

Implementing the Work Bubbles Strategy During a COVID-19 Outbreak in a Company, Taiwan, 2022

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Abstract

In December 2019, an atypical pneumonia outbreak caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) occurred in Wuhan, China and was later named as Coronavirus disease 2019 (COVID-19) by the World Health Organization. The COVID-19 pandemic impacted not only human health but also the economy worldwide. On February 14, 2022, a company in Southern Taiwan reported a cluster of three COVID-19 cases. To continue the business operation while limiting the risk of COVID-19 outbreak, a “work bubbles” strategy was implemented. Workers of different bubbles were strictly separated in time and space and received regular COVID-19 testing. Besides, personal hygiene and other preventive measures, including environmental cleaning and vaccination, were also intensely practiced. As of March 1, 2022, no more COVID-19 cases were identified in the company, with business operations uninterrupted. This report could be a reference for companies to deal with future outbreaks of emerging infectious diseases.

Keywords: Coronavirus disease-2019, business continuity plan, work bubbles

week 18–week 19, 2023 (Apr. 30, 2023–May. 13, 2023)

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Weekly Data of Notifiable Inases (by week of diagnosis)

Case diagnosis year		Week 18★		Week 1-18			
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	0	0	0	0
Category II	Typhoid fever	0	0	1	1	1	0
	Paratyphoid Fever	0	0	3	0	0	0
	Epidemic Typhus Fever	0	0	0	0	0	0
	Shigellosis	2	2	20	6	30	0
	Amoebiasis	6	5	94	36	71	23
	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	0	0	0	0
	Poliomyelitis	0	0	0	0	0	0
	Acute Flaccid Paralysis	0	2	15	0	10	0
	Measles	0	0	1	1	0	0
	Rubella	0	0	0	0	0	0
	Dengue Fever	1	1	38	38	1	1
	West Nile Fever	0	0	0	0	0	0
	Acute Viral Hepatitis type A	1	0	35	1	88	0
	Malaria	0	0	1	1	2	2
	Chikungunya Fever	0	0	4	4	0	0
	Hantavirus syndrome	0	0	2	0	1	0
	Zika virus infection	2	0	2	2	0	0
Mpox	14	-	72	6	-	-	
Category III	Acute Viral Hepatitis type B	4	0	51	3	39	0
	Acute Viral Hepatitis type C	11	6	198	0	165	1
	Acute Viral Hepatitis type D	0	0	0	0	0	0
	Acute Viral Hepatitis type E	1	0	7	2	6	0
	Acute Viral Hepatitis, untyped	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	1	0	6	0	0	0
	Haemophilus Influenza type b Infection	0	0	0	0	1	0
	Japanese Encephalitis	0	0	0	0	0	0
	Legionnaires' Disease	5	2	90	1	112	0
	Mumps	5	2	93	2	75	0
	Neonatal Tetanus	0	0	0	0	0	0
Pertussis	0	0	0	0	0	0	
Tetanus	0	0	3	0	1	0	
Category IV	Botulism	0	0	0	0	0	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	0	1	16	0	11	0
	Endemic Typhus Fever	0	0	3	0	2	0
	Herpesvirus B Infection	0	0	0	0	0	0
	Influenza Case with Severe Complications	26	0	132	3	0	0
	Invasive Pneumococcal Disease	9	0	113	1	63	0
	Leptospirosis	2	0	13	0	14	0
	Listeriosis	3	6	75	1	47	0
	Lyme Disease	0	0	0	0	1	1
	Melioidosis	1	0	6	0	1	0
	Q Fever	1	0	2	0	2	0
	Scrub Typhus	1	3	31	0	44	0
	Toxoplasmosis	1	0	12	1	11	0
	Tularemia	0	0	0	0	0	0
	Severe Fever with Thrombocytopenia Syndrome	0	0	0	0	0	0
Severe Pneumonia with Novel Pathogens	2	224,081	1,367,202	18,082	339,884	9,432	
Severe Pneumonia with Novel Pathogens (with complications)	790	0	4,691	21	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 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
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.
- "Mpox" has been listed as a Notifiable Infectious Disease since June 23, 2022.
- "Severe Pneumonia with Novel Pathogens" has been adjusted to be notifiable only for patients of complications since March 20, 2023, and has been modified from Category V to Category IV since May 1, 2023.

Suspected Clusters

- Thirty-five clusters related to Upper respiratory tract infection (17), Enterovirus (9), Diarrhea (7) and Tuberculosis (2) were reported during week 18.

Imported Infectious Diseases

- There were 11 imported cases from at least 9 countries/areas during week 18.
 - Severe Pneumonia with Novel Pathogens:** 4 cases from Japan (2), Korea (1) and Italy (1).
 - Zika virus infection:** 2 cases from Maldives (2).
 - Acute Viral Hepatitis type B:** 1 case from Vietnam.
 - Acute Viral Hepatitis type E:** 1 case from China.
 - Mpox:** 1 case from Thailand.
 - Dengue Fever:** 1 case from Malaysia.
 - Amoebiasis:** 1 case from Indonesia.
- During week 1-18, there were 18,213 imported cases of notifiable diseases. The top three were Severe Pneumonia with Novel Pathogens (18,103), Dengue Fever (38) and Amoebiasis (36).
- During week 1-18, imported cases of notifiable diseases were from at least 45 countries/areas. The top three were China (3,156), Japan (711) and Korea (182).

Summary of Epidemic

- **Severe Pneumonia with Novel Pathogens:** The epidemic increases.
- **Mpox:** The risk of epidemic transmission remains.
- **Enterovirus:** The epidemic is on the rise and has reached the epidemic threshold, entering the epidemic period.
- **Influenza:** The epidemic is rising.

Weekly Data of Notifiable Inases (by week of diagnosis)

Case diagnosis year		Week 19★		Week 1-19			
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	1	1	1	0
	Paratyphoid Fever	0	0	3	0	0	0
	Epidemic Typhus Fever	0	0	0	0	0	0
	Shigellosis	1	2	21	6	32	0
	Amoebiasis	12	4	106	39	75	26
	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	1	0	1	0	0	0
	Poliomyelitis	0	0	0	0	0	0
	Acute Flaccid Paralysis	4	0	19	0	10	0
	Measles	0	0	1	1	0	0
	Rubella	0	0	0	0	0	0
	Dengue Fever	2	1	40	40	2	2
	West Nile Fever	0	0	0	0	0	0
	Acute Viral Hepatitis type A	0	4	35	1	92	0
	Malaria	0	0	1	1	2	2
	Chikungunya Fever	0	0	4	4	0	0
	Hantavirus syndrome	0	0	2	0	1	0
Zika virus infection	0	0	2	2	0	0	
Mpox	13	-	85	6	-	-	
Category III	Acute Viral Hepatitis type B	3	2	54	4	41	0
	Acute Viral Hepatitis type C	17	9	215	0	174	1
	Acute Viral Hepatitis type D	0	0	0	0	0	0
	Acute Viral Hepatitis type E	0	0	7	2	6	0
	Acute Viral Hepatitis, untyped	1	0	1	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	6	0	0	0
	Haemophilus Influenza type b Infection	0	0	0	0	1	0
	Japanese Encephalitis	1	0	1	0	0	0
	Legionnaires' Disease	6	3	96	1	115	0
	Mumps	1	1	94	2	76	0
	Neonatal Tetanus	0	0	0	0	0	0
Pertussis	0	0	0	0	0	0	
Tetanus	0	0	3	0	1	0	
Category IV	Botulism	0	0	0	0	0	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	3	0	19	0	11	0
	Endemic Typhus Fever	0	0	3	0	2	0
	Herpesvirus B Infection	0	0	0	0	0	0
	Influenza Case with Severe Complications	15	0	147	3	0	0
	Invasive Pneumococcal Disease	5	3	118	1	66	0
	Leptospirosis	1	0	14	0	14	0
	Listeriosis	1	2	76	1	49	0
	Lyme Disease	0	0	0	0	1	1
	Melioidosis	0	0	6	0	1	0
	Q Fever	0	0	2	0	2	0
	Scrub Typhus	0	2	31	0	46	0
	Toxoplasmosis	1	0	13	1	11	0
	Tularemia	0	0	0	0	0	0
Severe Fever with Thrombocytopenia Syndrome	0	0	0	0	0	0	
Severe Pneumonia with Novel Pathogens	16	411,196	1,367,215	18,083	751,080	9,757	
Severe Pneumonia with Novel Pathogens (with complications)	980	0	5,671	21	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 Coronavirus Infections	0	0	0	0	0	0
	Novel Influenza A Virus Infections	1	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 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" has been adjusted to be notifiable only for patients of complications since March 20, 2023, and has been modified from Category V to Category IV since May 1, 2023.

Suspected Clusters

- Thirty-nine clusters related to Upper respiratory tract infection (13), Enterovirus (9), Diarrhea (12), Tuberculosis (4) and Varicella (1) were reported during week 19.

Imported Infectious Diseases

- There were 7 imported cases from at least 4 countries/areas during week 19.
 - Amoebiasis:** 3 cases from Indonesia (2) and India (1).
 - Dengue Fever:** 2 cases from Vietnam (1) and Indonesia (1).
 - Acute Viral Hepatitis type B:** 1 case from Cambodia.
 - Acute Viral Hepatitis, untyped:** 1 case from Vietnam.
- During week 1-19, there were 18,221 imported cases of notifiable diseases. The top three were Severe Pneumonia with Novel Pathogens (18,104), Dengue Fever (40) and Amoebiasis (39).
- During week 1-19, imported cases of notifiable diseases were from at least 45 countries/areas. The top three were China (3,156), Japan (711) and Korea (182).

Summary of Epidemic

- **Severe Pneumonia with Novel Pathogens:** The epidemic increases.
- **Mpox:** The risk of epidemic transmission remains.
- **Enterovirus:** It is currently in an epidemic phase, and the epidemic is on the rise.
- **Japanese Encephalitis:** In the midst of the epidemic season, the number of new cases is expected to rise in all counties.
- **Influenza:** The epidemic is rising.

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