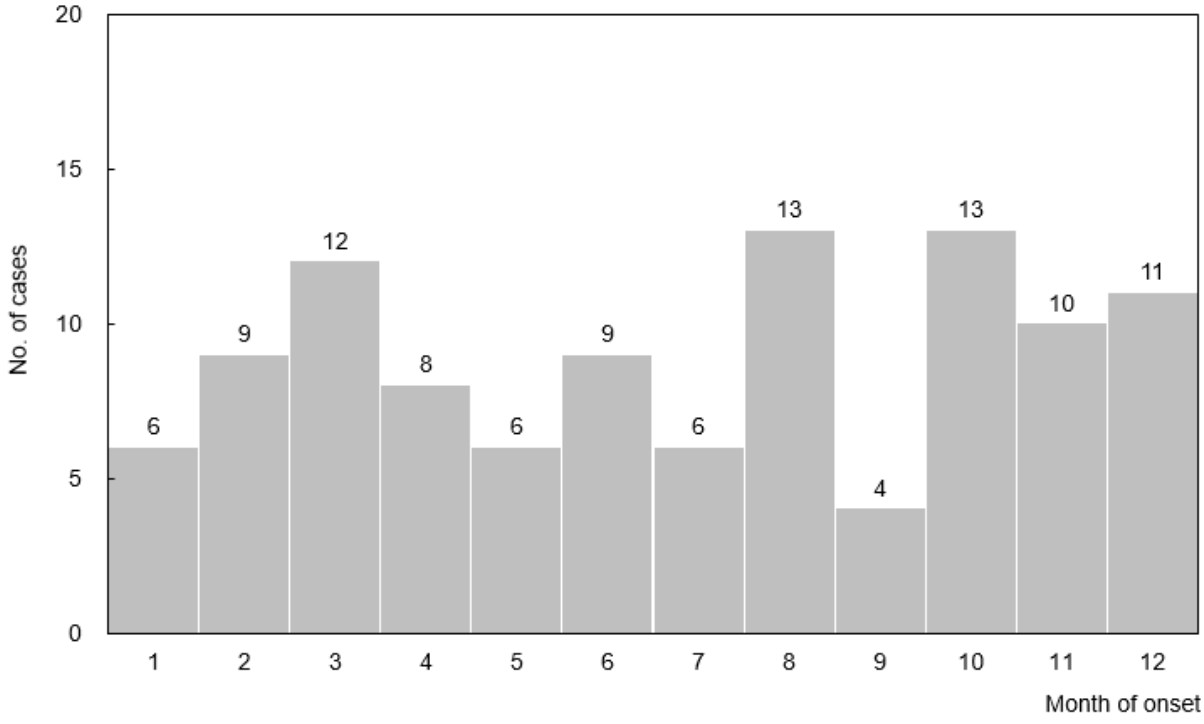


Figure 40 Number of confirmed acute hepatitis A cases, 2019

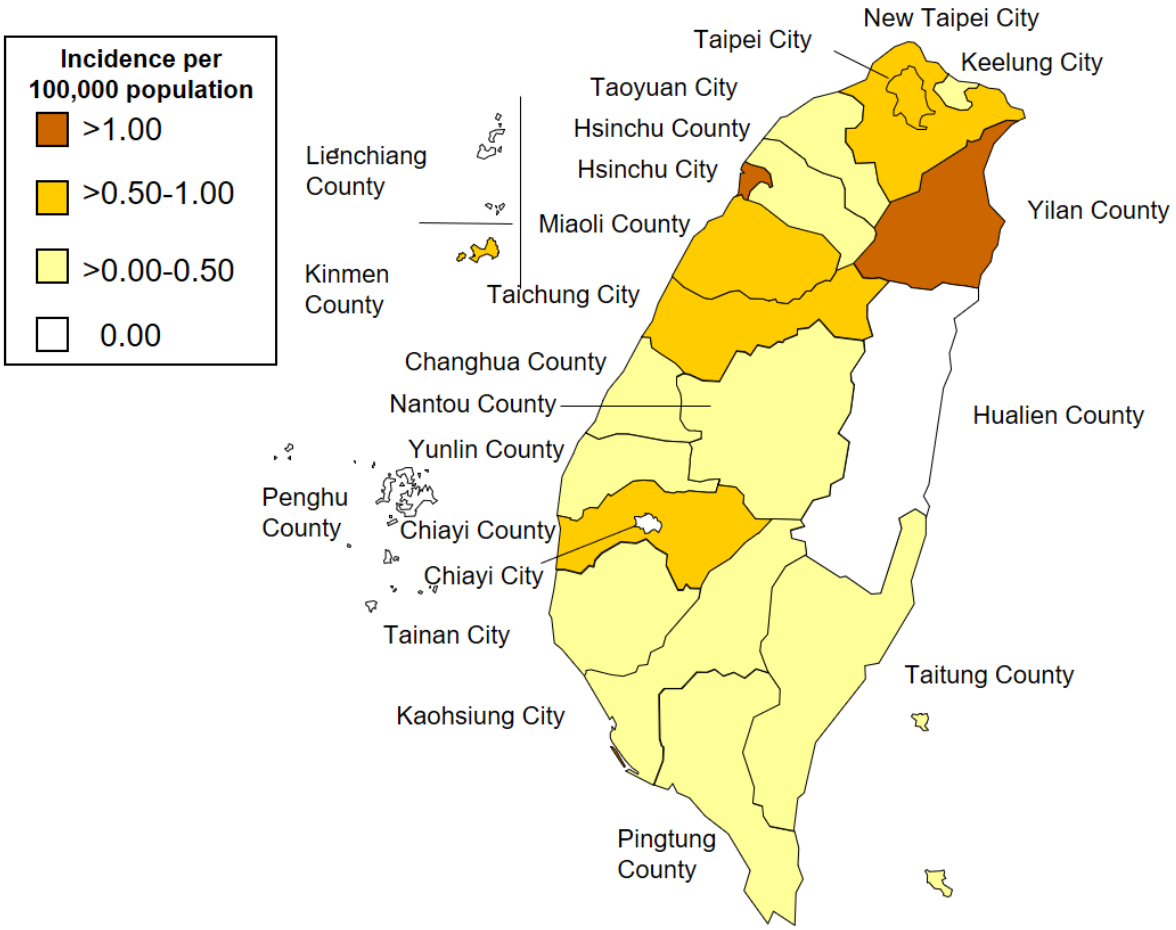


Figure 41 Geographical distribution by incidence of confirmed acute hepatitis A cases, 2019

Acute Hepatitis B

In 2019, 111 confirmed cases of acute hepatitis B (incidence rate: 0.47 per 100,000 population) were reported, which represented an decrease compared to 143 confirmed cases (incidence rate: 0.61 per 100,000 population) in 2018. The data of confirmed cases in 2019 are analyzed as follows:

(1) By gender

There were 72 male cases (64.9%) and 39 female cases (35.1%) with male to female ratio of 1.8:1.0.

(2) By age group

There were 47 cases in 40-64 years age group, 37 cases in 25-39 years age group, 13 cases each in 65 years and over age and 15-24 years age group, and 1 case in 0-1 years age group.

(3) By month

Confirmed cases were reported in each month of the year without apparent concentration in any of the months. June and October each with 12 cases, January with 11 cases, July, August and November each with 10 cases, and February to May, September and December with less than 10 cases.

(4) By residential region

New Taipei City had the highest number of incidents with 24 confirmed cases reported, followed by Taichung City with 17 cases, Kaohsiung City with 16 cases, Taoyuan City with 14 cases, Taipei City with 10 cases, Tainan City with 6 cases, Miaoli County, Hsinchu County and Chiayi County each with 4 cases, Yunlin County and Hsinchu City each with 3 cases, Changhua County with 2 cases, and Yilan County, Hualien County, Pingtung County and Keelung City each with 1 case. The other cities and counties had no confirmed case.

The incidence rate of confirmed cases per 100,000 population was the highest in Chiayi County (0.79), followed by Miaoli County (0.73) and Hsinchu County (0.71).

(5) Imported cases and countries of infection

There were 4 imported cases of acute hepatitis B in 2019, including 2 cases from Vietnam, and 1 case each from America and Thailand.

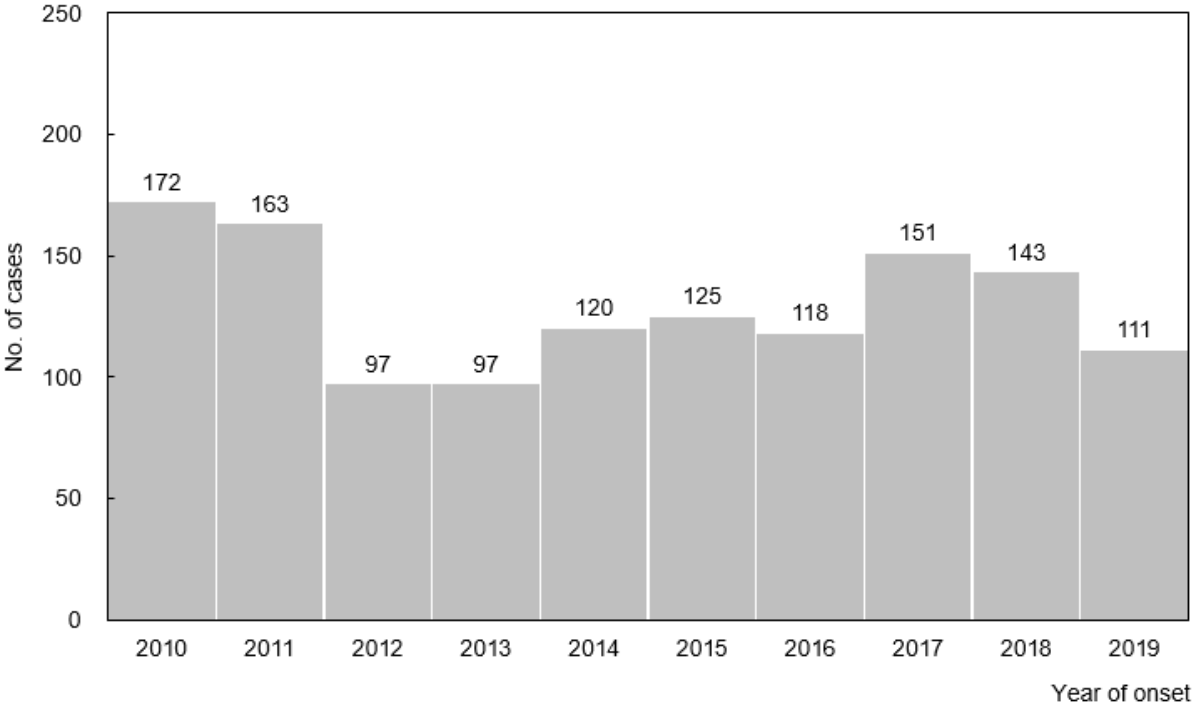


Figure 42 Number of confirmed acute hepatitis B cases, 2010-2019

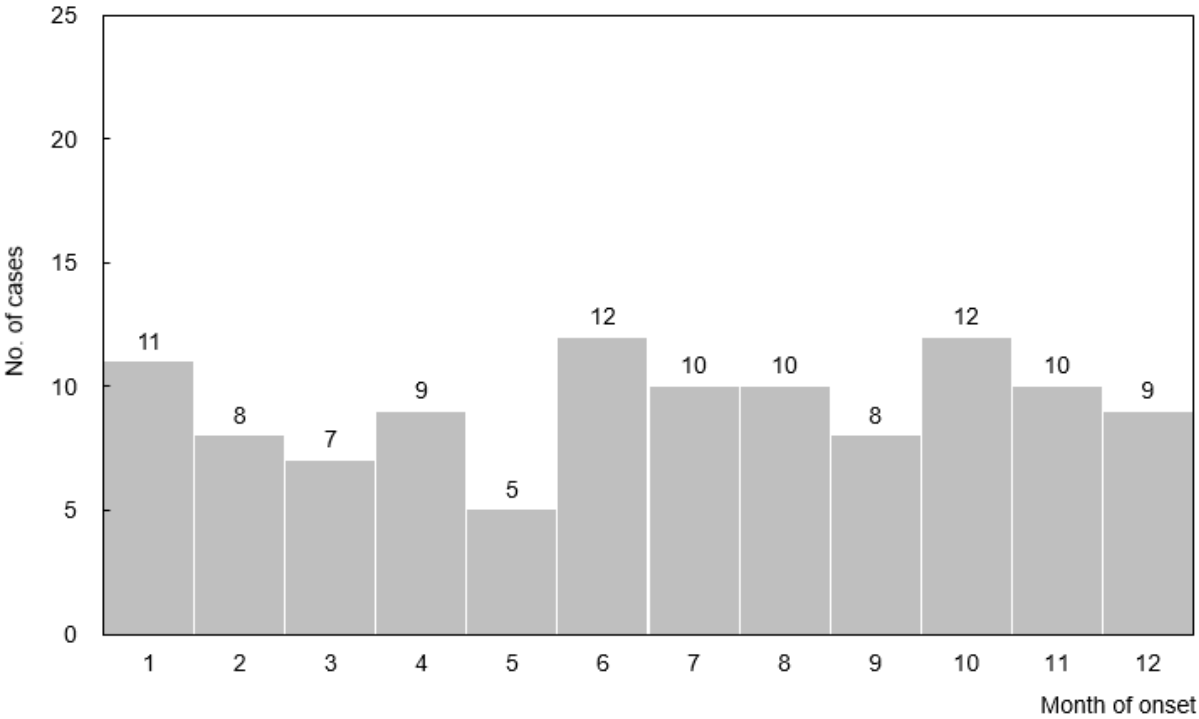


Figure 43 Number of confirmed acute hepatitis B cases, 2019

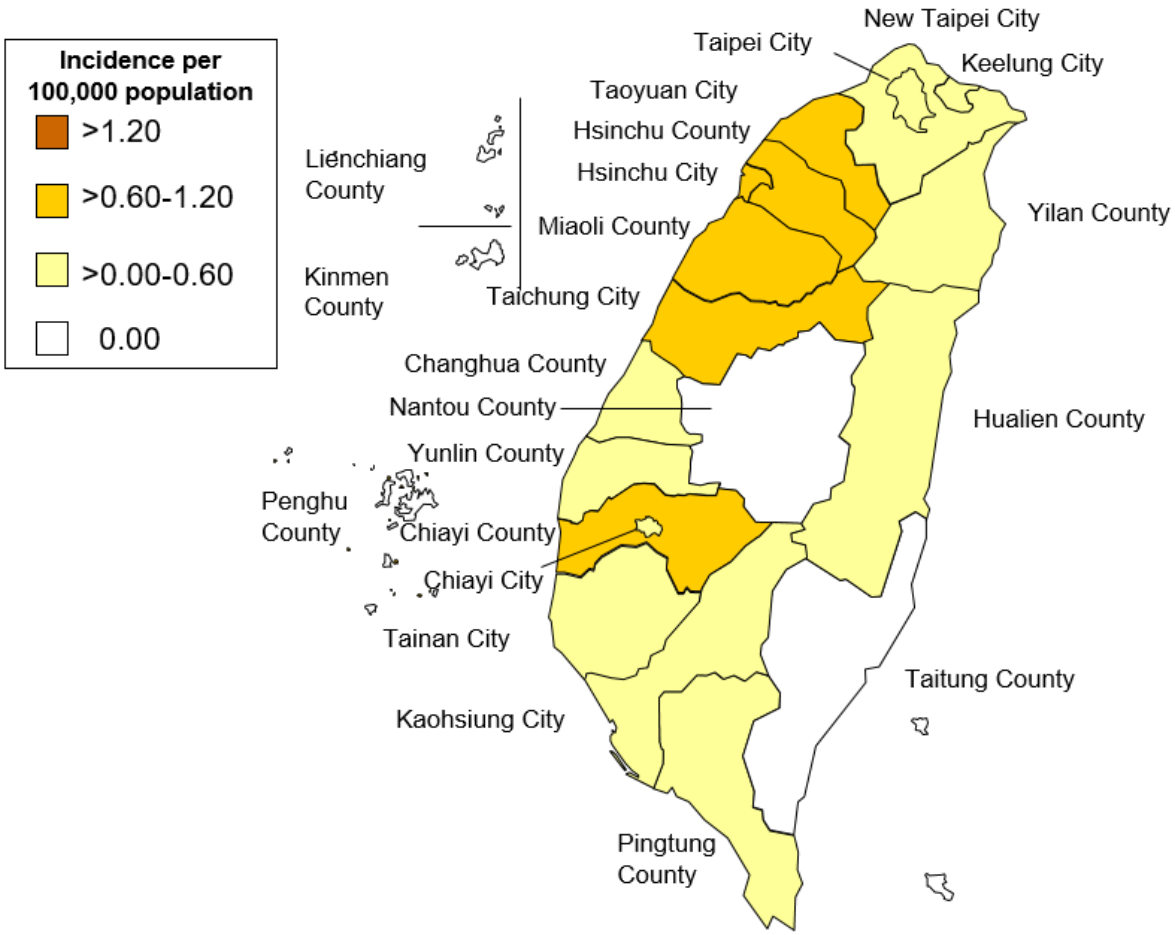


Figure 44 Geographical distribution by incidence of confirmed acute hepatitis B cases, 2019

Acute Hepatitis C

In 2019, 626 confirmed cases of acute hepatitis C (incidence rate: 2.65 per 100,000 population) were reported, which represented an increase compared to 510 confirmed cases (incidence rate: 2.16 per 100,000 population) in 2018. The data of confirmed cases in 2019 are analyzed as follows:

(1) By gender

There were 461 male cases (73.6%) and 165 female cases (26.4%) with male to female ratio of 2.8:1.0.

(2) By age group

There were 230 cases in 40-64 years age group, 226 cases in 25-39 years age group, 139 cases in 65 years and over age group, 30 cases in 15-24 years age group, and 1 case in 0-1 years age group.

(3) By month

Acute hepatitis C cases were reported in each month of the year. December had the highest number of incidents with 73 confirmed cases reported, followed by 60 cases each in May and June, 58 cases in October, 56 cases in November, 55 cases in March, 49 cases in August, 47 cases in July, 46 cases in January, 42 cases in April, 41 cases in September, and 39 cases in February.

(4) By residential region

New Taipei City had the highest number of incidents with 115 cases reported, followed by Taipei City with 82 cases, Taichung City with 78 cases, Kaohsiung City with 74 cases, Taoyuan City with 71 cases, Tainan City with 36 cases, Hualien County and Pingtung County each with 23 cases, Nantou County and Changhua County each with 16 cases, Yunlin County with 15 cases, Hsinchu County with 13 cases, Yilan County and Miaoli County each with 11 cases, Keelung City and Chiayi County each with 10 cases, Chiayi City with 9 cases, and Taitung County with 6 cases. The other cities and counties had less than 5 cases reported.

The incidence rate of confirmed cases per 100,000 population was the highest in Hualien County (7.03), followed by Chiayi City (3.36) and Nantou County (3.23).

(5) Imported cases and countries of infection

There were 4 imported cases of acute hepatitis C in 2019, including 2 cases from Japan, and 1 case each from China and Vietnam.

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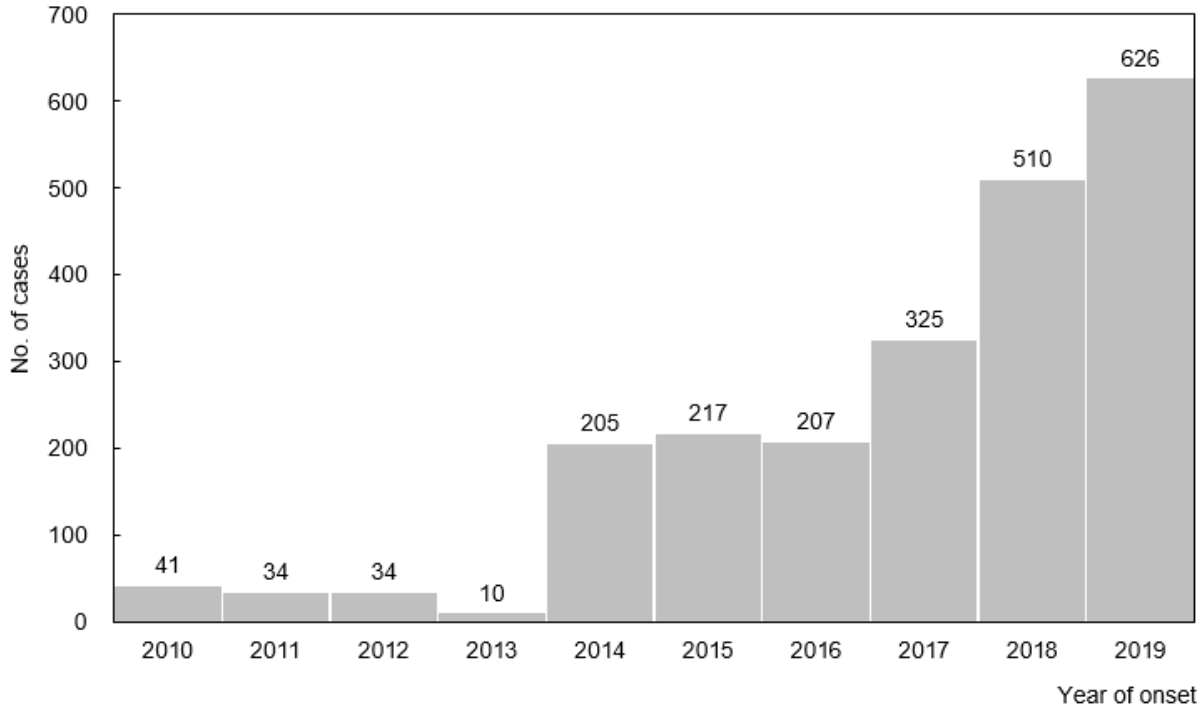

Figure 45 Number of confirmed acute hepatitis C cases, 2010-2019

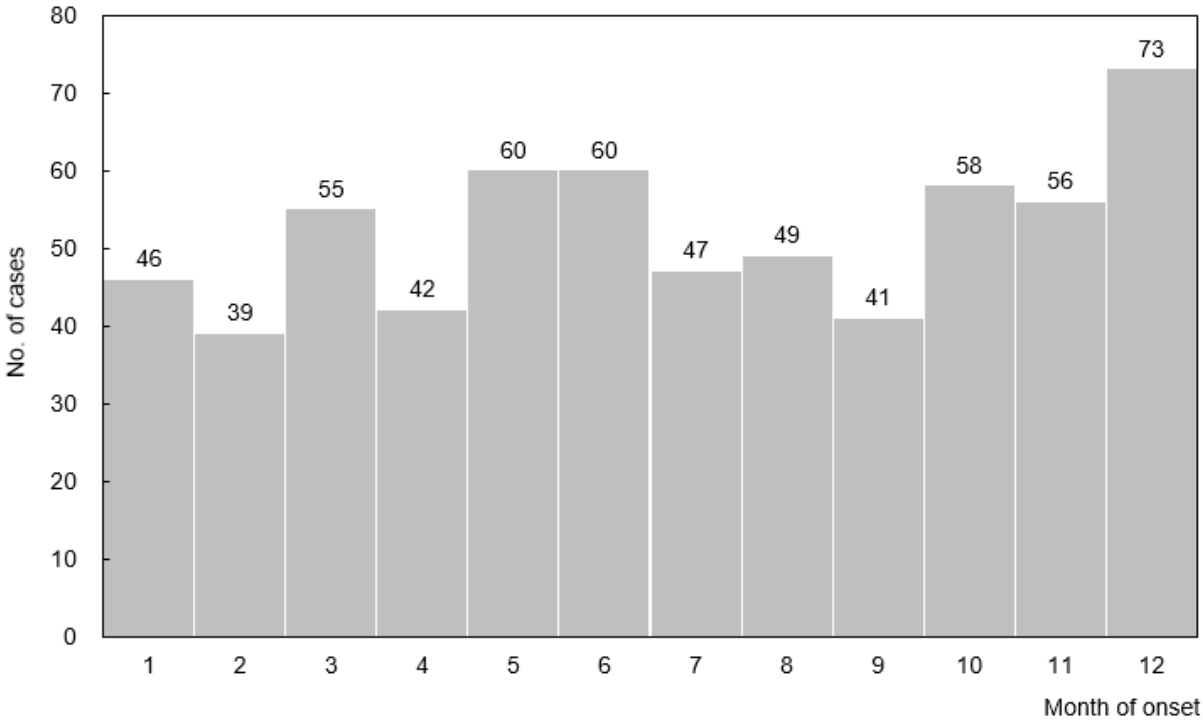

Figure 46 Number of confirmed acute hepatitis C cases, 2019

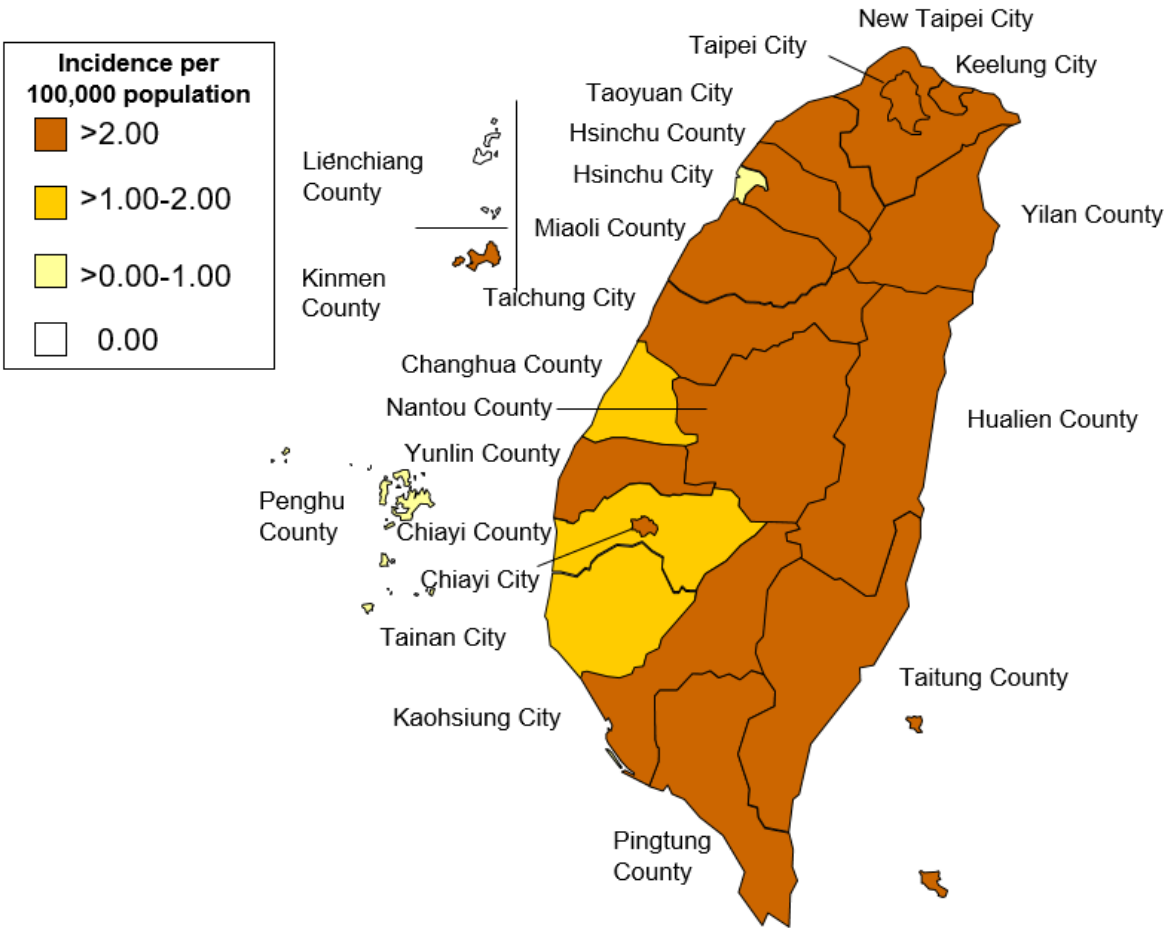

Figure 47 Geographical distribution by incidence of confirmed acute hepatitis C cases, 2019

Scrub Typhus

In 2019, 449 confirmed cases of scrub typhus (incidence rate: 1.90 per 100,000 population) were reported, which represented a decrease compared to 386 confirmed cases (incidence rate: 1.64 per 100,000 population) in 2018. The data of confirmed cases in 2019 are analyzed as follows:

(1) By gender

There were 266 male cases (59.2%) and 183 female cases (40.8%) with male to female ratio of 1.5:1.0.

(2) By age group

The cases occurred predominantly in adults aged 25 years and above. In all, there were 213 cases in 40-64 years age group, 98 cases in 65 years and over age group, 83 cases in 25-39 years age group, 39 cases in 15-24 years age group, 13 cases in 5-14 years age group, and 3 cases in 1-4 years age group.

(3) By month

Confirmed cases were reported in each month of the year that concentrated mainly in June, while March had the fewest number of incidents. The distribution of cases in each month of the year is as follows: 24 cases in January, 16 cases in February, 10 cases in March, 41 cases in April, 49 cases in May, 67 cases in June, 51 cases in July, 50 cases in August, 51 cases in September, 39 cases in October, 27 cases in November, and 24 cases in December.

(4) By residential region

Taitung County had the highest number of incidents with 81 confirmed cases reported, followed by Penghu County with 67 cases, Hualien County with 65 cases, Kaohsiung City with 51 cases, New Taipei City with 32 cases, Taichung City with 25 cases, Taipei City with 21 cases, Pingtung County with 14 cases, Yilan County, and Kinmen County and Nantou County each with 12 cases. The other cities and counties all had less than 10 cases reported.

The incidence rate of confirmed cases per 100,000 population was the highest in Penghu County (63.92), followed by Taitung County (37.18), Lienchiang County (30.60) and Hualien County (19.87). The other cities and counties all had an incidence rate below 10.00.

(5) Imported cases and countries of infection

There were 7 imported cases of scrub typhus in 2019, including 3 cases from China and 1 case each from Japan, Indonesia, Thailand and Vietnam.

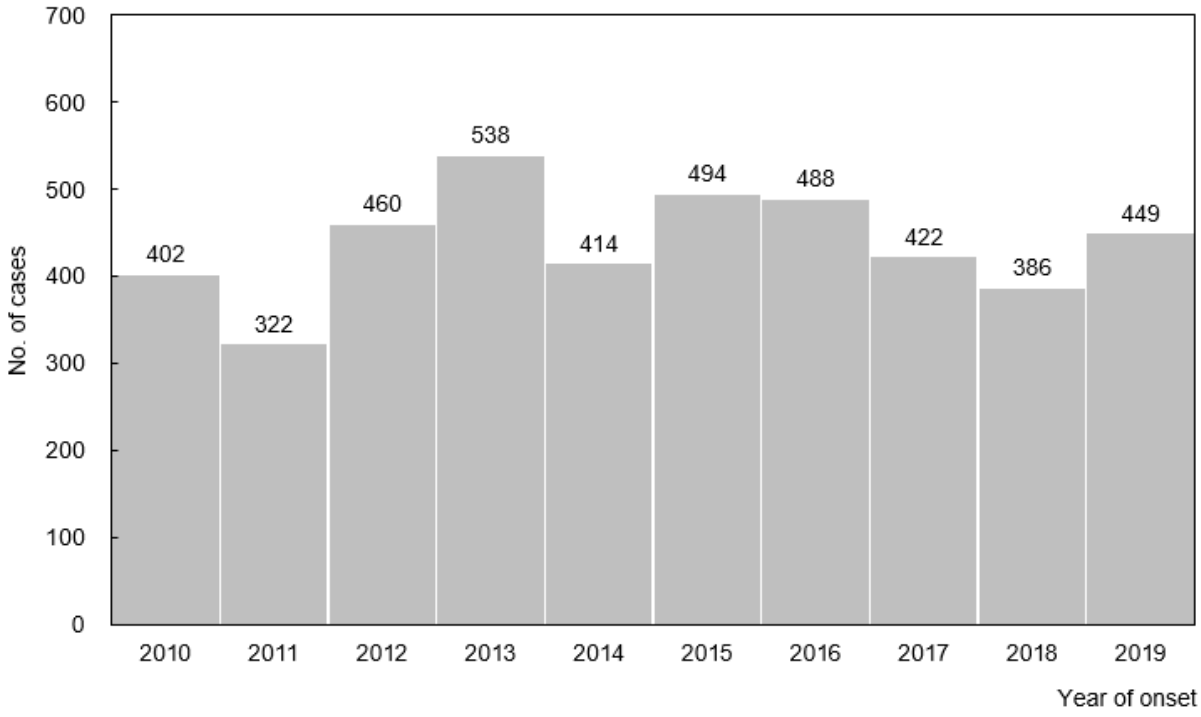

Figure 48 Number of confirmed scrub typhus cases, 2010-2019

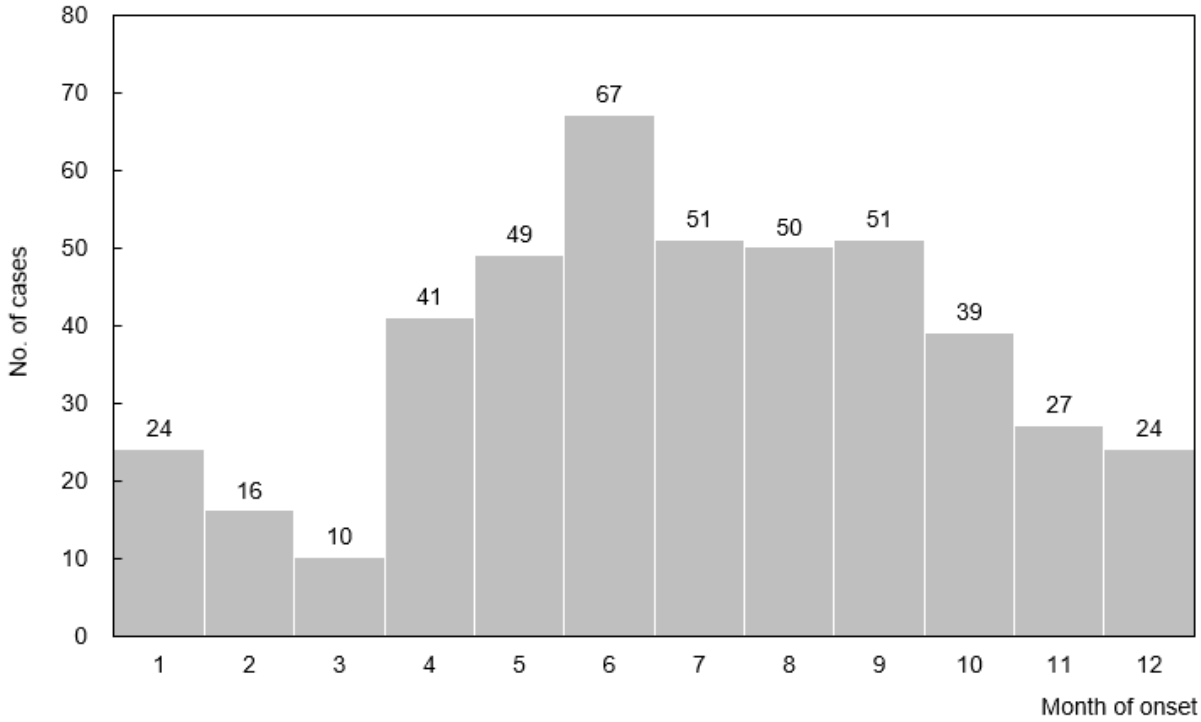

Figure 49 Number of confirmed scrub typhus cases, 2019

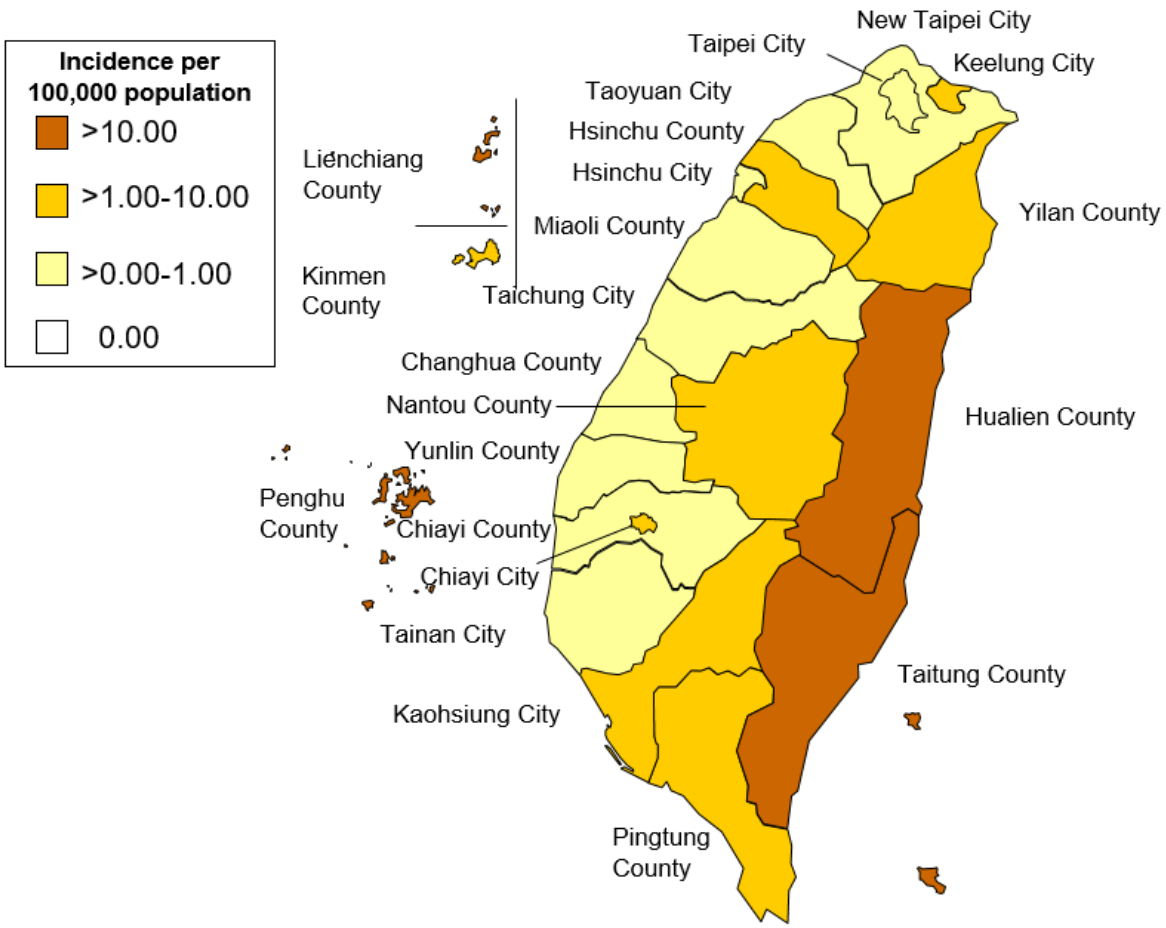

Figure 50 Geographical distribution by incidence of confirmed scrub typhus cases, 2019

Legionnaires' Disease

In 2019, 281 confirmed cases of legionnaires' disease (incidence rate: 1.19 per 100,000 population) were reported, which represented an increase compared to 211 confirmed cases (incidence rate: 0.89 per 100,000 population) in 2018. The data of confirmed cases in 2019 are analyzed as follows:

(1) By gender

There were 225 male cases (80.1%) and 56 female cases (19.9%) with male to female ratio of 4.0:1.0.

(2) By age group

Most cases occurred in 65 years and over age group with 143 cases, followed by 129 cases in 40-64 years age group, 5 cases in 25-39 years age group, 3 cases in 15-24 years age group, and 1 case in 1-4 years age group.

(3) By month

Confirmed cases were reported in each month of the year where December had the highest number of incidents with 32 confirmed cases reported, followed by January and July each with 29 cases, May and September each with 28 cases, March with 26 cases, November with 22 cases, October with 20 cases, June with 19 cases, April and August each with 17 cases, and February with 14 cases.

(4) By residential region

New Taipei City had the highest number of incidents with 54 confirmed cases reported, followed by Taipei City with 43 cases, Taoyuan City with 36 cases, Kaohsiung City with 27 cases, Taichung City with 22 cases, Pingtung County with 13 cases, Tainan City with 12 cases, Hualien County with 11 cases, Miaoli County and Yunlin County each with 10 cases, Hsinchu County with 9 cases, and Chiayi City, Chiayi County and Changhua County each with 6 cases. The other cities and counties had less than 5 cases reported, in which Penghu County had no confirmed cases.

The incidence rate of confirmed cases per 100,000 population was the highest in Hualien County (3.36), followed by Chiayi City (2.24) and Miaoli County (1.83).

(5) Imported cases and countries of infection

There were 15 imported cases of legionnaires' disease in 2019, 10 cases from China, 2 cases each from Japan and Thailand, and 1 case from North Korea.

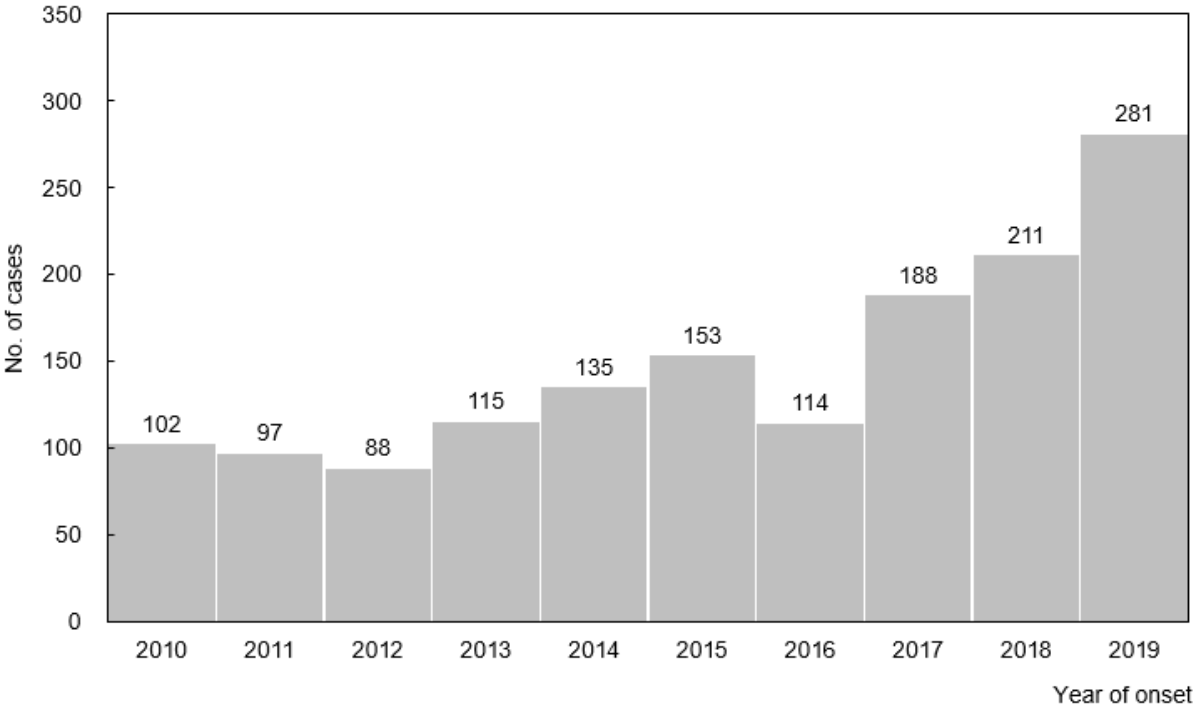

Figure 51 Number of confirmed legionnaires' disease cases, 2010-2019

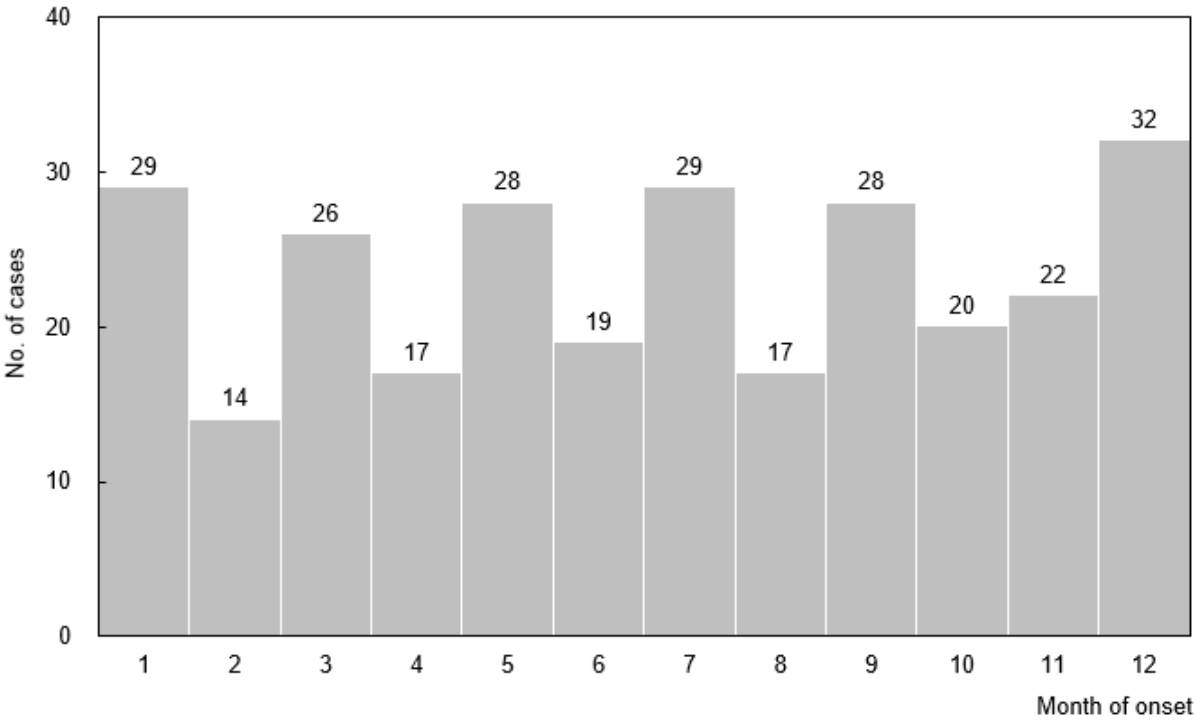

Figure 52 Number of confirmed legionnaires' disease cases, 2019

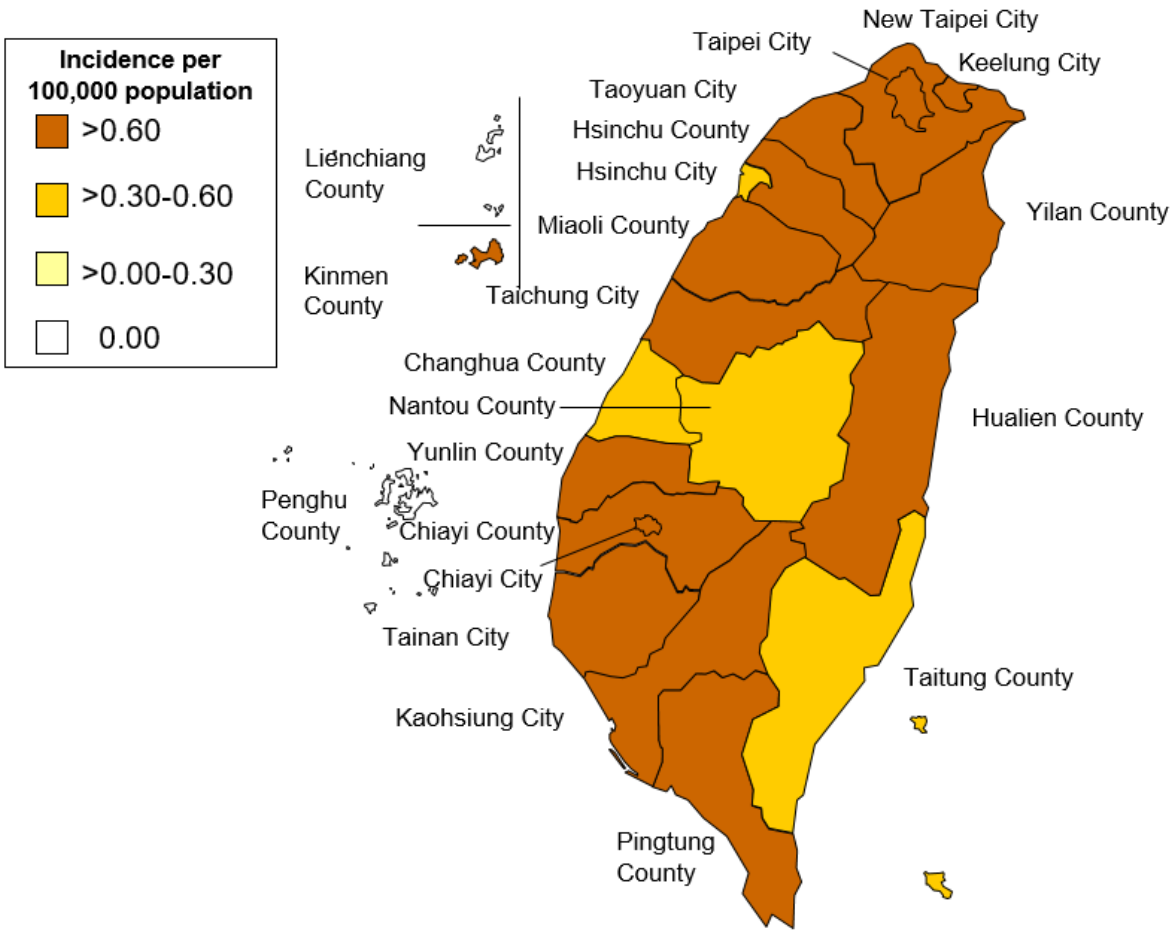

Figure 53 Geographical distribution by incidence of confirmed legionnaires' Disease cases, 2019

Dengue Fever

In 2019, 640 confirmed cases of dengue fever (incidence rate: 2.71 per 100,000 population), including 540 imported cases and 100 indigenous cases were reported, which represented a increase compared to a total of 533 confirmed cases (incidence rate: 2.26 per 100,000 population) in 2018. The data of confirmed cases in 2019 are analyzed as follows:

(1) By gender

In the 540 imported cases, there were 307 male cases (56.9%) and 233 female cases (43.1%) with male to female ratio of 1.3:1.0.

In the 100 indigenous cases, there were 58 male cases (58.0%) and 42 female cases (42.0%) with male to female ratio of 1.4:1.0.

(2) By age group

In the 540 imported cases, there were 1 case (0.2%) in 1-4 years age group, 28 case (5.2%) in 5-14 years age group, 108 cases (20.0%) in 15-24 years age group, 231 cases (42.8%) in 25-39 years age group, 145 cases (26.9%) in 40-64 years age group, and 27 cases (5.0%) in 65 years and over age group.

In the 100 indigenous cases, there were 1 case (1.0%) in 1-4 years age group, 4 case (4.0%) in 5-14 years age group, 7 cases (7.0%) in 15-24 years age group, 18 cases (18.0%) in 25-39 years age group, 47 cases (47.0%) in 40-64 years age group, and 23 cases (23.0%) in 65 years and over age group.

(3) By month

In the 540 imported cases, confirmed cases were reported in each month of the year. In all, July had the highest number of incidents with 92 cases reported, followed by 77 cases in August, 53 cases in October, 49 cases in November, 43 cases in September, 39 cases in June, 37 cases in February, 35 cases in January, 31 cases in April, 30 cases each in May and December, and 24 cases in March.

In the 100 indigenous cases, July had the highest number of incidents with 28 confirmed cases reported, followed by 27 cases in June, 14 cases in September, 12 cases in August, 10 cases in May, 8 cases in October, and 1 case in February. There were no cases in the other months.

(4) By residential region

In the 540 imported cases, the number of incidents was the highest in Taipei City with 95 cases reported, followed by 90 cases in New Taipei City, 82

cases in Kaohsiung City, 69 cases in Taichung City, 62 cases in Taoyuan City, 35 cases in Tainan City, 22 cases in Changhua County, 16 cases in Hsinchu City, and 11 cases each in Pingtung County and Yunlin County. The other cities and counties all had less than 10 imported cases reported.

In the 100 indigenous cases, Kaohsiung City had the highest number of incidents with 58 cases reported, followed by 31 cases in Tainan City, 7 cases in New Taipei City, 2 cases in Taipei City, and 1 case each in Taichung City and Taoyuan City, in which other cities and counties did not have confirmed indigenous cases.

Overall, the incidence rate of confirmed cases per 100,000 population was the highest in Lienchiang County (7.65), followed by Kaohsiung City (5.05) and Taipei City (3.65).

(5) Imported cases and countries of infection

In the 540 imported cases, there were 140 cases (25.9%) from Vietnam, 81 cases (15.0% respectively) each from Cambodia and Philippines, 78 cases (14.4%) from Indonesia, 45 cases (8.3%) from Thailand, 31 cases (5.7%) from Malaysia, 20 cases (3.7%) from Myanmar, 16 cases (3.0 %) from Singapore, 15 cases (2.8%) from India, 14 cases (2.6%) from Maldives, 4 cases (0.7%) from Nepal, 3 cases (0.6% respectively) each from China and Sri Lanka, 2 cases (0.4%) from Solomon Islands, and 1 case (0.2% respectively) each from Brazil, Cuba, Nigeria, Marshall Islands, Laos, Belis and Honduras.

(6) By virus type

In the 540 cases, 90 cases were caused by dengue virus type 1, 147 cases by type 2, 60 cases by type 3, and 38 cases by type 4. The other 205 cases were undetermined.

In the 100 indigenous cases, 13 cases were caused by dengue virus type 1, 31 cases by type 2, 4 cases by type 3, and 35 cases by type 4. The other 17 cases were undetermined.

Table 26 Virus type and infection source of confirmed dengue fever cases, 2019

Infection source	Virus type					Total
	DEN-1	DEN-2	DEN-3	DEN-4	Undetermined	
Vietnam	20	54		12	54	140
Cambodia	25	23		2	31	81
Philippines	5	15	30	1	30	81
Indonesia	11	15	11	23	18	78
Thailand	11	15	1		18	45
Malaysia	8	7	3		13	31
Myanmar	1	2	9		8	20
Singapore		8	2		6	16
India	3	3	2		7	15
Maldives	1	2	2		9	14
Nepal		1			3	4
China	1				2	3
Sri Lanka	1	1			1	3
Solomon Islands					2	2
Brazil	1					1
Cuba					1	1
Honduras		1				1
Belis	1					1
Nigeria					1	1
Marshall Islands					1	1
Laos	1					1
Taiwan	13	31	4	35	17	100
Total	103	178	64	73	222	640

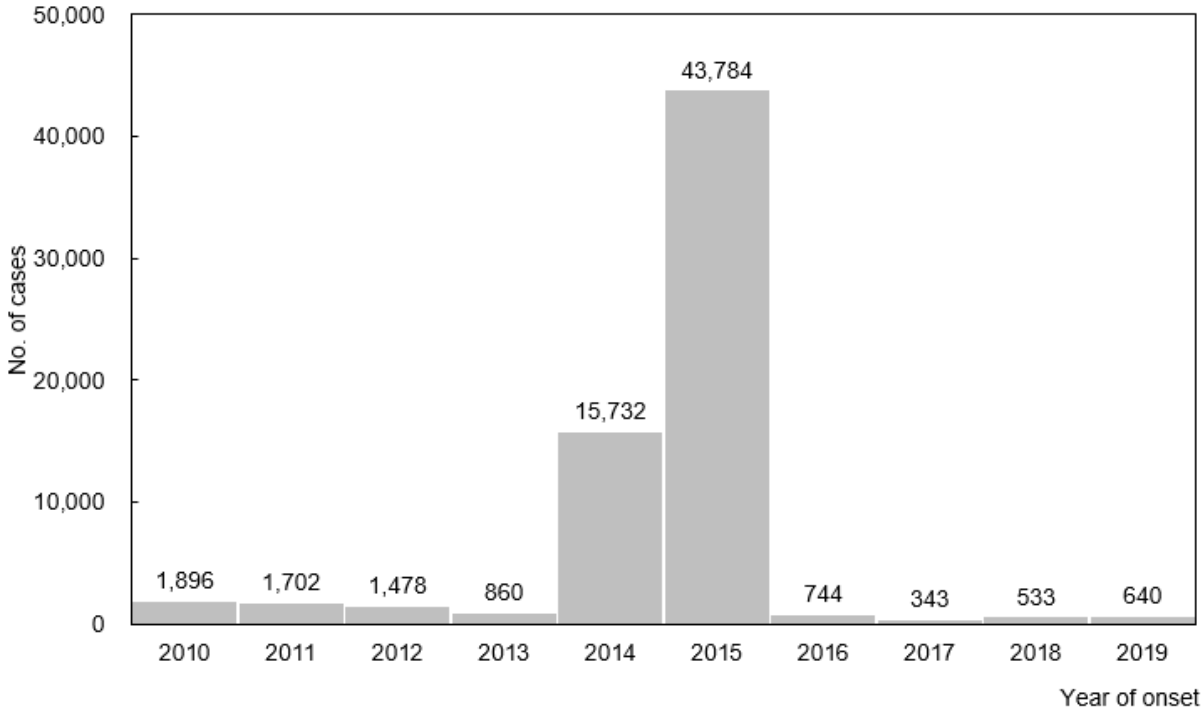

Figure 54 Number of confirmed dengue fever cases, 2010-2019

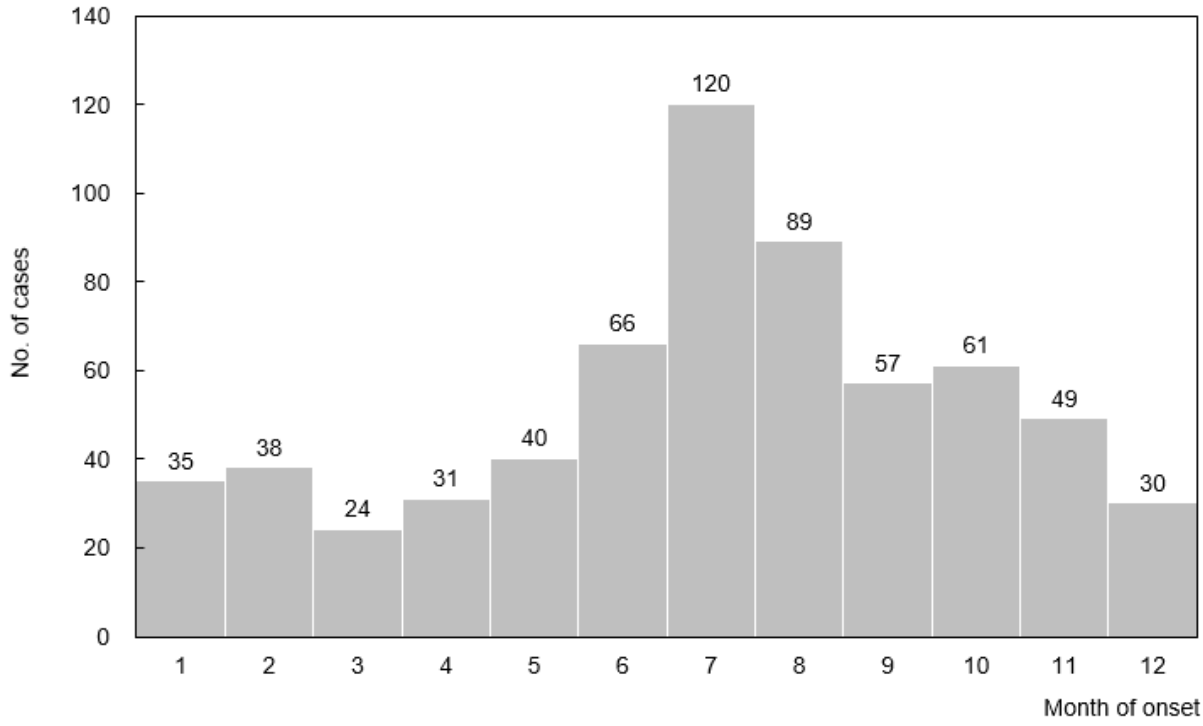

Figure 55 Number of confirmed dengue fever cases, 2019

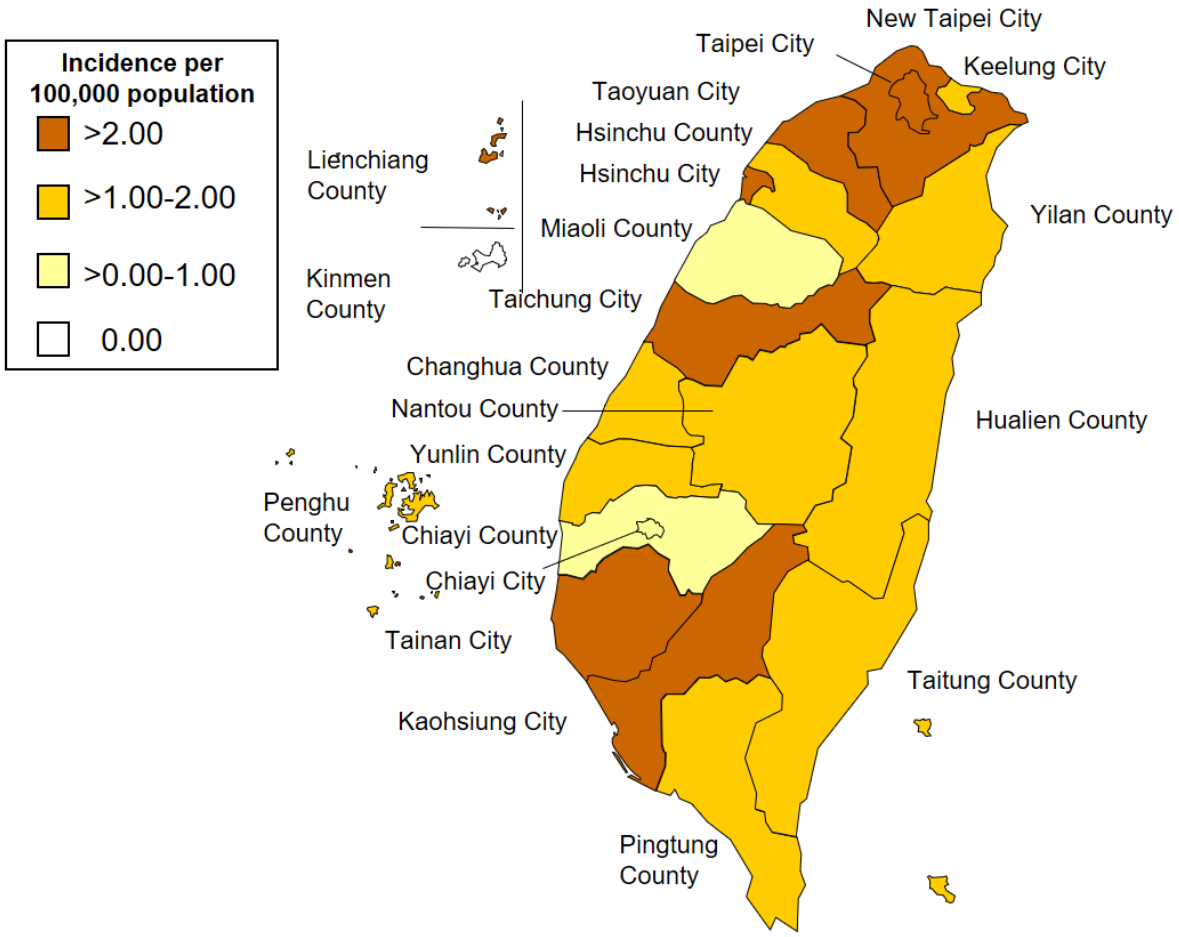

Figure 56 Geographical distribution by incidence of confirmed dengue fever cases, 2019

Enteroviruses Infection with Severe Complications

In 2019, 69 confirmed cases of enteroviruses infection with severe complications (incidence rate: 0.29 per 100,000 population) were reported, which represented a increase compared to 36 confirmed cases (incidence rate: 0.15 per 100,000 population) in 2018. The data of confirmed cases in 2019 are analyzed as follows:

(1) By gender

There were 48 male cases (69.6%) and 21 female cases (30.4%) with male to female ratio of 2.3:1.0.

(2) By age group

There were 36 cases in 1-4 year age group, followed by 19 cases in 5-14 years age group, 12 cases in 0-1 years age group, and 2 cases in 15-24 years age group.

Of the 12 cases in 0-1 years age group, 3 cases were 7 months old, 2 cases each were 0, 9 and 10 months old, and 1 case each was 1, 5 and 8 months old.

(3) By month

All months had confirmed cases. 12 cases in August, 11 cases in September, 9 cases in October, 8 cases each in June and July, 5 cases in April and November, 3 cases in January, May and December, and 1 case each in February and March.

(4) By residential region

New Taipei City had 21 cases reported, followed by 11 cases in Taichung City, 8 cases in Tainan City, 7 cases in Kaohsiung City, 4 cases each in Taoyuan City and Changhua County, 2 cases each in Taipei City, Miaoli County and Chiayi County, 1 case each in Taitung County, Yilan County, Hualien County, Chiayi City, Yunlin County, Hsinchu City, Hsinchu County and Chiayi City. The other cities and counties did not have confirmed cases.

The incidence rate of confirmed cases per 100,000 population was the highest in New Taipei City (0.52), followed by Taitung County (0.46) and Tainan City (0.42).

(5) Imported cases and countries of infection

There was 1 imported case of enteroviruses infection with severe complications in 2019, from Malaysia.

(6) Pathogen identification

Assay with enzyme-linked immunosorbent assays (ELISA) of IgM, virus culture, and RT-PCR were adopted for testing. Enterovirus 71 was the main

virus isolated in 52 cases and 1 case involving Enterovirus 71 in combination with other type of enterovirus (Enterovirus 71 combined with Coxsackievirus A6). There were 16 cases found to be infected with other types, including 5 cases of Coxsackievirus A6, 2 cases each of Enterovirus 68 and Coxsackievirus A10, and 1 case each of Coxsackievirus A2, Coxsackievirus A4, Coxsackievirus A5, Coxsackievirus A9, Coxsackievirus B5, Echovirus 6 and Echovirus 11.

Table 27 Number of confirmed enteroviruses infection with severe complications cases by age, 2016-2019

	2016		2017		2018		2019	
	No. of cases	%	No. of cases	%	No. of cases	%	No. of cases	%
>=0, <7m	3	9.1	2	8.3	12	33.3	4	5.8
>=7m, <1yr	2	6.1	1	4.2	-	-	8	11.6
>=1, <4 yrs	22	66.7	6	25.0	14	38.9	33	47.8
>=4, <7 yrs	6	18.2	10	41.7	7	19.4	10	14.5
>=7, <16 yrs	-	-	5	21	3	8.3	12	17.4
>=16 yrs	-	-	-	-	-	-	2	3
Unknown	-	-	-	-	-	-	-	-
Total	33	100.0	24	100.0	36	100.0	69	100.0

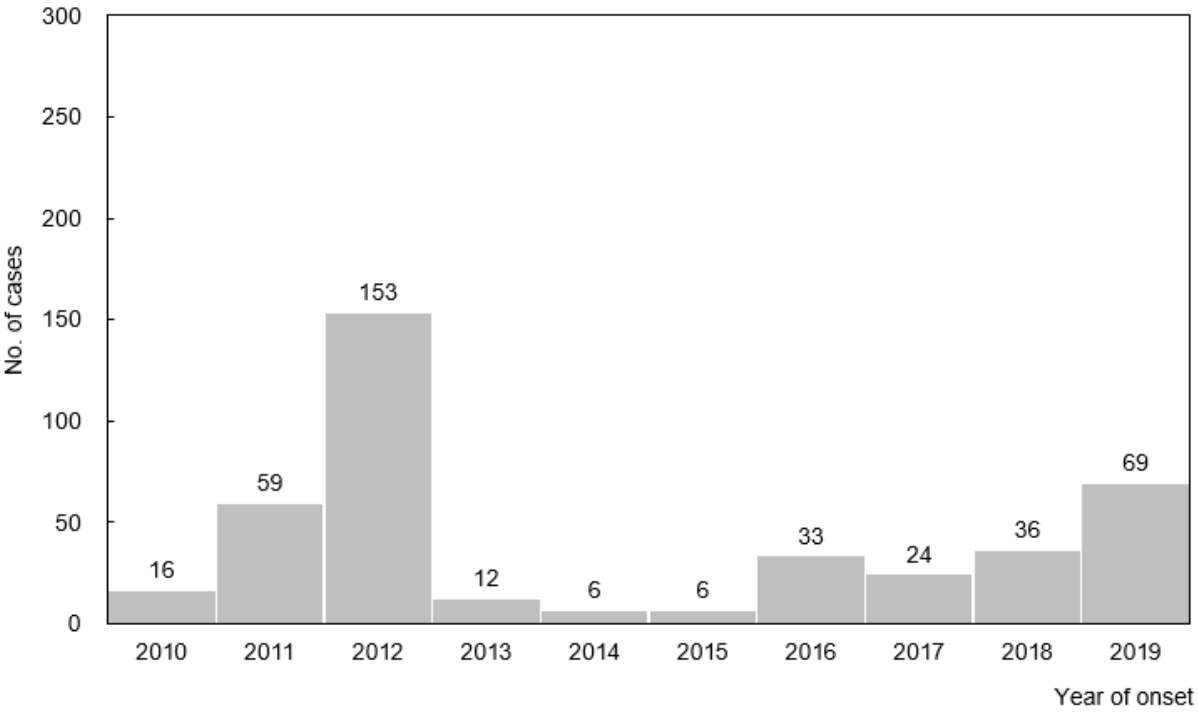

Figure 57 Number of confirmed enteroviruses infection with severe complications cases, 2010-2019

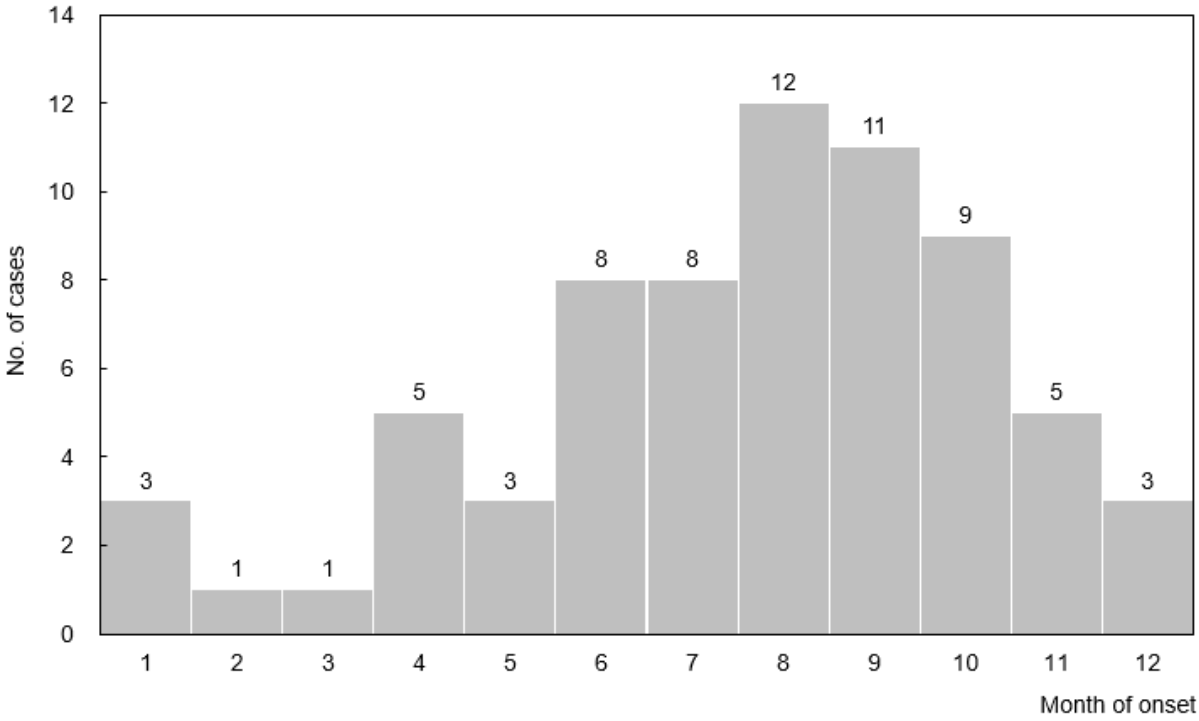

Figure 58 Number of confirmed enteroviruses infection with severe complications cases, 2019

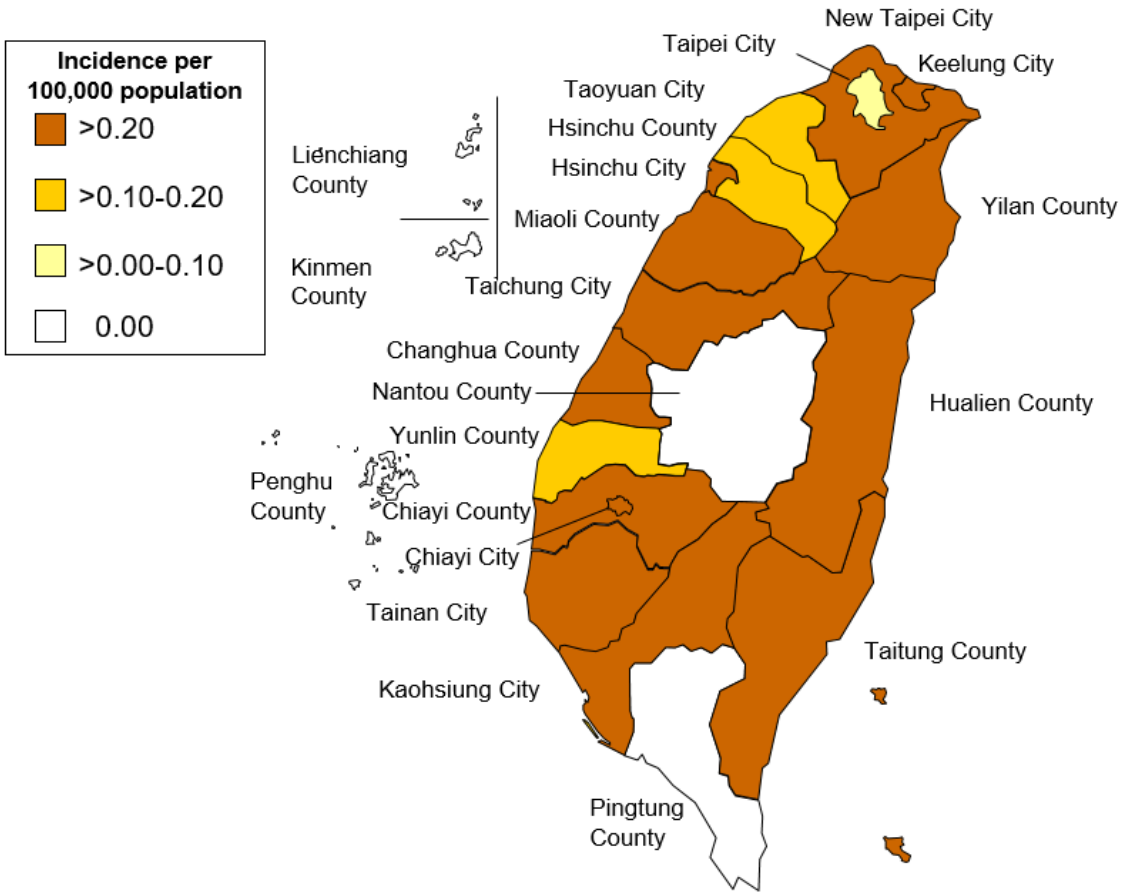

Figure 59 Geographical distribution by incidence of confirmed enteroviruses infection with severe complications cases, 2019

Malaria

In 2019, 7 confirmed cases of malaria (incidence rate: 0.03 per 100,000 population) were reported, which represented same as 7 confirmed cases (incidence rate: 0.03 per 100,000 population) in 2018. All cases in 2019 were imported. The data of confirmed cases in 2019 are analyzed as follows:

(1) By gender

There were 4 male cases (57.1%) and 3 female cases (42.9%) with male to female ratio of 1.3:1.0.

(2) By age group

The cases occurred mostly in 40-64 years age groups with 5 cases reported, followed by 25-39 with 2 cases.

(3) By month

There were 3 cases in September, and 1 case each in July, August, November and December.

(4) By residential region

Taipei City and Tainan City each had 2 cases reported, followed by 1 case each in Taichung City, Yilan County and New Taipei City. The other cities and counties did not have confirmed cases.

The incidence rate of confirmed cases per 100,000 population was the highest in Yilan Countyt (0.22), followed by Tainan City (0.11) and Taipei City (0.08).

(5) Imported cases and countries of infection

In the 7 imported cases, 2 cases (28.6%) from Oceania, specifically from Solomon Islands and Papua New Guinea; 5 cases (71.4%) were from Africa, specifically 2 cases from Ethiopia, and 1 case each from Nigeria, Uganda and Congo.

(6) Types of protozoan parasites

By the types of protozoan parasites, there were 3 cases of *Plasmodium falciparum* infection, 3 cases of *Plasmodium vivax*, and 1 case of *Plasmodium malariae*.

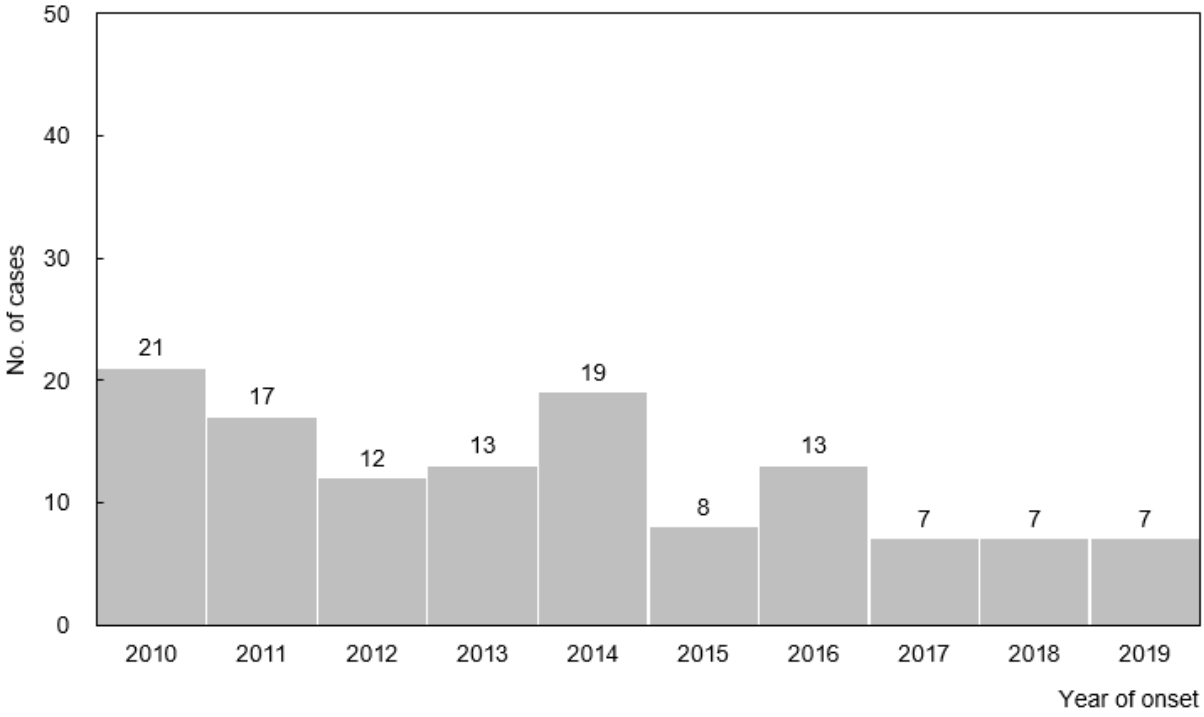

Figure 60 Number of confirmed imported malaria cases, 2010-2019

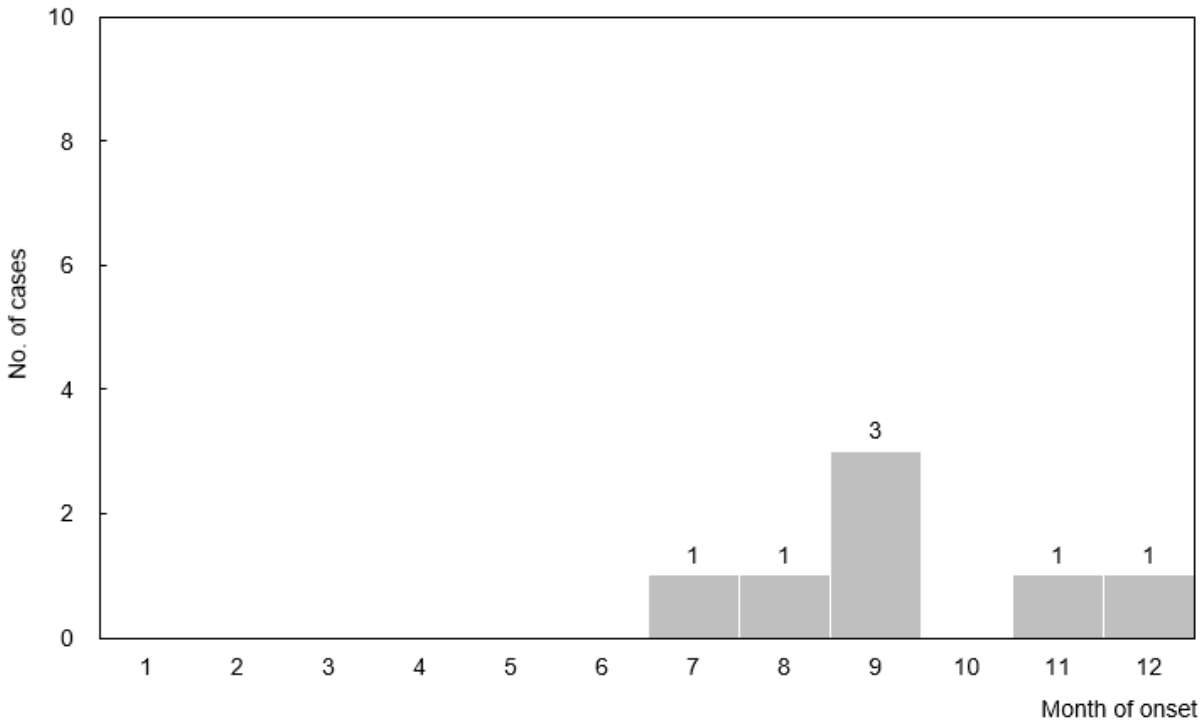

Figure 61 Number of confirmed imported malaria cases, 2019

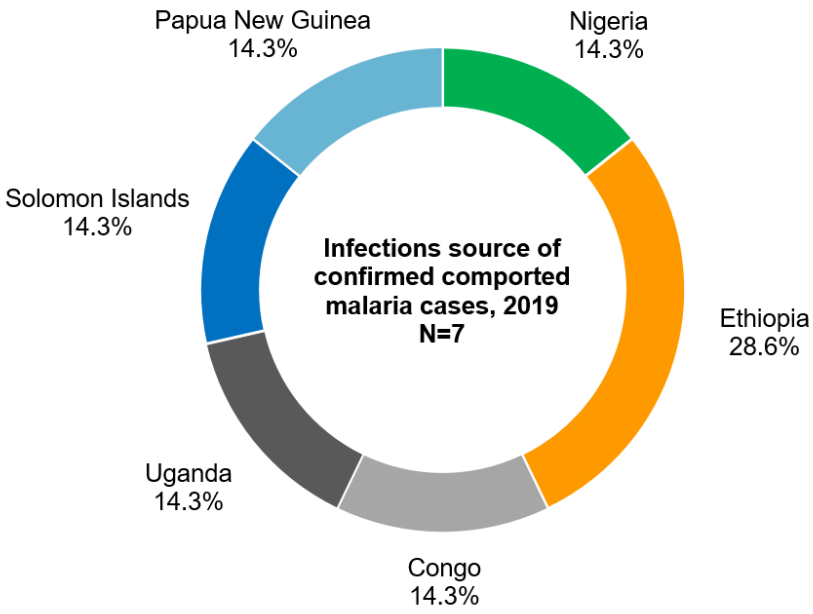

Figure 62 Infections source of confirmed imported malaria cases, 2019

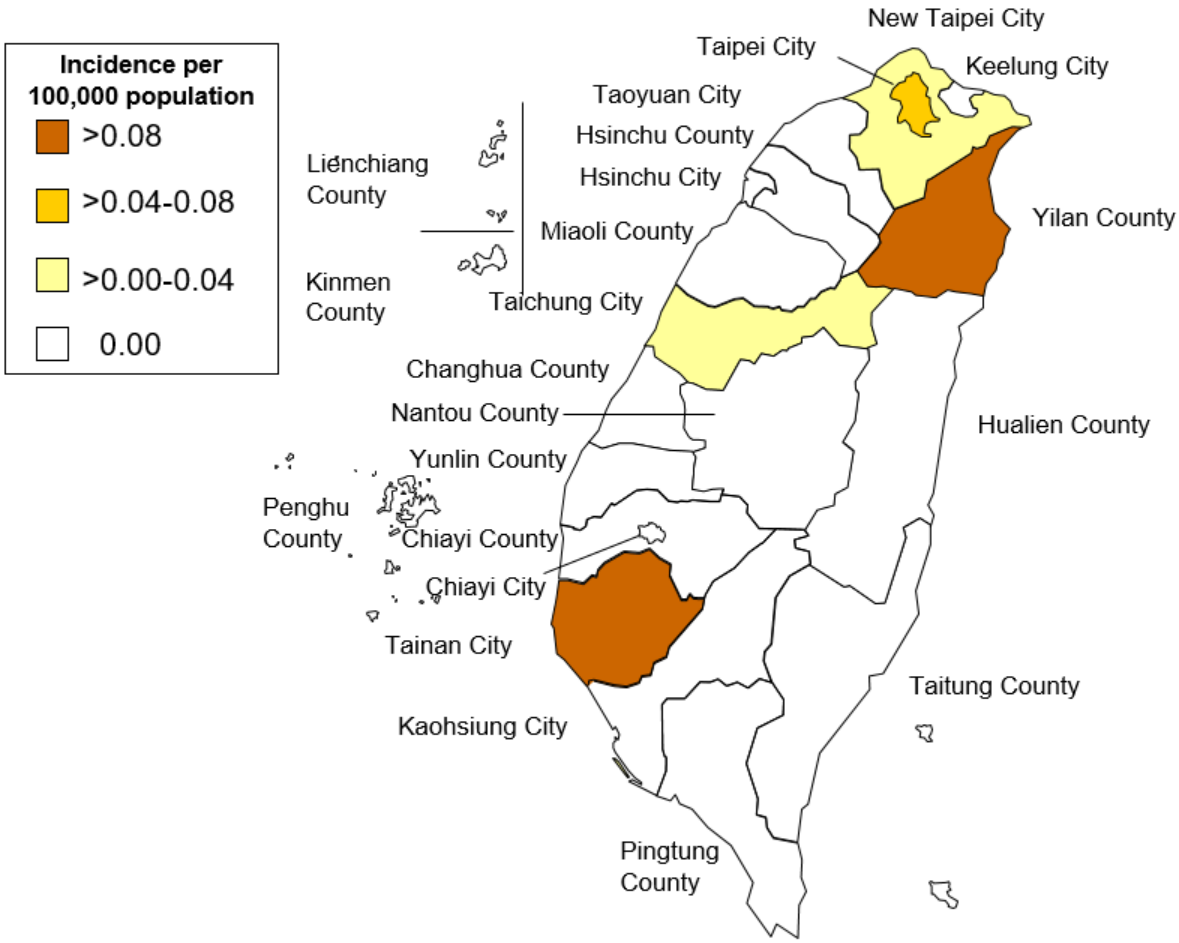

Figure 63 Geographical distribution by incidence of confirmed imported malaria cases, 2019

Shigellosis

In 2019, 147 confirmed cases of shigellosis (incidence rate: 0.62 per 100,000 population) were reported, including 44 imported cases, which represented a decrease compared to 172 confirmed cases (incidence rate: 0.73 per 100,000 population) in 2018. The data of confirmed cases in 2019 are analyzed as follows:

(1) By gender

In the 44 imported cases, there were 12 male cases (27.3%) and 32 female cases (72.7%) with male to female ratio of 0.4:1.0.

In the 103 indigenous cases, there were 99 male cases (96.1%) and 4 female cases (3.9%) with male to female ratio of 24.8:1.0.

(2) By age group

In the 44 imported cases, there were 28 cases in 25-39 years age group, 11 cases in 15-24 years age group, 2 cases in 40-64 years age group, and 1 case each in 1-4 years age, 5-14 years age and 65 years and over age group.

In the 103 indigenous cases, there were 69 cases in 25-39 years age group, 20 cases in 40-64 years age group, 10 cases in 15-24 years age group, 3 cases in 65 years and over age group, and 1 case in 1-4 years age group.

(3) By month

In the 44 imported cases, confirmed cases were reported in each month of the year where July had the highest number of incidents with 6 confirmed cases reported, followed by 5 cases each in March, May and June, 4 cases each in January, April and September, 3 cases in February and November, 2 cases each in August and October, and 1 case in December.

In the 103 indigenous cases, confirmed cases were reported in each month of the year where December had the highest number of incidents with 14 confirmed cases reported, followed by 12 cases in April and November, 9 cases each in September, 8 cases each in March, May July and October, 7 cases in February, 6 cases each in June and August, and 5 cases in January.

(4) By residential region

In the 44 imported cases, New Taipei City had the highest number of incidents with 11 confirmed cases reported, followed by Taichung City with 8 cases, Taipei City with 6 cases, Taoyuan City and Changhua County each with 5 cases, Yilan County, Nantou County and Keelung City each with 2 cases, and Tainan City, Kaohsiung City and Chiayi County each with 1 case. There were no cases reported in other cities and counties.

In the 103 indigenous cases, New Taipei City had the highest number of incidents with 32 confirmed cases reported, followed by Taipei City and Taoyuan City each with 19 cases, Taichung City with 6 cases, Tainan City, Kaohsiung City and Hsinchu County each with 5 cases, Pingtung County with 4 cases, Changhua County, Yunlin County and Hsinchu City each with 2 cases, and Nantou County and Hualien County each with 1 case. There were no cases reported in other cities and counties.

In all, the incidence rate of confirmed cases per 100,000 population was the highest in New Taipei City and Taoyuan City (1.07 respectively). Taipei City ranked in the second place with incidence rate of 0.94, and Hsinchu County ranked in the third place with 0.89.

(5) Imported cases and countries of infection

In the 44 imported cases, 32 cases were from Indonesia, 6 cases from Philippines, and 1 case each from China, Japan, India, Cambodia, Thailand and Myanma.

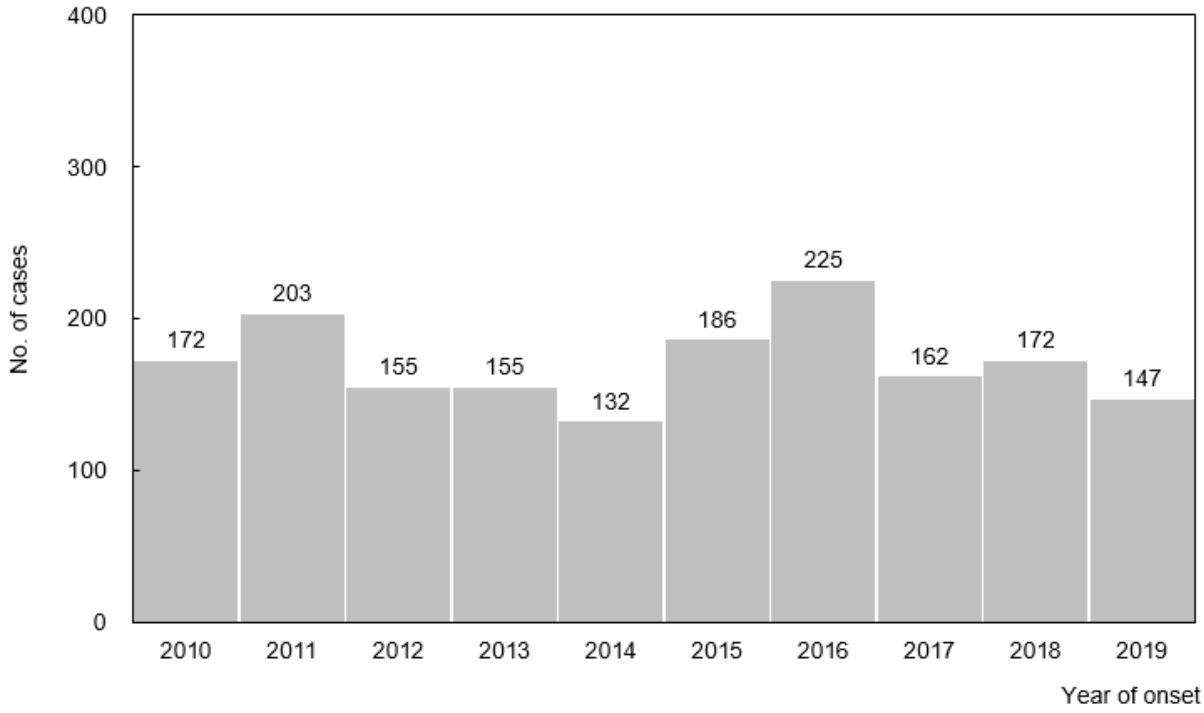

Figure 64 Number of confirmed shigellosis cases, 2010-2019

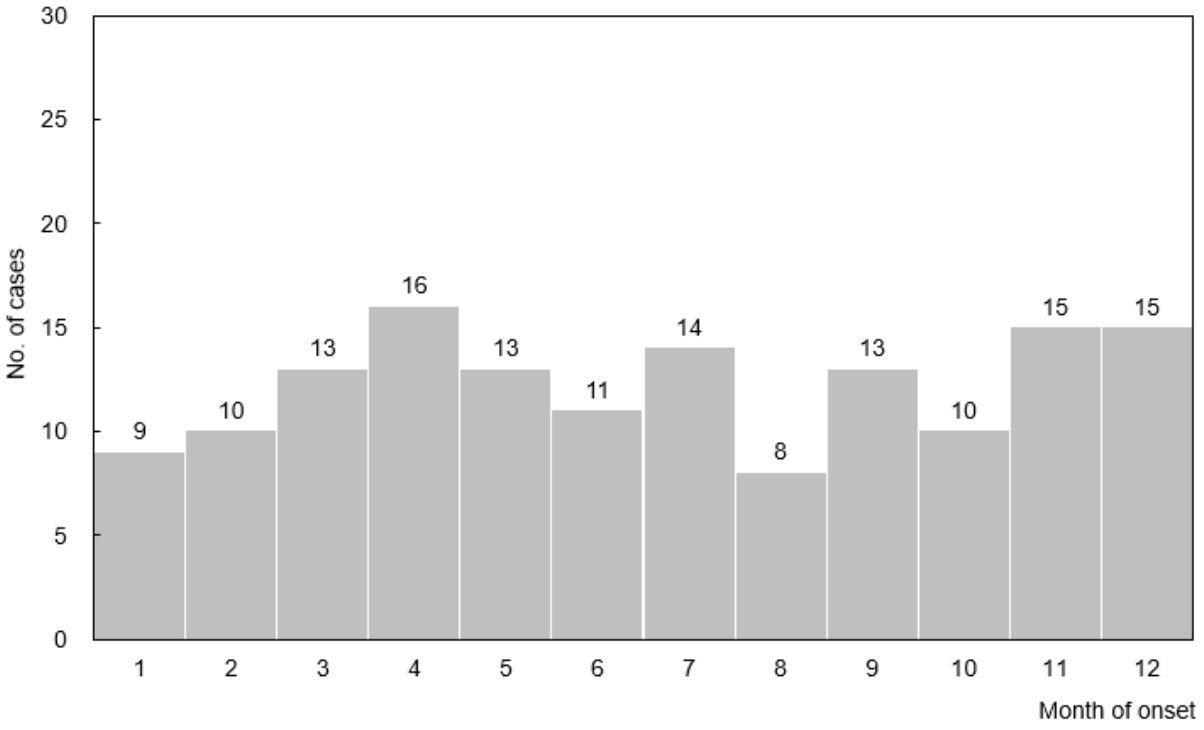

Figure 65 Number of confirmed shigellosis cases, 2019

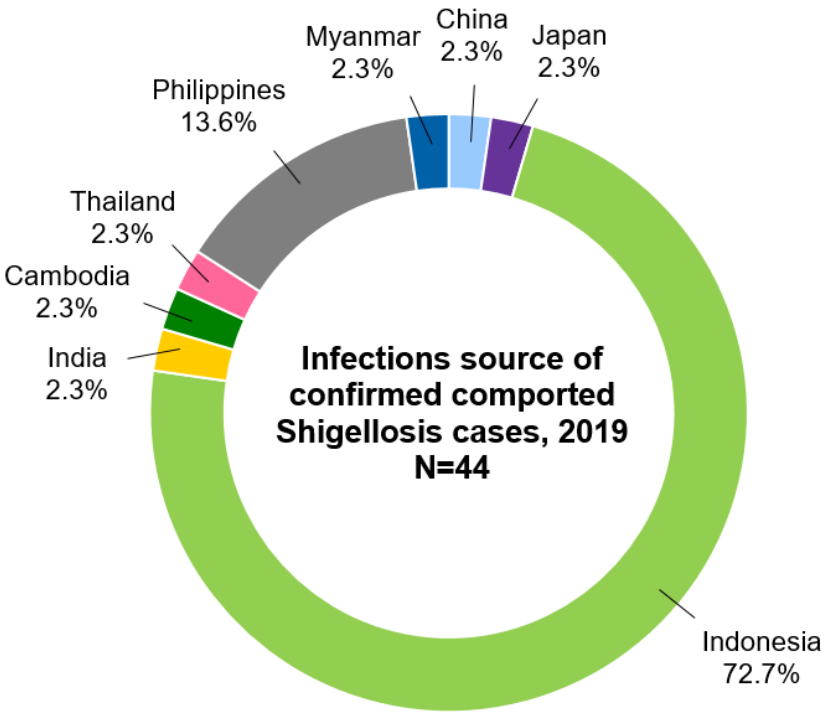

Figure 66 Infections source of confirmed imported shigellosis cases, 2019

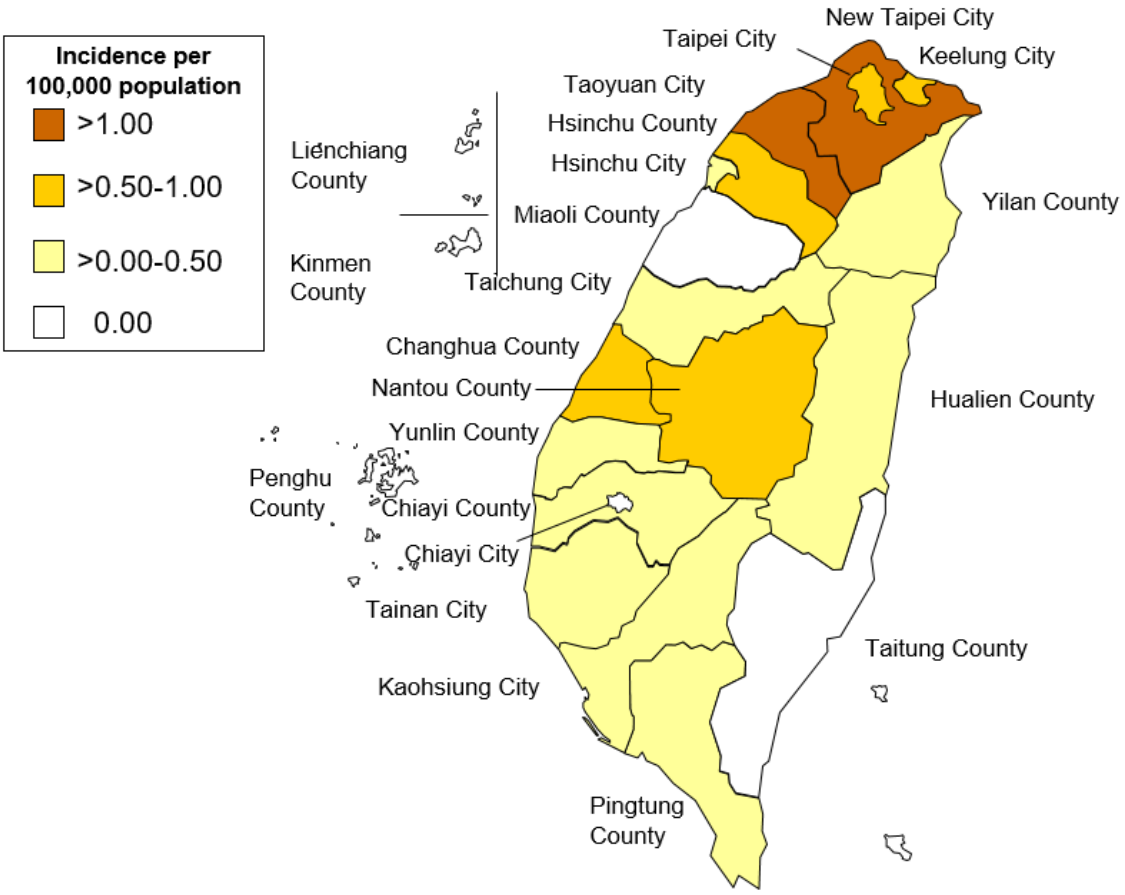

Figure 67 Geographical distribution by incidence of confirmed shigellosis cases, 2019

Influenza Case with Severe Complications

In 2019, 2,325 confirmed cases of influenza case with severe complications (incidence rate: 9.85 per 100,000 population) were reported, which represented a increase compared to 1,196 confirmed cases (incidence rate: 5.07 per 100,000 population) in 2018. The data of confirmed cases in 2019 are analyzed as follows:

(1) By gender

There were 1,373 male cases (59.1%) and 952 female cases (40.9%) with male to female ratio of 1.4:1.0.

(2) By age group

There were 1,133 cases in 65 years and over age group, 917 cases in 40-64 years age group, 113 cases in 25-39 years age group, 66 cases in 5-14 years age group, 54 cases in 1-4 years age group, 31 cases in 15-24 year age group, and 11 cases in 0-1 year age group.

(3) By month

September had the highest number of incidents with 263 cases reported, followed by December with 261 cases, February with 256 cases, January with 254 cases, August with 243 cases, July with 239 cases, June with 163 cases, March with 136 cases, April and October each with 133 cases, November with 131 cases, and May with 113 cases.

(4) By residential region

Except Lienchiang County, all cities and counties had confirmed cases of influenza case with severe complications reported in 2019. New Taipei City had the highest number of incidents with 420 confirmed cases reported, followed by Tainan City with 259 cases, Kaohsiung City with 235 cases, Taoyuan City with 230 cases, Taipei City with 204 cases, Taichung City with 196 cases, Yunlin County with 95 cases, Pingtung County with 93 cases, Changhua County with 92 cases, Yilan County and Chiayi County each with 69 cases, Miaoli County each with 66 cases, Nantou County with 60 cases, Taitung County with 56 cases, and Hualien County with 55 cases, whereas the other cities and counties all had less than 30 cases.

The incidence rate of confirmed cases per 100,000 population was the highest in Taitung County (25.71), followed by Hualien County (16.81) and Yilan County (15.17).

(5) Imported cases and countries of infection

In the 10 imported cases, there were 4 cases from China, 2 cases from Japan, and 1 case each from Turkey, Korea, Austria and Brunei.

(6) By virus type

By virus type, there were 2,243 cases associated with influenza A viruses (1,751 cases of H1, 413 cases of H3, and 79 cases were untyped) and 82 cases associated with influenza B viruses.

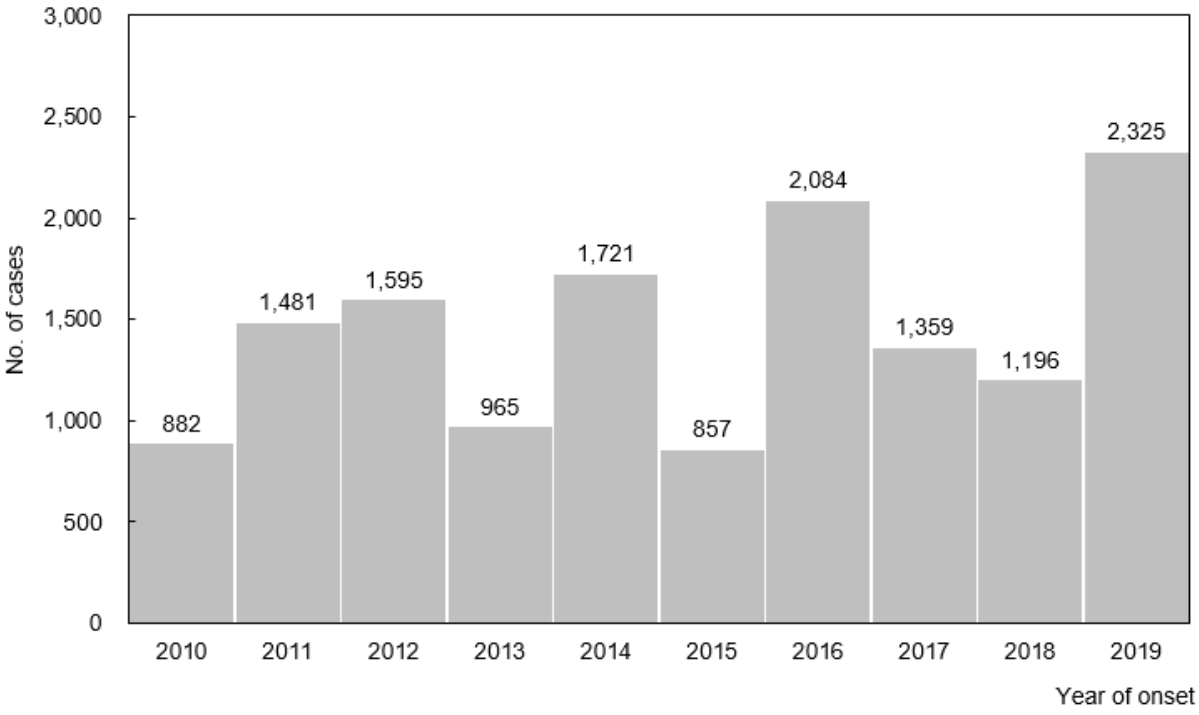

Figure 68 Number of confirmed influenza case with severe complications cases, 2010-2019

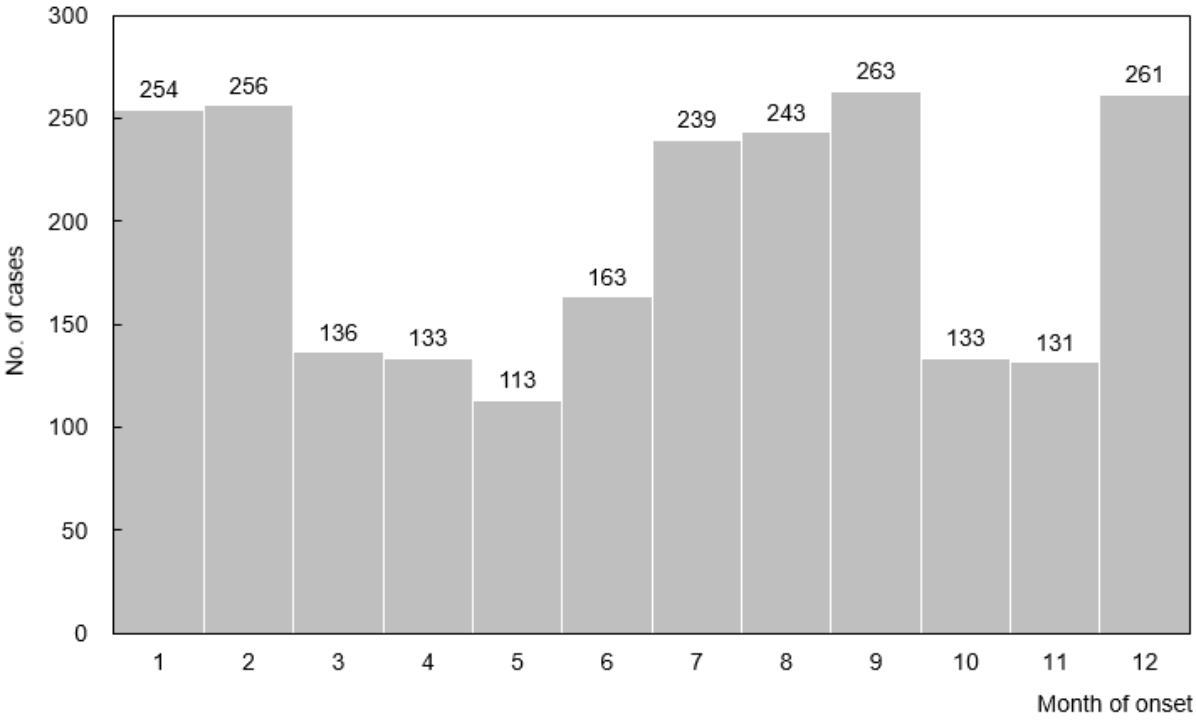

Figure 69 Number of confirmed influenza case with severe complications cases, 2019

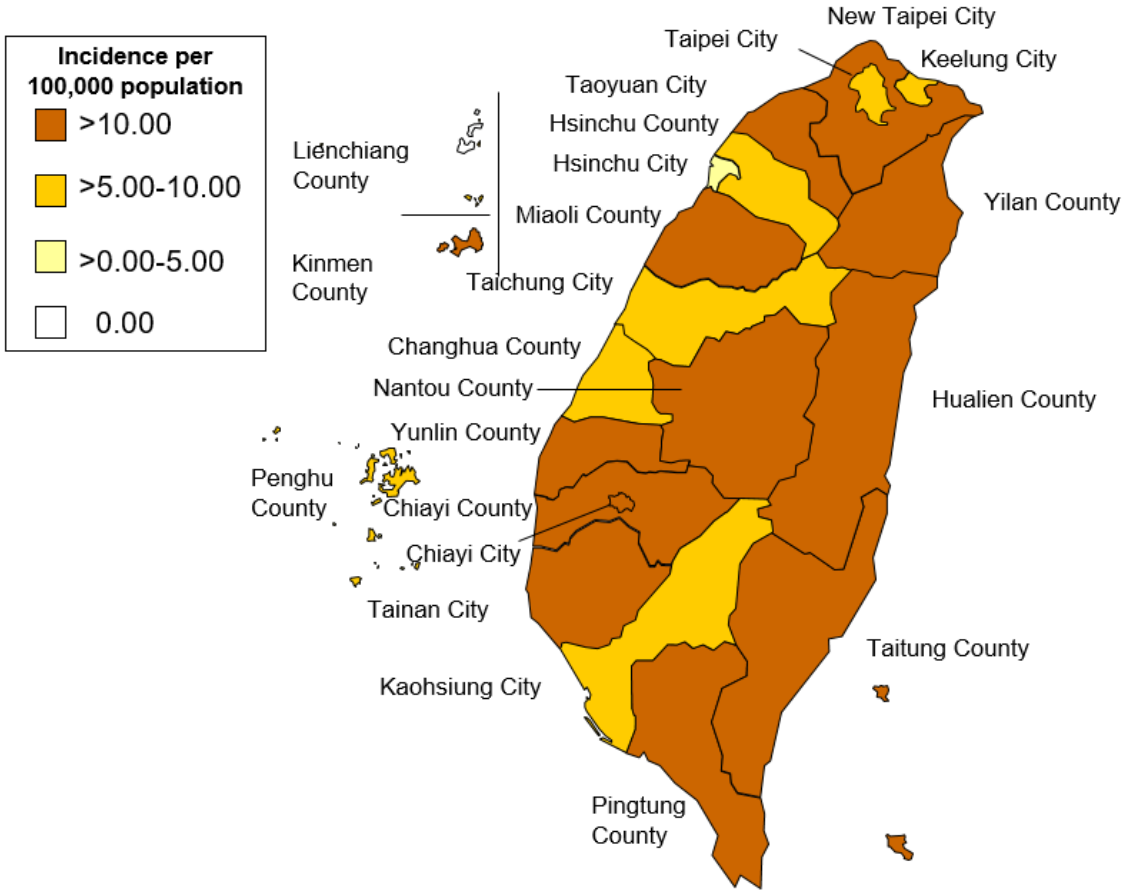

Figure 70 Geographical distributions by incidence of confirmed influenza case with severe complications cases, 2019

Government-funded influenza vaccination coverage rate

In the government-funded influenza vaccination program for influenza season 2018-2019, as recommended by Influenza Control and Prevention Division and the Immunization Division under the Ministry of Health and Welfare Infectious Disease Control and Prevention Advisory Committee during the Influenza Control and Prevention Advisory Meeting, trivalent inactivated influenza vaccines (TIV) were used in eleven high-risk groups, including the elders aged more than 65 years, adults aged 50 to 64 years, pre-school children aged 6 months through 6 years, students aged 7 years through 18 years, residents and staff in nursing homes and other long-term care facilities, healthcare and public health personnel, poultry or livestock farmers and animal health inspectors, people with catastrophic illness and 19-49 years of age who have underlying medical conditions, pregnant women and parents of infants less than 6 months of age, and kindergarten caretakers and child-care professionals. The influenza vaccine uptake rates obtained via the Influenza Vaccine Information System (IVIS) in this influenza season, were described below:

(1) Coverage rates among high-risk groups (See Table 28 for more details)

The vaccination doses and coverage rates for each group were as follows: the elders aged more than 65 years: 1,456,147 people/43.2%; adults aged 50 to 64 years: 947,690 people/18.1%; pre-school children aged 6 months through 6 years vaccinated at least one dose: 500,790 people/42.9%; students aged 7 years through 18 years: 1,674,285 people/70.4%; staff in nursing homes and other long-term care facilities: 40,613 people/96.5%;people with catastrophic illness: 48,680 people; healthcare workers: 215,287 people/69.1%; public health personnel: 20,887 people/64.7%; poultry or livestock farmers and animal health inspectors: 8,843 people/95.9%; 19-49 years of age who have underlying medical conditions: 93,577 people; pregnant women and parents of infants less than 6 months of age: 84,210 people; kindergarten caretakers and child-care professionals: 14,204 people/25.7%.

(2) Utilization rates by months (See Figures 71 and 72 for more details)

The government-funded influenza vaccination program started from October 15, 2018. Most of the recipients received the vaccines during the period of October 15 to December 31. According to the quantity supplied-vaccines, up to 96.6% of 0.5mL influenza vaccines were administered

by end of December. The vaccine utilization rate then increased slowly after December. After the end of March 2019, the cumulative utilization rate was kept at 99.9%.

As for 0.25mL influenza vaccines, the percentage of the vaccines administered reached 82% by the end of January 2019. The percentage then increased slowly, After the end of March 2019, the cumulative utilization rate was kept at 85%.

(3) Coverage by cities/counties (See Table 29 for more details)

The average coverage rate of government-funded influenza vaccine was 39.2%. Northern Taiwan had the highest coverage rate of 42.1%, followed by 41.5% and 41.2% in both eastern Taiwan and Central Taiwan. The coverage rate in Chiayi City was 51.0%, which was the highest among all cities and counties. In Lienchiang County, Changhua County, Yilan County, Taoyuan City, Nantou County, Hsinchu City, Taitung County, Hualien County, Kaohsiung City, Keelung City, Chiayi County, Hsinchu County, Miaoli County, and Tainan city, the coverage rates were higher than the average rate.

Table 28 Government-funded influenza vaccination coverage rates among high-risk groups, 2018-2019

High-risk groups	No. of recipients vaccinated	Coverage rates
Elders aged more than 65 years*	1,456,147	43.2%
Adults aged 50 to 64 years	947,690	18.1%
Pre-school children aged 6 months through 6 years vaccinated at least one dose	500,790	42.9%
Students aged 7 years through 18 years	1,674,285	70.4%
People with catastrophic illness	48,680	-
Staff in nursing homes and other long-term care facilities	40,613	96.5%
Related Healthcare workers	308,368	74.9%
Registered health care workers	*215,287*	*69.1%*
Others workers in hospitals	*93,081*	*92.9%*
Public health personnel	20,887	64.7%
Infection control workers	*11,736*	*90.7%*
Emergency medical technicians	*5,177*	*56.3%*
Airborne service corps	*52*	*18.2%*
Coast guards	*2,021*	*52.5%*
Border control workers	*1,901*	*31.6%*
Poultry or livestock farmers and animal health inspectors	8,843	95.9%
19-49 years of age who have underlying medical conditions	93,577	-
Pregnant women and parents of infants less than 6 months of age	84,210	-
Kindergarten caretakers and child-care professionals	14,204	25.7%
Total	5,198,249	

*including residents in long term care facilities

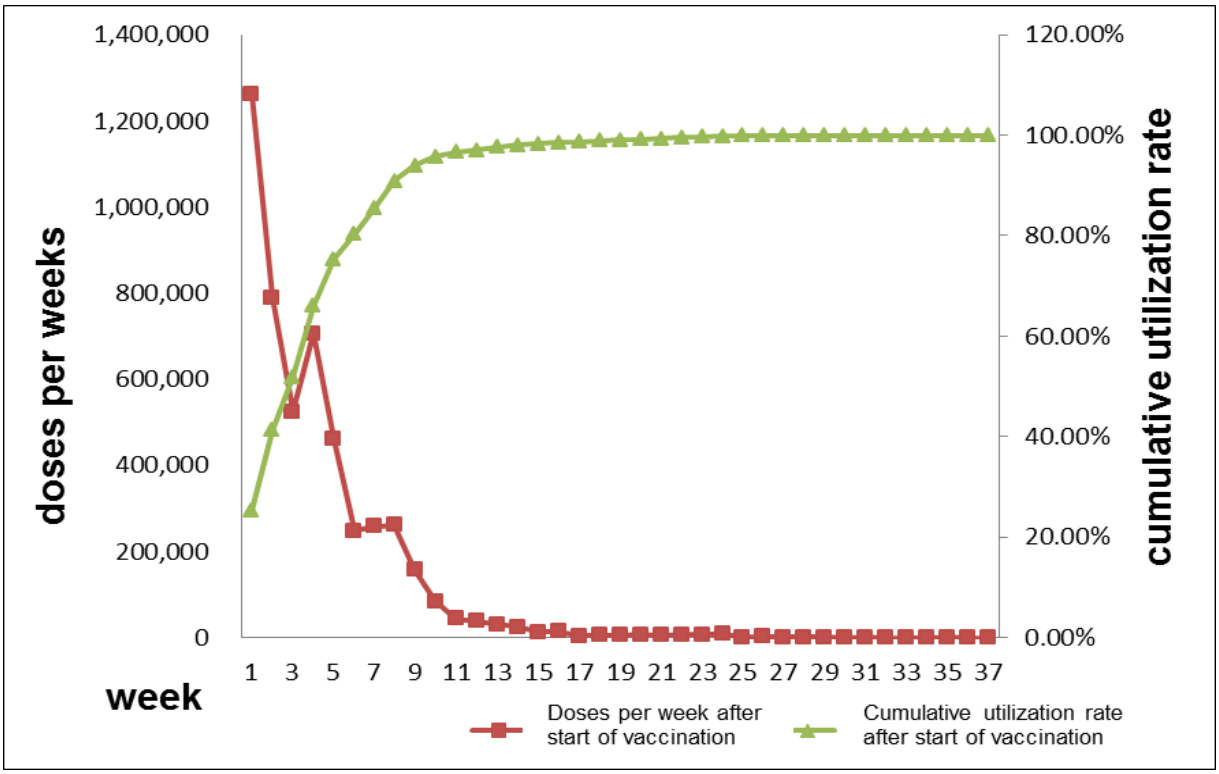

Figure 71 Immunization progress with 0.5ml influenza vaccine shots

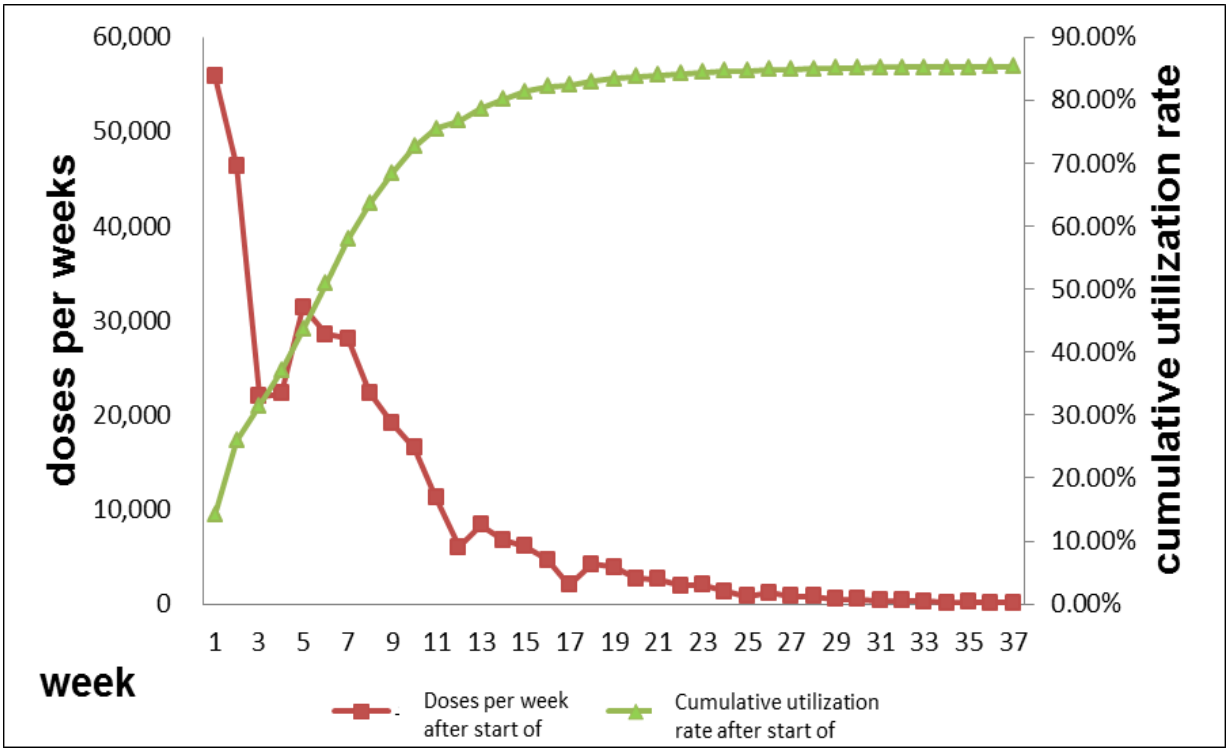

Figure 72 Immunization progress with 0.25ml influenza vaccine shots

Table 29 Government-funded influenza vaccination coverage rates by cities/counties, 2018-2019

Locality	Target population	Vaccinated population	Coverage rate
Taipei City	1,548,999	550,917	35.57%
New Taipei City	2,082,159	720,573	34.61%
Keelung City	202,311	82,862	40.96%
Yilan County	248,825	108,807	43.73%
Kinmen County	69,529	13,810	19.86%
Lienchiang County	6,991	3,247	46.45%
Taoyuan City	1,114,286	480,211	43.10%
Hsinchu City	238,713	99,899	41.85%
Hsinchu County	281,201	113,872	40.49%
Miaoli County	297,562	118,242	39.74%
Taichung City	1,485,603	577,975	38.91%
Changhua County	677,940	309,472	45.65%
Nantou County	279,712	117,929	42.16%
Yunlin County	381,168	148,257	38.90%
Chiayi City	156,821	80,049	51.04%
Chiayi County	284,062	116,008	40.84%
Tainan City	1,024,529	404,036	39.44%
Kaohsiung City	1,479,575	608,772	41.15%
Pingtung County	449,180	169,116	37.65%
Penghu County	53,845	20,812	38.65%
Hualien County	185,855	76,558	41.19%
Taitung County	120,451	50,403	41.85%
Total	12,669,317	4,971,827	39.24%

Note: 1. Data source: Influenza Vaccine Information System (IVIS), October 15, 2018 to September 30, 2019

2. The coverage rates were calculated by reports from the cities and counties.

3. People who were not eligible for the government-funded influenza vaccination program and the 2nd dose for children under 6 years old were not calculated.

4. Patients with catastrophic illness, people with medical conditions, pregnant women and parents of infants less than 6 months of age and others were not calculated because the target population could not be estimated by cities/counties.

Syphilis

In 2019, 9,397 confirmed cases of syphilis (incidence rate: 39.82 per 100,000 population) were reported, which represented an decrease compared to 9,808 confirmed cases (incidence rate: 41.59 per 100,000 population) in 2018. The data of confirmed cases in 2019 are analyzed as follows:

(1) By gender

There were 7,592 male cases (80.8%) and 1,805 female cases (19.2%) with male to female ratio of 4.2:1.0.

(2) By age group (by age of diagnosis)

The cases occurred mostly in 25-39 years age group with 4,088 cases (43.5%) reported, followed by 40-64 years age group with 2,177 cases (23.2%), 65 years and over age group with 2,099 cases (22.3%), 15-24 years age group with 1,030 cases (11.0), and 5-14 years age group with 3 cases (less than 0.1%).

(3) By month (by date of diagnosis)

There were no specific prevalent months or seasons for syphilis in 2019, and there were confirmed cases reported in each month of the year.

(4) By residential region

All cities and counties had confirmed cases of syphilis reported in 2019. New Taipei City had the highest number of incidents with 1,937 cases (20.6%) reported, followed by Taipei City with 1,281 cases (13.6%), Kaohsiung City with 1,093 cases (11.6%), Taichung City with 1,072 cases (11.4%), Taichung City with 1,043 cases (11.1%), Tainan City with 619 cases (6.6%), Pingtung County with 341 cases (3.6%), Changhua County with 312 cases (3.3%), Yilan County with 262 cases (2.8%), Hsinchu City with 180 cases (1.9%), Hualien County and Keelung City each with 162 cases (1.7% respectively), Yunlin County with 160 cases (1.7%), Hsinchu County with 159 cases (1.7%), Nantou County with 132 cases (1.4%), Miaoli County with 127 cases (1.4%), and Taitung County and Chiayi County each with 111 cases (1.2% respectively). The other cities and counties had less than 100 confirmed cases.

The incidence rate of confirmed cases per 100,000 population was the highest in Yilan County (57.62), followed by Taitung County (50.95), and Hualien County (49.53).

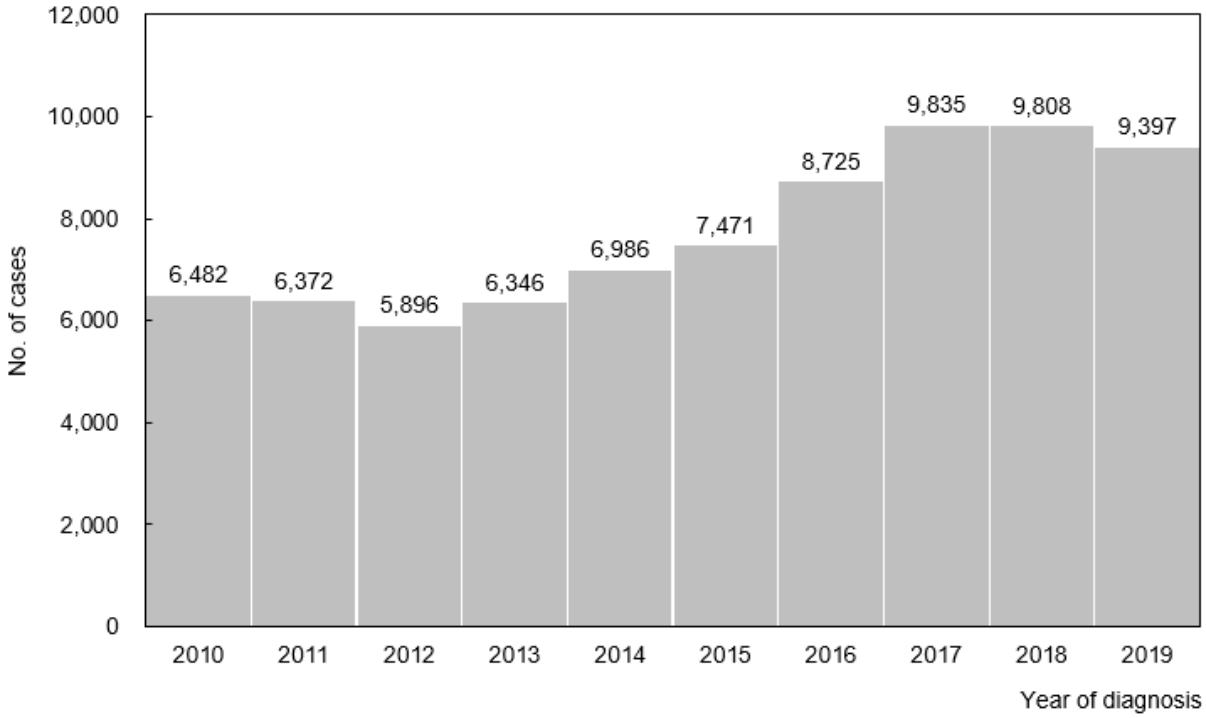

Figure 73 Number of confirmed syphilis cases, 2010-2019

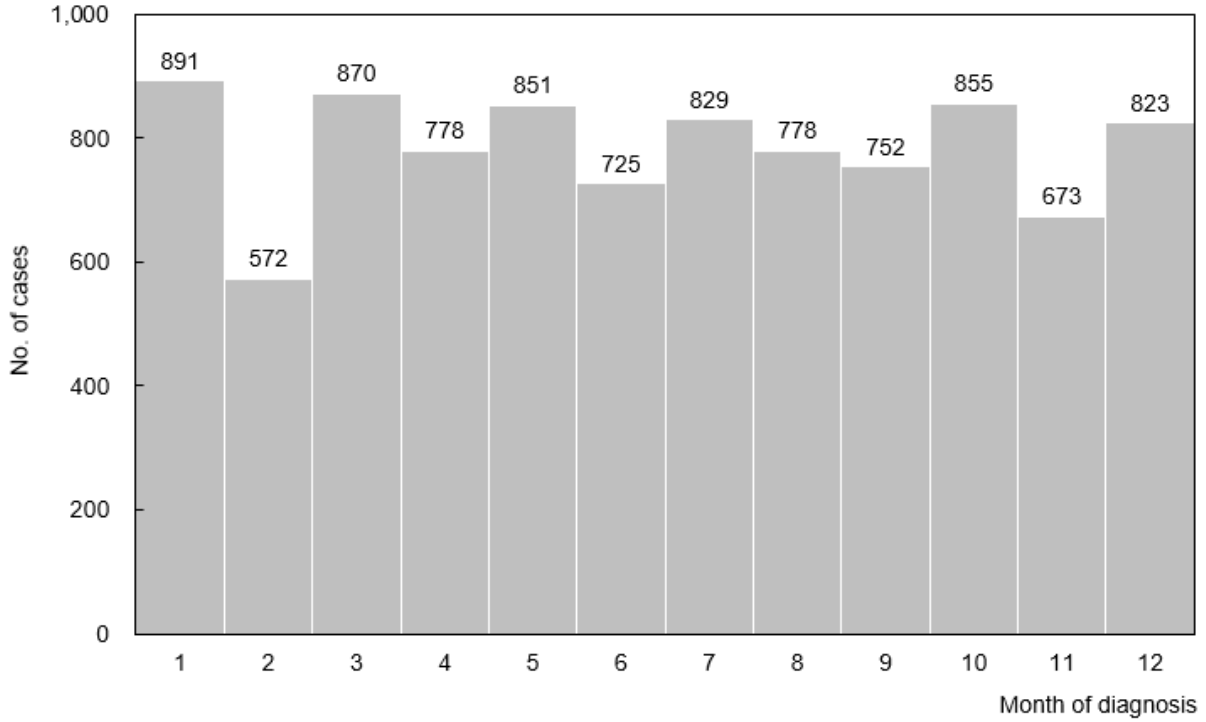

Figure 74 Number of confirmed syphilis cases, 2019

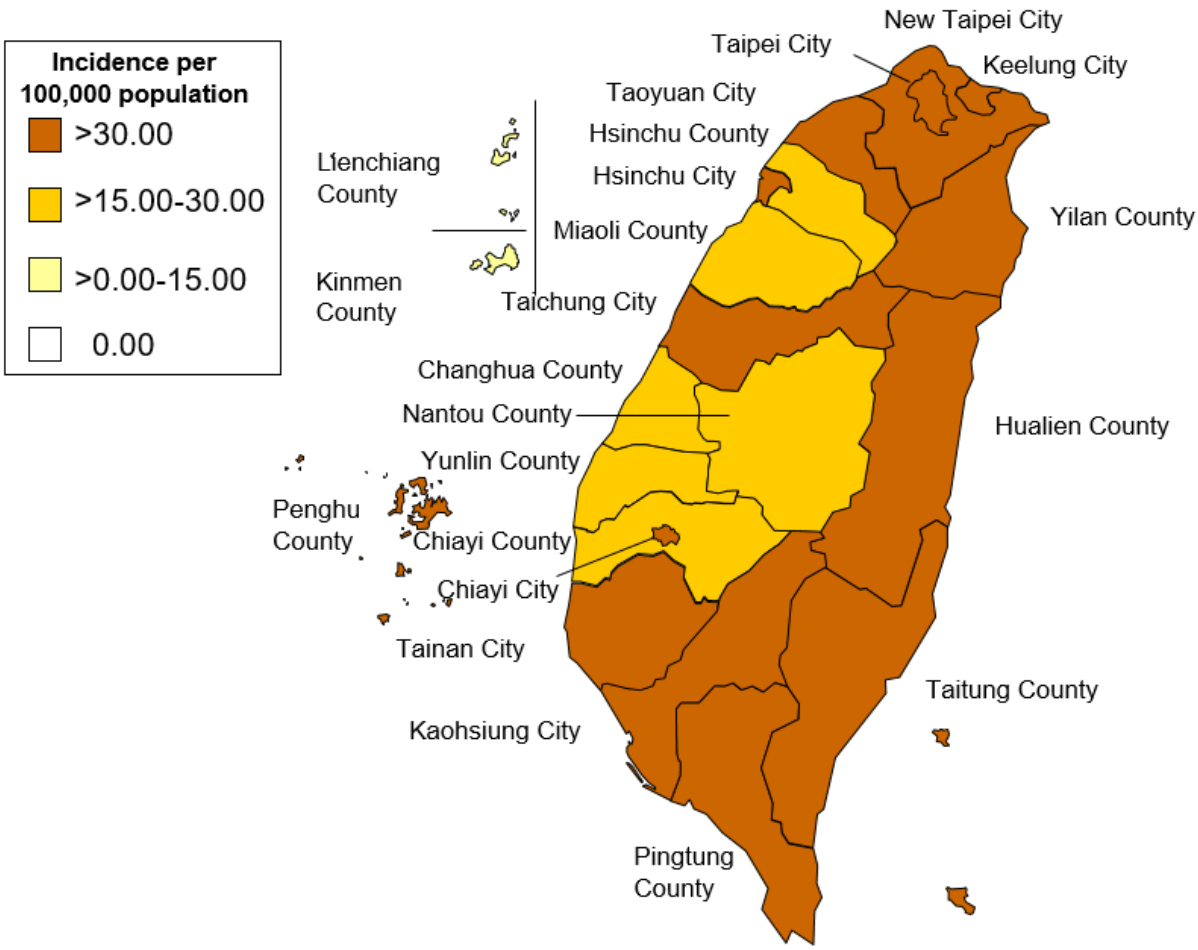

Figure 75 Geographical distribution by incidence of confirmed syphilis cases, 2019

Gonorrhea

In 2019, 4,523 confirmed cases of gonorrhea (incidence rate: 19.17 per 100,000 population) were reported, which represented an increase compared to 4,209 confirmed cases (incidence rate: 17.85 per 100,000 population) in 2018. The data of confirmed cases in 2019 are analyzed as follows:

(1) By gender

There were 4,184 male cases (92.5%) and 339 female cases (7.5%) with male to female ratio of 12.3:1.0.

(2) By age group (by age of diagnosis)

The cases occurred mostly in 25-39 years age group with 2,355 cases (52.1%) reported, followed by 15-24 years age group with 1,407 cases (31.1%), 40-64 years age group with 691 cases (15.3%), 65 years and over age group with 54 cases (1.2%), 5-14 years age group with 15 cases (0.3%), and 1-4 years age group with 1 case (less than 0.1%).

(3) By month (by date of diagnosis)

There were no specific prevalent months or seasons for gonorrhea in 2019, and there were confirmed cases reported in each month of the year.

(4) By residential region

Except Lienchiang County, all other cities and counties had confirmed cases. New Taipei City had the highest number of incidents with 1,174 cases (26.0%) reported, followed by Taipei City with 847 cases (18.7%), Taoyuan City with 487 cases (10.8%), Kaohsiung City with 482 cases (10.7%), Taichung City with 313 cases (6.9%), Tainan City with 219 cases (4.8%), Hsinchu County with 154 cases (3.4%), Yunlin County with 103 cases (2.3%), Keelung City with 101 cases (2.2%), Changhua County with 98 cases (2.2%), Hsinchu City with 86 cases (1.9%), Nantou County with 82 cases (1.8%), Miaoli County with 67 cases (1.5%), Chiayi County with 61 cases (1.3%), Pingtung County with 58 cases (1.3%), and Hualien County with 57 cases (1.3%). The other cities and counties had less than 50 confirmed cases.

The incidence rate of confirmed cases per 100,000 population was the highest in Taipei City (31.88), followed by New Taipei City (29.30) and Hsinchu County (27.48).

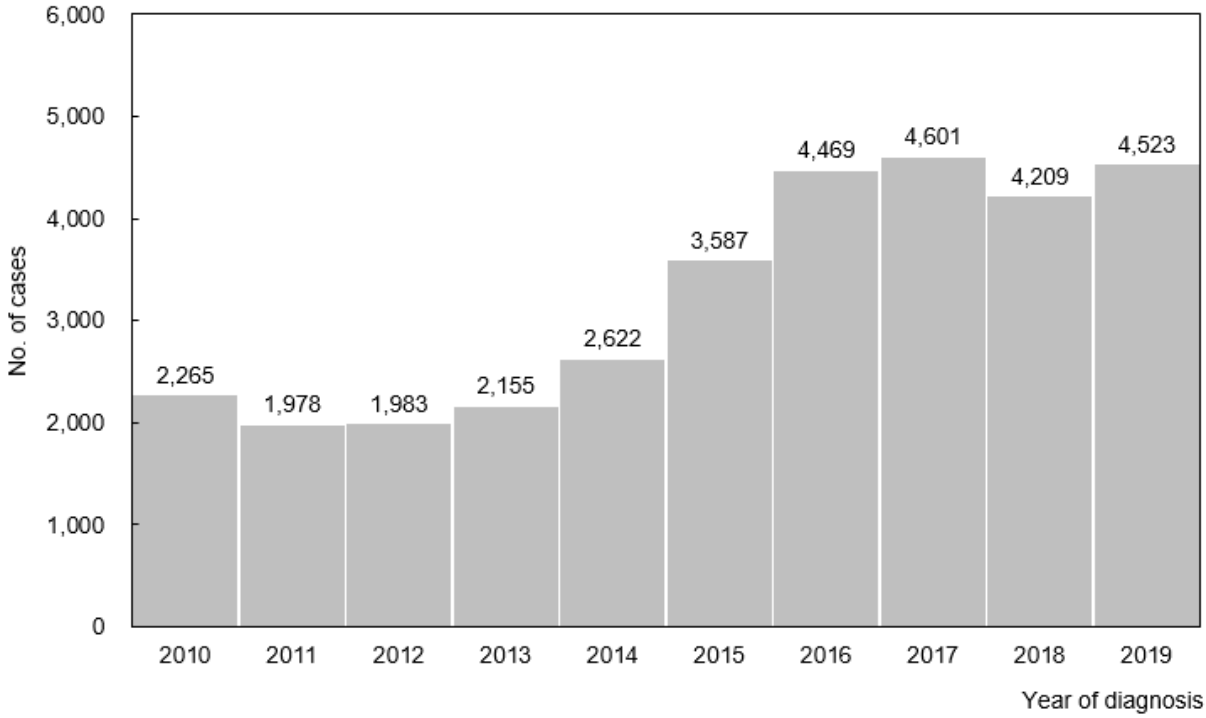

Figure 76 Number of confirmed gonorrhea cases, 2010-2019

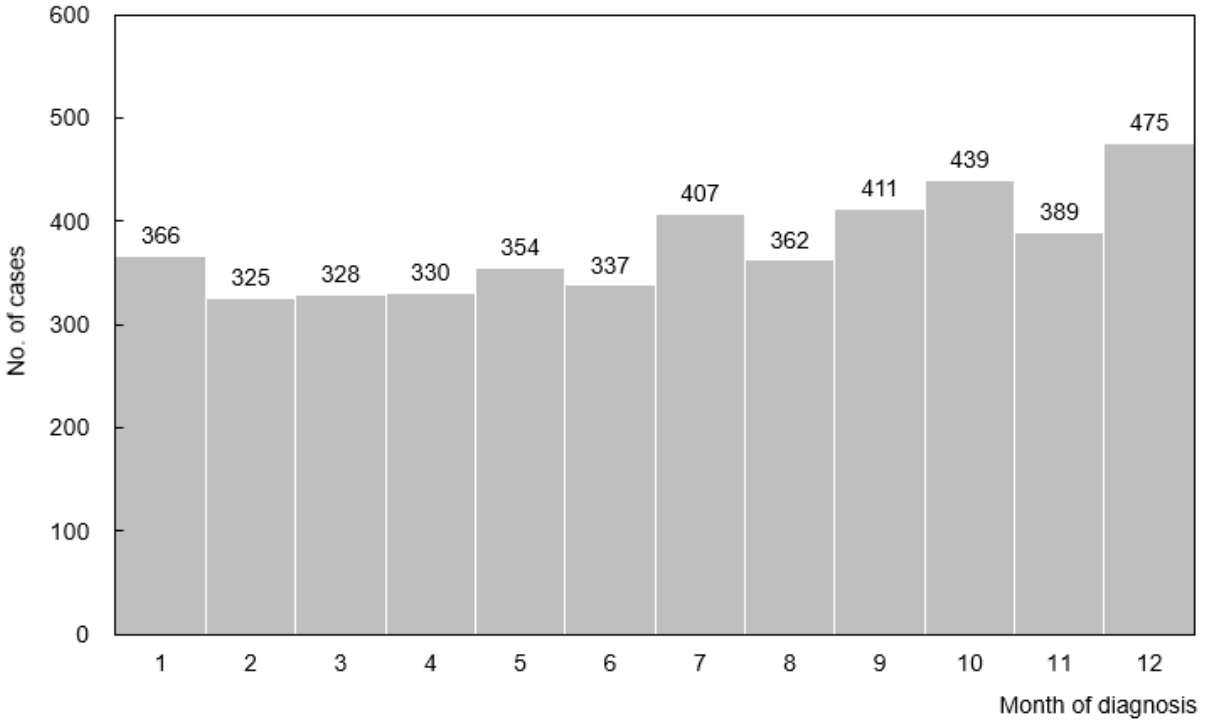

Figure 77 Number of confirmed gonorrhea cases, 2019

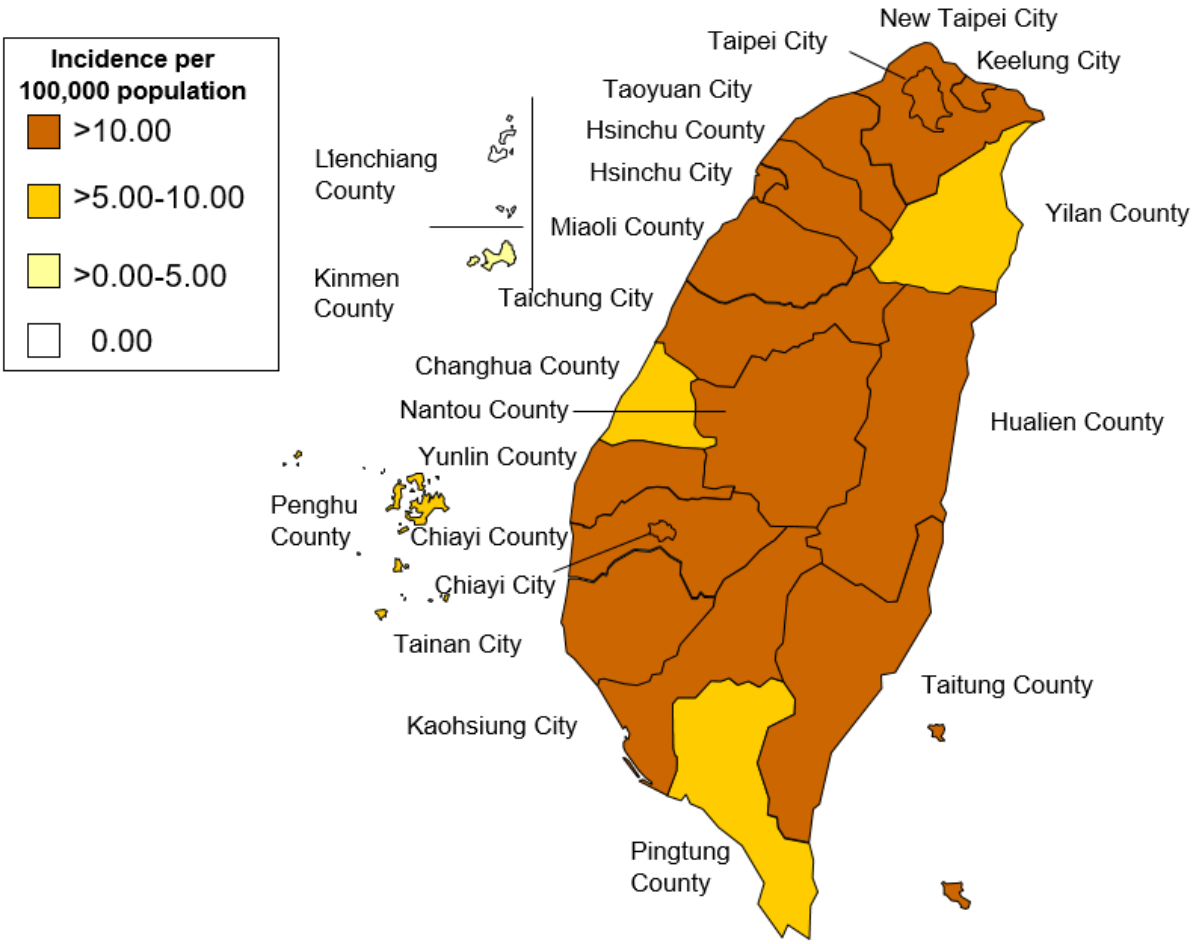

Figure 78 Geographical distribution by incidence of confirmed gonorrhea cases, 2019

HIV Infection & AIDS

From 1984 up to the end of 2019, there were 40,943 cases of human immunodeficiency virus (HIV) infection (39,667 native cases and 1,276 foreign cases) and 19,069 acquired immunodeficiency syndrome (AIDS) cases (18,856 native cases and 213 foreign cases) were reported.

In 2019, 1,838 HIV cases (1,755 native cases and 83 foreign cases) and 1,028 AIDS cases (1,005 native cases and 23 foreign cases) were diagnosed and reported. The data of native cases in 2019 are analyzed as follows (the HIV infection cases include those cases with AIDS at the time of reporting):

(1) By gender

HIV: There were 1,710 male cases (97.4%) and 45 female cases (2.6%) with male to female ratio of 38.0：1.0.

AIDS: There were 970 male cases (96.5%) and 35 female cases (3.5%) with male to female ratio of 27.7：1.0.

(2) By age group (by age of diagnosis)

HIV: There were 1,036 cases (59.0%) in 25-39 years age group, 374 cases (21.3%) in 15-24 years age group, and 330 cases (18.8%) in 40-64 years age group.

AIDS: There were 558 cases (55.5%) in 25-39 years age group, 326 cases (32.4%) in 40-64 years age group, and 103 cases (10.2%) in 15-24 years age group.

(3) By month (by date of diagnosis)

There were no specific prevalent months or seasons for HIV infection and AIDS in 2019 and there were confirmed cases reported in each month of the year.

(4) By risk factor

HIV (total): There were 1,458 cases (83.1%) caused by men who have sex with men, 203 cases (11.6%) caused by heterosexual contact, 23 cases (1.3%) caused by injection drug use, 1 case (<0.1%) involving vertical transmission, and 31 cases (1.6%) with unknown causes.

HIV (male): There were 1,458 cases (85.3%) caused by men who have sex with men, 163 cases (9.5%) caused by heterosexual contact, 22 cases (1.3%) caused by injection drug use, and 67 cases (3.9%) with unknown causes.

HIV (female): The cases were mostly caused by heterosexual contact

with 40 cases (88.9%), followed by injection drug use with 1 case (2.2%),1 case (2.2%) involving vertical transmission and unknown causes with 3 cases (6.7%).

AIDS (total): There were 734 cases (73.0%) involving men who have sex with men, 122 cases (12.1%) involving injection drug use,113 cases (11.2%) involving heterosexual contact, 2 case (0.2%) involving vertical transmission. There were also 34 cases (3.4%) with unknown causes.

AIDS (male): There were 734 cases (75.7%) involving men who have sex with men, 112 cases (11.5%) involving injection drug use,91 cases (9.4%) involving heterosexual contact, 1 case (0.1%) involving vertical transmission, and 32 cases (3.3%) with unknown causes.

AIDS (female): There were 22 cases (62.9%) involving heterosexual contact, 10 cases (28.6%) involving injection drug use, 1 case (2.9%) involving vertical transmission. There were also 2 cases (5.7%) with unknown causes.

See Tables 30 and 31 and Figures 79 and 80 for statistics of HIV infection and AIDS by risk factor.

(5) By residential region

HIV: New Taipei City had the highest reported HIV cases with 406 cases (23.1%), followed by Kaohsiung City with 281 cases (16.0%), Taipei City with 226 cases (12.9%), Taichung City with 201 cases (11.5%), and Taoyuan City with 185 cases (10.5%). Kinmen County and Lienchiang County did not have HIV infection cases reported in 2019.

The new reported confirmed HIV cases per 100,000 population in 2019 was the highest in New Taipei City (10.13) and Kaohsiung City (10.13) ,followed by Hualien County (9.78).

AIDS: New Taipei City had the highest reported AIDS cases with 219 cases (21.8%), followed by Kaohsiung City with 147 cases (14.6%), Taoyuan City with 124 cases (12.3%), Taipei City with 119 cases (11.8%) and Taichung City with 104 cases (10.3%). Kinmen County and Lienchiang County did not have AIDS cases reported in 2019.

The new reported confirmed AIDS cases per 100,000 population in 2019 was the highest in Hualien City (7.03), followed by Taoyuan County (5.55) and New Taipei City (5.47).

Table 30 Risk factors for male HIV and AIDS cases (foreigner excluded), 2019

Risk factor	HIV	%	AIDS	%
Men who have sex with men	1,458	85.3%	734	75.7%
Heterosexual contact	163	9.5%	91	9.4%
Injecting drug users	22	1.3%	112	11.5%
Recipient of blood/clotting factor	0	0.0%	0	0.0%
Vertical transmission	0	0.0%	1	0.1%
Unknown	67	3.9%	32	3.3%
Total	1,710	100.0%	**970**	**100.0%**

Table 31 Risk factors for female HIV and AIDS cases (foreigner excluded), 2019

Risk factor	HIV	%	AIDS	%
Heterosexual contact	40	88.9%	22	62.9%
Injecting drug users	1	2.2%	10	28.6%
Recipient of blood/clotting factor	0	0.0%	0	0.0%
Vertical transmission	1	2.2%	1	2.9%
Unknown	3	6.7%	2	5.7%
Total	**45**	**100.0%**	**35**	**100.0%**

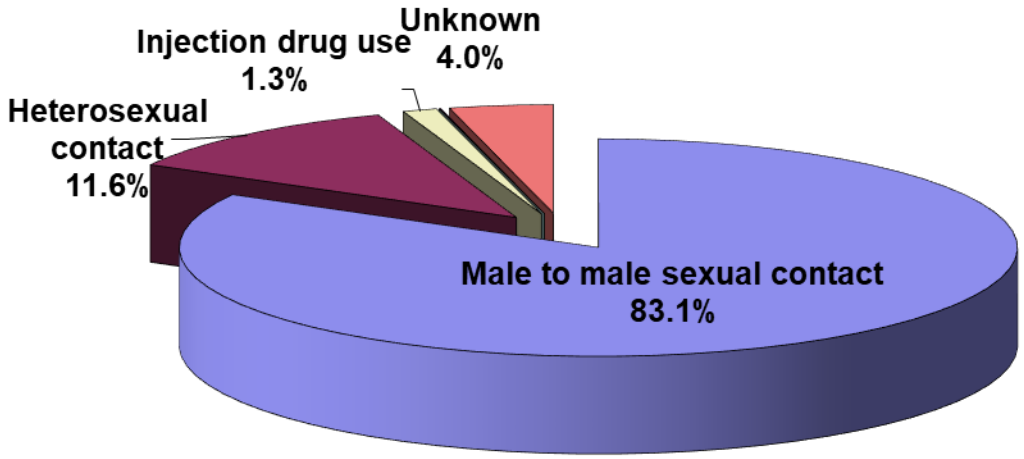

Figure 79 Risk factor of confirmed HIV infection cases (foreigner excluded), 2019

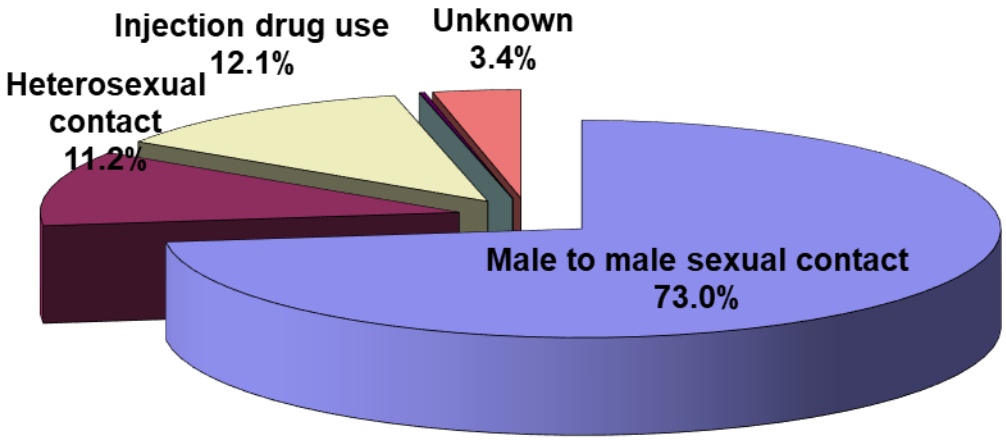

Figure 80 Risk factor of confirmed AIDS cases (foreigner excluded), 2019

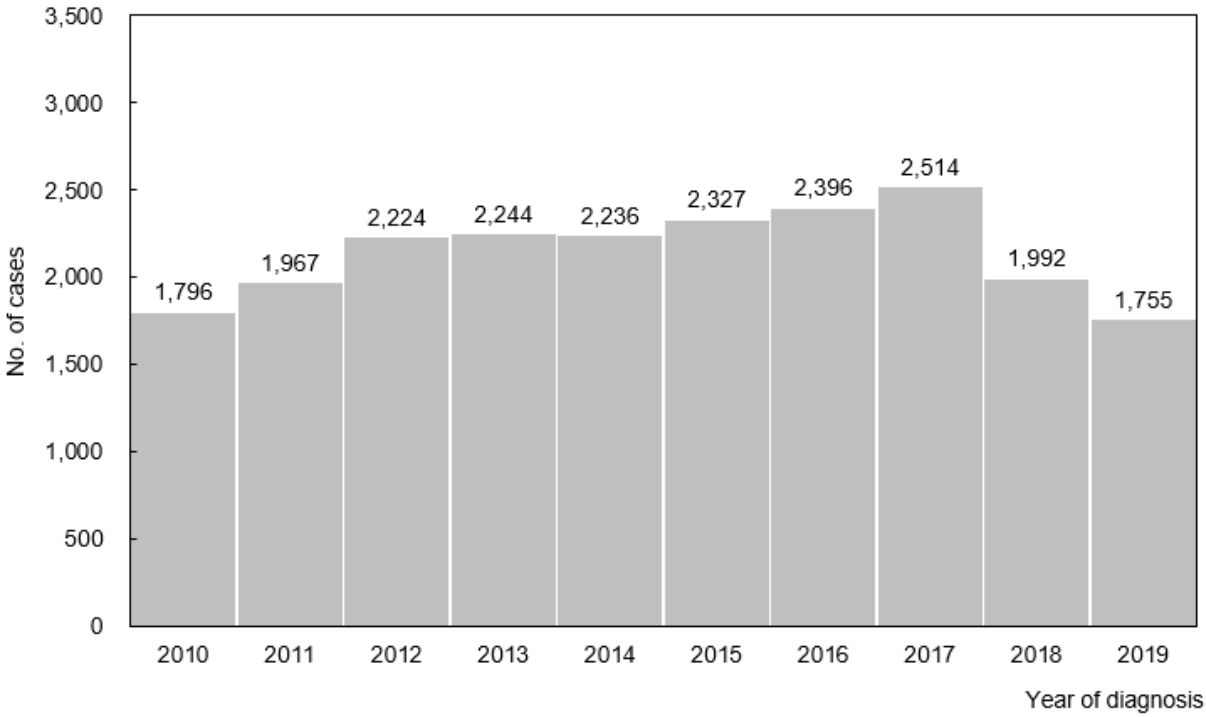

Figure 81 Number of confirmed HIV infection cases (foreigner excluded), 2010-2019

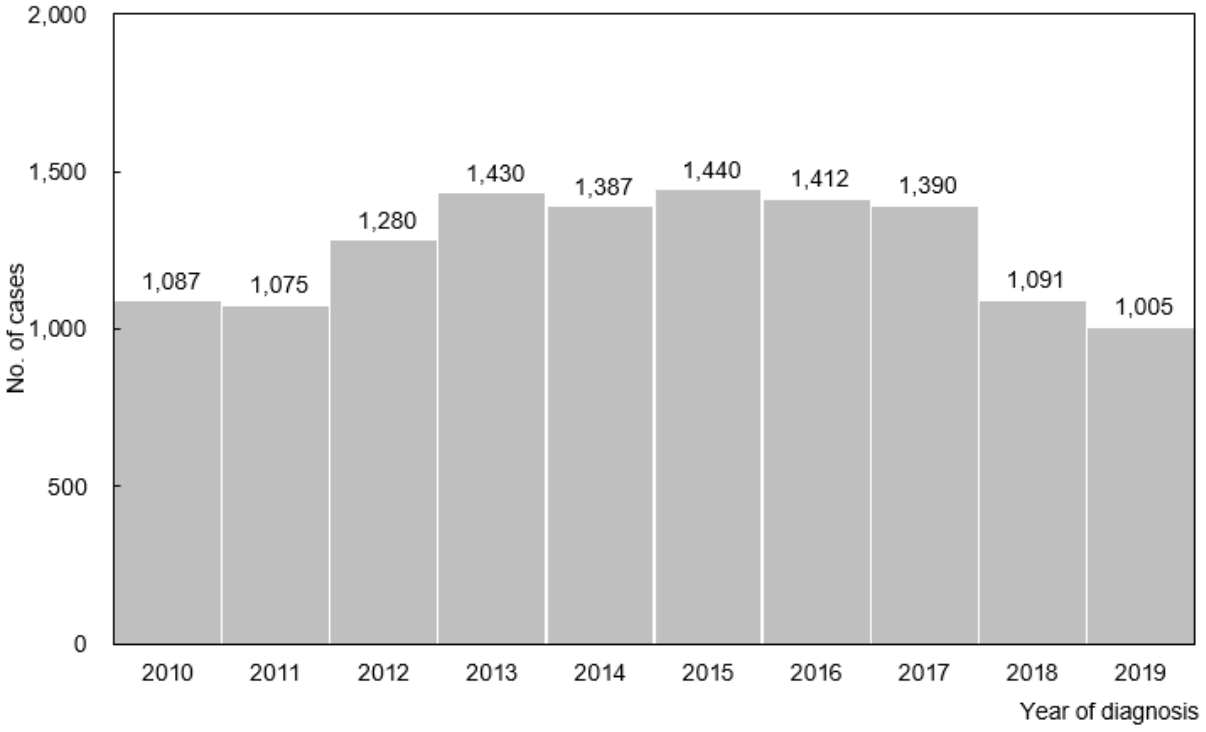

Figure 82 Number of confirmed AIDS cases (foreigner excluded), 2010-2019

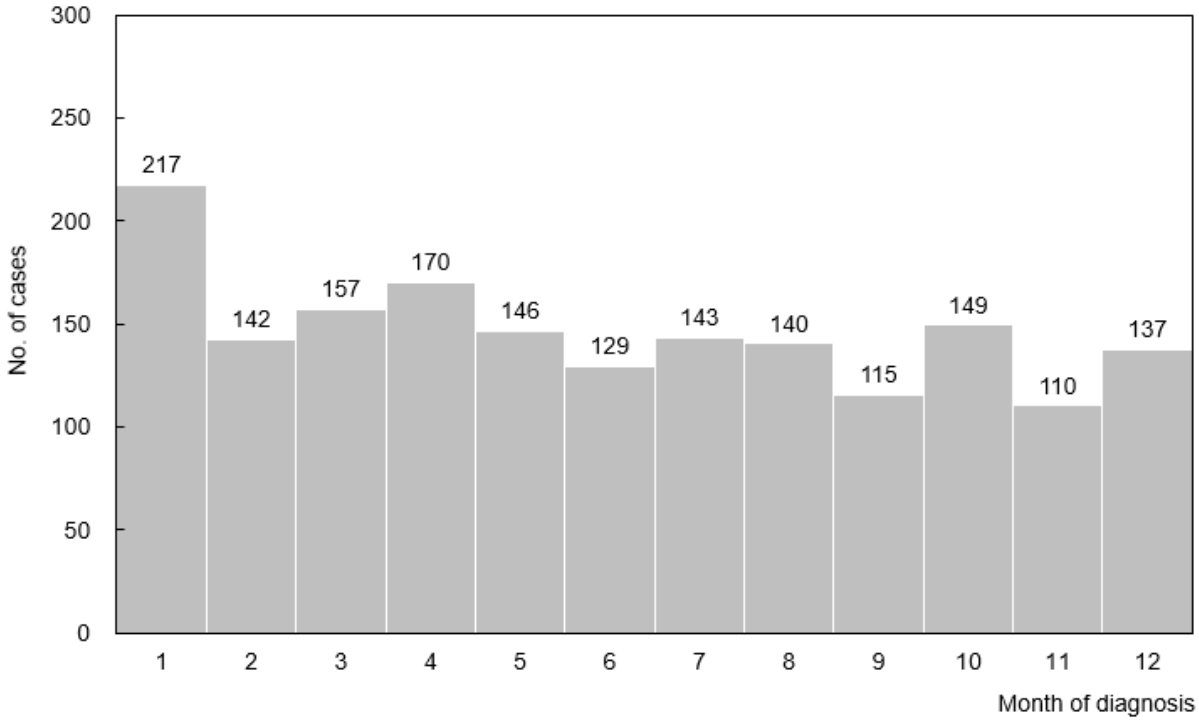

Figure 83 Number of confirmed HIV infection cases (foreigner excluded), 2019

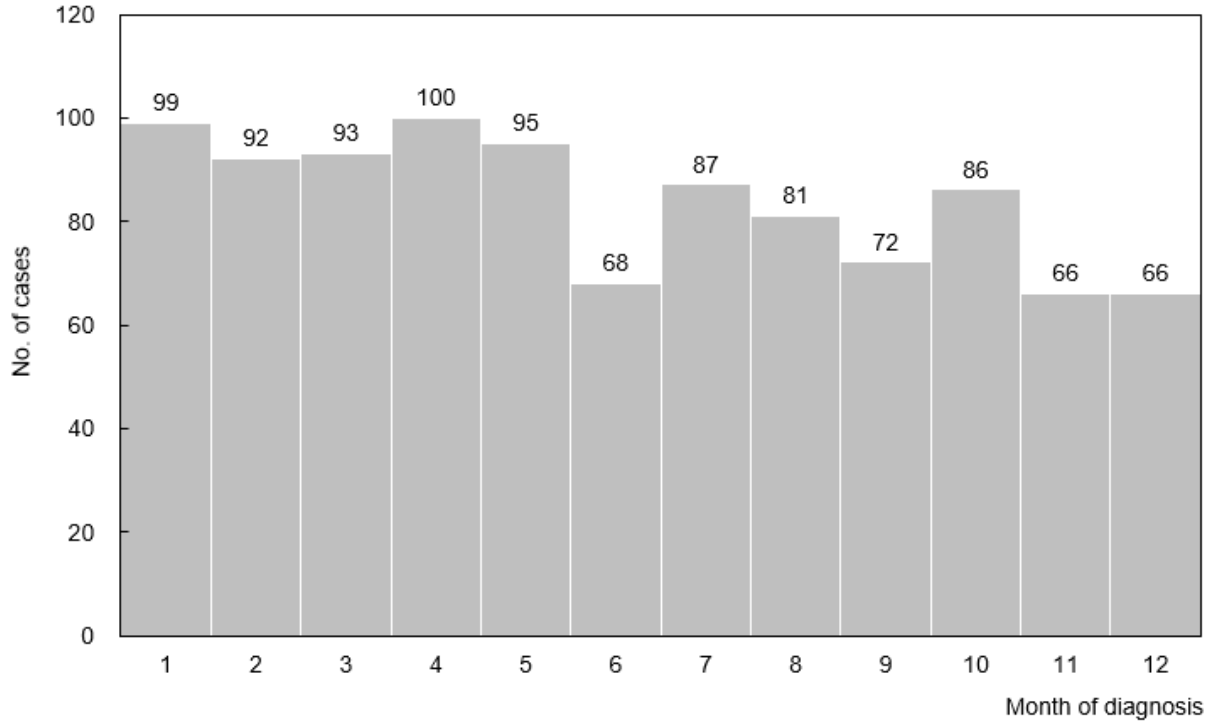

Figure 84 Number of confirmed AIDS cases (foreigner excluded), 2019

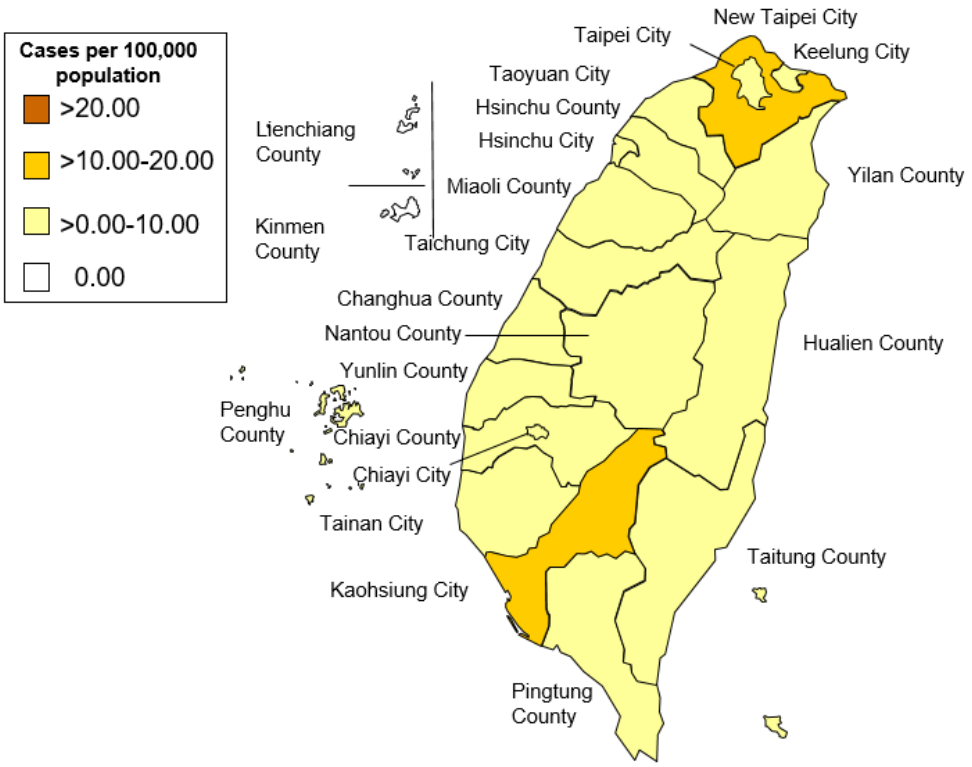

Figure 85 Geographical distribution by reported confirmed HIV infection cases per 100,000 population (foreigner excluded), 2019

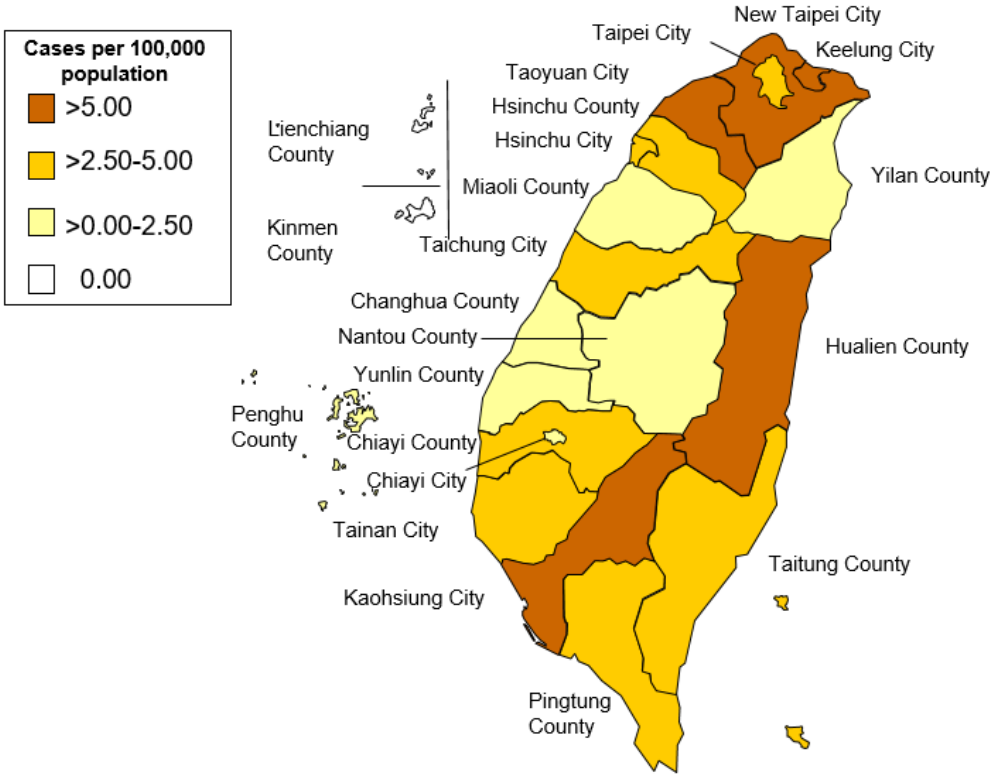

Figure 86 Geographical distribution by reported confirmed AIDS infection cases per 100,000 population (foreigner excluded), 2019

Tuberculosis

In 2019, 8,732 cases of tuberculosis (incidence rate: 37.0 per 100,000 population) were confirmed, which went down in both case number and incidence rate with 4.9% declining respectively, as compared with 9,179 confirmed cases (incidence rate: 38.9 per 100,000 population) in 2018. The data of confirmed TB cases in 2019 were analyzed as follows:

(1) By gender

There were 6,015 male cases (69%) and 2,717 female cases (31%) with a male to female ratio of 2.2:1.0. The incidence rate of tuberculosis in males (51.4 per 100,000 population) was 2.3 times higher than that in females (22.9 per 100,000 population).

(2) By age group

The number of tuberculosis cases and incidence rate per 100,000 population rose significantly with age. Of the new TB cases in 2019, 36 were aged 0-14, 261 were aged 15-24, 344 were aged 25-34, 559 were aged 35-44, 926 were aged 45-54, 1,548 were aged 55-64, and 5,058 were elderly over 65 year-old which accounted for 58% of total.

(3) By month (based on notification date)

There were no specific prevalent months or seasons for tuberculosis notification in 2019 and there were confirmed cases reported in each month of the year, with highest number in August (808 reported) and lowest in February (588 reported).

(4) By residential region

The incidence rate of tuberculosis was higher in eastern region than in western region, and was higher in southern region than in northern region. With regard to incidence rate by city and county, Pingtung county had the highest incidence rate with 69.4 per 100,000 population, followed by Hualien County with 56.9 per 100,000 population. Kinmen county and Lienchiang county had the lowest incidence rate with 11.5 and 7.6 per 100,000 population respectively.

(5) Mortality distribution

In 2019, there were 546 tuberculosis deaths with a mortality rate of 2.3 per 100,000 population. Males accounted for 418 deaths (3.6 deaths per 100,000 population) and the rest of 128 were females (1.1 deaths per 100,000 population) with a male to female death ratio of 3.3:1.0.

The tuberculosis mortality rate in Taiwan increased with age. Of the 546

tuberculosis deaths in 2019, 86% (468 cases) were elderly aged 65 years and above.

For the overall geographic distribution, tuberculosis deaths in 2019 showed a pattern of higher in eastern and southern regions and lower in northern region. Pingtung county had the highest TB mortality rate (4.9 per 100,000 population), followed by Changhua county (3.8 per 100,000 population).

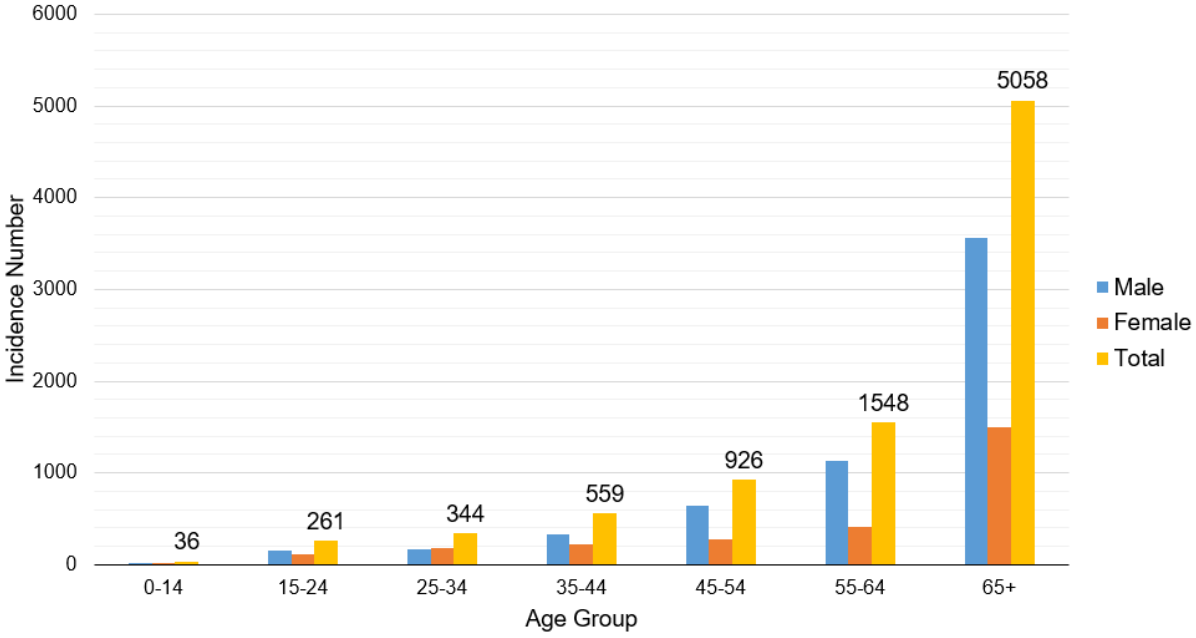

Figure 87 Tuberculosis cases number by age group and sex, 2019

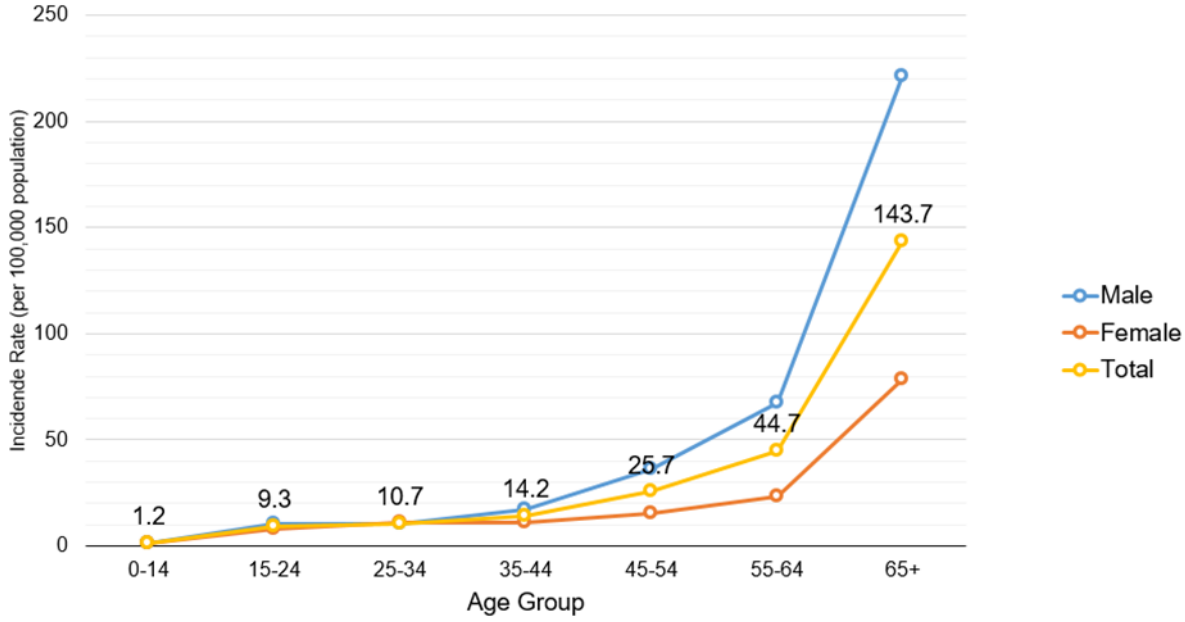

Figure 88 Incidence rate of tuberculosis by age group and sex, 2019

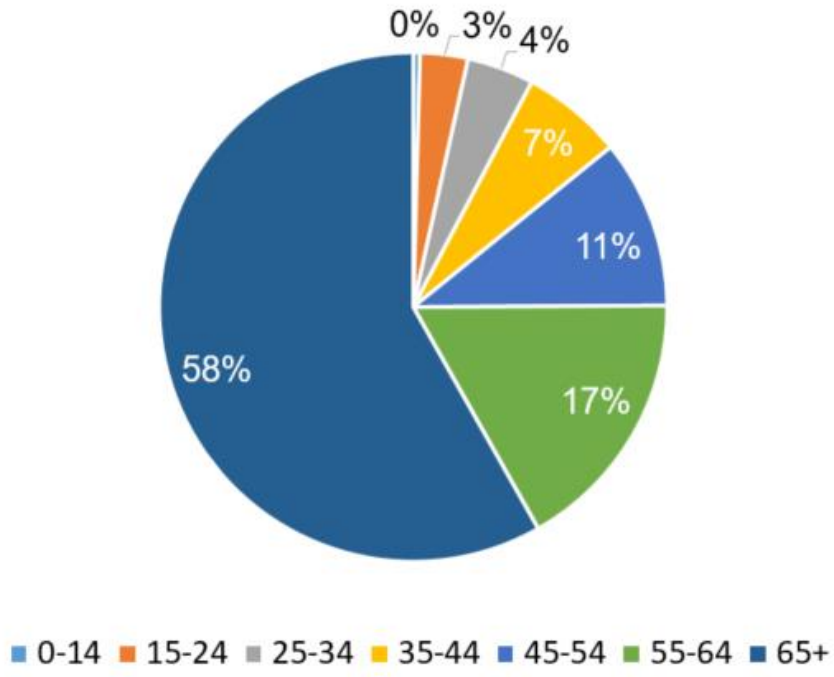

Figure 89 Distribution of tuberculosis incidence by age group, 2019

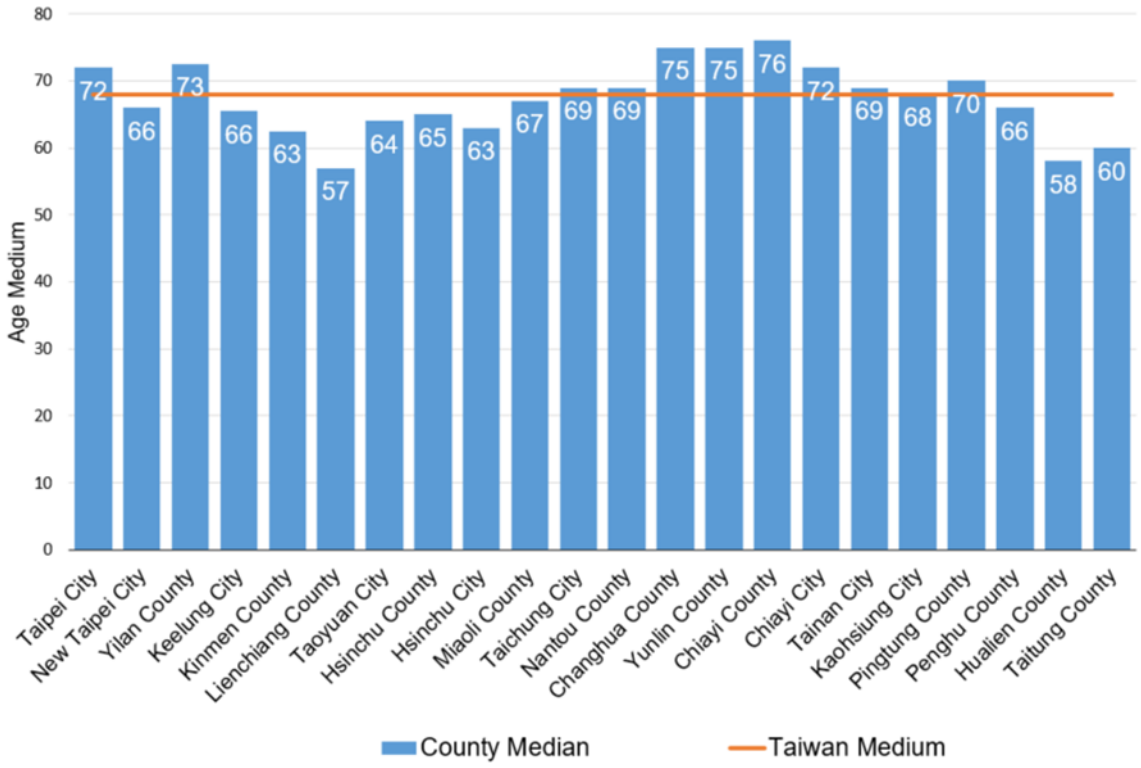

Figure 90 Tuberculosis Age Median by city and county, 2019

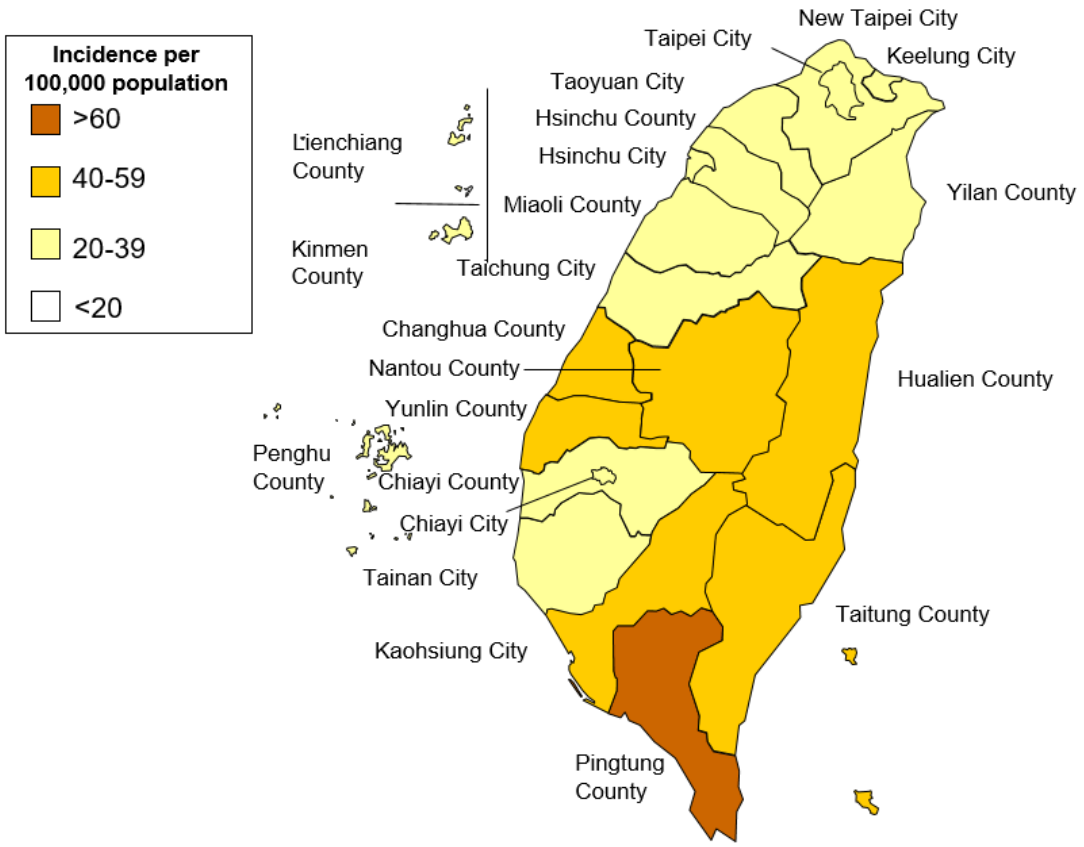

Figure 91 Geographical distribution by incidence of tuberculosis cases, 2019

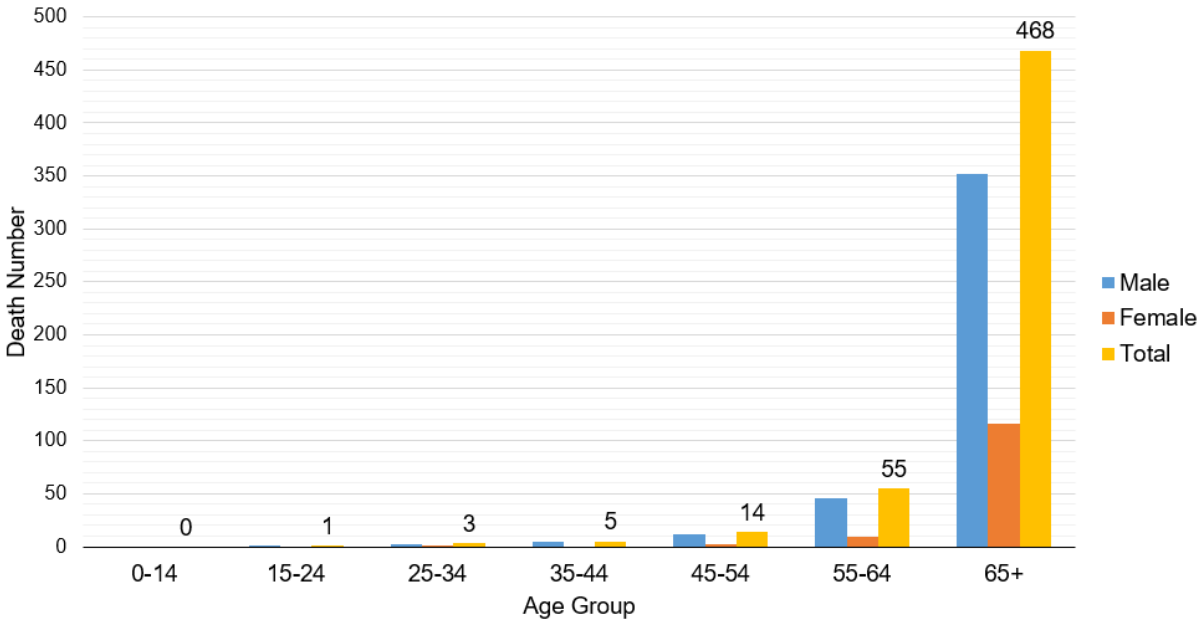

Figure 92 Mortality number of Tuberculosis by age group and sex, 2019

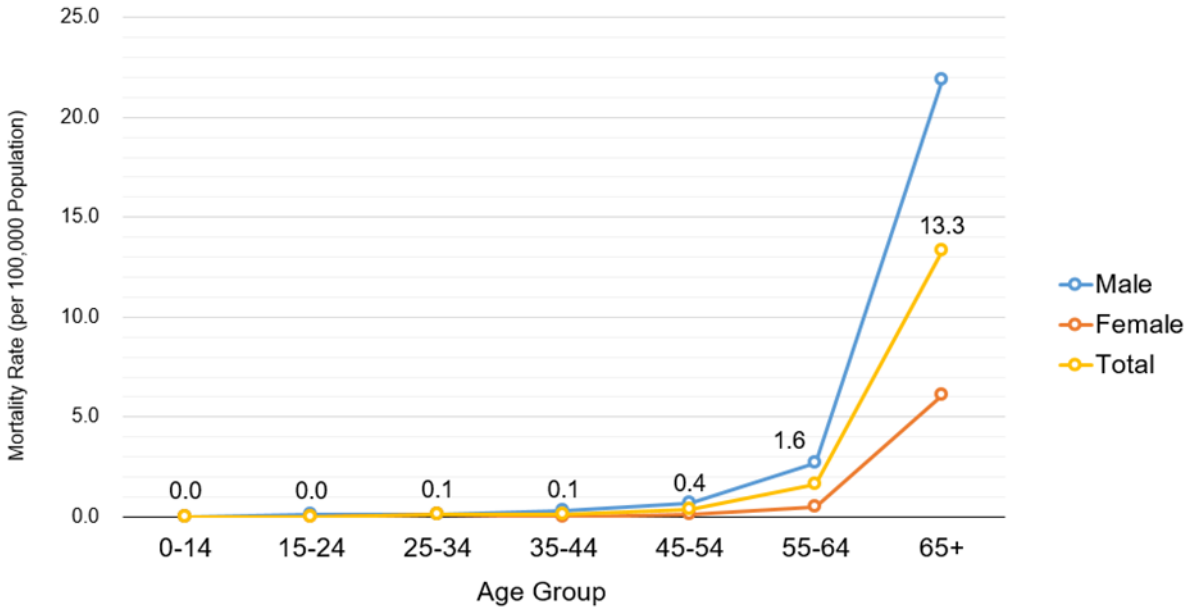

Figure 93 Mortality rate of tuberculosis by age group and sex, 2019

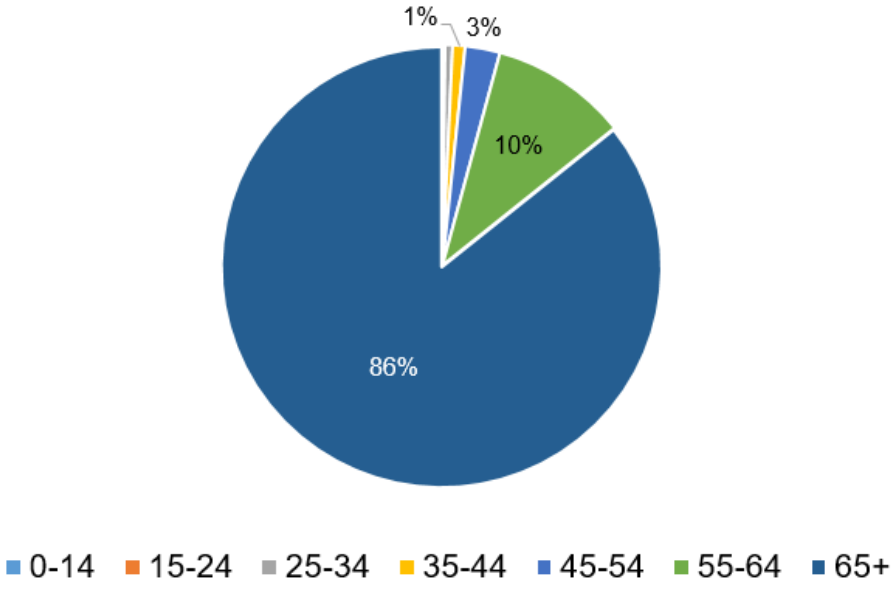

Figure 94 Distribution of tuberculosis mortality by age group, 2019

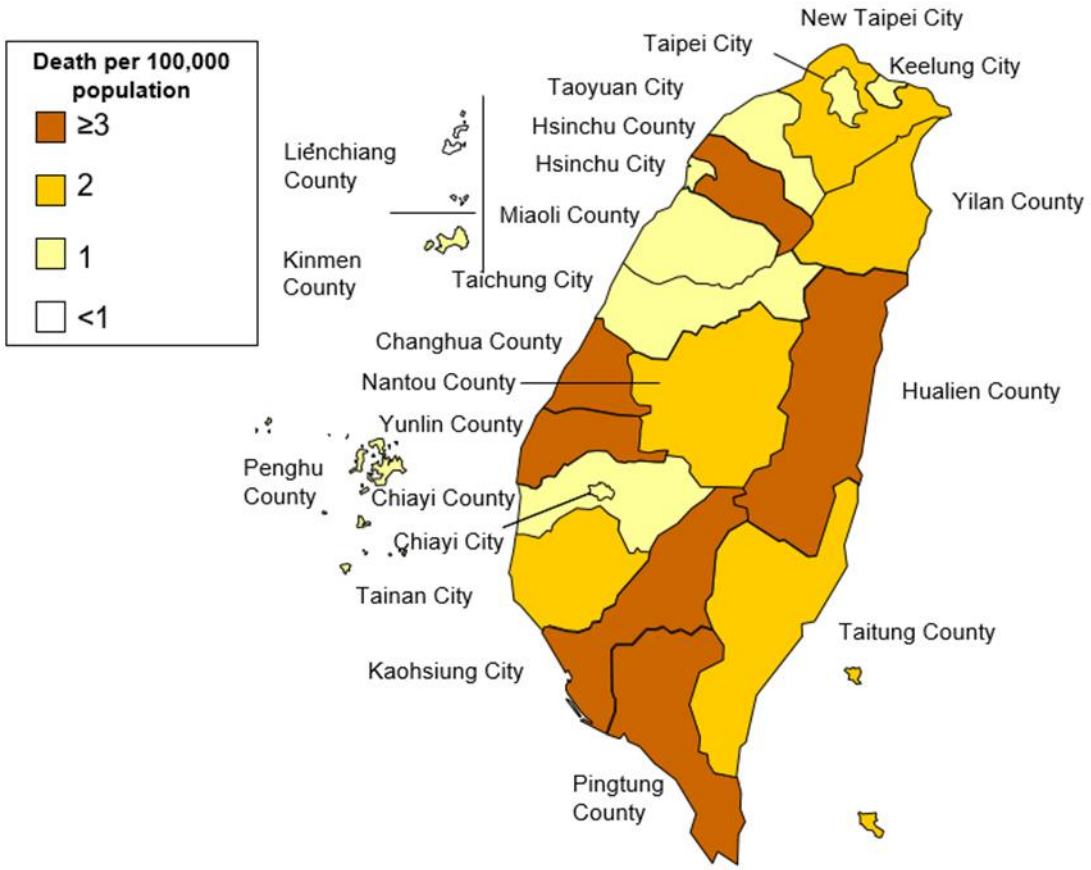

Figure 95 Geographical distribution by mortality of confirmed tuberculosis cases, 2019

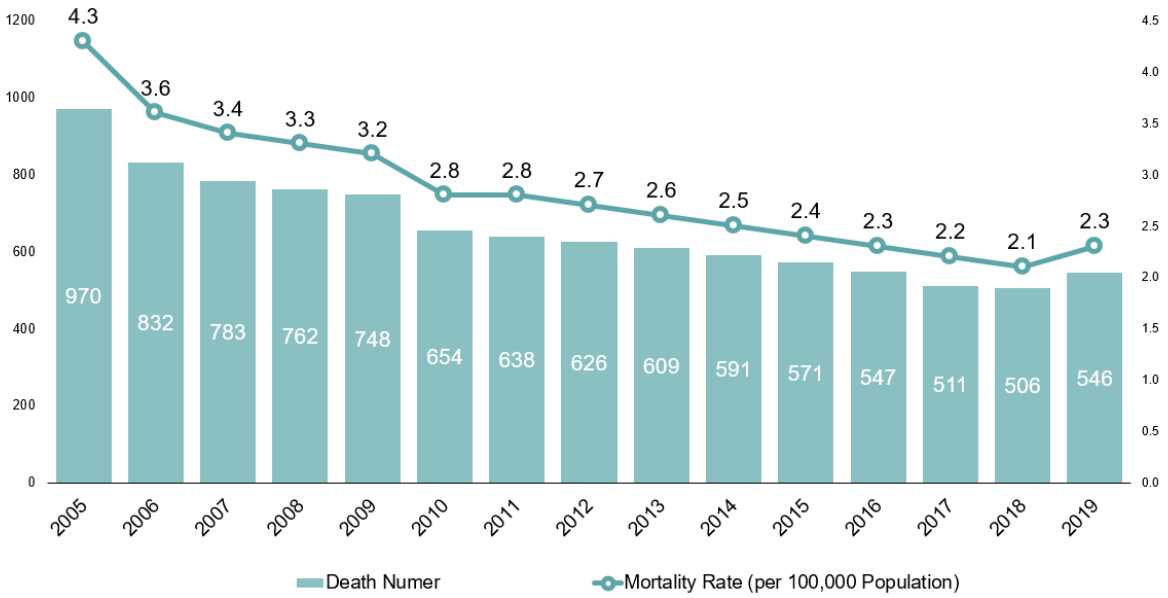

Figure 96 Trend of tuberculosis mortality rate by year, 2005-2019

Table 32 Confirmed tuberculosis cases — by geographical distribution, 2019

Locality	Total			Male			Female		
	Tuberculosis	Midyear population	Per 100,000 population	Tuberculosis	Midyear population	Per 100,000 population	Tuberculosis	Midyear population	Per 100,000 population
Taiwan	8,732	23,596,027	37.0	6,015	11,709,050	51.4	2,717	11,886,977	22.9
Taipei City	725	2,656,807	27.3	465	1,266,712	36.7	260	1,390,095	18.7
New Taipei City	1,350	4,007,207	33.7	913	1,959,313	46.6	437	2,047,894	21.3
Yilan County	174	454,700	38.3	127	229,625	55.3	47	225,075	20.9
Keelung City	146	369,524	39.5	107	184,559	58.0	39	184,966	21.1
Kinmen County	16	139,729	11.5	11	69,752	15.8	5	69,977	7.1
Lienchiang County	1	13,073	7.6	1	7,475	13.4	0	5,598	0.0
Taoyuan City	653	2,234,955	29.2	450	1,110,092	40.5	203	1,124,863	18.0
Hsinchu County	190	560,472	33.9	150	286,111	52.4	40	274,361	14.6
Hsinchu City	111	447,219	24.8	79	220,556	35.8	32	226,664	14.1
Miaoli County	148	547,161	27.0	116	282,232	41.1	32	264,929	12.1
Taichung City	888	2,809,578	31.6	603	1,382,135	43.6	285	1,427,443	20.0
Nantou County	234	495,572	47.2	173	253,627	68.2	61	241,945	25.2
Changhua County	574	1,275,313	45.0	393	649,063	60.5	181	626,250	28.9
Yunlin County	331	683,664	48.4	216	354,200	61.0	115	329,465	34.9
Chiayi County	183	505,091	36.2	128	262,345	48.8	55	242,746	22.7
Chiayi City	69	268,156	25.7	46	130,105	35.4	23	138,051	16.7
Tainan City	678	1,882,369	36.0	484	938,655	51.6	194	943,714	20.6
Kaohsiung City	1,367	2,773,366	49.3	948	1,370,904	69.2	419	1,402,462	29.9
Pingtung County	571	822,295	69.4	381	419,675	90.8	190	402,621	47.2
Penghu County	19	104,824	18.1	12	54,045	22.2	7	50,779	13.8
Hualien County	186	327,108	56.9	125	165,666	75.5	61	161,442	37.8
Taitung County	118	217,850	54.2	87	112,208	77.5	31	105,643	29.3

Table 33 Confirmed tuberculosis cases — by age & sex, 2019

Age	Total			Male			Female		
	tuberculosis	Midyear population	Per 100,000 population	tuberculosis	Midyear population	Per 100,000 population	tuberculosis	Midyear population	Per 100,000 population
Total	8,732	23,596,027	37.0	6,015	11,709,050	51.4	2,717	11,886,977	22.9
0-4	15	992,390	1.5	8	514,065	1.6	7	478,326	1.5
5-9	7	1,009,951	0.7	4	523,808	0.8	3	486,144	0.6
10-14	14	1,026,948	1.4	7	536,390	1.3	7	490,559	1.4
15-19	98	1,286,203	7.6	61	671,483	9.1	37	614,720	6.0
20-24	163	1,533,607	10.6	90	796,184	11.3	73	737,423	9.9
25-29	161	1,603,423	10.0	75	832,579	9.0	86	770,844	11.2
30-34	183	1,623,535	11.3	94	824,633	11.4	89	798,902	11.1
35-39	258	1,989,424	13.0	136	985,140	13.8	122	1,004,284	12.1
40-44	301	1,944,168	15.5	200	956,933	20.9	101	987,236	10.2
45-49	384	1,785,289	21.5	260	876,799	29.7	124	908,490	13.6
50-54	542	1,819,170	29.8	387	896,940	43.1	155	922,230	16.8
55-59	680	1,822,938	37.3	490	892,413	54.9	190	930,525	20.4
60-64	868	1,638,660	53.0	645	791,700	81.5	223	846,960	26.3
65+	5,058	3,520,322	143.7	3,558	1,609,985	221.0	1,500	1,910,337	78.5

Table 34 Confirmed tuberculosis cases — by aboriginal locality / township, 2019

Locality	Township	Tuberculosis	Midyear population	Per 100,000 population
Total		203	202,968	100.0
New Taipei City	Wulai District	4	6,436	62.2
Yilan County	Nanao Township	12	5,993	200.3
Yilan County	Datong Township	8	6,193	129.2
Taoyuan City	Fusing District	8	12,101	66.1
Hsinchu County	Jianshih Township	9	9,667	93.1
Hsinchu County	Wufong Township	5	4,684	106.8
Miaoli County	Taian Township	13	5,964	218.0
Taichung City	Heping District	10	10,959	91.3
Nantou County	Renai Township	21	15,937	131.8
Nantou County	Sinyi Township	16	16,118	99.3
Chiayi County	Alishan Township	3	5,571	53.9
Kaohsiung City	Maolin District	3	1,966	152.6
Kaohsiung City	Taoyuan District	5	4,286	116.7
Kaohsiung City	Namasia District	1	3,147	31.8
Pingtung County	Sandimen Township	14	7,685	182.2
Pingtung County	Shihzih Township	2	4,933	40.5
Pingtung County	Majia Township	5	6,808	73.4
Pingtung County	Laiyi Township	6	7,430	80.8
Pingtung County	Chunrih Township	3	4,927	60.9
Pingtung County	Taiwu Township	4	5,400	74.1
Pingtung County	Mudan Township	2	4,924	40.6
Pingtung County	Wutai Township	1	3,325	30.1
Hualien County	Sioulin Township	23	15,946	144.2
Hualien County	Wanrong Township	5	6,366	78.5
Hualien County	Jhuosi Township	2	6,068	33.0
Taitung County	Yanping Township	7	3,584	195.3
Taitung County	Haiduan Township	4	4,153	96.3
Taitung County	Jinfong Township	4	3,721	107.5
Taitung County	Daren Township	3	3,540	84.8
Taitung County	Lanyu Township	-	5,142	0.0

Table 35 Mortality of Tuberculosis — by geographical distribution, 2019

Locality	Number of Death	Midyear population	Per 100,000 population
Taiwan	546	23,596,027	2.3
Taipei City	44	2,656,807	1.7
New Taipei City	84	4,007,207	2.1
Yilan County	9	454,700	2.0
Keelung City	6	369,524	1.6
Kinmen County	2	139,729	1.4
Lienchiang County	0	13,073	0.0
Taoyuan City	31	2,234,955	1.4
Hsinchu County	20	560,472	3.6
Hsinchu City	6	447,219	1.3
Miaoli County	9	547,161	1.6
Taichung City	43	2,809,578	1.5
Nantou County	11	495,572	2.2
Changhua County	48	1,275,313	3.8
Yunlin County	23	683,664	3.4
Chiayi County	8	505,091	1.6
Chiayi City	4	268,156	1.5
Tainan City	48	1,882,369	2.5
Kaohsiung City	91	2,773,366	3.3
Pingtung County	40	822,295	4.9
Penghu County	1	104,824	1.0
Hualien County	12	327,108	3.7
Taitung County	6	217,850	2.8

Note: The Ministry of health and welfare has adopted EU system (IRIS institute) for statistics of cause of death since 2019.

Table 36 Mortality of Tuberculosis — by age & sex, 2019

Age	Total			Male			Female		
	Death	Midyear population	Per 100,000 population	Death	Midyear population	Per 100,000 population	Death	Midyear population	Per 100,000 population
Total	546	23,596,027	2.3	418	11,709,050	3.6	128	11,886,977	1.1
0-4	0	992,390	0.0	0	514,065	0.0	0	478,326	0.0
5-9	0	1,009,951	0.0	0	523,808	0.0	0	486,144	0.0
10-14	0	1,026,948	0.0	0	536,390	0.0	0	490,559	0.0
15-19	0	1,286,203	0.0	0	671,483	0.0	0	614,720	0.0
20-24	1	1,533,607	0.1	1	796,184	0.1	0	737,423	0.0
25-29	0	1,603,423	0.0	0	832,579	0.0	0	770,844	0.0
30-34	3	1,623,535	0.2	2	824,633	0.2	1	798,902	0.1
35-39	2	1,989,424	0.1	2	985,140	0.2	0	1,004,284	0.0
40-44	3	1,944,168	0.2	3	956,933	0.3	0	987,236	0.0
45-49	3	1,785,289	0.2	1	876,799	0.1	2	908,490	0.2
50-54	11	1,819,170	0.6	11	896,940	1.2	0	922,230	0.0
55-59	16	1,822,938	0.9	13	892,413	1.5	3	930,525	0.3
60-64	39	1,638,660	2.4	33	791,700	4.2	6	846,960	0.7
65+	468	3,520,322	13.3	352	1,609,985	21.9	116	1,910,337	6.1

Note: The Ministry of health and welfare has adopted EU system (IRIS institute) for statistics of cause of death since 2019.

PART IV

Appendix

Appendix 1

Regulations for notifiable disease

Category	Diseases	Reported Within	Mandatory Isolation	Legal Basis*
I	Smallpox, Plague, Severe Acute Respiratory Syndrome, Rabies	24 hours	Isolation care at designated isolation care institution	1、2、6、11、16
II	Diphtheria, Typhoid Fever, Dengue Fever, Meningococcal Meningitis, Paratyphoid Fever, Poliomyelitis (AFP), Shigellosis, Amoebiasis, Malaria, Measles, Acute Hepatitis A, Enterohaemorrhagic E. coli Infection, Hantavirus Syndrome, Cholera, Rubella, Multidrug-Resistant Tuberculosis, Chikungunya Fever, West Nile Fever, Epidemic Typhus Fever, Anthrax, Zika virus infection	24 hours	When necessary, patients may be placed in designated isolation care institutions for isolation care.	1、2、11、19
III	Pertussis, Tetanus, Neonatal Tetanus, Japanese Encephalitis, Tuberculosis (except MDR TB),Congenital Rubella Syndrome, Acute Hepatitis B, Acute Hepatitis C, Acute Hepatitis D, Acute Hepatitis E, Acute Hepatitis (unspecified), Mumps, Legionnaires' Disease, Invasive *Haemophilus Influenzae* Type b Infection, Syphilis, Gonorrhea, Enteroviruses Infection with Severe Complications, Hansens's disease, Congenital Syphilis	one week	When necessary, patients may be placed in designated isolation care institutions for isolation care.	1、2、4、5、22
	HIV Infection, AIDS	24 hours		3、5
IV	Herpesvirus B Infection, Leptospirosis, Melioidosis, Botulism	24 hours	When necessary, patients may be placed in designated isolation care institutions for isolation care.	1、2、6、7、8、9、14、15、17、23
	Listeriosis	72 hours		
	Invasive Pneumococcal Disease, Q Fever, Endemic Typhus Fever, Lyme Disease, Tularemia, Scrub Typhus, Complicated varicella, Toxoplasmosis, Influenza Case with Severe Complications, Brucellosis	one week		
	Creutzfeldt-Jakob Disease	one month		
V	Rift Valley Fever, Marburg Haemorrhagic Fever, Yellow Fever, Ebola Virus Disease, Lassa Fever	24 hours	Isolation care at designated isolation care institution	1、2、10、12、13、14、16、18、20、21
	Middle East Respiratory Syndrome Coronavirus Infections, Novel Influenza A Virus infections		When necessary, patients may be placed in designated isolation care institutions for isolation care.	

*Note：

1."The Communicable Disease Control Act" amended in 77 articles and promulgated on July 18, 2007.
2."Categories of Communicable Diseases and Prophylaxis of Category IV and V" announced by the Department of Health, the Executive Yuan, on October 9, 2007.
3."HIV Infection Control and Patient Rights Protection Act" amended in 27 articles and promulgated on July 11, 2007. (original title : AIDS Prevention and Control Act)
4.The "Hansen's disease Patients Human Rights Protection and Compensation Act" promulgated on August 13, 2008.
5."Categories of Communicable Diseases and Prophylaxis of Category IV and V" announced and amended by the Department of Health, the Executive Yuan, on October 24, 2008.
6."Categories of Communicable Diseases and Prophylaxis of Category IV and V" announced and amended by the

Department of Health, the Executive Yuan, on June 19, 2009.

7."Categories of Communicable Diseases and Prophylaxis of Category IV and V" announced and amended by the Department of Health, the Executive Yuan, on September 9, 2010.

8.According to Department of Health's Bulletin No. Shu-Shou-Ji-Zi-1000100896 dated September 9, 2011, Class IV Notifiable Communicable Disease "Severe Complicated Influenza" is changed name to "Complicated Influenza."

9.According to Department of Health's Bulletin No. Shu-Shou-Ji-Zi-1010100098 dated February 7, 2012 of the Department of Health, "Brucellosis" is included in the list of Class IV Notifiable Communicable Diseases and the reporting deadline, reporting and relevant control measures for the diseases should be handled accordingly.

10.According to Department of Health's Bulletin No. Shu-Shou-Ji-Zi-1010101167 dated October 3, 2012 of the Department of Health, "Severe Acute Respiratory Infections associated with Novel Coronavirus" is included in the list of Class V Notifiable Communicable Diseases.

11.According to Department of Health's Bulletin No. Shu-Shou-Ji-Zi-1020100062 dated January 24, 2013 of the Department of Health, "Anthrax" is changed from the list of Class I Notifiable Communicable Diseases to Class II.

12.According to Department of Health's Bulletin No. Shu-Shou-Ji-Zi-1020100343 dated March 14, 2013 of the Department of Health, "Severe Acute Respiratory Infections associated with Novel Coronavirus" is changed name to "Novel Coronavirus Infections" in the list of Class V Notifiable Communicable Disease.

13.According to Department of Health's Bulletin No. Shu-Shou-Ji-Zi-1020100463 dated April 3, 2013 of the Department of Health, "H7N9 Influenza" is included in the list of Class V Notifiable Communicable Diseases.

14.According to Department of Health's Bulletin No. Shu-Shou-Ji-Zi-1020100731 dated June 7, 2013 of the Department of Health, "Novel Coronavirus Infection" is changed name to "Middle East Respiratory Syndrome Coronavirus Infections" in the list of Class V Notifiable Communicable Disease. "Cat-Scratch Disease" and "NDM-1 Enterobacteriaceae" are removed from the list of Class IV Notifiable Communicable Disease.

15.According to Department of Health's Bulletin No. Bu-Shou-Ji-Zi-1020103975 dated December 27, 2013 of the Department of Health, "Varicella" is changed name to "Complicated varicella" in the list of Class IV Notifiable Communicable Disease.

16.According to Department of Health's Bulletin No. Bu-Shou-Ji-Zi-10301009927 dated June 27, 2014 of the Department of Health, "Novel Influenza A Virus infections" is included in the list of Class V Notifiable Communicable Diseases. "H5N1 Influenza" in the list of Class I Notifiable Communicable Disease and "H7N9 Influenza" in the list of Class V are removed.

17.According to Department of Health's Bulletin No. Bu-Shou-Ji-Zi-1030101132 dated Augest 1, 2014 of the Department of Health, "Complicated Influenza" is changed name to "Severe Complicated Influenza" in the list of Class IV Notifiable Communicable Disease.

18.According to Department of Health's Bulletin No. Bu-Shou-Ji-Zi-1030101208 dated Augest 8, 2014 of the Department of Health, "Ebola Haemorrhagic Fever" is changed name to "Ebola Virus Disease" in the list of Class V Notifiable Communicable Disease.

19.According to the announcement of the Ministry of Health and Welfare, Bu-So-Ji-Zi No.1040200233 on March 23, 2015, removed "dengue hemorrhagic fever/ dengue shock syndrome" from Category II Communicable Diseases.

20.According to the announcement of the Ministry of Health and Welfare, Bu-So-Ji-Zi No.1050100083 on January 22, 2016, included "zika virus infection" in Category II Communicable Diseases.

21.According to the announcement of the Ministry of Health and Welfare, Bu-So-Ji-Zi No.1050100179 on February 2, 2016, changed "zika virus infection" from Category II Notifiable Communicable Diseases to Category V.

22.According to the announcement of the Ministry of Health and Welfare, Bu-So-Ji-Zi No.1050100423 on Apr 1, 2016, included "congenital syphilis" in Category 3 Communicable Diseases.

23.According to the announcement of the Ministry of Health and Welfare, Bu-So-Ji-Zi No.1060101687 on Dec 29, 2017, included "listeriosis" in Category 4 Communicable Diseases.

24.According to the announcement of the Ministry of Health and Welfare, Bu-So-Ji-Zi No.1080100423 on Mar 29, 2019, changed "zika virus infection" from Category 5 Notifiable Communicable Diseases to Category 2.

25."Severe Complicated Influenza" has changed name to "influenza case with severe complications" in the list of Category 4 Communicable Diseases since November, 2019.

Appendix 2

Report of cases of communicable and emerging infectious disease, include suspected cases

Please protect patient's privacy 2017/12/29

Hos-pital						
	Hospital/Clinic		Code No.		Tel	
	Diagnosed by Physician		Address of Hospital/Clinic			

I. The Patient

Name		Sex	☐Male ☐Female	Date of Birth	(Y) (M) (D)	I.D. Number / Passport Number
Nationality	☐National ☐Other_____ Residence: ☐Foreign Labor ☐Foreigners Identity: ☐ Mainland Chinese ☐ Foreign Bride ☐Mainland Bride ☐Unknown	Tel	Office / Home / Mobil			Marital Status: ☐Single ☐Married ☐Widowed ☐Divorced ☐Separated ☐Unknown
Address			Occupation			Animal contact (within 3 months) ☐ No ☐ Yes

II. Medical Record and Date

Medical Record No.		Date of Onset	(Y) (M) (D)	Travel history(within 3 months) ☐ No ☐ Yes, place：_____ From：(Y) (M) (D) To：(Y) (M) (D)
Major Symptoms/ Vaccination record		Date of Diagnosis	(Y) (M) (D)	
Hospital Care	☐ Yes ☐ No ☐ Referred (Date:) to _____ Hospital/Clinic	Specimen Collection	☐Yes ☐No	Date of Death (Y) (M) (D)
Date Reported	(Y) (M) (D)	Date Received by Health Bureau	(Y) (M) (D)	Date Received by CDC (Y) (M) (D)

III. The Disease

Category I Communicable Diseases
- ☐Smallpox ☐Plague
- ☐Severe Acute Respiratory Syndrome
- ☐Rabies

Category II Communicable Diseases
- ☐Diphtheria ☐Anthrax
- ☐Measles ☐Rubella
- ☐Meningococcal Meningitis
- ☐Dengue Fever
- ☐Typhoid Fever ☐Paratyphoid Fever
- ☐Poliomyelitis
  - ☐Acute Flaccid Paralysis
- ☐Shigellosis ☐Amoebiasis
- ☐Cholera ☐Acute Hepatitis A
- ☐EHEC (Enterohaemorrhagic *E. coli*) Infection
- ☐Hantavirus Syndrome
  - ☐Hemorrhagic Fever with Renal Syndrome
  - ☐Hantavirus Pulmonary Syndrome
- ☐Malaria
- ☐Chikungunya Fever ☐West Nile Fever
- ☐Typhus ☐MDR-TB
- ☐Zika virus infection

Category III Communicable Diseases
- ☐Pertussis ☐Tetanus
- ☐Japanese Encephalitis ☐Tuberculosis
- ☐Congenital Rubella Syndrome
- Acute Hepatitis(except Hepatitis A)
  - ☐Type B ☐Type C ☐Type D ☐Type E
  - ☐Unspecified
- ☐Mumps ☐Legionnaires' Disease
- ☐Invasive Haemophilus Influenzae Type b Infection
- ☐Syphilis ☐ Congenital Syphilis
- ☐Gonorrhea ☐Neonatal Tetanus
- ☐Enteroviruses Infection with Severe Complications
- ☐Hansen's Disease
- AIDS
  - ☐HIV infection
  - ☐AIDS
  - Specify risk factors for HIV/AIDS infection：
  - _____
  - Confirmation Unit of Western Blot：
  - _____
  - Confirmation Unit of NAT：
  - _____

Category IV Communicable Diseases
- ☐Herpesvirus B Infection
- ☐Leptospirosis ☐Melioidosis
- ☐Botulism
- ☐Listeriosis
- ☐Invasive Pneumococcal Disease
- ☐Q fever ☐Murine Typhus
- ☐Lyme Disease ☐Tularemia
- ☐Scrub Typhus ☐Brucellosis
- ☐Complicated varicella
- ☐Toxoplasmosis
- ☐Influenza Case with Severe Complications
- ☐**Creutzfeldt-Jakob disease**

Category V Communicable Diseases
- ☐Rift Valley Fever
- ☐Lassa Fever
- ☐Marburg Haemorrhagic Fever
- ☐Ebola Virus Disease
- ☐Yellow Fever
- ☐Middle East Respiratory Syndrome Coronavirus Infections
- ☐Novel Influenza A Virus infections

☐Others _____

IV. Remarks

1. Tuberculosis：☐Acid fast stain: ☐ Positive ☐ Negative ☐ Not tested ☐ Tested but not detected，Date of Testing:_____(y/m/d)
   ☐TB culture: ☐ Positive ☐ Negative ☐ Not tested ☐ Tested but not detected，Date of Testing:_____(y/m/d)
   ☐PCR: ☐ Positive ☐ Negative ☐ Not tested ☐ Tested but not detected，Date of Testing:_____(y/m/d)
   ☐Typical tuberculosis pathology report，Date of Testing: _____(y/m/d)，☐pleural effusion
   ☐Chest and other X-ray examination: ☐Normal ☐No cavity ☐With cavity，Date of Examination:_____(y/m/d)；
2. Testing result by reported hospital：

For Health Agency

Signed by Person-in-charge		Signed by Section Chief	

This form shall be in two copies; one copy is for the Health Bureau.

※For outbreaks of communicable diseases or important communicable diseases (in red), please notify in advance the local health bureau by telephone or FAX, and then fill in and send this report. Diseases in red must be reported in 24 hours. Diseases in brown must be reported in 72 hours. Diseases in black shall be reported in one week. Diseases in green must be reported in one month. Diseases in blue are non-notifiable diseases, suspected cases must be reported as soon as possible.

Express Mail

Floor __ No __ Alley __ Lane___ Section ___ Road / Street _____
_____ Township / District _____ County / City

To：_____Health Bureau, Disease Control Section
Floor __ No __ Alley __ Lane___ Section ___ Road / Street _____
_____ Township / District _____ County / City

Instructions for filling in the report：

(1) "Severe Complicated Influenza" has changed name to "influenza case with severe complications" in the list of Category 4 Communicable Diseases since November, 2019.

(2) According to the announcement of the Ministry of Health and Welfare, Bu-So-Ji-Zi No.1080100423 on Mar 29, 2019, changed “zika virus infection” from Category 5 Notifiable Communicable Diseases to Category 2.

(3) According to the announcement of the Ministry of Health and Welfare, Bu-So-Ji-Zi No.1060101687 on Dec 29, 2017, included “listeriosis” in Category 4 Communicable Diseases.

(4) According to the announcement of the Ministry of Health and Welfare, Bu-So-Ji-Zi No.1050100423 on Apr 1, 2016, included “congenital syphilis” in Category 3 Communicable Diseases.

(5) According to the announcement of the Ministry of Health and Welfare, Bu-So-Ji-Zi No.1050100179 on Feb 2, 2016, changed “zika virus infection” from Category 2 Notifiable Communicable Diseases to Category 5.

(6) According to the announcement of the Ministry of Health and Welfare, Bu-So-Ji-Zi No.1050100083 on Jan 22, 2016, included “zika virus infection” in Category 2 Communicable Diseases.

(7) According to the announcement of the Ministry of Health and Welfare, Bu-So-Ji-Zi No.1040200233 on Mar 23, 2015, removed “dengue hemorrhagic fever/ dengue shock syndrome” from Category 2 Communicable Diseases.

(8) According to Department of Health’s Bulletin No. Bu-Shou-Ji-Zi-1030101208 dated Augest 8, 2014 of the Department of Health, “Ebola Haemorrhagic Fever” is changed name to “Ebola Virus Disease” in the list of Class V Notifiable Communicable Disease

(9) According to Department of Health’s Bulletin No. Bu-Shou-Ji-Zi-1030101132 dated Augest 1, 2014 of the Department of Health, “Complicated Influenza” is changed name to “Severe Complicated Influenza” in the list of Class IV Notifiable Communicable Disease

(10) According to Department of Health’s Bulletin No. Bu-Shou-Ji-Zi-10301009927 dated June 27, 2014 of the Department of Health, “Novel Influenza A Virus infections” is included in the list of Class V Notifiable Communicable Diseases. “H5N1 Influenza” in the list of Class I Notifiable Communicable Disease and “H7N9 Influenza” in the list of Class V are removed

(11) According to Department of Health’s Bulletin No. Bu-Shou-Ji-Zi-1020103975 dated December 27, 2013 of the Department of Health, “Varicella” is changed name to “Complicated varicella” in the list of Class IV Notifiable Communicable Disease

(12) According to Department of Health’s Bulletin No. Shu-Shou-Ji-Zi-1020100731 dated June 7, 2013 of the Department of Health, “Novel Coronavirus Infection” is changed name to “Middle East Respiratory Syndrome Coronavirus Infections” in the list of Class V Notifiable Communicable Disease. “Cat-Scratch Disease” and “NDM-1 Enterobacteriaceae” are removed from the list of Class IV Notifiable Communicable Disease.

(13) According to Department of Health’s Bulletin No. Shu-Shou-Ji-Zi-1020100463 dated April 3, 2013 of the Department of Health, “H7N9 Influenza” is included in the list of Class V Notifiable Communicable Diseases.

(14) According to Department of Health’s Bulletin No. Shu-Shou-Ji-Zi-1020100343 dated March 14, 2013 of the Department of Health, “Severe Acute Respiratory Infections associated with Novel Coronavirus” is changed name to “Novel Coronavirus Infections” in the list of Class V Notifiable Communicable Disease.

(15) According to Department of Health’s Bulletin No. Shu-Shou-Ji-Zi-1020100062 dated January 24, 2013 of the Department of Health, “Anthrax” is changed from the list of Class I Notifiable Communicable Diseases to Class II.

(16) According to Department of Health’s Bulletin No. Shu-Shou-Ji-Zi- 1010101167dated October 3, 2012 of the Department of Health, is Severe Acute Respiratory Infections associated with Novel Coronavirus included in the list of Class 5 Notifiable Communicable Diseases.

(17) According to Department of Health’s Bulletin No. Shu-Shou-Ji-Zi-1010100098 dated February 7, 2012 of the Department of Health, Brucellosis is included in the list of Class 4 Notifiable Communicable Diseases and the reporting deadline, reporting

and relevant control measures for the diseases should be handled accordingly.

(18) According to Department of Health's Bulletin No. Shu-Shou-Ji-Zi-1000100896 dated September 9, 2011, Class 4 Notifiable Communicable Disease "Severe Complicated Influenza" is changed name to "Complicated Influenza."

(19) According to Department of Health's Bulletin No. Shu-Shou-Ji-Zi-0990001077 dated September 9, 2010 of the Department of Health, NDM-1 Enterobacteriaceae infection is included in the list of Class 4 Notifiable Communicable Diseases and the reporting deadline, reporting and relevant control measures for the diseases should be handled accordingly.

(20) According to the announcement of the Department of Health of the Executive Yuan, Shu-So-Ji No.0980000829 on June 19, 2009, amendment was made to exclude influenza A (H1N1) from Category 1 notifiable communicable diseases. Any influenza A (H1N1) cases with severe complications should be reported in accordance with regulations applicable to Category 4 notifiable communicable diseases, and subject to that category's corresponding prevention and control measures.

(21) Leprosy were renamed as Hansen's Disease and HIV Infection were belong to category 3 of communicable disease Since Nov.1, 2008, announced under Sue-So-Ji No. 0970001187 on October 24, 2008.

(22) On detection of acute intestinal tract communicable diseases such as suspected Cholera, Typhoid Fever, dysentery, Pertussis, Meningococcal Meningitis specimens shall be collected for laboratory testing before medication. For specimen collection for cases of other communicable diseases, please refer to the "Manual of Standard Operational Procedures for Specimen Collection for Disease Control" of the Center for Disease Control, or directly contact the local health bureau (station).

(23) Acute Hepatitis Unspecified- the serological test has been tagged items are negative. The reporting of Acute Hepatitis D,E and Unspecified shall send the specimen to CDC lab. For specimen collection of the rest acute hepatitis, please refer to the "Manual of Standard Operation Procedures for specimen collection of Disease control.

(24) HIV infection：Cases must be confirmed positive by the Western Blot assay or NAT. When reporting, hospitals shall attach laboratory report of positive result or indicate agency for testing confirmation.

AIDS：In addition to prior mentioned, cases must be considered "infected" while developing symptoms of opportunistic infections such as candidiasis or pneumocystis carinii pneumonia; or CD4/ CD4 ratio complied with reporting criteria. Please fill "AIDS case report form" additionally.

(25) This report may be mailed or faxed to the local health agency or internet communications. When necessary, report can be made directly by telephone to the local health agency (report will be filled out by person-in-charge.)

(26) Website：**https://ida4.cdc.gov.tw/hospital**

For further information, please contact：

_____Health Bureau, Disease Control Section

Hot Line：_____

Appendix 3

2019 calendar for re-defined months

	January								February								March							
	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Sun	Mon	Tue	Wed	Thu	Fri	Sat		Sun	Mon	Tue	Wed	Thu	Fri	Sat
week 1	30	31	1	2	3	4	5	week 5	27	28	29	30	31	1	2	week 9	24	25	26	27	28	1	2
week 2	6	7	8	9	10	11	12	week 6	3	4	5	6	7	8	9	week 10	3	4	5	6	7	8	9
week 3	13	14	15	16	17	18	19	week 7	10	11	12	13	14	15	16	week 11	10	11	12	13	14	15	16
week 4	20	21	22	23	24	25	26	week 8	17	18	19	20	21	22	23	week 12	17	18	19	20	21	22	23
	~~27~~	~~28~~	~~29~~	~~30~~	~~31~~				~~24~~	~~25~~	~~26~~	~~27~~	~~28~~			week 13	24	25	26	27	28	29	30
																	~~31~~						

	April								May								June							
	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Sun	Mon	Tue	Wed	Thu	Fri	Sat		Sun	Mon	Tue	Wed	Thu	Fri	Sat	
week 14	31	1	2	3	4	5	6	week 18	28	29	30	1	2	3	4	week 22	26	27	28	29	30	31	1	
week 15	7	8	9	10	11	12	13	week 19	5	6	7	8	9	10	11	week 23	2	3	4	5	6	7	8	
week 16	14	15	16	17	18	19	20	week 20	12	13	14	15	16	17	18	week 24	9	10	11	12	13	14	15	
week 17	21	22	23	24	25	26	27	week 21	19	20	21	22	23	24	25	week 25	16	17	18	19	20	21	22	
	~~28~~	~~29~~	~~30~~						~~26~~	~~27~~	~~28~~	~~29~~	~~30~~	~~31~~		week 26	23	24	25	26	27	28	29	
																	~~30~~							

	July								August								September							
	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Sun	Mon	Tue	Wed	Thu	Fri	Sat		Sun	Mon	Tue	Wed	Thu	Fri	Sa	
week 27	30	1	2	3	4	5	6	week 31	28	29	30	31	1	2	3	week 36	1	2	3	4	5	6	7	
week 28	7	8	9	10	11	12	13	week 32	4	5	6	7	8	9	10	week 37	8	9	10	11	12	13	14	
week 29	14	15	16	17	18	19	20	week 33	11	12	13	14	15	16	17	week 38	15	16	17	18	19	20	21	
week 30	21	22	23	24	25	26	27	week 34	18	19	20	21	22	23	24	week 39	22	23	24	25	26	27	28	
	~~28~~	~~29~~	~~30~~	~~31~~				week 35	25	26	27	28	29	30	31		~~29~~	~~30~~						

	October								November								December							
	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Sun	Mon	Tue	Wed	Thu	Fri	Sat		Sun	Mon	Tue	Wed	Thu	Fri	Sa	
week 40	29	30	1	2	3	4	5	week 44	27	28	29	30	31	1	2	week 49	1	2	3	4	5	6	7	
week 41	6	7	8	9	10	11	12	week 45	3	4	5	6	7	8	9	week 50	8	9	10	11	12	13	14	
week 42	13	14	15	16	17	18	19	week 46	10	11	12	13	14	15	16	week 51	15	16	17	18	19	20	21	
week 43	20	21	22	23	24	25	26	week 47	17	18	19	20	21	22	23	week 52	22	23	24	25	26	27	28	
	~~27~~	~~28~~	~~29~~	~~30~~	~~31~~			week 48	24	25	26	27	28	29	30		~~29~~	~~30~~	~~31~~					

Acknowledgement

We would like to thank all medical practitioners, laboratory personnel, nurses, public health professionals, as well as partners from public and private healthcare institutions and other government agencies, who contributed to the data and information published in this report. We acknowledge their invaluable contributions towards our national efforts in communicable diseases surveillance, prevention and control, and look forward to their continued support and cooperation in our work.

List of information providers

Centers for Disease Control, Ministry of Health and Welfare
Lo-Sheng Sanatorium and Hospital, Ministry of Health and Welfare
Department of Health, Taipei City Government
Department of Health, New Taipei City Government
Keelung City Health Bureau
Public Health Bureau, Yilan County
Public Health Bureau, Kinmen County
Bureau of Health and Welfare, Lienchiang County
Department of Public Health, Taoyuan
Public Health Bureau, Hsinchu City
Public Health Bureau of Hsinchu County Government
Miaoli County Government Public Health Bureau
Health Bureau of Taichung City Government
Changhua County Public Health Bureau
Health Bureau, Nantou County Government
Public Health Bureau, Yunlin County
Public Health Bureau, Chiayi City
Chiayi County Health Bureau
Department of Health, Tainan City Government
Department of Health, Kaohsiung City Government
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Public Health Bureau, Penghu County
Hualien County Health Bureau
Public Health Bureau, Taitung County

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