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Epidemiology of Acute Diarrheal Disease Outbreaks Caused by Non-Routine Examination Pathogens in Taiwan

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Abstract

Diarrheal disease is the second leading cause of death in children <5 years old across the world. Every year there are nearly 1.7 billion cases of diarrheal disease in young children and around 5.25 million of them die. Bacterial, viral and parasitic enteric pathogens are associated with acute diarrhea. Infections are spread through contaminated food, drinking water, or from person-to-person transmission as a result of poor hygiene. A total of 9 pathogens are currently tested in our routine laboratory examination, including 2 viruses and 7 bacteria. Large diarrhea outbreaks with no pathogen detected by routine laboratory diagnostics made disease prevention and control difficult. We investigated 29 diarrheal clusters randomly from the 113 clusters without any routine enteric pathogen identified in 2018. Among 124 specimens with positive results of non-routine pathogens, 93 (75%) were positive for bacterial pathogens, and most of them were identified as pathogenic *Escherichia coli*. Further analysis of the geographic distribution of outbreaks revealed that relatively more clusters occurred in southern Taiwan. Nevertheless, patients positive for virus infection were significantly younger than the group of negative. Adopting the non-routine testing during an outbreak can provide insight into the pathogen that causes illness and will be helpful for the control and prevention of diarrheal disease outbreaks.

Keywords: Diarrheal disease outbreaks, non-routine examination, pathogenic *Escherichia coli*

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