

The Border Quarantine Response to the Outbreak of Middle East Respiratory Syndrome Coronavirus at Taoyuan International Airport, Taiwan, 2015

Shu-Chuan Lin*, Min-Ping Hsu, Chen-Nien Jao, Hao-Hsin Wu,
Mei-Jung Chen, Jhy-Wen Wu, Kun-Bin Wu

Abstract

Since the first case of Middle East respiratory syndrome coronavirus infection (MERS-CoV) confirmed in South Korea on May 20th, 2015, a total of 186 cases (including one confirmed in Guangdong Province, China) and 36 deaths have been confirmed as of July 28. As the cases continuously increasing, the public media tagged the term of new SARS (Severe Acute Respiratory Syndrome) to describe this epidemic. With the awareness of the MERS outbreak in South Korea, the neighboring Asian countries took relevant border quarantine measures for travelers from South Korea. In response to this epidemic, Taiwan established an Epidemic Prevention Response Team on May 22 and implemented six strategies, including strengthening the surveillance and risk assessment of the epidemic, extending international cooperation, sustaining risk communication, upgrading the laboratory capacity, completing medical preparedness, and strengthening the border control. We described the border quarantine measurements conducted at Taoyuan International Airport in response to the MERS epidemic, including harbor internal preparedness, quarantine process enhancement, designated anchor site quarantine and on-board quarantine on exception notice, and education to inbound and outbound passengers.

Keywords: Republic of Korea, Middle East respiratory syndrome coronavirus infections, Quarantine

Northern Regional Center, Centers for Disease Control, Ministry of Health and Welfare, Taiwan
Corresponding author: Shu-Chuan Lin*
E-mail: linsj@cdc.gov.tw

Received: Dec. 20, 2016
Accepted: Mar. 30, 2017
DOI: 10.6525/TEB.20170822.33(16).001

Investigation of Ship Sanitation Inspection at Kaohsiung Port, 2011–2015

Jheng-Guang Jhong*, Ying-Ying Tsai, Mei-Ju Chen,
Chiou-Yueh You, Chao- Ching Chang

Abstract

Kaohsiung-Pingtung Region of Centers for Disease Control (CDC) administrates the affairs at National Kaohsiung Port (Kaohsiung Port), in which there are many ships passing through every year. Ships arrive at Kaohsiung Port, accompanied with potential risk factors, may threaten public health in Taiwan. According to International Health Regulations 2005 (IHR 2005), ships are required to hold valid sanitation certificates during navigating between nations. Therefore, Taiwan CDC follows the regulations mentioned, inspecting and conducting health education while there is evidence of ship sanitation defect.

To examine the situation of ship sanitation at Kaohsiung Port, and consider about relative strategies in the future, we investigate the ship sanitation certificate issuance and patterns of ship sanitation control certificate from 2011 to 2015. In conclusion, the sanitation situation of oil vessels was the worst among the inspected ships, and evidence of vectors infestation were mostly located at food storage areas, which implied that improvement of the management of these areas was urgently needed. In addition to inspectors of CDC, shipping agencies and ship managers also play important roles in sanitation promotion in this issue. After all, quarantine officers at front line should conduct health education both in early and late stages for shipping agencies and ship managers. It is mandatory to improve sanitation defects and to increase their knowledge during ship sanitation inspections, which would help prevent disease spreading, and protect both health and life of quarantine officers, crew or passengers, and even the public.

Keywords: International Health Regulations (IHR), Kaohsiung Port, Ship sanitation inspection

Kaohsiung-Pingtung Regional Center, Centers for Disease
Control, Ministry of Health and Welfare, Taiwan
Corresponding author: Jheng-Guang Jhong*
E-mail: cdchikaru@cdc.gov.tw

Received: Feb. 15, 2017

Accepted: Apr. 21, 2017

DOI: 10.6525/TEB.20170822.33(16).002

week 31–32 (Jul. 30 –Aug. 12, 2017)

DOI: 10.6525/TEB.20170822.33(16).003

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

Case diagnosis year		Week 31★		Week 1-31				
Classification	Disease Diagnosed	2017	2016	2017		2016		
				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	0	22	0	21	0	
	Acute Viral Hepatitis type A	3	27	310	32	673	54	
	Amoebiasis	8	5	212	117	175	83	
	Anthrax	0	0	0	0	0	0	
	Chikungunya Fever	1	0	8	8	7	7	
	Cholera	0	0	0	0	3	0	
	Dengue Fever	11	11	164	161	616	178	
	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	1	0	3	0	
	Malaria	1	0	4	4	6	6	
	Measles	0	3	5	5	9	4	
	Meningococcal Meningitis	1	0	10	0	2	0	
	Paratyphoid Fever	0	0	3	3	4	1	
	Poliomyelitis	0	0	0	0	0	0	
	Rubella	0	0	2	2	4	3	
	Shigellosis	1	5	108	40	126	59	
	Typhoid fever	0	0	11	10	3	2	
West Nile Fever	0	0	0	0	0	0		
Category III	Acute Viral Hepatitis type B	4	3	102	3	58	1	
	Acute Viral Hepatitis type C	12	1	180	1	124	2	
	Acute Viral Hepatitis type D	0	0	1	0	1	0	
	Acute Viral Hepatitis type E	0	0	12	3	10	4	
	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	15	0	
	Haemophilus Influenza type b Infection	0	0	3	0	10	0	
	Japanese Encephalitis	2	1	22	0	16	0	
	Legionellosis	3	2	100	9	65	1	
	Mumps	14	12	401	6	349	4	
	Neonatal Tetanus	0	0	0	0	0	0	
	Pertussis	0	0	19	0	10	0	
	Tetanus	0	1	6	0	8	0	
	Category IV	Botulism	0	0	0	0	4	0
		Brucellosis	0	0	0	0	0	0
Complicated Influenza		59	2	1064	5	1851	2	
Complicated Varicella		0	0	15	1	25	0	
Endemic Typhus Fever		1	0	27	1	11	0	
Herpesvirus B Infection		0	0	0	0	0	0	
Invasive Pneumococcal Disease		6	5	305	2	375	0	
Leptospirosis		2	6	51	1	45	2	
Lyme Disease		0	0	0	0	0	0	
Melioidosis		0	0	12	0	13	1	
Q Fever		0	0	11	0	28	3	
Scrub Typhus		14	9	261	0	290	3	
Toxoplasmosis		0	0	8	0	7	0	
Tularremia		0	0	0	0	0	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	1	1	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	0	0	
	Yellow Fever	0	0	0	0	0	0	
Zika Virus Infection	0	1	3	3	4	4		

1. ★The weekly and cumulative total numbers include indigenous and imported cases of notifiable infectious diseases.
2. The following 8 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 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.

Suspected Clusters

- Eighteen clusters were reported, including 4 tuberculosis clusters, 5 diarrhea clusters, 4 upper respiratory tract infection clusters and 5 influenza-like illness clusters.

Imported Infectious Diseases

- 15 confirmed cases were imported from 6 countries during Week 31 of 2017.

Country Disease	Philippines	Indonesia	Vietnam	Hong Kong	French Polynesia	Equatorial Guinea	Total
DF	4	1	3		1		9
Amoebiasis		2					2
Shigellosis				1			1
Chikungunya a Fever	1						1
Hepatitis A				1			1
Malaria						1	1
Total	5	3	3	2	1	1	15

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

- A total of 412 confirmed cases were imported from 28 countries in 2017.
- Top 3 imported diseases : Dengue fever (161), Amoebiasis (117), Shigellosis (40).
- Top 3 countries responsible for most imported cases : Indonesia (154), Vietnam (55), Philippines (48).

Summary of Epidemic

- **Enterovirus** : The enterovirus epidemic season has begun. Most reported cases are mild cases. The number of severe cases may increase. EV71 is still circulating in the community.
- **Influenza** : The influenza activity has continued to decline and is expected to approach baseline by mid-August.
- **Japanese Encephalitis** : The Japanese encephalitis epidemic season has begun. Although the endemic areas are primarily central and southern Taiwan, sporadic cases are expected to occur in the other cities and counties.
- **Scrub Typhus** : The scrub typhus epidemic season has begun. Although the newly reported cases are primarily from Hualien County, Taitung County, Kinmen County and Penghu County, sporadic cases are expected to occur in the other cities and counties.
- **Dengue Fever** : Epidemics in Southeast Asia are slowly on the rise. As new indigenous dengue fever cases have been confirmed in Taiwan, the risk of imported and indigenous epidemics is elevated.

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

Case diagnosis year		Week 32★		Week 1-32			
Classification	Disease Diagnosed	2017	2016	2017		2016	
				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	22	0	22	0
	Acute Viral Hepatitis type A	3	28	313	32	701	58
	Amoebiasis	4	12	216	118	187	88
	Anthrax	0	0	0	0	0	0
	Chikungunya Fever	0	0	8	8	7	7
	Cholera	0	0	0	0	3	0
	Dengue Fever	15	21	179	176	637	198
	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	1	0	3	0
	Malaria	0	0	4	4	6	6
	Measles	0	3	5	5	12	7
	Meningococcal Meningitis	0	0	10	0	2	0
	Paratyphoid Fever	0	0	3	3	4	1
	Poliomyelitis	0	0	0	0	0	0
	Rubella	0	0	2	2	4	3
	Shigellosis	2	4	110	40	130	61
	Typhoid fever	0	0	11	10	3	2
West Nile Fever	0	0	0	0	0	0	
Category III	Acute Viral Hepatitis type B	2	2	104	4	60	1
	Acute Viral Hepatitis type C	5	7	185	1	131	2
	Acute Viral Hepatitis type D	0	0	1	0	1	0
	Acute Viral Hepatitis type E	1	0	13	3	10	4
	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	15	0
	Haemophilus Influenza type b Infection	0	0	3	0	10	0
	Japanese Encephalitis	0	0	22	0	16	0
	Legionellosis	3	0	103	9	65	1
	Mumps	8	13	409	6	362	6
	Neonatal Tetanus	0	0	0	0	0	0
	Pertussis	1	0	20	0	10	0
	Tetanus	0	0	6	0	8	0
Category IV	Botulism	0	0	0	0	4	0
	Brucellosis	0	0	0	0	0	0
	Complicated Influenza	39	4	1103	5	1855	2
	Complicated Varicella	3	0	18	1	25	0
	Endemic Typhus Fever	1	0	28	1	11	0
	Herpesvirus B Infection	0	0	0	0	0	0
	Invasive Pneumococcal Disease	7	10	312	2	385	0
	Leptospirosis	3	6	54	1	51	2
	Lyme Disease	0	0	0	0	0	0
	Melioidosis	1	0	13	0	13	1
	Q Fever	0	3	11	0	31	3
	Scrub Typhus	13	6	274	0	296	3
	Toxoplasmosis	0	0	8	0	7	0
	Tularremia	0	0	0	0	0	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	1	1	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	0	0
	Yellow Fever	0	0	0	0	0	0
	Zika Virus Infection	0	1	3	3	5	5

1. ★The weekly and cumulative total numbers include indigenous and imported cases of notifiable infectious diseases.
2. The following 8 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 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.

Suspected Clusters

- Thirty-six clusters were reported, including 9 tuberculosis clusters, 7 diarrhea clusters, 12 upper respiratory tract infection clusters and 8 influenza-like illness clusters.

Imported Infectious Diseases

- 17 confirmed cases were imported from 6 countries during Week 32 of 2017.

Country Disease	Vietnam	Myanmar	Thailand	Philippines	Indonesia	Malaysia	Total
DF	5	3	3	2	1	1	15
Hepatitis B	1						1
Amoebiasis					1		1
Total	6	3	3	2	2	1	17

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

- A total of 429 confirmed cases were imported from 28 countries in 2017.
- Top 3 imported diseases : Dengue fever (176), Amoebiasis (118), Shigellosis (40).
- Top 3 countries responsible for most imported cases : Indonesia (156), Vietnam (61), Philippines (50).

Summary of Epidemic

- **Enterovirus** : The enterovirus epidemic season has begun. The symptoms of most reported cases are mild. EV71 virus is still circulating in the community.
- **Japanese Encephalitis** : The Japanese encephalitis epidemic season has begun and the high risk areas are mainly in central and southern Taiwan.
- **Scrub Typhus** : The scrub typhus epidemic season has begun. The high risk areas include Hualien County, Taitung County, Kinmen County and Penghu County.
- **Dengue Fever** : Epidemic are slowly on the rise in Southeast Asian countries, which lead to several imported clusters recently. Meanwhile, indigenous dengue fever cases have been confirmed in Taiwan, the risk of imported and indigenous epidemic is elevated.
- **Influenza** : Influenza activity continues to decline and has returned to baseline.

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

Address: No.6, Linsen S. Rd, Jhongjheng District, Taipei City 10050, Taiwan (R.O.C.)

Telephone No: (02) 2395-9825

Website: <http://www.cdc.gov.tw/>

Suggested Citation:

[Author].[Article title].Taiwan Epidemiol Bull 2017;33:[inclusive page numbers]. [DOI]