

Work Load and Stress among Public Health Nurses for Infectious Disease Control and Prevention in Central Taiwan

Yi-Hsien Cho¹, Wan-Jhen Lin², Hao-Wei Shih³, Wan-Chiou Shy³, Meng-Shih Tsai², Tung-Haun Ho³, Hung-Mou Chien³, Chih-Chung Su³, Li-Yun Lin², Ling-Jiau Wu², Ruei-Jhen Peng², Hsiu-Chen Wei², Chin-Ying Chung², Paun-Yuan Shen³, Hsuan-Hsiu Chen², Hsi-Chien Hu³, Tsai-Yun Chen^{2,3}, Shu-Feng Liang³, Chun Hong Lee³, Hsiu-Yu Chen², Hui-Fei Tu², Shing-Ru Wang², Kuo-Hsing Wu², Yi-Ping Chan², Zong-Cheng Pan⁴, Chelsea Zhu⁵, Sung-Hsi Wei^{4,6*}

Abstract

Public health nurses are the main task force for the infectious disease control and prevention in Taiwan. Reports on the work load and stress remain limited. In this study, the public health nurses in 41 public health centers in 2 counties were evaluated with a self-complete questionnaire which aimed to measure the work load and stress related to infectious diseases, including tuberculosis, chronic infectious diseases other than tuberculosis, acute infectious diseases, and immunization. Of 330 public health nurses enrolled, 158 (47.9%), 110 (33.3%), and 58 (17.6%) participants showed low motive for tuberculosis control and prevention, immunization, and administrative routines, respectively. The factors that contributed to the stress for tuberculosis control and prevention included frequent policy changes, heavy work load, and heavy paper work.

¹Department of Public Health, Chung-Shan Medical University, Taiwan

²Health Bureau, Taichung City Government, Taiwan

³Health Bureau, Nantou County Government, Taiwan

⁴Department of Public Health, China Medical University Hospital, Taiwan

⁵Department of Biology, Williams College, Williams college, Williamstown, MA, USA

⁶Central Regional Center, Centers for Disease Control, Ministry of Health and Welfare, Taiwan

Corresponding author : Sung-Hsi Wei^{4,6*}

E-mail : epediat@gmail.com

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The factors that contributed to the control and prevention for chronic infectious diseases other than tuberculosis included challenge for contact investigation, challenge for thorough case investigation, and challenge for establishing mutual trust with the case patients. The factors that contributed to the stress for acute infectious disease control and prevention included constrained time frame for case investigation, heavy work load, and challenge for contact investigation. The factors that contributed to the stress for immunization included cold train maintenance, malpractice for immunization, and adverse events for immunization. In conclusion, public health nurses showed high stress and low motive for practicing major infectious disease control and prevention. To remit the stress might improve their motivation for infectious disease control and prevention.

Keywords: Infectious disease control, Work load and stress, Public health, Public health nurse

Evolution and Determinants of BCG Immunization Policy: Canada's Experience

Hsun-Yin Huang^{*}, Yu-Ling Chang

Abstract

Canada is one of the countries with the lowest tuberculosis (TB) incidence rate and has discontinued use of BCG immunization due to stable decreasing trend of TB incidence rate since 1970s. However, BCG continues to be used in the indigenous population area with high TB incidence rate.

The Immunization Monitoring Program ACTive (IMPACT) system in Canada has received several vaccine adverse event reports of disseminated BCG infection during 1990 and 2003. Despite the fact that all cases were born with immune-deficiency problems, whose symptoms hadn't appeared when immunization, the Canadian Government and National Advisory Committee on Immunization in Canada reviewed the strategy of TB prevention and BCG vaccination policy, and revised the BCG immunization guidelines. We could learn from the evolution and determinants of BCG immunization policy in Canada.

Keywords: Bacillus Calmette-Guérin, BCG, Canada, Immunization

Division of Planning and Coordination, Centers for
Disease Control, Ministry of Health and Welfare, Taiwan
Corresponding author : Hsun-Yin Huang^{*}
E-mail : hyhuang@cdc.gov.tw

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Numbers of New Cases and Cumulative Cases of Notifiable Infectious Diseases (by week of diagnosis)

Case diagnosis week		Week 31		Week 1–31	
Classification	Disease Diagnosed ¹	2016	2015	2016	2015
Category I	Plague	0	0	0	0
	Rabies	0	0	0	0
	SARS	0	0	0	0
	Smallpox	0	0	0	0
Category II	Acute Flaccid Paralysis	0	0	21	10
	Acute Viral Hepatitis type A	28	5	674	61
	Amoebiasis	5	11	175	222
	Anthrax	0	0	0	0
	Chikungunya Fever	0	0	7	4
	Cholera	0	0	3	4
	Dengue Fever	13	231	618	800
	Diphtheria	0	0	0	0
	Enterohemorrhagic E. coli Infection	0	0	0	0
	Epidemic Typhus Fever	0	0	0	0
	Hantavirus Pulmonary Syndrome	0	0	0	0
	Hemorrhagic Fever with Renal Syndrome	0	0	3	1
	Malaria	0	0	6	7
	Measles	3	0	9	27
	Meningococcal Meningitis	0	0	2	2
	Paratyphoid Fever	0	0	4	3
	Poliomyelitis	0	0	0	0
	Rubella	0	0	4	6
	Shigellosis	5	2	126	105
Typhoid fever	0	0	3	21	
West Nile Fever	0	0	0	0	
Category III	Acute Viral Hepatitis type B	3	1	58	74
	Acute Viral Hepatitis type C ⁵	2	2	125	131
	Acute Viral Hepatitis type D	0	0	1	1
	Acute Viral Hepatitis type E	0	0	10	1
	Acute Viral Hepatitis untype	0	0	0	1
	Congenital Rubella Syndrome	0	0	0	0
	Enteroviruses Infection with Severe Complications	0	0	15	4
	Haemophilus Influenza type b Infection	0	0	10	1
	Japanese Encephalitis	1	2	16	25
	Legionellosis	2	2	65	108
	Mumps ²	12	26	350	488
	Neonatal Tetanus	0	0	0	0
	Pertussis	0	0	10	63
	Tetanus ²	1	0	8	6
	Category IV	Botulism	0	0	4
Brucellosis		0	0	0	0
Complicated Influenza		2	15	1851	751
Complicated Varicella ⁴		0	0	25	35
Endemic Typhus Fever		0	0	11	19
Herpesvirus B Infection		0	0	0	0
Invasive Pneumococcal Disease		5	8	375	339
Leptospirosis		6	0	45	37
Lyme Disease		0	1	0	2
Melioidosis		0	1	13	21
Q Fever		0	2	28	28
Scrub Typhus		9	15	290	251
Toxoplasmosis		0	0	7	6
Tularremia	0	0	0	0	
Category V	Ebola Virus Disease	0	0	0	0
	Ebola-Marburg Hemorrhagic Fever	0	0	0	0
	Novel Influenza A Virus Infections ⁶	0	0	0	0
	Lassa Fever	0	0	0	0
	Rift Valley Fever	0	0	0	0
	Middle East Respiratory Syndrome Coronavirus	0	0	0	0
Yellow Fever	0	0	0	0	

1. The following 8 chronic diseases are excluded from the table: MDR-TB, Tuberculosis, Syphilis, Gonorrhea, HIV Infection, AIDS, Hansen Disease and Creutzfeldt-Jakob Disease.
2. Reported cases.
3. Since 2014/1/1, "Varicella" was modified to "Complicated Varicella".
4. Since 2014/3/6, the case definition for confirmed Acute hepatitis C was changed from "meet the clinical and laboratory conditions" to "meet the clinical or laboratory conditions".
5. Since 2014/7/1, various subtypes of human cases of avian influenza are reported as "novel influenza A virus infections", a Category V Notifiable Infectious Disease. The original "H5N1 flu" and "H7N9 flu", which were respectively listed as a Category I Notifiable Infectious Disease and a Category V Notifiable Infectious Disease were removed from the list on the same day.
6. Since 2016/1/22, "Zika Virus Infection" was listed as a Notifiable Infectious Disease.

Suspected Clusters

- Eight clusters were reported, including 5 diarrhea clusters, 2 upper respiratory tract infection clusters, and 1 tuberculosis cluster.

Imported Infectious Diseases

- 30 confirmed cases were imported from 8 countries during Week 31 of 2016.

Country Disease	Indonesia	Philippines	Cambodia	Thailand	Malaysia	Saint Lucia	China	Japan	Total
Dengue Fever	5	2	3	3	3				16
Amoebiasis	5	1							6
Shigellosis	4								4
Hepatitis A		1					1	1	3
Zika virus infection						1			1
Total	14	4	3	3	3	1	1	1	30

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

- A total of 431 confirmed cases were imported from 32 countries in 2016.
- Top 3 imported diseases : Dengue fever (183), Amoebiasis (80), Hepatitis A (61).
- Top 3 countries responsible for most imported cases : Indonesia (188), Thailand (46), Philippines (37).

Summary of Epidemic

- **Dengue Fever** : The epidemic has increased gradually in Southeast Asian countries. Imported cases have continued to be reported. The recent high temperatures and occurrence of intermittent rain have still promoted mosquito growths and elevated the risk of dengue transmission. The public is urged to clean up and remove any vector breeding sites and take prevention measures against mosquito bites.
- **Japanese Encephalitis** : The peak of Japanese encephalitis season is during the months of June to July. Although the endemic areas primarily include central and southern Taiwan and Hualien County, sporadic cases are expected to be reported in other cities and counties.
- **Scrub Typhus** : The numbers of cases reported has decreased slightly. The peak of scrub typhus season is during the months of June to July. The endemic areas are primarily eastern and outlying islands of Taiwan.

- **Enterovirus** : The epidemic activity has slowed down and the peak of the epidemic activity is expected to be over next week. Coxsackie A virus is currently the dominant strain circulating in the community. Sporadic cases of enterovirus 71 infection have been confirmed recently. This year, a total of 122 cases of enterovirus 71 infection, including 13 severe cases, 107 mild cases and 2 suspected severe cases, have been confirmed. The public is urged to enhance personal hygiene and stay vigilant for suspicious symptoms of enterovirus infection with severe complications in infants.

Numbers of New Cases and Cumulative Cases of Notifiable Infectious Diseases (by week of diagnosis)

Case diagnosis week		Week 32		Week 1—32		
Classification	Disease Diagnosed ¹	2016	2015	2016	2015	
Category I	Plague	0	0	0	0	
	Rabies	0	0	0	0	
	SARS	0	0	0	0	
	Smallpox	0	0	0	0	
Category II	Acute Flaccid Paralysis	1	0	22	10	
	Acute Viral Hepatitis type A	29	2	702	63	
	Amoebiasis	12	6	187	228	
	Anthrax	0	0	0	0	
	Chikungunya Fever	0	0	7	4	
	Cholera	0	0	3	4	
	Dengue Fever	21	482	638	1282	
	Diphtheria	0	0	0	0	
	Enterohemorrhagic E. coli Infection	0	0	0	0	
	Epidemic Typhus Fever	0	0	0	0	
	Hantavirus Pulmonary Syndrome	0	0	0	0	
	Hemorrhagic Fever with Renal Syndrome	0	0	3	1	
	Malaria	0	0	6	7	
	Measles	3	0	12	27	
	Meningococcal Meningitis	0	0	2	2	
	Paratyphoid Fever	0	0	4	3	
	Poliomyelitis	0	0	0	0	
	Rubella	0	0	4	6	
	Shigellosis	4	6	130	111	
	Typhoid fever	0	0	3	21	
West Nile Fever	0	0	0	0		
Category III	Acute Viral Hepatitis type B	2	4	60	78	
	Acute Viral Hepatitis type C ⁵	7	0	131	131	
	Acute Viral Hepatitis type D	0	0	1	1	
	Acute Viral Hepatitis type E	0	0	10	1	
	Acute Viral Hepatitis untype	0	0	0	1	
	Congenital Rubella Syndrome	0	0	0	0	
	Enteroviruses Infection with Severe Complications	0	0	15	4	
	Haemophilus Influenza type b Infection	0	0	10	1	
	Japanese Encephalitis	0	1	16	26	
	Legionellosis	0	3	65	111	
	Mumps ²	13	19	363	507	
	Neonatal Tetanus	0	0	0	0	
	Pertussis	0	1	10	64	
	Tetanus ²	0	0	8	6	
	Category IV	Botulism	0	0	4	2
		Brucellosis	0	0	0	0
Complicated Influenza		4	7	1855	758	
Complicated Varicella ⁴		0	1	25	36	
Endemic Typhus Fever		0	2	11	21	
Herpesvirus B Infection		0	0	0	0	
Invasive Pneumococcal Disease		10	6	385	345	
Leptospirosis		6	3	51	40	
Lyme Disease		0	0	0	2	
Melioidosis		0	0	13	21	
Q Fever		3	1	31	29	
Scrub Typhus		6	10	296	261	
Toxoplasmosis		0	0	7	6	
Tularremia		0	0	0	0	
Category V	Ebola Virus Disease	0	0	0	0	
	Ebola-Marburg Hemorrhagic Fever	0	0	0	0	
	Novel Influenza A Virus Infections ⁶	0	0	0	0	
	Lassa Fever	0	0	0	0	
	Rift Valley Fever	0	0	0	0	
	Middle East Respiratory Syndrome Coronavirus	0	0	0	0	
Yellow Fever	0	0	0	0		

1. The following 8 chronic diseases are excluded from the table: MDR-TB, Tuberculosis, Syphilis, Gonorrhoea, HIV Infection, AIDS, Hansen Disease and Creutzfeldt-Jakob Disease.
2. Reported cases.
3. Since 2014/1/1, "Varicella" was modified to "Complicated Varicella".
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6. Since 2016/1/22, "Zika Virus Infection" was listed as a Notifiable Infectious Disease.

Suspected Clusters

- Eight clusters were reported, including 4 tuberculosis clusters, 3 diarrhea clusters, and 1 upper respiratory tract infection cluster.

Imported Infectious Diseases

- 30 confirmed cases were imported from 10 countries during Week 32 of 2016.

Country Disease	Indonesia	Philippines	Cambodia	China	Thailand	Saint Vincent	Malaysia	Poland	India	Japan	Total
Dengue Fever	6	4	3		1		1				15
Amoebiasis	6	1									7
Hepatitis A			1	1				1			3
Measles				1	1					1	3
Zika virus infection						1					1
Shigellosis									1		1
Total	12	5	4	2	2	1	1	1	1	1	30

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

- A total of 461 confirmed cases were imported from 34 countries in 2016.
- Top 3 imported diseases : Dengue fever (198), Amoebiasis (87), Hepatitis A (64).
- Top 3 countries responsible for most imported cases : Indonesia (200), Thailand (48), Philippines (42).

Summary of Epidemic

- **Dengue Fever** : The epidemic has increased gradually in Southeast Asian countries. Clusters of imported cases have been reported. The recent high temperatures and occurrence of intermittent rain have still promoted mosquito growths and elevated the risk of dengue transmission. One indigenous case has been confirmed. The public is urged to clean up and remove any vector breeding sites and take prevention measures against mosquito bites.
- **Japanese Encephalitis** : Although the number of cases reported has decreased slightly, the epidemic activity remains at its peak. Although the endemic areas primarily include central and southern Taiwan and Hualien County, sporadic cases are expected to be reported in other cities and counties.
- **Scrub Typhus** : Although the numbers of cases reported has decreased slightly, the epidemic activity remains at its peak. The endemic areas are primarily eastern and outlying islands of Taiwan.

- **Enterovirus** : The epidemic activity is no longer at its peak and has continued to slow down. Coxsackie A virus is currently the dominant strain circulating in the community. Sporadic cases of enterovirus 71 infection have been confirmed recently. This year, a total of 124 cases of enterovirus 71 infection, including 14 severe cases, 107 mild cases and 3 suspected severe cases, have been confirmed. The public is urged to enhance personal hygiene and stay vigilant for suspicious symptoms of enterovirus infection with severe complications in infants.

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