

Epidemiology and Drug Resistance of Shigellosis, Taiwan, 2015

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Abstract

A total of 186 shigellosis cases were reported in 2015 and 56.5% of which were imported. Of the 147 isolates collected in the year by the Central Regional Laboratory of Taiwan Centers for Disease Control, 86 isolates (58.5%) were *Shigella sonnei*, 57 (38.8%) were *S. flexneri* and 4 (2.7%) were *S. boydii*, respectively. Among the 86 *S. sonnei* isolates, 25 (29.1%) were recovered from immigrant workers from Indonesia and Vietnam, and 61 (70.1%) were Taiwanese of whom 14 acquired the infections during traveling abroad. Of the 57 *S. flexneri* isolates, 39 (68.4%) were recovered from Indonesian immigrant workers and 18 were Taiwanese of whom 4 had travel history abroad. The 4 *S. boydii* isolates were recovered from Indonesian workers and with travel history to Indonesia. Antimicrobial susceptibility testing revealed that 47 of 78 *S. sonnei* isolates tested were ciprofloxacin-resistant. All the ciprofloxacin-resistant isolates were recovered from Taiwanese among whom 11 had travel history to China, Japan, Vietnam, Indonesia and Cambodia, and 31 were HIV-infected. All the cases with HIV infection were male of 20–46 (average 31.4) year-old and 2 cases had traveled to China and Japan during the incubation period. The first *S. flexneri* 3a infected case emerged in June. Nine *S. flexneri* 3a infected cases were found in 2015; they were Taiwanese, male, 22–44 years-old (average 33.3), and 6 were HIV-infected. All *S. flexneri* 3a isolates belonged to a common PFGE genotype and all but one were resistant to azithromycin. Ciprofloxacin and azithromycin are the recommended

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treatment drugs for shigellosis in Taiwan. In the past, *Shigella* strains resistant to these two drugs were infrequently detected but, in 2015, *Shigella* strains with ciprofloxacin resistance had become prevalent and azithromycin resistance had emerged. The resistant strains were primarily circulated among the men who have sex with men (MSM). We suggest that public health authorities have to routinely perform antimicrobial susceptibility testing on *Shigella* isolates for the treatment of *Shigella* infections and strengthen hygiene education among MSM to halt the spread of ciprofloxacin- and azithromycin-resistant strains.

Keywords: Shigellosis, Pulse-field gel electrophoresis, Antimicrobial Susceptibility Testing, Ciprofloxacin, Azithromycin

Preliminary Study of *Shigella* Cases Co-infection with HIV, Taipei, Taiwan, January to August, 2015

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Abstract

From January to August, 2015, 20 *Shigella* infections were reported to the Taipei Regional Center of Taiwan Centers for Disease Control, while the average annual reported cases of shigellosis were 4.7 cases from 2012 to 2014. Epidemiologic investigation revealed that 15 of the 20 *Shigella* cases were 24–46 years old male, more likely with history of men who have sex with men (MSM) and co-infected with human immunodeficiency virus (HIV) or other sexual transmitted diseases. According to the above information and previous research, we assume that the 15 *Shigella* infections were caused by unsafe sexual behavior (e.g., oral-anal sex with no protective barriers). In order to avoid further *Shigella* infections in people living with HIV, we suggest: (1) implementing different interventions among HIV/AIDS, MSM and STD groups, (2) increasing clinicians' awareness, (3) changing the modes and tools of epidemic investigation, and (4) strengthening public health staff's awareness of different diseases.

Keywords: Human immunodeficiency virus infection, HIV infection, Shigellosis, Men who have sex with men (MSM)

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

Case diagnosis week		Week 6		Week 1–6	
Classification	Disease Diagnosed ¹	2017	2016	2017	2016
Category I	Plague	0	0	0	0
	Rabies	0	0	0	0
	SARS	0	0	0	0
	Smallpox	0	0	0	0
Category II	Acute Flaccid Paralysis	0	0	4	5
	Acute Viral Hepatitis type A	16	5	86	42
	Amoebiasis	3	1	33	30
	Anthrax	0	0	0	0
	Chikungunya Fever	1	0	1	2
	Cholera	0	0	0	0
	Dengue Fever	6	9	39	466
	Diphtheria	0	0	0	0
	Enterohemorrhagic E. coli Infection	0	0	0	0
	Epidemic Typhus Fever	0	0	0	0
	Hantavirus Pulmonary Syndrome	0	0	0	0
	Hemorrhagic Fever with Renal Syndrome	0	0	1	0
	Malaria	0	0	0	3
	Measles	0	0	0	0
	Meningococcal Meningitis	0	0	1	0
	Paratyphoid Fever	1	0	2	0
	Poliomyelitis	0	0	0	0
	Rubella	0	0	0	1
	Shigellosis	4	3	23	16
	Typhoid fever	0	0	2	1
West Nile Fever	0	0	0	0	
Category III	Acute Viral Hepatitis type B	3	2	23	8
	Acute Viral Hepatitis type C ⁵	6	0	23	13
	Acute Viral Hepatitis type D	0	0	1	0
	Acute Viral Hepatitis type E	0	0	3	4
	Acute Viral Hepatitis untype	0	0	0	0
	Congenital Rubella Syndrome	0	0	0	0
	Enteroviruses Infection with Severe Complications	0	0	0	1
	Haemophilus Influenza type b Infection	1	0	1	0
	Japanese Encephalitis	0	0	0	0
	Legionellosis	2	0	9	17
	Mumps ²	15	5	74	66
	Neonatal Tetanus	0	0	0	0
	Pertussis	2	0	2	1
	Tetanus ²	0	0	2	1
	Category IV	Botulism	0	0	0
Brucellosis		0	0	0	0
Complicated Influenza		16	29	69	264
Complicated Varicella ⁴		0	0	1	5
Endemic Typhus Fever		0	0	0	2
Herpesvirus B Infection		0	0	0	0
Invasive Pneumococcal Disease		25	21	84	96
Leptospirosis		1	2	12	6
Lyme Disease		0	0	0	0
Melioidosis		2	0	5	0
Q Fever		0	0	1	3
Scrub Typhus		15	1	43	64
Toxoplasmosis		0	0	0	1
Tularremia	0	0	0	0	
Category V	Ebola Virus Disease	0	0	0	0
	Ebola-Marburg Hemorrhagic Fever	0	0	0	0
	Novel Influenza A Virus Infections ⁶	1	0	1	0
	Lassa Fever	0	0	0	0
	Rift Valley Fever	0	0	0	0
	Middle East Respiratory Syndrome Coronavirus	0	0	0	0
Yellow Fever	0	0	0	0	

1. The following 8 chronic diseases are excluded from the table: MDR-TB, Tuberculosis, Syphilis, Gonorrhoea, HIV Infection, AIDS, Hansen Disease and Creutzfeldt-Jakob Disease.
2. Reported cases.
3. Since 2014/1/1, "Varicella" was modified to "Complicated Varicella".
4. Since 2014/3/6, the case definition for confirmed Acute hepatitis C was changed from "meet the clinical and laboratory conditions" to "meet the clinical or laboratory conditions".
5. Since 2014/7/1, various subtypes of human cases of avian influenza are reported as "novel influenza A virus infections", a Category V Notifiable Infectious Disease. The original "H5N1 flu" and "H7N9 flu", which were respectively listed as a Category I Notifiable Infectious Disease and a Category V Notifiable Infectious Disease were removed from the list on the same day.
6. Since 2016/1/22, "Zika Virus Infection" was listed as a Notifiable Infectious Disease.

Suspected Clusters

- Twenty-one clusters were reported, including 12 diarrhea clusters, 4 upper respiratory tract infection clusters, 2 varicella clusters, 1 fever of unknown origin cluster, 1 tuberculosis cluster and 1 pertussis cluster.

Imported Infectious Diseases

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

Disease \ Country	Indonesia	Malaysia	Philippines	Vietnam	Myanmar	China	Total
Dengue Fever	3	1	1	1			6
Amoebiasis	1		1				2
Hepatitis A		1				1	2
Chikungunya Fever			1				1
Novel Influenza A						1	1
Shigellosis	1						1
Paratyphoid Fever					1		1
Total	5	2	3	1	1	2	14

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

- A total of 83 confirmed cases were imported from 13 countries in 2017.
- Top 3 imported diseases : Dengue fever (39), Amoebiasis (19), Shigellosis (8).
- Top 3 countries responsible for most imported cases : Indonesia (30), Vietnam (11), Philippines (10).

Summary of Epidemic

- **Diarrhea** : As the viral gastroenteritis season is upon us, the risk of clustered cases remain.
- **Influenza** : According to the weather forecast, the diurnal temperature variation across Taiwan next week will remain pronounced. It is possible that influenza activity will remain similar to that last week. H3N2 is currently the dominant strain circulating in the community.
- **Zika Virus Infection** : As the epidemic in affected areas has continued to increase, the risk of importing Zika virus into Taiwan from those countries remains elevated.

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