

Preliminary Results of Establishment of Novel Tuberculosis Control Model in Long-Term Care Facilities in Taiwan, 2018

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Abstract

The incidence of tuberculosis (TB) in Taiwan is declining every year. Compared with the TB incidence of 41.4 cases per 100,000 general population in 2017, the age-specific incidence among elderly aged ≥ 65 years was 173.4 cases per 100,000 population. At the same time, population aging results in rising demands for long-term care (LTC), and the number of LTC facilities is increasing. Since the residents of LTC facilities are mainly elderly people, the risk of active transmission of TB in LTC facilities contributing the TB epidemic among the elderly in addition to the reactivation of TB bacilli from latent infection into active TB disease is also increasing. Our research intended to establish a novel TB control model in LTC facilities to test and treat latent tuberculosis infection (LTBI) in addition to annual chest X-ray examination and symptom screening for active TB disease. Our research revealed that among the residents or staffs in LTC facilities with positive results for LTBI tests who did not receive LTBI treatment, the progression from LTBI to TB disease within a year was up to 2.30%. We recommended that the managers of LTC facilities should consider to incorporate LTBI screening/treatment into infection control measures to effectively prevent intra-institutional transmission and protect the health of residents and staffs in LTC facilities.

Keywords: Tuberculosis control, long-term care facility, latent tuberculosis infection

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Received: Dec. 13, 2019

Accepted: Dec. 23, 2020

DOI: 10.6525/TEB.202111_37(22).0001

week 44–45 (Oct. 31–Nov. 13, 2021)

DOI: 10.6525/TEB.202111_37(22).0002

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

Case diagnosis year		Week 44★		Week 1-44			
Classification	Disease Diagnosed	2021	2020	2021		2020	
				Total cases★	Imported cases	Total cases★	Imported cases
Category I	Plague	0	0	0	0	0	0
	Rabies	0	0	0	0	0	0
	SARS	0	0	0	0	0	0
	Smallpox	0	0	0	0	0	0
Category II	Acute Flaccid Paralysis	0	1	26	0	26	0
	Acute Viral Hepatitis type A	1	1	62	0	71	8
	Amoebiasis	1	2	167	56	209	114
	Anthrax	0	0	0	0	0	0
	Chikungunya Fever	0	0	1	1	3	3
	Cholera	0	0	0	0	1	0
	Dengue Fever	0	1	9	9	133	65
	Diphtheria	0	0	0	0	0	0
	Enterohemorrhagic E. coli Infection	0	0	0	0	0	0
	Epidemic Typhus Fever	0	0	0	0	0	0
	Hantavirus Pulmonary Syndrome	0	0	0	0	0	0
	Hemorrhagic Fever with Renal Syndrome	0	1	9	0	11	0
	Malaria	0	0	1	1	1	1
	Measles	0	0	0	0	2	2
	Meningococcal Meningitis	0	0	3	0	6	0
	Paratyphoid Fever	0	0	2	0	0	0
	Poliomyelitis	0	0	0	0	0	0
	Rubella	0	0	0	0	0	0
	Shigellosis	3	1	110	0	129	21
Typhoid fever	0	0	2	0	7	3	
West Nile Fever	0	0	0	0	0	0	
Zika virus infection	0	0	0	0	2	2	
Category III	Acute Viral Hepatitis type B	1	4	120	2	92	2
	Acute Viral Hepatitis type C	11	13	478	0	513	4
	Acute Viral Hepatitis type D	0	0	1	0	0	0
	Acute Viral Hepatitis type E	0	0	5	0	8	0
	Congenital Syphilis	0	0	0	0	0	0
	Congenital Rubella Syndrome	0	0	0	0	0	0
	Enteroviruses Infection with Severe Complications	0	0	1	0	7	0
	Haemophilus Influenza type b Infection	0	0	1	0	3	0
	Japanese Encephalitis	0	0	27	0	21	0
	Legionnaires' Disease	8	5	306	0	246	8
	Mumps	11	8	361	1	420	6
	Neonatal Tetanus	0	0	0	0	0	0
	Pertussis	0	0	0	0	8	0
Tetanus	0	0	3	0	7	0	
Category IV	Botulism	0	0	0	0	1	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	0	0	46	0	40	0
	Endemic Typhus Fever	0	0	30	0	18	0
	Herpesvirus B Infection	0	0	0	0	0	0
	Influenza Case with Severe Complications	0	0	1	0	548	6
	Invasive Pneumococcal Disease	2	2	177	0	207	0
	Leptospirosis	1	2	76	0	75	0
	Listeriosis	4	1	145	0	115	0
	Lyme Disease	0	0	1	1	0	0
	Melioidosis	0	0	18	0	16	1
	Q Fever	0	0	8	0	12	0
	Scrub Typhus	11	8	263	0	349	1
Toxoplasmosis	1	1	12	0	12	0	
Tularemia	0	0	1	0	0	0	
Category V	Ebola Virus Disease	0	0	0	0	0	0
	Lassa Fever	0	0	0	0	0	0
	Marburg Hemorrhagic Fever	0	0	0	0	0	0
	Middle East Respiratory Syndrome	0	0	0	0	0	0
	Coronavirus Infections	0	0	0	0	0	0
	Novel Influenza A Virus Infections	0	0	1	0	0	0
	Rift Valley Fever	0	0	0	0	0	0
Severe Pneumonia with Novel Pathogens	30	6	15634	1100	555	500	
Yellow Fever	0	0	0	0	0	0	

- ★The weekly and cumulative total numbers include indigenous and imported cases of notifiable infectious diseases.
- MDR-TB, Tuberculosis, Syphilis, Gonorrhoea, HIV Infection, AIDS, Hansen's Disease and Creutzfeldt-Jakob Disease are excluded from the table.
- Numbers of mumps and tetanus cases are summed up by the week of report.
- Since 2020/1/15, "Severe Pneumonia with Novel Pathogens" was listed as a Notifiable Infectious Disease.

Suspected Clusters

- Fifteen clusters related to diarrhea (6), tuberculosis (4), upper respiratory tract infection (4) and varicella (1) were reported during week 44.

Imported Infectious Diseases

- There were 29 imported cases from 17 countries during week 44.
Severe Pneumonia with Novel Pathogens : 29 (Indonesia 5, USA 4, Thailand 3, the Philippines 2, Malaysia 2, Vietnam 2, Russia 1, Japan 1, Mongolia 1, Nepal 1, Italian 1, Cambodia 1, Ukraine 1, Singapore 1, Saint Christopher and Nevis 1, Myanmar 1, Germany 1)
- During week 1-44, there were 1171 imported cases from 82 countries. The top three countries are Indonesia (224), the Philippines (201), and USA (179).
- During week 1-44, the three notifiable diseases with the highest number of imported cases are Severe Pneumonia with Novel Pathogens (1100), Amoebiasis (56), and Dengue Fever (9).

Summary of Epidemic

- **Severe Pneumonia with Novel Pathogens** : The domestic epidemic of COVID-19 is in the low level. Due to the COVID-19 pandemic remains serious globally, imported cases continue to be confirmed. The risk of locally-acquired of SARS-CoV-2 infection in Taiwan is persistence.

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

Case diagnosis year		Week 45★		Week 1-45			
Classification	Disease Diagnosed	2021	2020	2021		2020	
				Total cases★	Imported cases	Total cases★	Imported cases
Category I	Plague	0	0	0	0	0	0
	Rabies	0	0	0	0	0	0
	SARS	0	0	0	0	0	0
	Smallpox	0	0	0	0	0	0
Category II	Acute Flaccid Paralysis	1	1	27	0	27	0
	Acute Viral Hepatitis type A	1	1	63	0	72	8
	Amoebiasis	5	3	172	59	212	114
	Anthrax	0	0	0	0	0	0
	Chikungunya Fever	0	0	1	1	3	3
	Cholera	0	0	0	0	1	0
	Dengue Fever	2	3	11	11	136	66
	Diphtheria	0	0	0	0	0	0
	Enterohemorrhagic E. coli Infection	0	0	0	0	0	0
	Epidemic Typhus Fever	0	0	0	0	0	0
	Hantavirus Pulmonary Syndrome	0	0	0	0	0	0
	Hemorrhagic Fever with Renal Syndrome	0	0	9	0	11	0
	Malaria	0	0	1	1	1	1
	Measles	0	0	0	0	2	2
	Meningococcal Meningitis	0	0	3	0	6	0
	Paratyphoid Fever	0	0	2	0	0	0
	Poliomyelitis	0	0	0	0	0	0
Rubella	0	0	0	0	0	0	
Shigellosis	3	6	113	0	135	23	
Typhoid fever	0	0	2	0	7	3	
West Nile Fever	0	0	0	0	0	0	
Zika virus infection	0	0	0	0	2	2	
Category III	Acute Viral Hepatitis type B	2	1	122	2	93	2
	Acute Viral Hepatitis type C	11	6	488	0	519	4
	Acute Viral Hepatitis type D	0	0	1	0	0	0
	Acute Viral Hepatitis type E	0	0	5	0	8	0
	Congenital Syphilis	0	0	0	0	0	0
	Congenital Rubella Syndrome	0	0	0	0	0	0
	Enteroviruses Infection with Severe Complications	0	0	1	0	7	0
	Haemophilus Influenza type b Infection	0	0	1	0	3	0
	Japanese Encephalitis	0	0	27	0	21	0
	Legionnaires' Disease	3	5	309	1	251	8
	Mumps	7	8	368	1	428	6
	Neonatal Tetanus	0	0	0	0	0	0
	Pertussis	0	0	0	0	8	0
Tetanus	0	0	3	0	7	0	
Category IV	Botulism	0	0	0	0	1	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	1	0	47	0	40	0
	Endemic Typhus Fever	0	1	30	0	19	0
	Herpesvirus B Infection	0	0	0	0	0	0
	Influenza Case with Severe Complications	0	0	1	0	548	6
	Invasive Pneumococcal Disease	1	3	178	0	210	0
	Leptospirosis	1	1	77	0	76	0
	Listeriosis	6	6	151	0	121	0
	Lyme Disease	0	0	1	1	0	0
	Melioidosis	1	0	19	0	16	1
	Q Fever	0	1	8	0	13	0
	Scrub Typhus	7	10	270	0	359	1
Toxoplasmosis	0	1	12	0	13	0	
Tularemia	0	0	1	0	0	0	
Category V	Ebola Virus Disease	0	0	0	0	0	0
	Lassa Fever	0	0	0	0	0	0
	Marburg Hemorrhagic Fever	0	0	0	0	0	0
	Middle East Respiratory Syndrome	0	0	0	0	0	0
	Coronavirus Infections	0	0	0	0	0	0
	Novel Influenza A Virus Infections	0	0	1	0	0	0
	Rift Valley Fever	0	0	0	0	0	0
Severe Pneumonia with Novel Pathogens	45	18	15679	1145	573	518	
Yellow Fever	0	0	0	0	0	0	

1. ★The weekly and cumulative total numbers include indigenous and imported cases of notifiable infectious diseases.
2. MDR-TB, Tuberculosis, Syphilis, Gonorrhoea, HIV Infection, AIDS, Hansen's Disease and Creutzfeldt-Jakob Disease are excluded from the table.
3. Numbers of mumps and tetanus cases are summed up by the week of report.
4. Since 2020/1/15, "Severe Pneumonia with Novel Pathogens" was listed as a Notifiable Infectious Disease.

Suspected Clusters

- Fourteen clusters related to diarrhea (8) and tuberculosis (6) were reported during week 45.

Imported Infectious Diseases

- There were 49 imported cases from 20 countries during week 45.
 - Severe Pneumonia with Novel Pathogens** : 45 (Indonesia 14, the Philippines 5, Myanmar 4, USA 3, Vietnam 2, Ukraine 2, Singapore 2, South Africa 1, Poland 1, Saint Lucia 1, Pakistan 1, Mongolia 1, Japan 1, UK 1, Malaysia 1, UAE 1, Thailand 1, Cambodia 1, India 1, Belgium 1)
 - Dengue Fever** : 2 (Indonesia 1, the Philippines 1)
 - Legionnaires' Disease** : 1 undetermined
 - Amoebiasis** : 1 Vietnam
- During week 1-45, there were 1222 imported cases from 82 countries. The top three countries are Indonesia (241), the Philippines (207), and USA (182).
- During week 1-45, the three notifiable diseases with the highest number of imported cases are Severe Pneumonia with Novel Pathogens (1145), Amoebiasis (59), and Dengue Fever (11).

Summary of Epidemic

- **Severe Pneumonia with Novel Pathogens** : The domestic epidemic of COVID-19 is in the low level. Due to the COVID-19 pandemic remains serious globally, imported cases continue to be confirmed. The risk of locally-acquired of SARS-CoV-2 infection in Taiwan is persistence.

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

Publisher: Jih-Haw Chou

Editor-in-Chief: Yung-Ching Lin

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

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Telephone No: +886-2-2395-9825

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

Suggested Citation:

[Author].[Article title].Taiwan Epidemiol Bull 2021;37:[inclusive page numbers]. [DOI]