

Investigation on the Laboratory Infection of Bacillary Dysentery of a Hospital, Tainan, 2020

Yi-Hsuan Chen*, Pei-Yi Lin, Huai-Te Tsai, Cheng-Sheng Lin,
Yeuan-Perng Tsay, Tzu-Jaun Chen, Tsuey-Fong Li

Abstract

On December 10, 2020, a hospital in Tainan reported a 30-year-old female infected with bacillary dysentery. The stool culture test was confirmed as *Shigella flexneri* 2a (sub-group B). The confirmed case was a medical technologist of the bacterial laboratory in the hospital. The test results of fecal specimens from 23 contacts were all negative. During her incubation period, the laboratory identified another case of bacillary dysentery infected with *Shigella flexneri* 2a. Both isolates shared the same DNA fingerprint pattern (code: SFN09.0219) by pulse-field gel electrophoresis (PFGE).

According to the surveillance data of the Taiwan Centers for Disease Control (TCDC), the prevalent type of *S. flexneri* 2a code SFN09.0219 in Taiwan was 72.7% in the past four years. These two cases cannot be identified as a hospital or community-acquired infection, however, a laboratory infection was suspected. The South Regional Center of TCDC and the local health bureau immediately conducted an on-site inspection at the laboratory, and recommended that the hospital biosafety committee should strengthen the biosafety education training of the personnel and regularly disinfect the equipment and environment to eliminate the possible risk of infections in the laboratory.

Keywords: Shigella, bacillary dysentery, laboratory infection, biosafety, on-site laboratory inspection

Southern Regional Center, Centers for Disease Control, Ministry of Health and Welfare, Taiwan
DOI: 10.6525/TEB.202310_39(20).0001

Corresponding author: Yi-Hsuan Chen*
E-mail: cyh23@cdc.gov.tw
Received: Mar. 05, 2021
Accepted: Sep. 03, 2021

week 39–week 41, 2023 (Sep.24, 2023–Oct.14, 2023)

DOI: 10.6525/TEB.202310_39(20).0002

Weekly Data of Notifiable Inases (by week of diagnosis)

Case diagnosis year		Week 39★		Week 1–39			
Classification	Disease Diagnosed	2023	2022	2023		2022	
				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	Cholera	0	0	1	0	0	0
	Typhoid fever	0	0	7	6	3	1
	Paratyphoid Fever	0	0	12	1	0	0
	Epidemic Typhus Fever	0	0	0	0	0	0
	Shigellosis	2	1	52	12	56	4
	Amoebiasis	5	4	207	84	150	54
	Enterohemorrhagic E.coli Infection	0	0	0	0	2	0
	Anthrax	0	0	0	0	0	0
	Diphtheria	0	0	0	0	0	0
	Meningococcal Meningitis	0	0	3	0	1	0
	Poliomyelitis	0	0	0	0	0	0
	Acute Flaccid Paralysis	2	1	46	0	20	0
	Measles	0	0	2	2	1	0
	Rubella	0	0	0	0	0	0
	Dengue Fever	2,448	2	12,643	175	58	39
	West Nile Fever	0	0	0	0	0	0
	Acute Viral Hepatitis type A	2	0	68	4	113	1
	Malaria	0	0	1	1	2	2
	Chikungunya Fever	0	0	7	7	0	0
Hantavirus syndrome	0	0	6	0	3	0	
Zika virus infection	0	0	3	3	0	0	
Mpox	3	0	338	14	3	3	
Category III	Acute Viral Hepatitis type B	2	1	98	4	72	0
	Acute Viral Hepatitis type C	5	10	405	1	340	2
	Acute Viral Hepatitis type D	0	0	0	0	0	0
	Acute Viral Hepatitis type E	2	1	12	4	10	0
	Acute Viral Hepatitis, untyped	0	0	9	1	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	13	0	0	0
	Haemophilus Influenza type b Infection	1	0	1	0	2	0
	Japanese Encephalitis	0	0	21	0	19	0
	Legionnaires' Disease	11	8	297	8	244	1
	Mumps	13	7	210	7	164	0
	Neonatal Tetanus	0	0	0	0	0	0
Pertussis	0	0	0	0	0	0	
Tetanus	0	0	5	0	4	0	
Category IV	Botulism	0	0	0	0	0	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	1	0	35	0	23	0
	Endemic Typhus Fever	0	0	20	0	10	0
	Herpesvirus B Infection	0	0	0	0	0	0
	Influenza Case with Severe Complications	37	0	751	10	0	0
	Invasive Pneumococcal Disease	2	3	208	1	134	0
	Leptospirosis	5	0	53	0	42	0
	Listeriosis	1	0	150	2	110	0
	Lyme Disease	0	0	0	0	1	1
	Melioidosis	0	1	17	1	17	2
	Q Fever	0	0	2	0	3	0
	Scrub Typhus	6	3	142	0	211	0
	Toxoplasmosis	0	0	23	2	19	0
Tularemia	0	0	0	0	0	0	
Severe Fever with Thrombocytopenia Syndrome	0	0	0	0	1	0	
Severe Pneumonia with Novel Pathogens	229	297,714	1,392,932	18,135	6,530,562	32,557	
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 Coronavirus Infections	0	0	0	0	0	0
	Novel Influenza A Virus Infections	0	0	1	0	0	0
	Rift Valley Fever	0	0	0	0	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 are based on reported cases and summed up by week of report.
 4. "Mpox" has been listed as a Notifiable Infectious Disease since June 23, 2022.
 5. "Severe Pneumonia with Novel Pathogens": The case definition has been revised to include patients who have both a positive test for SARS-CoV-2 and associated complications since March 20, 2023. Additionally, it has been modified from Category V to Category IV since May 1, 2023.

Suspected Clusters

- Ninety-eight clusters related to Upper respiratory tract infection (72), Diarrhea (13), TB (5), Enterovirus (4), and Varicella (4) were reported during week 39.

Imported Infectious Diseases

- There were 17 imported cases from at least 7 countries/areas during week 39.
 - Dengue Fever:** 10 cases from the Philippines (3), Vietnam (3), Thailand (2), and Malaysia (2).
 - Severe Pneumonia with Novel Pathogens:** 2 cases from Japan.
 - Amoebiasis:** 2 cases from Indonesia.
 - Acute Viral Hepatitis type E:** 1 case from China.
 - Mpox:** 1 case from Japan.
 - Legionnaires' Disease:** 1 case from China.
- During week 1–39, there were 18,485 imported cases of notifiable diseases. The top three were Severe Pneumonia with Novel Pathogens (18,135), Dengue Fever (175) and Amoebiasis (84).
- During week 1–39, imported cases of notifiable diseases were from at least 48 countries/areas. The top three were China (3,177), Japan (727) and Thailand (200).

Summary of Epidemic

- **Influenza:** In the midst of the epidemic period, the epidemic is increasing.
- **Enterovirus:** In the midst of the epidemic period, the epidemic is similar to the previous week.
- **Dengue Fever:** In the midst of the epidemic period, the risk of transmission remains high.

Weekly Data of Notifiable Inases (by week of diagnosis)

Case diagnosis year		Week 40		Week 1–40			
Classification	Disease Diagnosed	2023	2022	2023		2022	
				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
	Cholera	0	0	1	0	0	0
Category II	Typhoid fever	1	0	8	6	3	1
	Paratyphoid Fever	1	0	13	1	0	0
	Epidemic Typhus Fever	0	0	0	0	0	0
	Shigellosis	1	3	53	12	59	5
	Amoebiasis	11	10	218	85	160	56
	Enterohemorrhagic E.coli Infection	0	0	0	0	2	0
	Anthrax	0	0	0	0	0	0
	Diphtheria	0	0	0	0	0	0
	Meningococcal Meningitis	0	0	3	0	1	0
	Poliomyelitis	0	0	0	0	0	0
	Acute Flaccid Paralysis	0	1	46	0	21	0
	Measles	0	0	2	2	1	0
	Rubella	0	0	0	0	0	0
	Dengue Fever	2,458	3	15,097	186	61	41
	West Nile Fever	0	0	0	0	0	0
	Acute Viral Hepatitis type A	1	1	69	4	114	1
	Malaria	0	0	1	1	2	2
	Chikungunya Fever	0	1	7	7	1	1
	Hantavirus syndrome	0	0	6	0	3	0
	Zika virus infection	0	0	3	3	0	0
Mpox	3	0	341	13	3	3	
Category III	Acute Viral Hepatitis type B	5	2	103	5	74	0
	Acute Viral Hepatitis type C	6	21	411	1	361	2
	Acute Viral Hepatitis type D	0	0	0	0	0	0
	Acute Viral Hepatitis type E	0	0	12	4	10	0
	Acute Viral Hepatitis, untyped	0	0	9	1	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	13	0	0	0
	Haemophilus Influenza type b Infection	0	0	1	0	2	0
	Japanese Encephalitis	1	0	22	0	19	0
	Legionnaires' Disease	9	8	306	8	252	1
	Mumps	7	7	217	7	171	0
	Neonatal Tetanus	0	0	0	0	0	0
	Pertussis	0	0	0	0	0	0
Tetanus	0	1	5	0	5	0	
Category IV	Botulism	0	0	0	0	0	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	0	3	35	0	26	0
	Endemic Typhus Fever	1	0	21	0	10	0
	Herpesvirus B Infection	0	0	0	0	0	0
	Influenza Case with Severe Complications	43	0	794	10	0	0
	Invasive Pneumococcal Disease	4	6	212	1	140	0
	Leptospirosis	3	2	56	0	44	0
	Listeriosis	4	3	154	2	113	0
	Lyme Disease	0	0	0	0	1	1
	Melioidosis	0	1	17	1	18	2
	Q Fever	0	0	2	0	3	0
	Scrub Typhus	4	11	146	0	222	0
	Toxoplasmosis	0	0	23	2	19	0
	Tularemia	0	0	0	0	0	0
Severe Fever with Thrombocytopenia Syndrome	0	0	0	0	1	0	
Severe Pneumonia with Novel Pathogens	264	323,808	1,393,196	18,135	6,854,370	32,982	
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 Coronavirus Infections	0	0	0	0	0	0
	Novel Influenza A Virus Infections	0	0	1	0	0	0
	Rift Valley Fever	0	0	0	0	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. "Mpox" has been listed as a Notifiable Infectious Disease since June 23, 2022.
5. "Severe Pneumonia with Novel Pathogens": The case definition has been revised to include patients who have both a positive test for SARS-CoV-2 and associated complications since March 20, 2023. Additionally, it has been modified from Category V to Category IV since May 1, 2023.

Suspected Clusters

- Sixty-one clusters related to Upper respiratory tract infection (45), Diarrhea (10), Varicella (5), and Enterovirus (1) were reported during week 40.

Imported Infectious Diseases

- There were 13 imported cases from at least 8 countries/areas during week 40.
 - Dengue Fever:** 11 cases from Thailand (3), Vietnam (3), India (2), Singapore (1), Cambodia (1), and the Philippines (1).
 - Acute Viral Hepatitis type B:** 1 case from Korea.
 - Amoebiasis:** 1 case from Japan.
- During week 1–40, there were 18,497 imported cases of notifiable diseases. The top three were Severe Pneumonia with Novel Pathogens (18,135), Dengue Fever (186) and Amoebiasis (85).
- During week 1–40, imported cases of notifiable diseases were from at least 48 countries/areas. The top three were China (3,177), Japan (727) and Thailand (203).

Summary of Epidemic

- **Influenza:** In the midst of the epidemic period, the epidemic is increasing.
- **Enterovirus:** In the midst of the epidemic period, the epidemic is similar to the previous week.
- **Dengue Fever:** In the midst of the epidemic period, the risk of transmission remains high.

Weekly Data of Notifiable Inases (by week of diagnosis)

Case diagnosis year		Week 41		Week 1-41			
Classification	Disease Diagnosed	2023	2022	2023		2022	
				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	Cholera	0	0	1	0	0	0
	Typhoid fever	0	0	8	6	3	1
	Paratyphoid Fever	0	0	13	1	0	0
	Epidemic Typhus Fever	0	0	0	0	0	0
	Shigellosis	0	0	53	12	59	5
	Amoebiasis	3	4	221	87	164	57
	Enterohemorrhagic E.coli Infection	0	0	0	0	2	0
	Anthrax	0	0	0	0	0	0
	Diphtheria	0	0	0	0	0	0
	Meningococcal Meningitis	0	0	3	0	1	0
	Poliomyelitis	0	0	0	0	0	0
	Acute Flaccid Paralysis	0	1	46	0	22	0
	Measles	0	0	2	2	1	0
	Rubella	0	0	0	0	0	0
	Dengue Fever	1,840	2	16,933	190	63	43
	West Nile Fever	0	0	0	0	0	0
	Acute Viral Hepatitis type A	1	0	70	4	114	1
	Malaria	0	0	1	1	2	2
	Chikungunya Fever	1	0	8	8	1	1
	Hantavirus syndrome	0	0	6	0	3	0
Zika virus infection	0	0	3	3	0	0	
Mpox	1	0	342	13	4	4	
Category III	Acute Viral Hepatitis type B	4	5	107	6	79	0
	Acute Viral Hepatitis type C	4	11	415	1	372	2
	Acute Viral Hepatitis type D	0	0	0	0	0	0
	Acute Viral Hepatitis type E	0	0	12	4	10	0
	Acute Viral Hepatitis, untyped	0	0	9	1	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	13	0	0	0
	Haemophilus Influenza type b Infection	0	0	1	0	2	0
	Japanese Encephalitis	1	0	23	0	19	0
	Legionnaires' Disease	6	8	312	8	260	1
	Mumps	7	17	224	7	188	0
	Neonatal Tetanus	0	0	0	0	0	0
Pertussis	0	0	0	0	0	0	
Tetanus	0	2	5	0	7	0	
Category IV	Botulism	0	0	0	0	0	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	1	0	36	0	26	0
	Endemic Typhus Fever	0	1	21	0	11	0
	Herpesvirus B Infection	0	0	0	0	0	0
	Influenza Case with Severe Complications	38	1	832	11	1	0
	Invasive Pneumococcal Disease	10	0	222	1	140	0
	Leptospirosis	3	2	59	0	46	0
	Listeriosis	3	1	157	2	114	0
	Lyme Disease	0	0	0	0	1	1
	Melioidosis	1	0	18	2	18	2
	Q Fever	1	0	3	0	3	0
	Scrub Typhus	3	4	149	0	226	0
	Toxoplasmosis	0	1	23	2	20	0
	Tularemia	0	0	0	0	0	0
Severe Fever with Thrombocytopenia Syndrome	0	0	0	0	1	0	
Severe Pneumonia with Novel Pathogens	305	312,434	1,393,501	18,135	7,166,804	33,344	
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 Coronavirus Infections	0	0	0	0	0	0
	Novel Influenza A Virus Infections	0	0	1	0	0	0
	Rift Valley Fever	0	0	0	0	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. "Mpox" has been listed as a Notifiable Infectious Disease since June 23, 2022.
5. "Severe Pneumonia with Novel Pathogens": The case definition has been revised to include patients who have both a positive test for SARS-CoV-2 and associated complications since March 20, 2023. Additionally, it has been modified from Category V to Category IV since May 1, 2023.

Suspected Clusters

- Twenty-nine clusters related to Upper respiratory tract infection (18), Diarrhea (7), Enterovirus (2), TB (1) and Varicella (1) were reported during week 41.

Imported Infectious Diseases

- There were 14 imported cases from at least 7 countries/areas during week 41.
 - Dengue Fever:** 10 cases from China (2), Thailand (2), the Philippines (2), India (1), Singapore (1), Vietnam (1), and Malaysia (1).
 - Chikungunya Fever:** 1 case from the Philippines.
 - Acute Viral Hepatitis type B:** 1 case from Malaysia.
 - Influenza Case with Severe Complications:** 1 case from China.
 - Melioidosis:** 1 case from Thailand.

- During week 1–41, there were 18,507 imported cases of notifiable diseases. The top three were Severe Pneumonia with Novel Pathogens (18,135), Dengue Fever (190) and Amoebiasis (87).
- During week 1–41, imported cases of notifiable diseases were from at least 48 countries/areas. The top three were China (3,178), Japan (727) and Thailand (206).

Summary of Epidemic

- **Influenza:** In the midst of the epidemic period, the epidemic is similar to the previous week.
- **Enterovirus:** The epidemic is similar to the previous week.
- **Dengue Fever:** The epidemic is similar to the previous week.

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: Jen-Hsiang Chuang

Editor-in-Chief: Yung-Ching Lin

Executive Editor: Hsueh-Ju Chen, Hsin-Lun Lee

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

Telephone No: +886-2-2395-9825

Website: <https://www.cdc.gov.tw/En>

Suggested Citation:

[Author].[Article title].Taiwan Epidemiol Bull 2023;39:[inclusive page numbers]. [DOI]