

An Investigation of Abnormality of Water Quality Occurred in Mailiao Harbor, Yunlin, Taiwan, 2019

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Abstract

From May 1 to October 31, 2019, we found that the residual chlorine in potable water on ship was far below the standard range during the process of ship sanitation examination at Mailiao harbor. After investigation, we discovered that the water was transported through non-boosted pipe line for a long distance, under high temperature, and without chlorine addition, which caused continuous volatilization of chlorine in water. We recommended that the harbor administrative department should establish the quarterly surveillance mechanism to understand the influence of temperature to water quality, and to take instant response to assure the safety of the water transporting to ship.

Keywords: Ship sanitation examination, port quarantine, ship potable water, residual chlorine

week 41–43 (Oct. 9–Oct. 29, 2022)

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Weekly Data of Notifiable Inases (by week of diagnosis)

Case diagnosis year		Week 41★		Week 1-41			
Classification	Disease Diagnosed	2022	2021	2022		2021	
				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	0	22	0	26	0
	Acute Viral Hepatitis type A	0	1	114	1	54	0
	Amoebiasis	4	2	164	46	158	57
	Anthrax	0	0	0	0	0	0
	Chikungunya Fever	0	0	1	1	1	1
	Cholera	0	0	0	0	0	0
	Dengue Fever	2	0	63	43	9	9
	Diphtheria	0	0	0	0	0	0
	Enterohemorrhagic E. coli Infection	0	0	2	0	0	0
	Epidemic Typhus Fever	0	0	0	0	0	0
	Hantavirus syndrome	0	0	3	0	0	0
	Malaria	0	0	2	2	1	1
	Measles	0	0	1	0	0	0
	Meningococcal Meningitis	0	0	1	0	3	0
	Paratyphoid Fever	0	0	0	0	2	0
	Poliomyelitis	0	0	0	0	0	0
	Rubella	0	0	0	0	0	0
	Shigellosis	0	2	59	4	100	0
	Typhoid fever	0	0	3	1	1	0
	West Nile Fever	0	0	0	0	0	0
Zika virus infection	0	0	0	0	0	0	
Monkeypox	1	-	4	4	-	-	
Category III	Acute Viral Hepatitis type B	5	0	79	0	100	2
	Acute Viral Hepatitis type C	11	8	373	1	419	0
	Acute Viral Hepatitis type D	0	0	0	0	1	0
	Acute Viral Hepatitis type E	0	0	10	0	5	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	0	0	1	0
	Haemophilus Influenza type b Infection	0	0	2	0	1	0
	Japanese Encephalitis	0	0	19	0	26	0
	Legionnaires' Disease	8	7	260	1	290	0
	Mumps	17	8	188	0	341	1
	Neonatal Tetanus	0	0	0	0	0	0
Pertussis	0	0	0	0	0	0	
Tetanus	2	0	7	0	3	0	
Category IV	Botulism	0	0	0	0	0	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	0	0	26	0	43	0
	Endemic Typhus Fever	1	1	11	0	28	0
	Herpesvirus B Infection	0	0	0	0	0	0
	Influenza Case with Severe Complications	1	0	1	0	1	0
	Invasive Pneumococcal Disease	0	1	140	0	170	0
	Leptospirosis	2	3	46	0	67	0
	Listeriosis	1	0	114	0	137	0
	Lyme Disease	0	1	1	1	1	1
	Melioidosis	0	0	18	1	16	0
	Q Fever	0	0	3	0	8	0
	Scrub Typhus	4	13	226	0	229	0
Toxoplasmosis	1	0	20	0	11	0	
Tularemia	0	0	0	0	1	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	0	0	1	0
	Rift Valley Fever	0	0	0	0	0	0
	Severe Pneumonia with Novel Pathogens	312470	43	7166803	33345	15529	1001
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 2022/6/23, " Monkeypox " was listed as a Notifiable Infectious Disease.
 5. Hantavirus syndrome was no longer classify Hemorrhagic Fever with Renal Syndrome(HFRS) and Hantavirus Pulmonary Syndrome(HPS) since 2022.

Suspected Clusters

- Twelve clusters related to diarrhea (8), tuberculosis (4) were reported during week 41.

Imported Infectious Diseases

- There were 365 imported cases from 24 countries during week 41.
 - Severe Pneumonia with Novel Pathogens:** 362 cases from Thailand (11), Vietnam (10), and the remaining 22 countries have less than 10 cases, 265 unknowns.
 - Dengue Fever:** 2 cases from Indonesia (1), Vietnam (1).
 - Monkeypox:** 1 case from USA.
- During week 1-41, there were 33451 imported cases from 128 countries. The top three countries are Vietnam (4042), USA (2428), Indonesia (1298).
- During week 1-41, the notifiable diseases with the highest number of imported cases is Severe Pneumonia with Novel Pathogens (33345).

Summary of Epidemic

- **Severe Pneumonia with Novel Pathogens :** The COVID-19 epidemic in Taiwan reach a plateau, the risk for local transmission is persistence.
- **Dengue Fever:** The local cluster in Qianzhen District of Kaohsiung City is under observation. Duo to the rainfall increases and the temperature in southern Taiwan is still suitable for dengue vector activity, the risk of Dengue Fever infection continues.

Weekly Data of Notifiable Inases (by week of diagnosis)

Case diagnosis year		Week 42★		Week 1-42			
Classification	Disease Diagnosed	2022	2021	2022		2021	
				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	0	23	0	26	0
	Acute Viral Hepatitis type A	0	0	114	1	54	0
	Amoebiasis	4	4	168	47	162	58
	Anthrax	0	0	0	0	0	0
	Chikungunya Fever	0	0	1	1	1	1
	Cholera	0	0	0	0	0	0
	Dengue Fever	3	0	66	46	9	9
	Diphtheria	0	0	0	0	0	0
	Enterohemorrhagic E. coli Infection	0	0	2	0	0	0
	Epidemic Typhus Fever	0	0	0	0	0	0
	Hantavirus syndrome	0	0	3	0	0	0
	Malaria	0	0	2	2	1	1
	Measles	0	0	1	0	0	0
	Meningococcal Meningitis	0	0	1	0	3	0
	Paratyphoid Fever	0	0	0	0	2	0
	Poliomyelitis	0	0	0	0	0	0
	Rubella	0	0	0	0	0	0
	Shigellosis	0	2	59	4	102	0
	Typhoid fever	0	0	3	1	1	0
	West Nile Fever	0	0	0	0	0	0
Zika virus infection	0	0	0	0	0	0	
Monkeypox	0	-	4	4	-	-	
Category III	Acute Viral Hepatitis type B	2	2	81	0	102	2
	Acute Viral Hepatitis type C	13	9	386	1	428	0
	Acute Viral Hepatitis type D	0	0	0	0	1	0
	Acute Viral Hepatitis type E	0	0	10	0	5	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	0	0	1	0
	Haemophilus Influenza type b Infection	0	0	2	0	1	0
	Japanese Encephalitis	0	0	19	0	26	0
	Legionnaires' Disease	3	2	263	1	292	0
	Mumps	7	5	195	0	346	1
	Neonatal Tetanus	0	0	0	0	0	0
	Pertussis	1	0	1	0	0	0
Tetanus	0	0	7	0	3	0	
Category IV	Botulism	0	0	0	0	0	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	0	1	26	0	44	0
	Endemic Typhus Fever	0	1	11	0	29	0
	Herpesvirus B Infection	0	0	0	0	0	0
	Influenza Case with Severe Complications	0	0	1	0	1	0
	Invasive Pneumococcal Disease	6	3	146	0	173	0
	Leptospirosis	8	8	54	0	75	0
	Listeriosis	5	0	119	0	137	0
	Lyme Disease	0	0	1	1	1	1
	Melioidosis	1	2	19	1	18	0
	Q Fever	0	0	3	0	8	0
	Scrub Typhus	7	12	233	0	241	0
Toxoplasmosis	0	0	20	0	11	0	
Tularemia	0	0	0	0	1	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	1	0
	Novel Influenza A Virus Infections	0	0	0	0	0	0
	Rift Valley Fever	0	0	0	0	0	0
Severe Pneumonia with Novel Pathogens	266251	31	7433017	33637	15560	1029	
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 2022/6/23, " Monkeypox " was listed as a Notifiable Infectious Disease.
5. Hantavirus syndrome was no longer classify Hemorrhagic Fever with Renal Syndrome (HFRS) and Hantavirus Pulmonary Syndrome (HPS) since 2022.

Suspected Clusters

- Eleven clusters related to diarrhea (2), tuberculosis (9) were reported during week 42.

Imported Infectious Diseases

- There were 297 imported cases from 20 countries during week 42.
 - Severe Pneumonia with Novel Pathogens:** 293 cases from Singapore (13), Vietnam (8), Thailand (6), and the remaining 17 countries have less than 5 cases, 225 unknowns.
 - Dengue Fever:** 3 cases from Indonesia (1), Vietnam (1), Nepal (1).
 - Amoebiasis:** 1 case from unknown.
- During week 1-42, there were 33747 imported cases from 128 countries. The top three countries are Vietnam (4051), USA (2431), Indonesia (1304).
- During week 1-42, the notifiable diseases with the highest number of imported cases is Severe Pneumonia with Novel Pathogens (33637).

Summary of Epidemic

- **Severe Pneumonia with Novel Pathogens :** The COVID-19 epidemic in Taiwan is declining.
- **Dengue Fever:** The local cluster in Qianzhen District of Kaohsiung City is under observation. Duo to the temperature in southern Taiwan is still suitable for dengue vector activity, the risk of Dengue Fever infection continues.

Weekly Data of Notifiable Inases (by week of diagnosis)

Case diagnosis year		Week 43★		Week 1-43			
Classification	Disease Diagnosed	2022	2021	2022		2021	
				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	0	23	0	26	0
	Acute Viral Hepatitis type A	0	6	114	1	60	0
	Amoebiasis	5	4	173	48	166	61
	Anthrax	0	0	0	0	0	0
	Chikungunya Fever	0	0	1	1	1	1
	Cholera	0	0	0	0	0	0
	Dengue Fever	4	0	70	50	9	9
	Diphtheria	0	0	0	0	0	0
	Enterohemorrhagic E. coli Infection	0	0	2	0	0	0
	Epidemic Typhus Fever	0	0	0	0	0	0
	Hantavirus syndrome	0	1	3	0	1	0
	Malaria	0	0	2	2	1	1
	Measles	0	0	1	0	0	0
	Meningococcal Meningitis	0	0	1	0	3	0
	Paratyphoid Fever	3	0	3	0	2	0
	Poliomyelitis	0	0	0	0	0	0
	Rubella	0	0	0	0	0	0
	Shigellosis	1	5	60	4	107	0
	Typhoid fever	0	1	3	1	2	0
	West Nile Fever	0	0	0	0	0	0
Zika virus infection	0	0	0	0	0	0	
Monkeypox	0	-	4	4	-	-	
Category III	Acute Viral Hepatitis type B	5	16	86	0	118	2
	Acute Viral Hepatitis type C	8	33	393	1	461	0
	Acute Viral Hepatitis type D	0	0	0	0	1	0
	Acute Viral Hepatitis type E	0	0	10	0	5	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	0	0	1	0
	Haemophilus Influenza type b Infection	0	0	2	0	1	0
	Japanese Encephalitis	0	1	19	0	27	0
	Legionnaires' Disease	9	6	272	1	298	0
	Mumps	17	4	212	0	350	1
	Neonatal Tetanus	0	0	0	0	0	0
	Pertussis	0	0	1	0	0	0
Tetanus	0	0	7	0	3	0	
Category IV	Botulism	0	0	0	0	0	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	2	2	28	0	46	0
	Endemic Typhus Fever	0	1	11	0	30	0
	Herpesvirus B Infection	0	0	0	0	0	0
	Influenza Case with Severe Complications	0	0	1	0	1	0
	Invasive Pneumococcal Disease	2	2	148	0	175	0
	Leptospirosis	0	0	54	0	75	0
	Listeriosis	1	4	120	0	141	0
	Lyme Disease	0	0	1	1	1	1
	Melioidosis	1	0	20	1	18	0
	Q Fever	0	0	3	0	8	0
	Scrub Typhus	7	11	240	0	252	0
Toxoplasmosis	1	0	21	0	11	0	
Tularemia	0	0	0	0	1	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	0	0	1	0
	Rift Valley Fever	0	0	0	0	0	0
	Severe Pneumonia with Novel Pathogens	240003	44	7672995	33935	15604	1071
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 2022/6/23, " Monkeypox " was listed as a Notifiable Infectious Disease.
5. Hantavirus syndrome was no longer classify Hemorrhagic Fever with Renal Syndrome (HFRS) and Hantavirus Pulmonary Syndrome (HPS) since 2022.

Suspected Clusters

- Seven clusters related to diarrhea (3), tuberculosis (4) were reported during week 43.

Imported Infectious Diseases

- There were 303 imported cases from 19 countries during week 43.
 - Severe Pneumonia with Novel Pathogens:** 298 cases from Japan (11), USA (7), Singapore (6), Korea (5), and the remaining 15 countries have less than 5 cases, 240 unknowns.
 - Dengue Fever:** 4 cases from Vietnam (3), India (1).
 - Amoebiasis:** 1 case from Indonesia.
- During week 1-43, there were 34050 imported cases from 128 countries. The top three countries are Vietnam (4057), USA (2438), Indonesia (1307).
- During week 1-43, the notifiable diseases with the highest number of imported cases is Severe Pneumonia with Novel Pathogens (33935).

Summary of Epidemic

- **Severe Pneumonia with Novel Pathogens :** The COVID-19 epidemic in Taiwan is declining.
- **Dengue Fever:** The local cluster in Qianzhen District of Kaohsiung City is under observation. Due to the temperature in southern Taiwan is still suitable for dengue vector activity, the risk of Dengue Fever infection continues.

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