

Knowledge, Attitude and Practices Regarding Ebola Virus Disease among Medical Clerks and Interns

Sheng-Hsiang Ma^{1,2}, Meng-Yu Chen^{1*}

Abstract

The epidemic of Ebola virus disease (EVD) in West Africa has been characterized by the World Health Organization as one of the most challenging outbreak to date. Cases outside Africa have generated huge media attention and public panic. Medical clerks and interns who start to work in clinical settings might have some fear of the disease. The aim of this study is to evaluate knowledge, attitude and practices regarding EVD among medical clerks and interns. A descriptive cross-sectional survey was performed online in December 2014. All twelve medical schools in Taiwan were purposively selected and 131 medical students (clerks or interns) from these schools completed the survey. The results showed that the internet and television were the two main sources of EVD information among medical students; however, these two means were given low trust in comparison with other sources of information such as scientific articles or schools and hospitals. Most students had sufficient knowledge about EVD, but knowledge of EVD transmission was relatively inadequate. Participation in training courses on EVD significantly affected level of knowledge. Most medical students showed negative attitude towards public health preparedness in Taiwan, but those who had attended training courses possessed positive attitude. Most medical students reported no changes in practices since this epidemic. This study demonstrates that television and internet should be effectively used as part of communication channels with the medical students. Schools and hospitals should increase the quality and quantity of EVD training for medical students. Infection control measures and public health responses in addition to clinical aspects of EVD should be included in future training courses.

Keywords : Ebola virus disease ; Medical student ; Knowledge ; Attitude ; Practice

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A Preliminary Study of Latent Tuberculosis in a Mountainous Township in Central Taiwan

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Abstract

The government has allocated much resource to tuberculosis control in mountainous townships where the incidence is high. Treatment of latent tuberculosis infection (LTBI) is one of the cornerstones of tuberculosis control. However, studies of the knowledge, attitude, and practice (KAP) of tuberculosis and treatment of LTBI in mountainous townships remain limited. We conducted a survey from the residents of a mountainous township to estimate the KAP of tuberculosis and treatment of LTBI.

Residents 20 years of age or older in 2 tribes in a mountainous township in central Taiwan who participated in x-ray screening were recruited for participation in this study. The subjects were interviewed by using a structured questionnaire. Information collected by the questionnaire included personal demographic information and KAP of tuberculosis, LTBI, diagnosis, and treatment.

Of the 123 subjects enrolled in this study, 29 (23.6%) had correct understanding of tuberculosis and 103 (83.7%) agreed that tuberculosis is an infectious disease. A total of 86 (69.9%) subjects agreed that drug resistance is possible if anti-tuberculosis medication is not taken regularly. Once diagnosed with tuberculosis, 108 (87.8%) subjects said they would receive anti-tuberculosis medication with directly observed therapy short course (DOTS). A total of 66 (53.7%) subjects were confident of the results of both the tuberculin skin test (TST) and interferon gamma release assays (IGRAs); 6 (4.9%) were more confident of the TST and 51 (41.5%) were more confident of IGRAs. Once the diagnosis of LTBI was established, 116 (94.3%) and 100 (81.3%) agreed with receiving treatment with isoniazid and combined therapy of isoniazid and rifapentine, respectively.

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This study found a gap in KAP of tuberculosis and treatment of LTBI among the residents of this mountainous area. Acceptance of IGRAs was higher than that of TST, and acceptance of traditional isoniazid treatment was higher than that of combined therapy with isoniazid and rifapentine due to overdose concern.

Keywords: latent tuberculosis infection ; mountainous townships ; tuberculin test ; tuberculosis drugs

week 11-13 (Mar. 15 - Apr. 4, 2015)

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

Classification	Disease Diagnosed ¹	Week 11		Week 1—11	
		2015	2014	2015	2014
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	3	3	9
	Acute Viral Hepatitis type A	0	6	18	37
	Amoebiasis	12	8	74	50
	Anthrax	0	0	0	0
	Chikungunya Fever	0	0	1	2
	Cholera	0	0	0	0
	Dengue Fever	7	2	161	93
	Dengue Hemorrhagic Fever/Dengue Shock Syndrome	0	0	0	4
	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	0	1
	Malaria	1	0	3	3
	Measles	0	0	0	4
	Meningococcal Meningitis	0	0	1	2
	Paratyphoid Fever	0	1	1	3
	Poliomyelitis	0	0	0	0
	Rubella	1	1	2	2
	Shigellosis	5	8	54	38
Typhoid fever	2	0	9	7	
West Nile Fever	0	0	0	0	
Category III	Acute Viral Hepatitis type B	0	1	24	17
	Acute Viral Hepatitis type C ⁵	10	13	42	19
	Acute Viral Hepatitis type D	1	0	1	0
	Acute Viral Hepatitis type E	0	1	1	4
	Acute Viral Hepatitis untype	0	0	0	1
	Congenital Rubella Syndrome	0	0	0	0
	Enteroviruses Infection with Severe Complications	0	0	1	1
	Haemophilus Influenza type b Infection	0	0	1	0
	Japanese Encephalitis	0	0	0	0
	Legionellosis	1	1	33	31
	Mumps ²	20	19	144	147
	Neonatal Tetanus	0	0	0	0
	Pertussis	2	0	26	3
	Tetanus ²	0	0	1	0
	Category IV	Botulism	0	0	1
Brucellosis		0	0	0	0
Complicated Influenza		18	100	173	1208
Complicated Varicella ⁴		2	1	18	22
Endemic Typhus Fever		0	0	0	4
Herpesvirus B Infection		0	0	0	0
Invasive Pneumococcal Disease		13	18	166	210
Leptospirosis		1	0	10	9
Lyme Disease		0	0	0	0
Melioidosis		0	0	3	5
Q Fever		0	0	4	18
Scrub Typhus		3	0	55	69
Toxoplasmosis		0	1	0	2
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. The epidemiological week calendar established by the World Health Organization is adopted for calculating each week's cumulative total.
4. Since 2014/1/1, "Varicella" was modified to "Complicated Varicella".
5. 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".
6. 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.

Suspected Clusters

- Twenty four clusters were reported, including 8 diarrhea clusters, 7 upper respiratory tract infection clusters, 4 varicella clusters, 3 influenza-like illness clusters, 1 fever cause unknown cluster and 1 pertussis cluster.

Imported Infectious Diseases

- 19 confirmed cases were imported from 5 countries including 1 unknown during week 11 of 2015.

Disease \ Country	Indonesia	Cameroon	Philippines	China	Unknown	Total
Shigellosis	9					9
Amoebiasis	4		1			5
Dengue Fever	2					2
Malaria		1				1
Measles				1		1
Rubella					1	1
Total	15	1	1	1	1	19

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

- A total of 157 confirmed cases were imported from 23 countries in 2015.
- Top 3 imported diseases : Dengue fever (52), Amoebiasis (45), Shigellosis (31).
- Top 3 countries responsible for most imported cases : Indonesia (99), Vietnam (9), Philippines (8).

Summary of Epidemic

- **Influenza** : We are still in the middle of the flu season. Since January 1, 2015, a cumulative total of 173 cases of severe complicated influenza have been confirmed, including 23 cases infected by H1N1, 131 cases infected by H3N2, 2 cases infected by untyped influenza A and 17 cases infected by influenza B. Among these cases, 20 deaths were caused by infection with H3N2 and 1 death was caused by infection with influenza B. During week 10, H3N2 is the dominant strain circulating in the community.
- **Dengue fever** : New sporadic cases have been reported in Sanmin District and Nanzih District, Kaohsiung City. The highest temperatures in southern KaoPing area recorded last week ranged from 25-29 °C, which facilitated vector breeding. The public is once again urged to clean up and remove any vector breeding sites and take personal precautions against mosquito bites. The number of imported dengue fever is higher than those in the past five years. As most of our imported cases came from countries in Southeast Asia, we need to stay vigilant to ward off importation.

● **Diarrhea** : Although the number of patient visits for viral gastroenteritis decreased recently, many diarrhea clusters had still occurred. The public is urged to practice good personal hygiene. More particularly, the food and beverage industry, hospitals, care facilities, schools and other densely populated places are urged to strengthen infection prevention and control measures. Individuals experiencing any suspicious symptoms are advised to seek immediate medical treatment and stay home to prevent further transmission of the disease.

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

Case diagnosis week		Week 12		Week 1–12	
Classification	Disease Diagnosed ¹	2015	2014	2015	2014
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	4	9
	Acute Viral Hepatitis type A	5	5	23	42
	Amoebiasis	11	5	85	55
	Anthrax	0	0	0	0
	Chikungunya Fever	0	0	1	2
	Cholera	0	0	0	0
	Dengue Fever	5	8	166	101
	Dengue Hemorrhagic Fever/Dengue Shock Syndrome	0	0	0	4
	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	0	1
	Malaria	0	0	3	3
	Measles	1	2	1	6
	Meningococcal Meningitis	0	0	1	2
	Paratyphoid Fever	0	1	1	4
	Poliomyelitis	0	0	0	0
	Rubella	0	0	2	2
	Shigellosis	5	3	59	41
Typhoid fever	0	0	9	7	
West Nile Fever	0	0	0	0	
Category III	Acute Viral Hepatitis type B	2	2	26	19
	Acute Viral Hepatitis type C ⁵	4	7	46	26
	Acute Viral Hepatitis type D	0	0	1	0
	Acute Viral Hepatitis type E	0	0	1	4
	Acute Viral Hepatitis untype	0	0	0	1
	Congenital Rubella Syndrome	0	0	0	0
	Enteroviruses Infection with Severe Complications	0	0	1	1
	Haemophilus Influenza type b Infection	0	0	1	0
	Japanese Encephalitis	0	0	0	0
	Legionellosis	1	1	34	32
	Mumps ²	20	20	164	167
	Neonatal Tetanus	0	0	0	0
	Pertussis	6	1	32	4
	Tetanus ²	0	1	1	1
Category IV	Botulism	0	0	1	0
	Brucellosis	0	0	0	0
	Complicated Influenza	40	74	213	1282
	Complicated Varicella ⁴	0	0	18	22
	Endemic Typhus Fever	0	1	0	5
	Herpesvirus B Infection	0	0	0	0
	Invasive Pneumococcal Disease	11	9	177	219
	Leptospirosis	0	1	10	10
	Lyme Disease	0	0	0	0
	Melioidosis	1	1	4	6
	Q Fever	0	0	4	18
	Scrub Typhus	0	0	55	69
	Toxoplasmosis	0	0	0	2
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. The epidemiological week calendar established by the World Health Organization is adopted for calculating each week's cumulative total.

4. Since 2014/1/1, "Varicella" was modified to "Complicated Varicella".

5. 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".

6. 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.

Suspected Clusters

- Nineteen clusters were reported, including 7 upper respiratory tract infection clusters, 5 diarrhea clusters, 3 varicella clusters, 2 tuberculosis clusters and 2 influenza-like illness clusters.

Imported Infectious Diseases

- 13 confirmed cases were imported from 2 countries during week 12 of 2015.

Disease \ Country	Indonesia	Malaysia	Total
Amoebiasis	6		6
Dengue Fever	3		3
Shigellosis	2		2
Typhoid fever		1	1
Hepatitis A	1		1
Total	12	1	13

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

- A total of 170 confirmed cases were imported from 23 countries in 2015.
- Top 3 imported diseases : Dengue fever (55), Amoebiasis (51), Shigellosis (33).
- Top 3 countries responsible for most imported cases : Indonesia (111), Vietnam (9), Philippines (8).

Summary of Epidemic

- **Influenza** : The influenza activity still remained high. Since January 1, 2015, a cumulative total of 211 cases of severe complicated influenza have been confirmed, including 32 cases infected by H1N1, 153 cases infected by H3N2, 4 cases infected by untyped influenza A and 22 cases infected by influenza B. Among these cases, 22 deaths were caused by infection with H3N2, 3 deaths were caused by infection with H1N1 and 1 death was caused by infection with influenza B. During week 12, H3N2 is the dominant strain circulating in the community and followed by influenza B has become more active. The epidemic will continued to April.
- **Dengue fever** : New sporadic cases have been reported in Cianjhen District and Fongshan District, Kaohsiung City. Taiwan CDC will continue to monitor the development of the epidemic. The number of imported dengue fever cases reported is higher than those reported during the same period in the past five years. As most of our imported cases came from countries in Southeast Asia, we need to stay vigilant to ward off importation.
- **Diarrhea** : The number of patient visits for viral gastroenteritis decreased recently. The public is urged to practice good personal hygiene. More particularly, the food and beverage industry, hospitals, care facilities, schools and other densely populated places are urged to strengthen infection prevention and control measures.

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

Case diagnosis week		Week 13		Week 1–13	
Classification	Disease Diagnosed ¹	2015	2014	2015	2014
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	1	4	10
	Acute Viral Hepatitis type A	0	1	23	43
	Amoebiasis	3	6	88	61
	Anthrax	0	0	0	0
	Chikungunya Fever	2	2	3	4
	Cholera	0	0	0	0
	Dengue Fever	2	2	168	103
	Dengue Hemorrhagic Fever/Dengue Shock Syndrome	0	0	0	4
	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	0	1
	Malaria	0	1	3	4
	Measles	0	0	1	6
	Meningococcal Meningitis	0	0	1	2
	Paratyphoid Fever	0	0	1	4
	Poliomyelitis	0	0	0	0
	Rubella	0	1	2	3
	Shigellosis	1	1	60	42
Typhoid fever	1	1	10	8	
West Nile Fever	0	0	0	0	
Category III	Acute Viral Hepatitis type B	0	0	26	19
	Acute Viral Hepatitis type C ⁵	1	4	47	30
	Acute Viral Hepatitis type D	0	0	1	0
	Acute Viral Hepatitis type E	0	0	1	4
	Acute Viral Hepatitis untype	0	0	0	1
	Congenital Rubella Syndrome	0	0	0	0
	Enteroviruses Infection with Severe Complications	0	0	1	1
	Haemophilus Influenza type b Infection	0	0	1	0
	Japanese Encephalitis	0	0	0	0
	Legionellosis	5	1	39	33
	Mumps ²	11	17	175	184
	Neonatal Tetanus	0	0	0	0
	Pertussis	1	1	33	5
	Tetanus ²	0	0	1	1
Category IV	Botulism	0	0	1	0
	Brucellosis	0	0	0	0
	Complicated Influenza	32	63	245	1345
	Complicated Varicella ⁴	1	1	19	23
	Endemic Typhus Fever	0	0	0	5
	Herpesvirus B Infection	0	0	0	0
	Invasive Pneumococcal Disease	11	14	188	233
	Leptospirosis	0	1	10	11
	Lyme Disease	0	0	0	0
	Melioidosis	1	0	5	6
	Q Fever	3	0	7	18
	Scrub Typhus	2	0	57	69
	Toxoplasmosis	0	1	0	3
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 Yellow Fever	0 0	0 0	0 0	0 0

- The following 8 chronic diseases are excluded from the table: MDR-TB, Tuberculosis, Syphilis, Gonorrhoea, HIV Infection, AIDS, Hansen Disease and Creutzfeldt-Jakob Disease.
- Reported cases.
- The epidemiological week calendar established by the World Health Organization is adopted for calculating each week's cumulative total.
- Since 2014/1/1, "Varicella" was modified to "Complicated Varicella".
- 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".
- 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.

Suspected Clusters

- Thirteen clusters were reported, including 7 upper respiratory tract infection clusters, 4 influenza-like illness clusters, 1 diarrhea cluster and 1 varicella cluster.

Imported Infectious Diseases

- 10 confirmed cases were imported from 4 countries during week 13 of 2015.

Disease \ Country	Indonesia	Philippines	China	Thailand	Total
Dengue Fever	1	1		1	3
Amoebiasis	1	1			2
Chikungunya Fever	2				2
Typhoid fever	1				1
Shigellosis	1				1
Legionellosis			1		1
Total	6	2	1	1	10

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

- A total of 180 confirmed cases were imported from 23 countries in 2015.
- Top 3 imported diseases : Dengue fever (58), Amoebiasis (53), Shigellosis (34).
- Top 3 countries responsible for most imported cases : Indonesia (117), Philippines (10), Vietnam (9).

Summary of Epidemic

- **Influenza** : The influenza activity still remained high. Since January 1, 2015, a cumulative total of 244 cases of severe complicated influenza have been confirmed, including 37 cases infected by H1N1, 180 cases infected by H3N2, 2 cases infected by untyped influenza A and 25 cases infected by influenza B. Among these cases, 30 deaths were caused by infection with H3N2, 3 deaths were caused by infection with H1N1 and 1 death was caused by infection with influenza B. During week 13, H3N2 is the dominant strain circulating in the community and followed by influenza B, which has become more active. Thus far, no resistant viruses have been detected.
- **Dengue fever** : New sporadic cases have been reported in Siaogang District, Kaohsiung City, indicating the presence of vector breeding sites and potential cases in the community. Taiwan CDC will continue to monitor the development of the epidemic. The number of imported dengue fever cases reported last week is higher than those reported during the same period in the past five years. As most of our imported cases came from countries in Southeast Asia, we need to stay vigilant to ward off importation.

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