

Definition Recognition Among Taiwan Nosocomial Infections Surveillance (TNIS) System Hospitals

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Abstract

Hospitals in Taiwan have routinely conducted surveillance on healthcare-associated infections (HAIs) for years. In this article, we introduced the timeline of changes in HAI definitions, presented results of a survey conducted in 2012, and described the mistakes usually occurred in medical centers and regional hospitals in defining a patient as device-associated infection case or counting device-days. The results demonstrated that 79%, 83% and 76% hospitals identified central line-associated bloodstream infection (CLABSI), ventilator-associated pneumonia, and catheter-associated urinary tract infection (CAUTI) cases respectively based on the criteria conformed to Taiwan Nosocomial Infections Surveillance (TNIS) definition. The most common inconsistency found is to classify a CLABSI case relying on tip culture result, and to count device-days according to the number of central lines on patients. This survey provided useful information for developing strategies in surveillance refinement and data quality improvement.

Keywords: Healthcare-associated infection; Device-associated infection; TNIS definition

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Infection Prevention and Control in Long-Term Care Facilities in Taiwan

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Abstract

Long-term care facility residents are mostly elderly and are susceptible to health care-associated infections, especially urinary tract infections, respiratory tract infections, and skin and soft tissue infections. Based on a survey of 295 Taiwan long-term care facilities in 2011, 22.7% of those facilities held regular infection control meeting every three months. The results indicated institutions managers did not pay enough attention in infection control, and infection control personnel and policies are insufficient.

Therefore, Centers for Disease Control in Taiwan began planning for infection control policies for long-term care facilities since 2011. To reduce the infection risk at long-term care facilities and improve the quality of life, control measures including surveillance and inspection regulations and guidelines, public education on the importance of hand hygiene and cough etiquette, publication of infection control manuals, training of infection control personnel, and increasing awareness and responsibilities of institutional managers were implemented.

Keywords: Long-term care facilities; Healthcare associated infections; Infection control; Inspection

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

Case diagnosis week		Week 50		Week 1–50	
Classification	Disease Diagnosed ¹	2015	2014	2015	2014
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	19	30
	Acute Viral Hepatitis type A	6	1	151	120
	Amoebiasis	7	5	347	282
	Anthrax	0	0	0	0
	Chikungunya Fever	0	0	4	8
	Cholera	0	0	10	4
	Dengue Fever	699	612	42888	15215
	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	2	1
	Malaria	0	0	9	19
	Measles	0	0	29	26
	Meningococcal Meningitis	0	0	3	3
	Paratyphoid Fever	0	0	6	8
	Poliomyelitis	0	0	0	0
	Rubella	0	0	6	6
	Shigellosis	7	5	182	130
Typhoid fever	2	1	29	25	
West Nile Fever	0	0	0	0	
Category III	Acute Viral Hepatitis type B	7	3	119	113
	Acute Viral Hepatitis type C ⁵	3	3	212	192
	Acute Viral Hepatitis type D	0	0	2	1
	Acute Viral Hepatitis type E	0	0	6	11
	Acute Viral Hepatitis untype	0	0	2	4
	Congenital Rubella Syndrome	0	0	0	0
	Enteroviruses Infection with Severe Complications	0	0	5	7
	Haemophilus Influenza type b Infection	1	0	3	3
	Japanese Encephalitis	0	0	30	18
	Legionellosis	0	2	160	131
	Mumps ²	13	13	749	858
	Neonatal Tetanus	0	0	0	0
	Pertussis	0	2	87	69
	Tetanus ²	0	0	11	8
	Category IV	Botulism	0	0	2
Brucellosis		0	0	2	0
Complicated Influenza		6	1	833	1761
Complicated Varicella ⁴		1	0	48	52
Endemic Typhus Fever		0	1	33	24
Herpesvirus B Infection		0	0	0	0
Invasive Pneumococcal Disease		6	5	494	555
Leptospirosis		1	2	85	94
Lyme Disease		0	0	2	2
Melioidosis		1	1	38	33
Q Fever		0	1	44	49
Scrub Typhus		11	6	504	420
Toxoplasmosis		0	0	13	14
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	0	0	0	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.

Suspected Clusters

- Twenty-three clusters were reported, including 11 diarrhea clusters, 4 tuberculosis clusters, 4 upper respiratory tract infection clusters, 2 varicella clusters, 1 fever of unknown origin cluster, and 1 influenza-like illness cluster.

Imported Infectious Diseases

- 15 confirmed cases were imported from 4 countries during Week 50 of 2015.

Disease	Country				Total
	Indonesia	Malaysia	Vietnam	Philippines	
Dengue Fever		4	2	1	7
Shigellosis	5				5
Amoebiasis	1			1	2
FluSC		1			1
Total	6	5	2	2	15

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

- A total of 748 confirmed cases were imported from 34 countries in 2015.
- Top 3 imported diseases : Dengue fever (344), Amoebiasis (191), Shigellosis (97).
- Top 3 countries responsible for most imported cases : Indonesia (338), Philippines (72), Vietnam (70).

Summary of Epidemic

- **Dengue Fever** : Dengue activity has slowed down. The public is urged to clean up and remove any vector breeding sites. The epidemic has decreased in Kaohsiung City and the number of new cases reported during Week 50 is 40% less than that reported during Week 49. Since May 1, 2015, 209 deaths have been confirmed to be caused by dengue infection, while 20 deaths are waiting to be reviewed. As of now, 44 dengue cases are still being treated in the intensive care unit (ICU), and 98.1% of the reported cases have recovered.
- **Enterovirus** : Enterovirus season has continued and enterovirus activity is above the epidemic threshold. The numbers of visits to outpatient services and ER for enterovirus infection during Week 50 have decreased, and are lower than the epidemic threshold. The specimens tested positive for Enterovirus 71 have been identified in the community. The majority of the cases were reported in Yilan County and Yunlin County.
- **Influenza** : Influenza activity has slightly increased and remained at the baseline level.

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

Classification	Case diagnosis week Disease Diagnosed ¹	Week 51		Week 1—51	
		2015	2015	2014	2014
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	19	30	30
	Acute Viral Hepatitis type A	13	164	121	119
	Amoebiasis	8	355	284	277
	Anthrax	0	0	0	0
	Chikungunya Fever	0	4	8	8
	Cholera	0	10	4	4
	Dengue Fever	560	43448	15516	14603
	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	2	1	1
	Malaria	0	9	20	19
	Measles	0	29	26	26
	Meningococcal Meningitis	0	3	3	3
	Paratyphoid Fever	0	6	8	8
	Poliomyelitis	0	0	0	0
	Rubella	0	6	6	6
	Shigellosis	3	185	136	125
	Typhoid fever	0	29	25	24
West Nile Fever	0	0	0	0	
Category III	Acute Viral Hepatitis type B	4	123	116	110
	Acute Viral Hepatitis type C ⁵	5	217	194	189
	Acute Viral Hepatitis type D	0	2	1	1
	Acute Viral Hepatitis type E	0	6	11	11
	Acute Viral Hepatitis untype	0	2	4	4
	Congenital Rubella Syndrome	0	0	0	0
	Enteroviruses Infection with Severe Complications	0	5	7	7
	Haemophilus Influenza type b Infection	0	3	3	3
	Japanese Encephalitis	0	30	18	18
	Legionellosis	4	164	134	129
	Mumps ²	11	760	865	845
	Neonatal Tetanus	0	0	0	0
	Pertussis	0	87	69	67
	Tetanus ²	0	11	8	8
Category IV	Botulism	0	2	0	0
	Brucellosis	0	2	0	0
	Complicated Influenza	7	840	1763	1760
	Complicated Varicella ⁴	0	48	56	52
	Endemic Typhus Fever	0	33	25	23
	Herpesvirus B Infection	0	0	0	0
	Invasive Pneumococcal Disease	15	509	566	550
	Leptospirosis	2	87	96	92
	Lyme Disease	0	2	2	2
	Melioidosis	1	39	33	32
	Q Fever	0	44	49	48
	Scrub Typhus	13	517	425	414
	Toxoplasmosis	0	13	14	14
Tularemia	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	0	0	0	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".
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Suspected Clusters

- Fourteen clusters were reported, including 9 diarrhea clusters, 3 upper respiratory tract infection clusters, and 2 varicella clusters.

Imported Infectious Diseases

- 16 confirmed cases were imported from 5 countries during Week 51 of 2015.

Country Disease	Philippines	Indonesia	Thailand	Sri Lanka	Vietnam	Total
Dengue Fever	3	2	2	2	2	11
Amoebiasis	2	1				3
Shigellosis		1				1
Hepatitis A			1			1
Total	5	4	3	2	2	16

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

- A total of 765 confirmed cases were imported from 35 countries in 2015.
- Top 3 imported diseases : Dengue fever (357), Amoebiasis (194), Shigellosis (98).
- Top 3 countries responsible for most imported cases : Indonesia (342), Philippines (78), Vietnam (72).

Summary of Epidemic

- **Dengue Fever** : Dengue activity has slowed down. The public is urged to clean up and remove any vector breeding sites. The epidemic has decreased in Kaohsiung City and the number of new cases reported during Week 51 is 20% less than that reported during Week 50. Since May 1, 2015, 212 deaths have been confirmed to be caused by dengue infection, while 15 deaths are waiting to be reviewed. As of now, 23 dengue cases are still being treated in the intensive care unit (ICU), and 98.5% of the reported cases have recovered.
- **Enterovirus** : Enterovirus season has continued and enterovirus activity is above the epidemic threshold. The numbers of visits to outpatient services and ER for

enterovirus infection during Week 51 have decreased, and are lower than the epidemic threshold. The specimens tested positive for Enterovirus 71 have been identified in the community. The majority of the cases were reported in Yilan County and Yunlin County.

- **Influenza** : Influenza activity has slightly increased and remained at the baseline level.

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