Emerging Health Threats Journal 2011, **4**:s121. **doi:** 10.3134/ehtj.10.121

www.eht-journal.org

ABSTRACT

Tracking emergency department (ED) patients with gastrointestinal symptoms during a Norovirus epidemic in Miami-Dade

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Objective
To demonstrate how the Epidemiology, Disease Control and Immunization Service (EDC-IS) at the Miami-Dade County Health Department used ESSENCE to track gastrointestinal symptoms during a Norovirus epidemic.

Introduction
From January to March 2010, thirteen outbreaks of Norovirus infection were reported to the EDC-IS, up from four outbreaks in the entire 2008 and same number during 2009. Individual cases of Norovirus are not reportable in the State of Florida. That makes it difficult to track the onset, rise, peak, and fading of epidemics of this disease.

Methods
A countywide query with the string nausea, or vomit, or diarrhea, or gastroenteritis is performed in ESSENCE on a daily basis. The incidence of enteric illnesses other than Norovirus was analyzed by comparing the count of the period January–March 2010 to the mean of the same months from 2000 through 2009. The reportable diseases included in the analysis were of bacterial origin (shigellosis, *Escherichia coli* infection, campylobacteriosis, and salmonellosis) and parasitic nature (cyclosporiasis, cryptosporidiosis, and giardiasis), as notified in the Merlin database of reportable diseases of the State of Florida. No outbreak was notified during the January–March 2010 period among non-reportable enteric diseases (that is, caused by *Bacillus cereus*, *Clostridium perfringens*, *Plesiomonas shigelloides*, *Aeromonas*, and *Staphylococcus*). As for non-reportable rotavirus infection, the monthly count of diagnosed children aged 0–4 years from January 2003 to April 2010 at the largest pediatric hospital in Miami-Dade was analyzed.

Results
There had been a spike of emergency department (ED) patients right after Christmas in late December 2009 (see Figure 1), but, unlike the spikes of January–March 2010, it

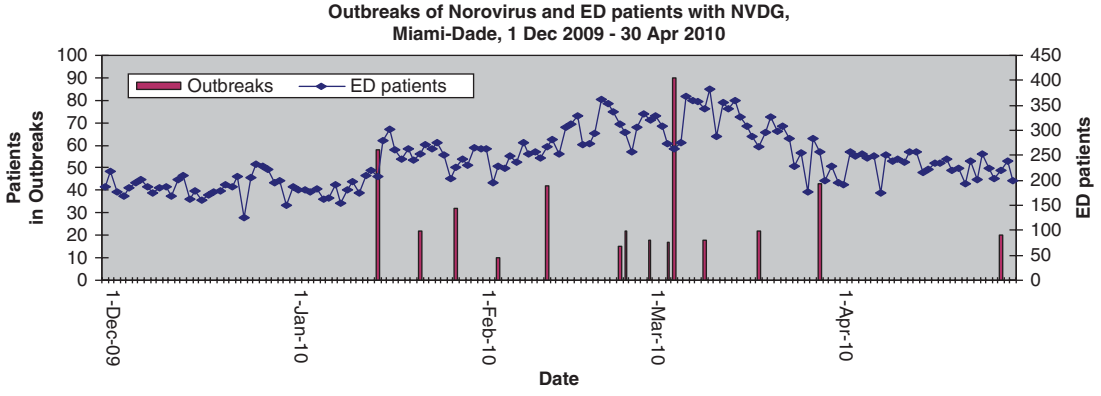

Figure 1 Norovirus outbreaks and ED patients with gastrointestinal symptoms.

occurred only among adults, and spared children. This spurt in December returned to background levels after 3 days, unlike the spikes of January–March 2010. Moreover, no outbreak of Norovirus was reported in December 2009. The first outbreak of 2010 had its onset on Wednesday, 13 January, whereas the first significant increase in ED patients occurred from 16 (Saturday) to 18 (Monday) January, during the Dr Martin Luther King Jr holiday weekend, when 3 consecutive days of red flags were posted among the all-age group. The next leg up in the uptrend of the count of ED patients came right after St Valentine Day, when four consecutive flags were posted from 15 through 18 February. The count of ED patients peaked in early March 2010, when the number of Norovirus outbreaks also peaked. The only reportable enteric disease that showed a peak in March 2010 was campylobacteriosis, mostly because of changes in the case definition, rather than an actual increase in incidence. Rotavirus infection did not appear to make a contribution to the increase in the count of ED patients.

Conclusions

ESSENCE can help tracking epidemics of Norovirus infection, although a careful analysis of the temporal patterns of the incidence of other enteric illnesses should be ascertained.

Acknowledgements

This paper was presented as a poster at the 2010 International Society for Disease Surveillance Conference, held in Park City, UT, USA, on 1–2 December 2010.