

### **Analysis for Health Inspection of Ships in Taichung Port, 2011–2018**

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#### **Abstract**

Taichung Port is an international commercial port located in central Taiwan and frequently busy, thus the public health risks and impacts are relatively high. We analyzed the ship sanitation inspection and ship sanitation certificate issuance in Taichung Port in 2011-2018. We hope to explore the possible public health risk in Taichung Port in recent years and envision the respond and control measures that can be adopted. We found that among vessels with a large number of certificate issuances, the Ship Sanitation Control Certificate rate (abbreviated to SSCC%) was the highest in oil tankers and the second in general cargo ships. However, in recent years, the SSCC% in oil tankers had gradually declined, and the SSCC% of general cargo ships surpassed the oil tankers in 2018. The locations of the vectors were found in kitchen and warehouse, and mainly in kitchen, warehouse and food storage room in oil tankers. However, in addition to the kitchen and warehouse, vectors also appeared in residential areas and medical facilities in general cargo ships. The most common type of vectors found was cockroaches, followed by rats and flies. All rats were found in general cargo ships in 2018. The general cargo ships have become the vessels that mostly need to be noticed and improved. We recommend modifying the regulations and policies and carrying out prevention measures in high-risk ships, in order to comply with the practical needs and protect the health of people.

**Keywords:** Taichung Port, ship sanitation inspection, ship sanitation certificate

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

Case diagnosis year		Week 1★		Week 1			
Classification	Disease Diagnosed	2021	2020	2021		2020	
				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	1	1	0	1	0
	Acute Viral Hepatitis type A	3	1	3	0	1	0
	Amoebiasis	4	8	4	3	8	2
	Anthrax	0	0	0	0	0	0
	Chikungunya Fever	0	0	0	0	0	0
	Cholera	0	0	0	0	0	0
	Dengue Fever	1	4	1	1	4	4
	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	1	0	1	0	0	0
	Malaria	0	0	0	0	0	0
	Measles	0	1	0	0	1	1
	Meningococcal Meningitis	0	0	0	0	0	0
	Paratyphoid Fever	0	0	0	0	0	0
	Poliomyelitis	0	0	0	0	0	0
	Rubella	0	0	0	0	0	0
Shigellosis	4	4	4	0	4	0	
Typhoid fever	0	0	0	0	0	0	
West Nile Fever	0	0	0	0	0	0	
Zika virus infection	0	0	0	0	0	0	
Category III	Acute Viral Hepatitis type B	1	3	1	0	3	0
	Acute Viral Hepatitis type C	13	15	13	0	15	0
	Acute Viral Hepatitis type D	0	0	0	0	0	0
	Acute Viral Hepatitis type E	0	0	0	0	0	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	0	0
	Haemophilus Influenza type b Infection	0	0	0	0	0	0
	Japanese Encephalitis	0	0	0	0	0	0
	Legionnaires' Disease	24	4	24	0	4	0
	Mumps	9	11	9	0	11	1
	Neonatal Tetanus	0	0	0	0	0	0
	Pertussis	0	3	0	0	3	0
Tetanus	1	0	1	0	0	0	
Category IV	Botulism	0	0	0	0	0	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	0	0	0	0	0	0
	Endemic Typhus Fever	0	0	0	0	0	0
	Herpesvirus B Infection	0	0	0	0	0	0
	Influenza Case with Severe Complications	0	78	0	0	78	0
	Invasive Pneumococcal Disease	8	11	8	0	11	0
	Leptospirosis	3	0	3	0	0	0
	Listeriosis	2	0	2	0	0	0
	Lyme Disease	0	0	0	0	0	0
	Melioidosis	1	0	1	0	0	0
	Q Fever	0	0	0	0	0	0
	Scrub Typhus	11	5	11	0	5	0
Toxoplasmosis	0	0	0	0	0	0	
Tularemia	0	0	0	0	0	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	0	0
	Rift Valley Fever	0	0	0	0	0	0
Severe Pneumonia with Novel Pathogens	20	-	20	20	-	-	
Yellow Fever	0	0	0	0	0	0	

- ★The weekly and cumulative total numbers include indigenous and imported cases of notifiable infectious diseases.
- MDR-TB, Tuberculosis, Syphilis, Gonorrhoea, HIV Infection, AIDS, Hansen's Disease and Creutzfeldt-Jakob Disease are excluded from the table.
- Numbers of mumps and tetanus cases are summed up by the week of report.
- Since 2020/1/15, "Severe Pneumonia with Novel Pathogens" was listed as a Notifiable Infectious Disease.

## Suspected Clusters

- Twenty-four clusters related to diarrhea (18), upper respiratory tract infection (3), tuberculosis (2), and varicella (1) were reported during week 1.

## Imported Infectious Diseases

- There were 24 imported cases from 11 countries during week 1.

Diseases	Countries											Total
	Indonesia	USA	Philippines	Dominican	UK	Germany	Nigeria	Eswatini	France	Egypt	Cambodia	
Severe Pneumonia with Novel Pathogens	3	5	5	1	1	1	1	1	1	1		20
Amoebiasis	3											3
Dengue Fever											1	1
Total	6	5	5	1	1	1	1	1	1	1	1	24

- As of week 1, there were 24 imported cases from 11 countries. The top three countries are Indonesia (6), Philippines (5), and USA (5).
- The three notifiable diseases with the highest number of imported cases are Severe Pneumonia with Novel Pathogens (20), Amoebiasis (3), and Dengue Fever (1).

## Summary of Epidemic

- **Severe Pneumonia with Novel Pathogens** : The global COVID-19 pandemic is still critical, therefore it is expected that the number of imported cases will raise.
- **Influenza-like illness** : The epidemic status is similar to previous weeks.
- **Enterovirus** : The epidemic status is similar to previous weeks.

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

Case diagnosis year		Week 2★		Week 1-2			
Classification	Disease Diagnosed	2021	2020	2021		2020	
				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	1	0	1	0
	Acute Viral Hepatitis type A	1	3	4	0	4	0
	Amoebiasis	5	5	9	3	13	4
	Anthrax	0	0	0	0	0	0
	Chikungunya Fever	0	0	0	0	0	0
	Cholera	0	0	0	0	0	0
	Dengue Fever	0	12	1	1	16	16
	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	0	0
	Malaria	0	0	0	0	0	0
	Measles	0	1	0	0	2	2
	Meningococcal Meningitis	0	1	0	0	1	0
	Paratyphoid Fever	0	0	0	0	0	0
	Poliomyelitis	0	0	0	0	0	0
	Rubella	0	0	0	0	0	0
Shigellosis	4	6	8	0	10	4	
Typhoid fever	0	0	0	0	0	0	
West Nile Fever	0	0	0	0	0	0	
Zika virus infection	0	0	0	0	0	0	
Category III	Acute Viral Hepatitis type B	2	2	3	0	5	1
	Acute Viral Hepatitis type C	16	13	29	0	28	0
	Acute Viral Hepatitis type D	0	0	0	0	0	0
	Acute Viral Hepatitis type E	0	1	0	0	1	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	0	0
	Haemophilus Influenza type b Infection	0	0	0	0	0	0
	Japanese Encephalitis	0	0	0	0	0	0
	Legionnaires' Disease	7	11	30	0	15	3
	Mumps	10	10	19	0	21	1
	Neonatal Tetanus	0	0	0	0	0	0
	Pertussis	0	1	0	0	4	0
Tetanus	0	0	1	0	0	0	
Category IV	Botulism	0	0	0	0	0	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	5	4	5	0	4	0
	Endemic Typhus Fever	0	0	0	0	0	0
	Herpesvirus B Infection	0	0	0	0	0	0
	Influenza Case with Severe Complications	0	119	0	0	197	3
	Invasive Pneumococcal Disease	8	23	16	0	34	0
	Leptospirosis	1	0	4	0	0	0
	Listeriosis	5	1	7	0	1	0
	Lyme Disease	0	0	0	0	0	0
	Melioidosis	0	0	1	0	0	0
	Q Fever	0	0	0	0	0	0
	Scrub Typhus	6	8	17	0	13	1
Toxoplasmosis	1	0	1	0	0	0	
Tularemia	0	0	0	0	0	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	0	0
	Rift Valley Fever	0	0	0	0	0	0
Severe Pneumonia with Novel Pathogens	23	0	43	40	0	0	
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 2020/1/15, "Severe Pneumonia with Novel Pathogens" was listed as a Notifiable Infectious Disease.

## Suspected Clusters

- Thirty-three clusters related to diarrhea (16), tuberculosis (11), upper respiratory tract infection (3), and varicella (3) were reported during week 2.

## Imported Infectious Diseases

- There were 20 imported cases from 8 countries during week 2.

Diseases	Countries								Total
	Indonesia	Philippines	USA	Egypt	Russia	UK	India	South Africa	
Severe Pneumonia with Novel Pathogens	6	4	3	3	1	1	1	1	20
Total	6	4	3	3	1	1	1	1	20

- As of week 2, there were 44 imported cases from 14 countries. The top three countries are Indonesia (12), Philippines (9), and USA (8).
- The three notifiable diseases with the highest number of imported cases are Severe Pneumonia with Novel Pathogens (40), Amoebiasis (3), and Dengue Fever (1).

## Summary of Epidemic

- **Severe Pneumonia with Novel Pathogens** : There have been new cases linked to the hospital COVID-19 cluster. It is worrisome that the new cases have visited public spaces while they were infectious. The situation of global COVID-19 pandemic continues to be critical. The risk of further locally-acquired and imported cases is rising.
- **Influenza-like illness** : The epidemic status is similar to previous weeks.
- **Enterovirus** : The epidemic status decrease gradually.

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