

Tuberculosis Comorbidity with Non-Communicable Diseases: Prevalence and Duration of Treatment, Taiwan, 2013–2014

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Abstract

To explore the prevalence and duration of treatment among tuberculosis (TB) comorbidity with non-communicable diseases, we analyzed new incident cases in year of 2013 to 2014. A total of 19,554 subjects were included in the analysis. Male cases predominated (69.5%), with 49.6% aged ≥ 65 years. We reviewed the medical records of these subjects in national health insurance claim database to identify if they had selected eight chronic diseases resulting in high morbidity and mortality. Among all cases, 55.9% (66.8% among aged ≥ 65 ; 45.2% among aged < 65 years) had ≥ 1 comorbidity. The most prevalent comorbidities among TB cases were chronic obstructive pulmonary disease (17.4%), followed by diabetes mellitus (14.3%), and hypertension (12.4%). As for duration of treatment, except for the death cases, TB cases aged < 65 years without comorbidity received treatment for 194 days on average, and ≥ 65 year-old for 203 days. Among TB cases with ≥ 1 comorbidity, those who aged < 65 years received treatment for 271 days on average, and ≥ 65 year-old for 230 days. In conclusion, in order to manage the impacts of transitional aging population, strengthening multidisciplinary collaboration and integrated strategies are essential for better healthcare outcomes.

Keywords: tuberculosis, non-communicable diseases, comorbidity, complication, duration of treatment

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First Screening and Treatment Campaign for Latent Tuberculosis Infections in a Mountainous Township, Taiwan, 2016–2017

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Abstract

Tuberculosis (TB) incidence has declined in Taiwan. However, TB incidence in mountainous townships is still higher than non-indigenous townships. In order to reduce the incidence, treatment of latent tuberculosis infection (LTBI) is one of the cornerstones of TB control. In this article, we conducted screening for LTBI and implementing a 3-month treatment course of Isoniazid and Rifapentine (3HP) to LTBI patients in a mountainous township.

Residents of the mountainous township in Nantou, which TB incidence was 278 per 100,000 in 2015, were recruited in this study. All residents, except pregnant women, underwent chest X-ray screening. Children under 5 years of age underwent tuberculin skin test (TST) and others underwent interferon gamma release assay (IGRA). Active TB patients were reported and treated; LTBI patients were evaluated and treated with 3HP.

Among 780 residents screened, we found 8 active TB patients and 316 (43%) residents with positive IGRA results. Among them, 209 was eligible for LTBI treatment and 139 (67%) of them underwent treatment. One hundred and thirty-seven residents underwent 3HP; among them, 118 (86%) completed treatment.

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Screening for LTBI to all residents in the mountainous township help us identify active TB patients and LTBI residents early and reduce the risk for TB transmission. LTBI treatment using 3HP regimen is cost-saving with high completion rate. Health authorities should intervene and provide assistance early if residents have doubts about side effects of treatment to avoid bandwagon effects.

Keywords: latent tuberculosis infection, isoniazid, rifapentine

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

Case diagnosis year		Week 9★		Week 1–9			
Classification	Disease Diagnosed	2018	2017	2018		2017	
				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	2	1	21	0	5	0
	Acute Viral Hepatitis type A	2	17	13	3	136	8
	Amoebiasis	0	6	43	13	56	37
	Anthrax	0	0	0	0	0	0
	Chikungunya Fever	0	1	1	1	2	2
	Cholera	0	0	0	0	0	0
	Dengue Fever	6	3	20	20	56	56
	Diphtheria	0	0	0	0	0	0
	Enterohemorrhagic E. coli Infection	0	0	0	0	0	0
	Epidemic Typhus Fever	0	0	0	0	0	0
	Hantavirus Pulmonary Syndrome	0	0	0	0	0	0
	Hemorrhagic Fever with Renal Syndrome	0	0	0	0	1	0
	Malaria	0	0	0	0	0	0
	Measles	0	1	1	0	1	1
	Meningococcal Meningitis	1	0	2	0	1	0
	Paratyphoid Fever	0	0	0	0	2	2
	Poliomyelitis	0	0	0	0	0	0
	Rubella	0	0	0	0	0	0
Shigellosis	2	2	24	4	36	14	
Typhoid fever	0	1	4	2	4	4	
West Nile Fever	0	0	0	0	0	0	
Category III	Acute Viral Hepatitis type B	4	3	20	1	31	2
	Acute Viral Hepatitis type C	10	2	68	1	39	0
	Acute Viral Hepatitis type D	0	0	0	0	1	0
	Acute Viral Hepatitis type E	0	1	2	0	5	2
	Acute Viral Hepatitis untype	0	0	0	0	0	0
	Congenital Rubella Syndrome	0	0	0	0	0	0
	Enteroviruses Infection with Severe Complications	0	0	6	0	0	0
	Haemophilus Influenza type b Infection	0	0	0	0	1	0
	Japanese Encephalitis	0	0	0	0	0	0
	Legionellosis	3	1	36	0	15	3
	Mumps	16	9	86	2	106	1
	Neonatal Tetanus	0	0	0	0	0	0
	Pertussis	1	0	2	0	2	0
	Tetanus	0	0	2	0	2	0
	Category IV	Botulism	0	0	0	0	0
Brucellosis		0	0	0	0	0	0
Complicated Influenza		2	1	6	0	2	0
Complicated Varicella		0	0	3	0	0	0
Endemic Typhus Fever		0	0	0	0	0	0
Herpesvirus B Infection		12	11	106	0	116	2
Invasive Pneumococcal Disease		0	2	9	0	15	0
Leptospirosis		2	0	13	0	0	0
Lyme Disease		0	0	0	0	0	0
Melioidosis		0	0	3	0	5	0
Q Fever		0	0	1	0	1	0
Scrub Typhus		6	3	78	0	71	0
Toxoplasmosis		78	14	461	4	106	0
Tularremia		0	0	5	0	1	0
Category V	Ebola Virus Disease	0	0	0	0	0	0
	Marburg Hemorrhagic Fever	0	0	0	0	0	0
	Novel Influenza A Virus Infections	0	0	0	0	0	0
	Lassa Fever	0	0	0	0	0	0
	Rift Valley Fever	0	0	0	0	0	0
	Middle East Respiratory Syndrome Coronavirus	0	0	0	0	1	1
	Yellow Fever	0	0	0	0	0	0
	Zika Virus Infection	0	0	0	0	0	0

- ★The weekly and cumulative total numbers include indigenous and imported cases of notifiable infectious diseases.
- The following chronic diseases are excluded from the table: MDR-TB, Tuberculosis, Syphilis, Gonorrhea, HIV Infection, AIDS, Hansen Disease and Creutzfeldt-Jakob Disease.
- Numbers of mumps, neonatal tetanus and tetanus cases are summed up by the week of report.
- Since 2016/1/22, "Zika Virus Infection" was listed as a Notifiable Infectious Disease.
- Since 2018/1/1, "Listeriosis" was listed as a Notifiable Infectious Disease.

Suspected Clusters

- Thirty-nine clusters were reported, including 5 tuberculosis clusters, 14 diarrhea clusters, 10 upper respiratory tract infection clusters, 6 influenza-like illness clusters, 1 fever of unknown origin cluster and 3 varicella clusters.

Imported Infectious Diseases .

Disease \ Country	Philippines	Macau	Malaysia	Maldives	Indonesia	Vietnam	Total
DF	1		1	1	1	2	6
Severe Complicated Influenza		1					1
Amoebiasis	1						1
Total	2	1	1	1	1	2	8

Note: The statistics listed in this table include imported cases that were either **confirmed** or **updated** in the previous week.

- 8 confirmed cases were imported from 6 countries during Week 9 of 2018.
- A total of 49 confirmed cases were imported from 11 countries in 2018, the top 3 countries are : Indonesia (14), Philippines (11), Malaysia (6).
- Top 3 imported diseases : Dengue Fever (20), Amoebiasis (13), Shigellosis (4)

Summary of Epidemic

- **Influenza** : As the recent wild temperature fluctuations have continued to persist and schools have started, the spread of influenza is further facilitated by close contact. Hence, influenza activity is likely to increase slightly. Nevertheless, the overall epidemic is expected gradually slow down.

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

Case diagnosis year		Week 10★		Week 1-10			
Classification	Disease Diagnosed	2018	2017	2018		2017	
				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	2	1	23	0	6	0
	Acute Viral Hepatitis type A	1	8	14	5	144	8
	Amoebiasis	11	10	54	15	66	42
	Anthrax	0	0	0	0	0	0
	Chikungunya Fever	0	0	1	1	2	2
	Cholera	0	0	0	0	0	0
	Dengue Fever	1	3	21	21	59	59
	Diphtheria	0	0	0	0	0	0
	Enterohemorrhagic E. coli Infection	0	0	0	0	0	0
	Epidemic Typhus Fever	0	0	0	0	0	0
	Hantavirus Pulmonary Syndrome	0	0	0	0	0	0
	Hemorrhagic Fever with Renal Syndrome	0	0	0	0	1	0
	Malaria	0	0	0	0	0	0
	Measles	0	0	1	0	1	1
	Meningococcal Meningitis	0	1	2	0	2	0
	Paratyphoid Fever	0	0	0	0	2	2
	Poliomyelitis	0	0	0	0	0	0
	Rubella	0	0	0	0	0	0
	Shigellosis	7	7	31	5	43	16
Typhoid fever	0	0	4	2	4	4	
West Nile Fever	0	0	0	0	0	0	
Category III	Acute Viral Hepatitis type B	2	3	22	1	34	2
	Acute Viral Hepatitis type C	5	7	73	1	46	0
	Acute Viral Hepatitis type D	0	0	0	0	1	0
	Acute Viral Hepatitis type E	0	0	2	0	5	2
	Acute Viral Hepatitis untype	0	0	0	0	0	0
	Congenital Rubella Syndrome	0	0	0	0	0	0
	Enteroviruses Infection with Severe Complications	1	0	7	0	0	0
	Haemophilus Influenza type b Infection	1	0	1	0	1	0
	Japanese Encephalitis	0	0	0	0	0	0
	Legionellosis	2	2	38	0	17	3
	Mumps	10	11	96	2	117	1
	Neonatal Tetanus	0	0	0	0	0	0
	Pertussis	1	0	3	0	2	0
	Tetanus	0	0	2	0	2	0
Category IV	Botulism	0	0	0	0	0	0
	Brucellosis	0	0	0	0	0	0
	Complicated Influenza	1	3	7	0	5	1
	Complicated Varicella	1	0	4	0	0	0
	Endemic Typhus Fever	0	0	0	0	0	0
	Herpesvirus B Infection	12	9	118	0	125	2
	Invasive Pneumococcal Disease	0	1	9	0	16	0
	Leptospirosis	0	0	13	0	0	0
	Lyme Disease	0	0	0	0	0	0
	Melioidosis	0	1	3	0	6	0
	Q Fever	0	1	1	0	2	0
	Scrub Typhus	1	8	79	0	79	0
	Toxoplasmosis	51	8	512	4	114	0
	Tularremia	0	1	5	0	2	0
Category V	Ebola Virus Disease	0	0	0	0	0	0
	Marburg Hemorrhagic Fever	0	0	0	0	0	0
	Novel Influenza A Virus Infections	0	0	0	0	0	0
	Lassa Fever	0	0	0	0	0	0
	Rift Valley Fever	0	0	0	0	0	0
	Middle East Respiratory Syndrome Coronavirus	0	0	0	0	1	1
	Yellow Fever	0	0	0	0	0	0
Zika Virus Infection	0	0	0	0	0	0	

1. ★The weekly and cumulative total numbers include indigenous and imported cases of notifiable infectious diseases.
2. The following chronic diseases are excluded from the table: MDR-TB, Tuberculosis, Syphilis, Gonorrhoea, HIV Infection, AIDS, Hansen Disease and Creutzfeldt-Jakob Disease.
3. Numbers of mumps, neonatal tetanus and tetanus cases are summed up by the week of report.
4. Since 2016/1/22, "Zika Virus Infection" was listed as a Notifiable Infectious Disease.
5. Since 2018/1/1, "Listeriosis" was listed as a Notifiable Infectious Disease.

Suspected Clusters

- Thirty-one clusters were reported, including 5 tuberculosis clusters, 11 diarrhea clusters, 7 upper respiratory tract infection clusters, 6 influenza-like illness clusters, 1 fever of unknown origin cluster and 1 varicella cluster.

Imported Infectious Diseases

Disease \ Country	Indonesia	Malaysia	Singapore	Philippines	Total
Acute Hepatitis A		1	1		2
Amoebiasis	1			1	2
DF		1			1
Shigellosis	1				1
Total	2	2	1	1	6

Note: The statistics listed in this table include imported cases that were either **confirmed** or **updated** in the previous week.

- 6 confirmed cases were imported from 4 countries during Week 10 of 2018.
- A total of 55 confirmed cases were imported from 11 countries in 2018, the top 3 countries are : Indonesia (16), Philippines (12), Malaysia (8).
- Top 3 imported diseases : Dengue Fever (21), Amoebiasis (15), Shigellosis (5).

Summary of Epidemic

- **Influenza** : The epidemic has gradually ebbed. As the recent wild temperature fluctuations have continued to persist, influenza activity is likely to increase slightly.

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