Norovirus Outbreak and Surveillance in Taiwan

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Foodborne disease is defined by the WHO as a disease commonly transmitted through ingested food that may be caused by microbial pathogens, parasites, chemical contaminants and biotoxins. Diarrheal diseases caused by such foodborne pathogens are responsible for an estimated 2.2 million deaths annually. Foodborne outbreak diseases may cause by contamination during preparation or handling by bacterial or viral pathogens such as *Salmonella, E. coli, Campylobacter*, norovirus and rotavirus. Noroviruses are reported as a leading cause of gastroenteritis and foodborne associated outbreaks. The global outbreak surveillance data indicated around 14% norovirus outbreaks were attributed to food.

In Taiwan, norovirus was not included in the foodborne outbreak surveillance until 2004. County public health agencies are responsible for investigating, collecting specimens and reporting suspected gastroenteritis outbreaks either to 1) the Notifiable Diseases Surveillance System, which maintains reports of foodborne-associated outbreaks or 2) the Symptom Surveillance System, which maintains reports of all AGE outbreaks excluding foodborne outbreaks. In order to monitor the viral activity in the community, Taiwan CDC established a Real-Time Outbreak and Disease Surveillance System (RODS) which systemically retrieves data base on ICD-9-CM codes from patient ER visits. These information provides up-to-date disease outbreak alerts. Similar to reports from the other countries, our surveillance data showed that norovirus is usually prevalent in the seasons of winter-spring. Genotype 4 (GII.4) viruses are the most common cause of norovirus gastroenteritis outbreaks. New GII.4 variants have emerged every 2-3 years which increased the patient hospital visits and outbreaks numbers. Increased norovirus activity is often associated with the emergence of new variants.