

An Outbreak of Hepatitis C Virus Infections in a Hospital Hemodialysis Unit, Taiwan, 2020

Kuo-Hao Huang*, Yu-Chun Lo, Hsiao-Lien Huang, Pei-Ching Huang

Abstract

In June 2020, a hospital in Hualien reported two cases with positive anti-hepatitis C virus antibody (anti-HCV) among long-term hemodialysis patients, which indicated a suspected cluster infection.

The health unit launched an investigation to identify the source of infections and discovered: (1) The hospital failed to implement infection prevention and control measures; (2) staff mixed care of non-hepatitis, hepatitis B and C patients; (3) staff neglected the standard aseptic techniques nor wearing personal protective equipment when performing dialysis procedures; (4) bedsheets and linens were not changed on regulatory shifts; and (5) no separation area for infectious and non-infectious patients, and no backup dialysis machines are available.

The Eastern Regional Center of Taiwan Centers for Disease Control and Hualien County Health Bureau recommended correcting the faulty measures and inspected the improvement. The hospital staff followed accordingly to implement relevant infection control measures, adjust beds, avoid mixing care of patients, use personal protective equipment, apply strict hand hygiene at work, keep patient's belongings in individual lockers when dialysis, change bedsheets and linens regularly and add backup machines for emergency use. As of June 2021, no new cases were identified, and the hospital was encouraged to refer hepatitis C cases for treatment and targeting eliminating hepatitis C.

Keywords: Acute hepatitis C, hemodialysis, infection control

Eastern Regional Center, Centers for Disease Control,
Ministry of Health and Welfare, Taiwan
Corresponding author: Kuo-Hao Huang*
E-mail: kuohao@cdc.gov.tw

Received: Dec. 28, 2021
Accepted: May. 11, 2022
DOI: 10.6525/TEB.202307_39(14).0001

A Cluster of Acute Hepatitis A in a Factory Dormitory, Tainan, 2022

Yi-Pin Tsai*, Pei-Ling Lee, Jen-Yih Lee, Huai-Te Tsai,
Tzu-Chun Chen, Tsuey-Fong Lee

Abstract

From December 26, 2021 to January 19, 2022, two cases of acute hepatitis A infection were reported to the Southern Regional Center, Taiwan Centers for Disease Control. Since these two patients both worked and lived in the same factory, the infections were considered an outbreak. We immediately visited the factory for environmental assessment and epidemic investigation. A total of six Thai workers infected with hepatitis A were found in this outbreak. The route of infection might be related to eating raw food or sharing the same toilet. Communication with interpreters and related units was necessary to complete tasks, including the epidemic investigation, potential contact identification, post-exposure vaccination, and hygiene education. To prevent the spread of hepatitis A more effectively, we suggested providing health education material and epidemic investigation checklists in language on demand and reconsidering the coverage of subsidies for clarifying the immune status of contacts before post-exposure vaccination.

Keyword: Acute hepatitis A, foreign workers, cluster

Southern Regional Center, Centers for Disease Control,
Ministry of Health and Welfare, Taiwan
Corresponding author: Yi-Pin Tsai*
E-mail: wbnnggg@gmail.com

Received: Apr. 08, 2022
Accepted: Aug. 29, 2022
DOI: 10.6525/TEB.202307_39(14).0002

week 27–week 28, 2023 (Jul. 2, 2023–Jul. 15, 2023)

DOI: 10.6525/TEB.202307_39(14).0003

Weekly Data of Notifiable Inases (by week of diagnosis)

Case diagnosis year		Week 27★		Week 1-27			
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	0	0	0	0
	Typhoid fever	0	0	2	2	1	0
	Paratyphoid Fever	1	0	5	0	0	0
	Epidemic Typhus Fever	0	0	0	0	0	0
	Shigellosis	1	3	32	10	43	1
	Amoebiasis	1	8	139	59	99	37
	Enterohemorrhagic E.coli Infection	0	0	0	0	0	0
	Anthrax	0	0	0	0	0	0
	Diphtheria	0	0	0	0	0	0
	Meningococcal Meningitis	0	0	1	0	0	0
	Poliomyelitis	0	0	0	0	0	0
	Acute Flaccid Paralysis	1	1	30	0	14	0
	Measles	0	0	1	1	0	0
	Rubella	0	0	0	0	0	0
	Dengue Fever	104	1	214	56	5	5
	West Nile Fever	0	0	0	0	0	0
	Acute Viral Hepatitis type A	4	5	50	2	100	1
	Malaria	0	0	1	1	2	2
	Chikungunya Fever	0	0	5	5	0	0
	Hantavirus syndrome	0	0	4	0	2	0
Zika virus infection	0	0	2	2	0	0	
Mpox	16	0	207	10	1	1	
Category III	Acute Viral Hepatitis type B	5	1	74	4	47	0
	Acute Viral Hepatitis type C	9	8	290	0	221	1
	Acute Viral Hepatitis type D	0	0	0	0	0	0
	Acute Viral Hepatitis type E	0	0	7	2	7	0
	Acute Viral Hepatitis, untyped	0	0	3	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	7	0	0	0
	Haemophilus Influenza type b Infection	0	0	0	0	1	0
	Japanese Encephalitis	1	1	7	0	4	0
	Legionnaires' Disease	9	5	153	4	184	1
	Mumps	8	3	140	3	103	0
	Neonatal Tetanus	0	0	0	0	0	0
	Pertussis	0	0	0	0	0	0
Tetanus	0	0	3	0	2	0	
Category IV	Botulism	0	0	0	0	0	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	1	0	24	0	15	0
	Endemic Typhus Fever	1	0	9	0	5	0
	Herpesvirus B Infection	0	0	0	0	0	0
	Influenza Case with Severe Complications	28	0	322	4	0	0
	Invasive Pneumococcal Disease	3	4	156	1	99	0
	Leptospirosis	2	2	25	0	19	0
	Listeriosis	7	2	107	1	70	0
	Lyme Disease	0	0	0	0	1	1
	Melioidosis	1	0	8	0	1	0
	Q Fever	0	0	2	0	2	0
	Scrub Typhus	9	5	66	0	81	0
	Toxoplasmosis	0	0	17	2	12	0
	Tularemia	0	0	0	0	0	0
Severe Fever with Thrombocytopenia Syndrome	0	0	0	0	1	0	
Severe Pneumonia with Novel Pathogens	1,513	257,342	1,385,670	18,118	3,852,995	12,510	
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, Gonorrhea, 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

- Twenty clusters related to Upper respiratory tract infection (10), TB (4), Enterovirus (3), Diarrhea (2) and Varicella (1) were reported during week 26.

Imported Infectious Diseases

- There were 6 imported cases from at least 5 countries / areas during week 26.
 - Legionnaires' Disease:** 2 cases from Vietnam and Thailand.
 - Shigellosis:** 1 case from USA.
 - Influenza Case with Severe Complications:** 1 case from Korea.
 - Mumps:** 1 case from China.
 - Mpox:** 1 case from Vietnam.
- During week 1-26, there were 18,288 imported cases of notifiable diseases. The top three were Severe Pneumonia with Novel Pathogens (18,118), Amoebiasis (59) and Dengue Fever (56).
- During week 1-26, imported cases of notifiable diseases were from at least 46 countries/areas. The top three were China (3,160), Japan (717) and Korea (183).

Summary of Epidemic

- **Severe Pneumonia with Novel Pathogens:** The epidemic is in a plateau phase.
- **Mpox:** The risk of epidemic transmission remains.
- **Enterovirus:** The epidemic is slightly decreasing.
- **Japanese Encephalitis:** In the midst of the epidemic season, the risk of new cases is expected to be detected in all counties.
- **Dengue Fever:** The clusters in Tainan City and Yunlin County continue to show an increase in cases, and the vector indices in some counties are high, indicating an elevated risk of epidemic transmission.
- **Influenza:** The epidemic is in a plateau phase.

Weekly Data of Notifiable Inases (by week of diagnosis)

Case diagnosis year		Week 28★		Week 1-28			
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	2	2	1	0
	Paratyphoid Fever	0	0	6	0	0	0
	Epidemic Typhus Fever	0	0	0	0	0	0
	Shigellosis	2	3	35	10	46	3
	Amoebiasis	5	2	149	60	106	39
	Enterohemorrhagic E.coli Infection	0	0	0	0	0	0
	Anthrax	0	0	0	0	0	0
	Diphtheria	0	0	0	0	0	0
	Meningococcal Meningitis	0	1	2	0	1	0
	Poliomyelitis	0	0	0	0	0	0
	Acute Flaccid Paralysis	2	0	35	0	16	0
	Measles	1	0	2	2	0	0
	Rubella	0	0	0	0	0	0
	Dengue Fever	127	1	459	71	9	9
	West Nile Fever	0	0	0	0	0	0
	Acute Viral Hepatitis type A	0	0	52	2	101	1
	Malaria	0	0	1	1	2	2
	Chikungunya Fever	0	0	5	5	0	0
	Hantavirus syndrome	0	1	4	0	3	0
Zika virus infection	0	0	2	2	0	0	
Mpox	7	0	235	12	2	2	
Category III	Acute Viral Hepatitis type B	2	3	78	4	55	0
	Acute Viral Hepatitis type C	10	5	318	0	240	1
	Acute Viral Hepatitis type D	0	0	0	0	0	0
	Acute Viral Hepatitis type E	1	0	8	3	7	0
	Acute Viral Hepatitis, untyped	0	0	3	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	9	0	0	0
	Haemophilus Influenza type b Infection	0	0	0	0	1	0
	Japanese Encephalitis	2	2	12	0	7	0
	Legionnaires' Disease	9	0	169	4	184	1
	Mumps	4	6	152	4	111	0
	Neonatal Tetanus	0	0	0	0	0	0
	Pertussis	0	0	0	0	0	0
Tetanus	0	0	3	0	2	0	
Category IV	Botulism	0	0	0	0	0	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	1	0	28	0	15	0
	Endemic Typhus Fever	1	0	10	0	6	0
	Herpesvirus B Infection	0	0	0	0	0	0
	Influenza Case with Severe Complications	24	0	374	4	0	0
	Invasive Pneumococcal Disease	8	5	172	1	107	0
	Leptospirosis	2	1	27	0	21	0
	Listeriosis	4	5	112	1	78	0
	Lyme Disease	0	0	0	0	1	1
	Melioidosis	0	1	8	0	4	1
	Q Fever	0	0	2	0	2	0
	Scrub Typhus	6	9	81	0	110	0
	Toxoplasmosis	2	0	19	2	13	0
	Tularemia	0	0	0	0	0	0
Severe Fever with Thrombocytopenia Syndrome	0	0	0	0	1	0	
Severe Pneumonia with Novel Pathogens	1,205	182,686	1,388,236	18,121	4,247,200	13,784	
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 clusters related to TB (9), Upper respiratory tract infection (6), Diarrhea (4) and Enterovirus (1) were reported during week 28.

Imported Infectious Diseases

- There were 14 imported cases from at least 8 countries/areas during week 28.
 - Dengue Fever:** 9 cases from Thailand (5), Malaysia (1), India (1), Myanmar (1) and the Philippines (1).
 - Severe Pneumonia with Novel Pathogens:** 1 case from Malaysia.
 - Acute Viral Hepatitis type E:** 1 case from China.
 - Mumps:** 1 case from Japan.
 - Mpox:** 1 case from China.
 - Measles:** 1 case from Turkey.

- During week 1-28, there were 18,312 imported cases of notifiable diseases. The top three were Severe Pneumonia with Novel Pathogens (18,121), Dengue Fever (71) and Amoebiasis (60).
- During week 1-28, imported cases of notifiable diseases were from at least 46 countries/areas. The top three were China (3,163), Japan (718) and Korea (183).

Summary of Epidemic

- **Severe Pneumonia with Novel Pathogens:** The epidemic decreases, but the severe cases may still occur.
- **Mpox:** The risk of epidemic transmission declines.
- **Japanese Encephalitis:** In the midst of the epidemic season, the risk of new cases is expected to be detected in all counties.
- **Dengue Fever:** The epidemic is increasing, and the vector indices in some counties are high, indicating an elevated risk of epidemic transmission.
- **Influenza:** The epidemic is declining, but the severe cases may still occur.

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, Jhongjheng 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]