

# **2003 National Syndromic Surveillance Conference** **Syndromic Tracking and Reporting System (STARS)**



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**Introduction:** In conjunction with the CDC and the Florida Bureau of Epidemiology, the Hillsborough County Health Department (HCHD) first participated in syndromic surveillance during the 2001 Super Bowl. On-going syndromic surveillance was implemented in November 2001. Today, 9 hospital emergency rooms in the county report syndromes on a daily basis.

**Objectives:** The purpose of our system, which is named Syndromic Tracking and Reporting System (STARS), is to augment HCHD's traditional disease reporting by acquiring near real-time syndromic data from hospital emergency rooms. The system is designed to detect bioterrorism-related outbreaks and naturally occurring outbreaks in which the affected seek emergency room care.

**Methods:** Seven different syndromes are monitored by emergency room (ER) physicians. The ER staff then enters limited patient information and the appropriate syndrome into a secure internet-based system. The data is housed at HCHD and then analyzed using CDC's SAS-based EARS software that detects statistical aberrations. A decision matrix is used to decide which aberrations require additional follow-up by HCHD's epidemiology staff.

**Results:** Statistical aberrations have been investigated periodically. Results from one such investigation are presented here. On 3/24/2003, the STARS system detected 20 reported diarrhea/gastroenteritis syndromes from one hospital. This large number of syndromes caused the EARS statistical aberration software to flag this data. The follow-up investigation revealed that 14 of the 20 individuals had chronic conditions that were not of infectious disease concern, and it was determined that no outbreak had occurred.

**Conclusions:** The system worked as intended. Studies are underway to evaluate the quality of our data and assess the validity and sensitivity of the STARS system.

**Contact Information:** Hillsborough County Health Department 813-307-8010

**STARS Descriptive data overview:**

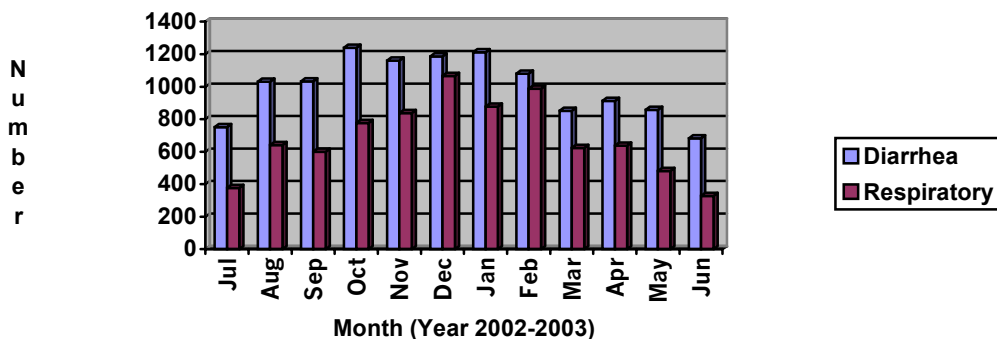
Excerpt from Hillsborough County Health Department newsletter, "Epi-Notes," Sept. 30, 2003; Jylmarie Kintz, MPH

Following are descriptive data, charts and tables from the Syndromic Tracking and Reporting System (STARS) utilized in nine Hillsborough County hospitals. The data are extracted from reports received July 01, 2002 through June 30, 2003.

Syndromic surveillance is utilized as an early warning system for community outbreaks or sentinel disease events (e.g., botulism, unexplained deaths). The syndromes, which are reported by area hospital emergency departments, are broken into 9 categories: Botulism-like Syndrome, Diarrhea/Gastroenteritis, Meningitis/Encephalitis-like Illness, Respiratory Infection with Fever, Rash with Fever, Sepsis or Shock, Unexplained Death with Fever, No Box Checked or None of the above Syndromes.

For the twelve-month time period, the 9 hospitals combined entered a monthly average of 28,024 records (monthly range 25,184-31,135). Overall, less than 4% of cases were entered as "No Box Checked," essentially a category to count those individuals who presented to emergency rooms but for which none of the above syndromes were recorded. Our goal is that less than 1% of records fall within this category for all hospitals and significant strides have been made in the last five months. Of all records entered, 91% fall into the "None of the Syndromes" category (monthly range 88%-95%). The remaining records primarily fall within the "Diarrhea" or "Respiratory Infection with Fever" category (see Chart 1).

**Chart 1 Number of diarrhea and respiratory infection records entered into STARS  
By month, Hillsborough County, July 1, 2002- June 30, 2003**



For each month, "Diarrhea" and "Respiratory Infection with Fever" individually represent between 1.3% and 4.18% of the total records entered (see Table 1). Of the remaining syndrome categories, "Rash with Fever" was reported most frequently (monthly range .07%-.14%). The monthly range for the remaining categories in terms of raw numbers of cases is as follows "Botulism-like Syndrome" (0-1), "Unexplained Death with Fever" (0-4) Meningitis/Encephalitis-like Illness" (3-15), "Sepsis or Shock" (11-30), and "Rash with Fever" (19-37).

**Table 1 Diarrhea and respiratory infection records entered into STARS  
By month, Hillsborough County, July 1, 2002 – June 30, 2003**

Month/Year	Diarrhea (n)	Diarrhea (% of total records entered)	Respiratory Infection with Fever (n)	Respiratory Infection with Fever (% of total records entered)	Total records entered (n)
Jul 02	752	2.67	378	1.34	28131
Aug 02	1031	3.74	640	2.32	27573
Sep 02	1032	3.62	600	2.11	28472
Oct 02	1239	3.98	777	2.50	31135
Nov 02	1160	3.95	838	2.85	29360
Dec 02	1187	4.04	1067	3.63	29381
Jan 03	1212	4.18	877	3.03	28976
Feb 03	1080	3.98	988	3.65	27105
Mar 03	851	3.35	624	2.46	25366
Apr 03	912	3.33	637	2.33	27358
May 03	857	3.03	482	1.71	28255
Jun 03	682	2.71	328	1.30	25184
Total	11995	3.57	8236	2.45	336296