

# Emergency Department patients with gastrointestinal symptoms during Federal holidays, Miami-Dade 2007–2010

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## Objective

To quantify Emergency Department (ED) visits with gastrointestinal symptoms during Federal holidays in Miami-Dade.

## Introduction

People usually celebrate holidays by inviting family and friends to have food at home or by gathering and eating at restaurants or in other public venues. This increased exposure to food with a common source can create conditions for outbreaks of gastrointestinal illnesses. Holidays can also be targeted by bioterrorists who seek to maximize physical damage, psychological impact and publicity around dates of patriotic or religious significance. They might aim at contaminating food and water supplies, especially with CDC-defined category B agents that can cause diseases such as salmonellosis, shigellosis, cholera, cryptosporidiosis and infections with *Escherichia coli* O157:H7 and the Epsilon toxin of *Clostridium perfringens*. Hence, there is a need to quantify whether gastrointestinal illnesses increase around holidays. This can also help determine a baseline of the incidence to which future holiday periods should be compared to. This research does not focus on specific reportable diseases. That will be the purpose of forthcoming research. Instead, ED visits with gastrointestinal symptoms are used to leverage the capability of syndromic surveillance for early detection.

## Methods

A query with the string `^vomit^`, or, `^diarrhea^`, or, `^gastroenteritis^` (VDG) was performed in the Electronic Surveillance System for Early Notification of Community-based Epidemics (ESSENCE) during a 7-day period surrounding the 10 Federal Holidays of each year of the quadrennial 2007–2010. The count of ED patients during the 7-day period was compared to the count of a 28-day background by calculating a ratio between the 2 periods for both, the 4-year average and year-specific. The analysis was broken down by age groups (0–4, 5–17, 18–64, 65 plus and all-age). Database analysis was conducted using SAS 9.2.

## Results

President's Day and Labor Day were associated with the highest 4-year average increases (12% each). Decreases in the 4-year

average only occurred around two of the holidays, Independence Day (–7%) and Memorial Day (–5%). Age groups 0–4 and 5–17 had their largest 4-year average spikes around Labor Day (+24% among 0–4 and +30% among 5–17), right after the beginning of classes as well as around President's Day (12% and 13%). The 18–64 age group had its largest 4-year average increases during Christmas (19%) and Thanksgivings Days (15%). As for the 65+ age group, Christmas (15%) and President's Day (14%) showed the largest increases. The span was much wider when analyzing year-specific holidays, from +40% after Martin Luther King Day in 2010 to –17% after Independence Day on the same year. Factors other than holidays could have also influenced the increases in ED visitors, such as the beginning of classes in August of each year and the H1N1 influenza epidemic in 2009. This research hinges on the comparison of the holiday period to a 28-day background. Future tracking of VDG should also be based on comparing the current holiday period to its mean of previous years to control for seasonal or day-specific effects. The availability of only 4 years of data prevented us from removing the seasonal effect in this research.

## Conclusions

ESSENCE can help to track the incidence of gastrointestinal symptoms in the community during holiday periods. The incidence of reportable gastrointestinal diseases during holiday periods should also be ascertained in a future research.

## Keywords

Syndromic; surveillance; holidays; gastrointestinal; illness

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