

North Carolina Disease Event Tracking and Epidemiologic Collection Tool

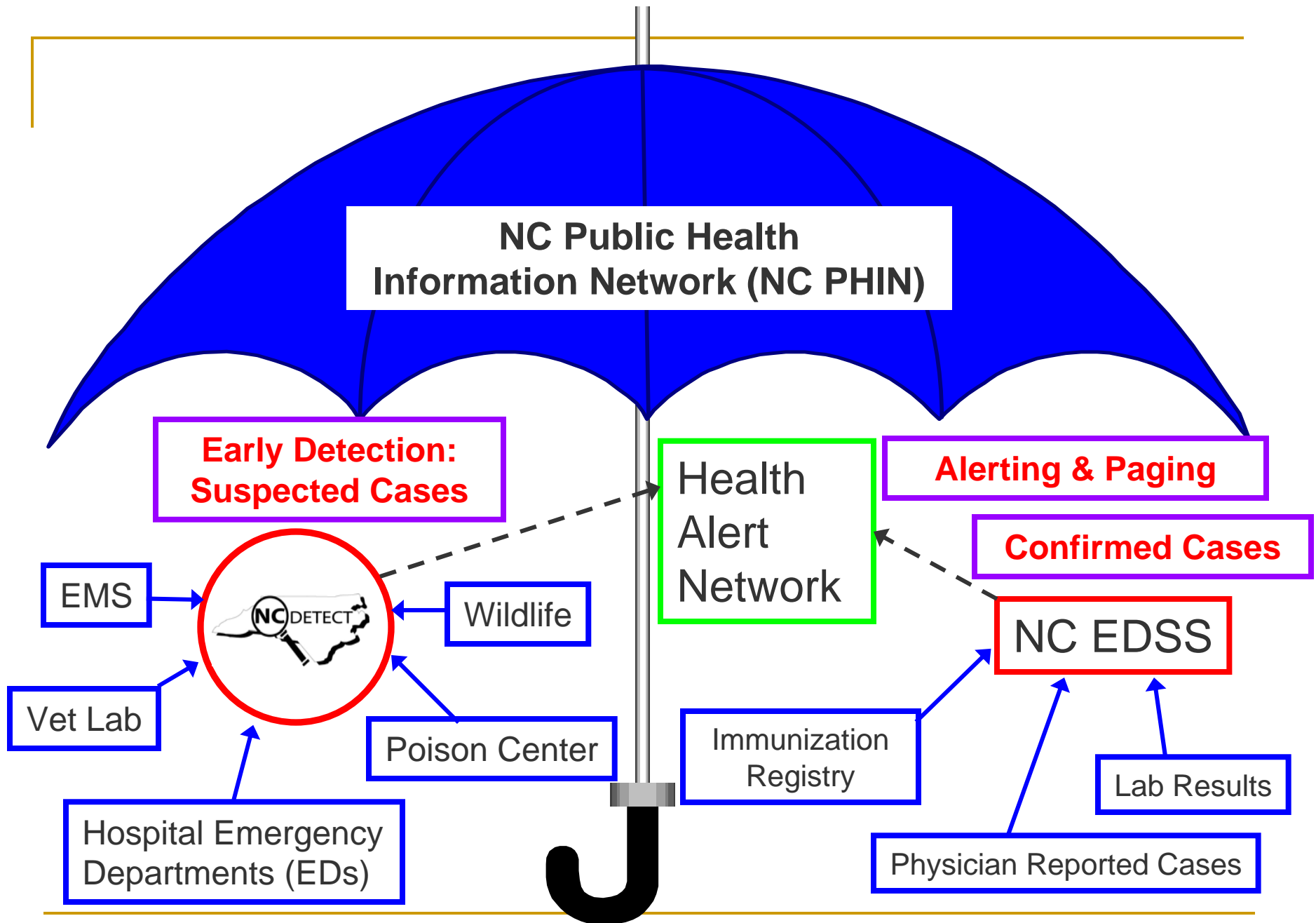


Prepared by the North Carolina Division of Public Health, NC DHHS and the UNC
Department of Emergency Medicine



Overview

- NC DETECT Purpose
- System Components
- Demonstration
- Planned Technical Improvements
- Key Points



What is NC DETECT?

- Early Event Detection using existing electronic data
 - Suspicious patterns, e.g., bioterrorism, detected using CDC's Early Aberration Reporting System (EARS) software
- Broader public health surveillance:
 - Infectious disease trends, e.g., influenza, varicella
 - Post-disaster
 - Injury, occupational health, etc.

Crucial Building Blocks

- DPH Leadership
- UNC Department of Emergency Medicine groundwork and technical expertise
- Mandate passed by the NC Legislature
- Partnership with NC Hospital Association
- Federal funding

Update on system, August 16, 2006

- 86 of 112 targeted hospitals report daily
- Daily ED visits monitored now: ~7,500
- Fully deployed system expected to capture ~3.5 million ED visits annually
- Poison Center calls monitored: ~100,000 per year, ~280 per day

August 16, 2006 update (cont'd)

- EMS: currently, data from 34% of 416 providers uploaded; (~475 runs reported per day over past 30 days)
- EMS expected full coverage: ~1 million runs per year
- Wildlife data: ~2,500 visits per year; 133 species treated in 2005

ED Data Elements

- Patient and Visit IDs
- Date of Birth, Sex
- City, County, State, 5-digit ZIP
- Arrival Date/Time
- Chief Complaint and History Present
Illness (if available)
- Triage Acuity Rating
- ED Disposition
- Blood Pressure
- Temperature
- Diagnosis and Injury codes
- Procedure codes
- Transport Mode to ED
- Insurance Coverage
- Hospital

Signs & Symptoms Monitored from Multiple Data Sources*

- Fever/Rash
- Gastrointestinal
- Hemorrhagic
- Influenza-like
- Neurological
- Respiratory

*Non-exhaustive list of examples

Current Users

- Public Health
 - State, Regional and Local Epidemiologists
 - Hospital-based Public Health Epidemiologists
- Hospital
 - Infection Control Nurses
 - ED clinicians
- Others
 - Injury, stroke, occupational health, researchers...

NC DETECT Reporting Basics

- 24/7/365 Secure Web access
- Tables, graphs and maps
- Aggregate and line listing reports with customization options
- Updates twice a day
- Role-based access

Multi Data Source Signal Summary Report

Signal Summary Report
05/29/2006 - 06/01/2006

■ Counties having Signals ■ Syndrome Counts
C1, C2, C3 CUSUM Signals
 * Overlapping ■ County with Overlap
 N/A Data unavailable from Datasource

	ED	CPC	PreMIS	Dates
+ Botulism	1	0	0	
+ GI All	13	2	0	
+ GI Severe	9	2	0	
- Influenza-like	8	1	0	
CHEROKEE	4 C1	0	0	05/29/06
	2	0	0	05/30/06
	0	0	0	05/31/06
	0	0	0	06/01/06
CRAVEN	3	0	0	05/29/06
	4	0	0	05/30/06
	8 C1C2C3	0	0	05/31/06
	2	0	0	06/01/06
DURHAM	2	1	0	05/29/06
	7	0	0	05/30/06
	10 C2C3	0	0	05/31/06
	2	0	0	06/01/06
LINCOLN	4 C3	0	0	05/29/06
	1	0	0	05/30/06
	1	0	0	05/31/06
	2	1	0	06/01/06
RICHMOND	1	0	0	05/29/06
	2	0	0	05/30/06
	5 C1C2C3	0	0	05/31/06
	1	0	0	06/01/06
ROCKINGHAM	7 C3	0	0	05/29/06
	1	0	0	05/30/06
	1	0	0	05/31/06
	1	0	0	06/01/06
VA	5 C1C2C3	0	0	05/29/06
	0	0	0	05/30/06
	2	0	0	05/31/06
	2	0	0	06/01/06
WAKE	50	2	0	05/29/06
	40	4 C1C2C3	0	05/30/06
	42	3	0	05/31/06
	46	n	n	06/01/06

Done

Internet



Gastrointestinal Syndrome Signal Sampson Co, Map View

EARS - NC DETECT - ED data - Microsoft Internet Explorer

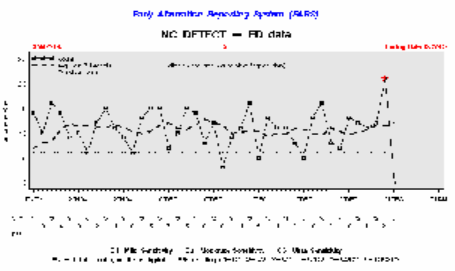
File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites

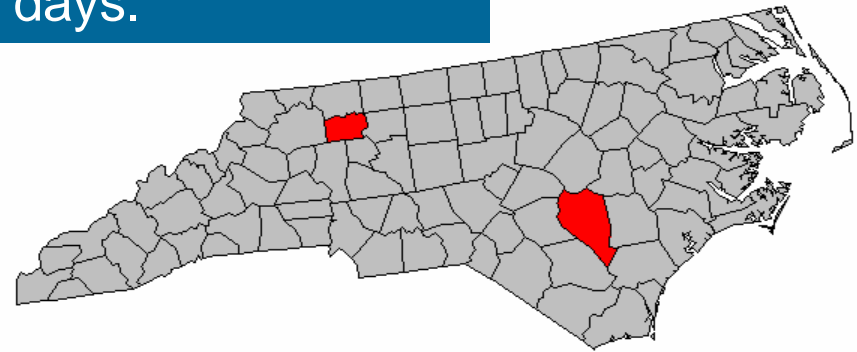
Address https://www.ncdetect.org/ears/DPH/ncedd/county/REPORT/Ears_Report.htm Go Links >>

EARS NC DETECT - ED data
EARLY ABERRATION REPORTING SYSTEM
 NC Division of Public Health

Tables Graph 30 NO Graph 365 Maps

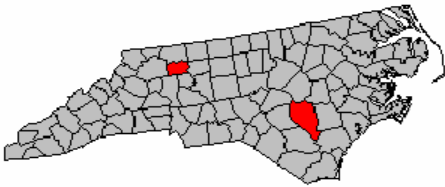


Counties in red have had an alert in the past three days.



County	Total Cases	C1 Flag	C2 Flag	C3 Flag
SAMPSON	33	X		
IREDELL	32			

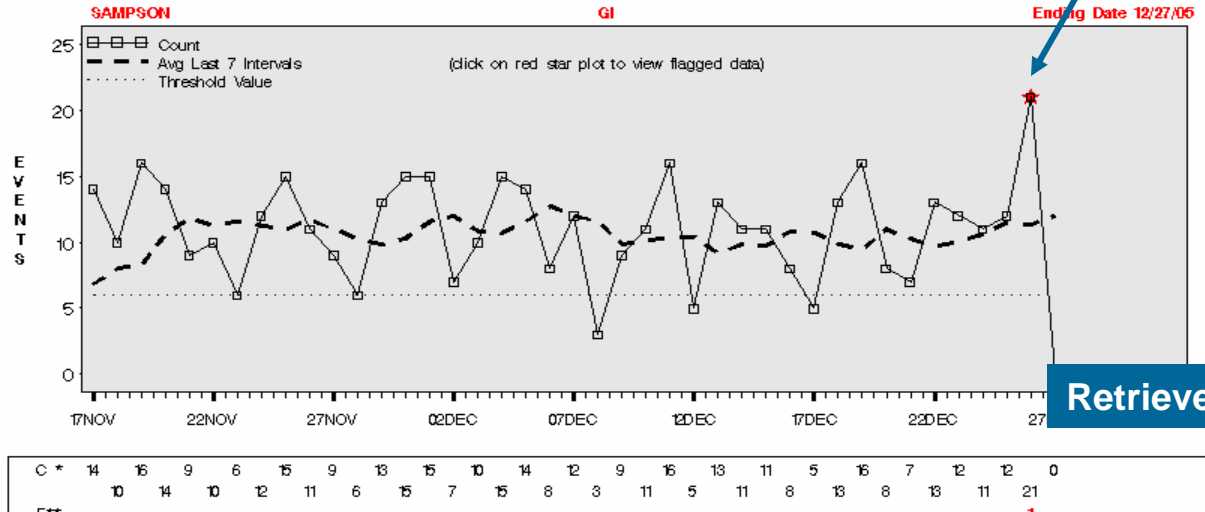
SAMPSON: 33 GI cases in the past 3 days.



County	Total Cases	C1 Flag	C2 Flag	C3 Flag
SAMPSON	33	X		
IREDELL	32			

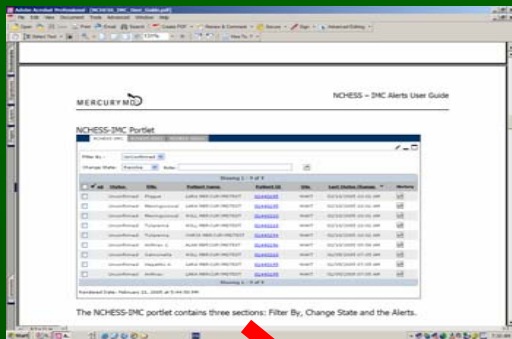
Early Aberration Reporting System (EARS)

NC DETECT — ED data



syndrome	county	zip	Edfacility	Arrival time	Chief Complaint	Triage_Notes	ED_Temp	age	sex	visitID
GI	SAMPSON	###	SAMPSON	9:20 PM	Abdominal Nausea	Symptoms onset 4PM	37.1	24	F	1ASV3456
GI	SAMPSON	###	SAMPSON	9:40 PM	Vomiting, Diarrhea	Symptoms onset 4PM, 2 hours after eating strawberries at the daycare party	38.3	32	M	45MN6655
GI	SAMPSON	###	SAMPSON	10:00 PM	Epigastric Diarrhea	Lower abdominal pain with vomiting, a "little diarrhea, streaks of blood in emesis	37.5	39	F	87H56887
GI	SAMPSON	###	SAMPSON	10:30 PM	Vomiting, Diarrhea	patient moaning c/o headache and nausea	38.1	67	F	98HGJJBV
GI	SAMPSON	###	SAMPSON	11:00 PM	Vomiting, Diarrhea	Symptoms onset 7PM, parents are with the same symptoms	36.6	5	F	98HGF544
GI	SAMPSON	###	SAMPSON	11:20 PM	Vomiting, Diarrhea	Mother mentioned that 3 more kids with the same symptoms in daycare	37.4	1	M	9876HD76

Investigative Monitoring Capability



STOOL CULTURE
 Test Date: 12/20/05 -- 10:45
 Updated: 12/25/05 -- 12:57

Status: FINAL

LABORATORY RESULTS
 Patient XXXXXXXXXXXXXXXX Age/Sex 5 M Loc (PODA)
 Phys XXXXXXXXXXXXXXXX

COLL XXXXXXXXXXXXXXXX REC XXXXXXXXXXXXXXXX PHYS XXXXXXXXXXXXXXXX

STOOL CULTURE
 SPECIMEN DESCRIPT STOOL
 SPECIAL REQUEST LOOK FOR YERSINIA
 CULTURE MODERATE GROWTH SALMONELLA SPECIES, SENT
 TO STATE HEALTH DEPARTMENT FOR
 SEROTYPING
 RESULTS AND DEMOGRAPHIC INFORMATION SENT
 TO STATE HEALTH DEPARTMENT FOR
 EPIDEMIOLOGIC PURPOSES.
 NO YERSINIA RECOVERED
 REPORT STATUS PENDING
 SUSCEPTIBILITY
 ORGANISM MODERATE GROWTH SALMONELLA SPECIES, SENT
 TO STATE HEALTH DEPARTMENT FOR
 SEROTYPING
 METHOD MIC (MCG/ML)
 AMPICILLIN <R SUSCEPTIBLE

NCHES-IMC Portlet

NCHES-IMC NCHES-EDDI NCHES Admin

Filter By :
 Change State: Note:

Showing 1 - 9 of 9

<input type="checkbox"/>	<input checked="" type="checkbox"/> All	Status	Title	Patient Name	Patient Id	Site	Last Status Change	History
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Unconfirmed	Plague	LARA MERCURYMDTEST	01440195	WAKT	02/10/2005 10:01 AM	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Unconfirmed	Meningococcal	LARA MERCURYMDTEST	01440195	WAKT	02/10/2005 10:01 AM	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Unconfirmed	Meningococcal	WILL MERCURYMDTEST	01440210	WAKT	02/10/2005 10:01 AM	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Unconfirmed	Tularemia	WILL MERCURYMDTEST	01440210	WAKT	02/10/2005 10:01 AM	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Unconfirmed	Tularemia	CHRIS MERCURYMDTEST	01440194	WAKT	02/10/2005 10:01 AM	



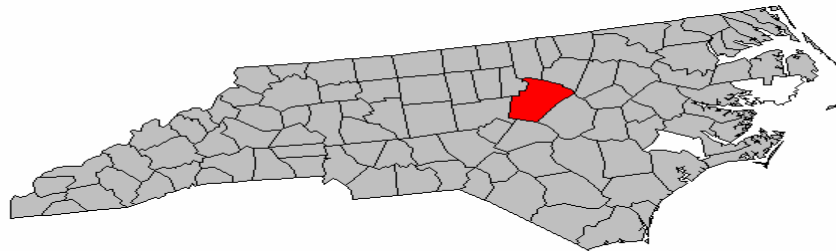
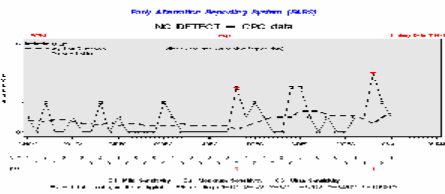
Carolinas Poison Control Center Chemical Exposure Signals

Exposure	Date	# of Cases	Co	Site	Syndrome
Nitric Acid	09/2005	13	Guilford	Hospital & Workplace	respiratory
Mercury	10/2005	4	Orange	Residence	gastrointestinal
Auto Battery Acid	10/2005	3	Chatham	School	dermal
Prime 2B	11/2005	3	Alleghany	Hospital	dermal, respiratory

Carolina Poison Control Center Respiratory Syndrome Signal Wake Co Map View



Tables Graph 30 NO Graph 365 Maps



County	Total Cases	C1 Flag	C2 Flag	C3 Flag
WAKE	7	X		

Tables Graph 30 NO Graph 365 Maps

WAKE 7resp cases in past 3 days

11/01/06

CallerCity	CallerSite	CallerZip	PatGender	MedicalOutcome	PatPregDuration	ExpReason	clineffects	exp_route
Fuquay-Varina	Own residence	27592	female	Moderate effect		Other-malicious	Resp_Cough_Choke	Inhalation
Fuquay-Varina	Own residence	27592	male	Moderate effect		Other-malicious	Resp_Cough_Choke	Inhalation
Fuquay-Varina	Own residence	27592	female	Moderate effect		Other-malicious	Resp_Cough_Choke	Inhalation
Fuquay-Varina	Own residence	27592	male	Moderate effect		Other-malicious	Resp_Cough_Choke	Inhalation

County	Total Cases	C1 Flag	C2 Flag	C3 Flag
WAKE	7	X		

NCEDD reporting module


Case Reports, ICD9 based

https://www.ncedd.org/reports_live/rptCaseDogBites.asp - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Refresh Print Mail Stop

Address https://www.ncedd.org/reports_live/rptCaseDogBites.asp Go Links



NCEDD
North Carolina Emergency Department Database

Reports Portal

Region: PHRST4
 County: WAKE
 UserID: lana
 UserName: Lana Deyneka
 Date/Time: 6/2/2006 4:00:01 PM

[Report Selection](#) • [Logout](#) • [FAQs](#) • [User Guide](#)

Case Report: Dog Bites

Note: This report searches for the ICD-9 final diagnosis codes related to Dog Bites (E906.0).

DATE Ranges: DATE from: 4/22/2006 DATE to: 5/1/2006

Data Scope:

- Show only WAKE Visits
- Show all PHRST4 Visits
- Show All NCEDD Visits


Refresh Report

Date	Age Group	Gender	Disposition	County	Zip Code
04/22/2006	05-09	F	Discharged to home or self-care (routine discharge)	DAVIDSON	27360
04/22/2006	40-44	M	Discharged to home or self-care (routine discharge)	LENOIR	28551
04/22/2006	35-39	F	Discharged to home or self-care (routine discharge)	VA	24352
04/22/2006	45-49	M	Discharged to home or self-care (routine discharge)	WAKE	27591
04/22/2006	15-19	M	Discharged to home or self-care (routine discharge)	WAKE	27587
04/22/2006	35-39	F	Discharged to home or self-care (routine discharge)	MECKLENBURG	28214
04/22/2006	40-44	M	Discharged to home or self-care (routine discharge)	SAMPSON	28328
04/22/2006	05-09	F	Discharged to home or self-care (routine discharge)	SAMPSON	28328
04/23/2006	35-39	M	Discharged to home or self-care (routine discharge)	HOKE	28376
04/23/2006	20-24	F	Discharged to home or self-care (routine discharge)	CUMBERLAND	28344
04/23/2006	00-04	M	Discharged to home or self-care (routine discharge)	CATAWBA	28601
04/23/2006	70-74	M	Discharged to home or self-care (routine discharge)	DUPLIN	28508
04/23/2006	00-04	M	Discharged to home or self-care (routine discharge)	UNION	28079
04/23/2006	30-34	F	Discharged to home or self-care (routine discharge)	MECKLENBURG	28205
04/23/2006	25-29	M	Discharged to home or self-care (routine discharge)	WAKE	27604
04/23/2006	10-14	F	Discharged to home or self-care (routine discharge)	FORSYTH	27127
04/23/2006	70-74	M	Discharged to home or self-care (routine discharge)	SWAIN	28713
04/23/2006	10-14	M	Left without receiving medical advice against leaving	IFF	27332

Done

Start Mozilla MercuryMD Portal - Micro... https://www.ncedd.o... Presentations Microsoft PowerPoint - [...]

Internet 3:55 PM



NCEDD reporting module

Aggregate Reports by age, acuity, date

NCEDD
North Carolina Emergency Department Database

Demo Reports Portal
These reports contain fictional and fabricated data

MedGroup: State Healthcare System
Hospital: Regional State Hospital
UserID: (Select Location)
UserName: County State Hospital
Date/Time: Regional State Hospital

• Report Selection • Logoff • FAQs • User Guide

Welcome
Welcome to the NCEDD reporting module *Report Selection* page.
You last logged on at 1/26/2004 5:35:00 PM.

Requests
If you would like to suggest a report to be added to this list, please send an email to the [NCEDD Advisory Committee](#) with a detailed description of your report request.

[Create Your Reports with EDISON Version1.0 \(NEW!\)](#)

Aggregate Reports

1. Count of ED Diagnoses Grouped by ICD9 Diagnosis Cluster
2. Number of Injuries Seen in the ED by Intent and Mechanism of External Cause of Injury
3. Number of Visits Comparing Age Group and Gender
4. Number of Visits Comparing Age Group and Gender - Blood Pressure
5. Number of Visits Comparing Age Group and Insurance Coverage
6. Number of Visits Comparing Hour of Arrival Time and Select Age Groups
7. Number of Visits Comparing Potential Gastroenteritis
8. Number of Visits Grouped by Admit Status
9. Number of Visits Grouped by Arrival Time
10. Number of Visits Grouped by Final Diagnosis Codes, including Average Length of Stay
11. Number of Visits Grouped by Insurance Coverage - Overview
12. Number of Visits Grouped by Month, including Average Length of Stay



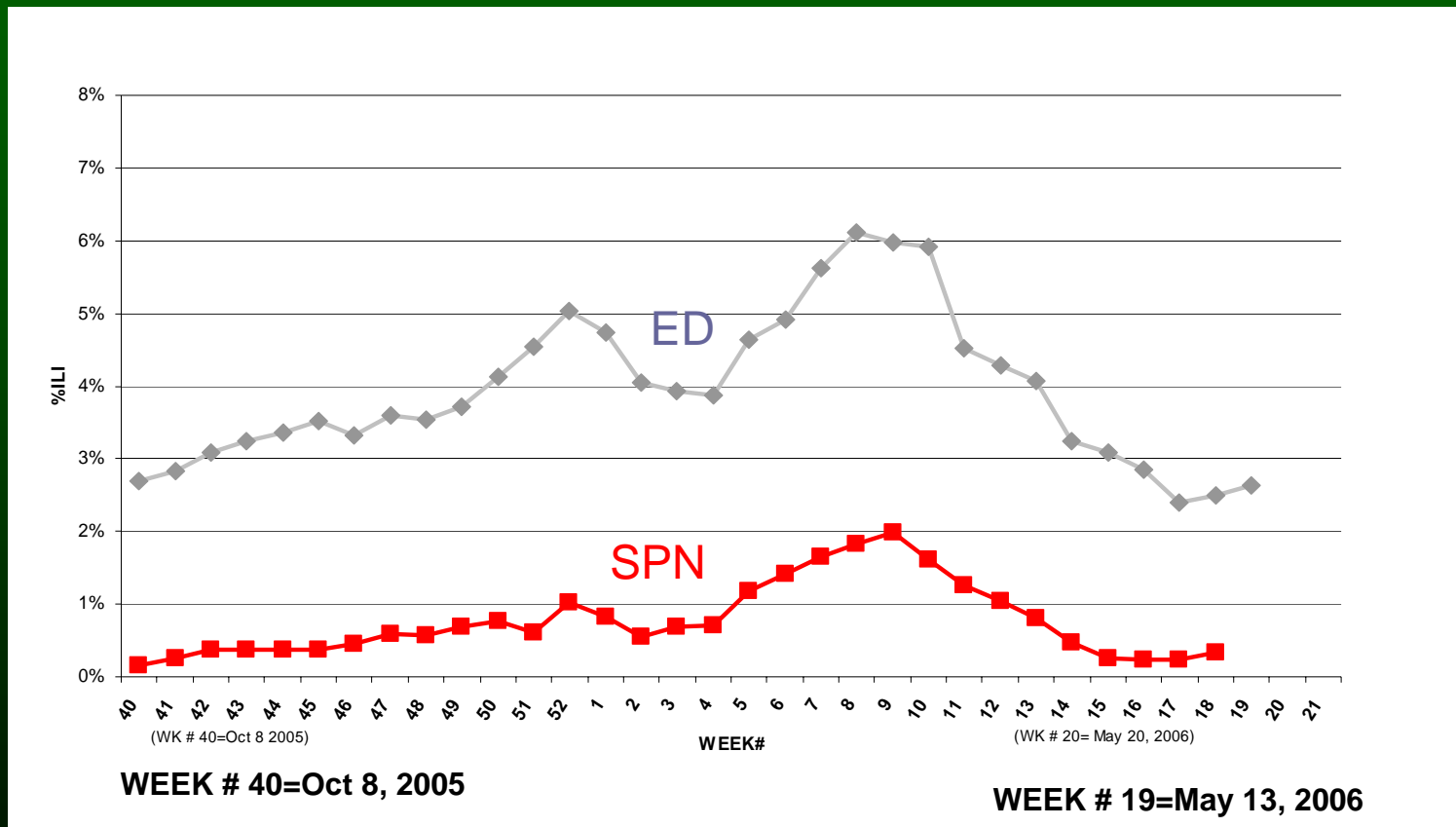
Edison function to create reports

The screenshot shows a web browser window with the following elements:

- Address Bar:** https://www.ncedd.org/reports_demo/rptEdison.asp?sClusterID=STATE&sLocationID=COUNTY
- Page Header:**
 - NCEDD** North Carolina Emergency Department Database
 - Demo EDISON**
 - This site uses fictional and fabricated data**
 - MedGroup: State Healthcare System
 - Hospital: County State Hospital
 - UserID: amy_clin
 - UserName: Amy Ising
 - Date/Time: 11/26/2003 4:26:38 PM
- Navigation:** Report Selection • Logoff • FAQs • User Guide
- Content:**
 - Welcome to EDISON**
 - Note:** This is the entry page to Edison. Please select the scope of the report you want to build. For those users who have only one option, just click the "Create Your Own Reports" Button.
 - Limit Records:**
 - Show only County State Hospital Visits
 - Show all State Healthcare System Visits
 - Create Your Own Reports** (button)
- Footer:** Report Selection • Logoff • FAQs • User Guide

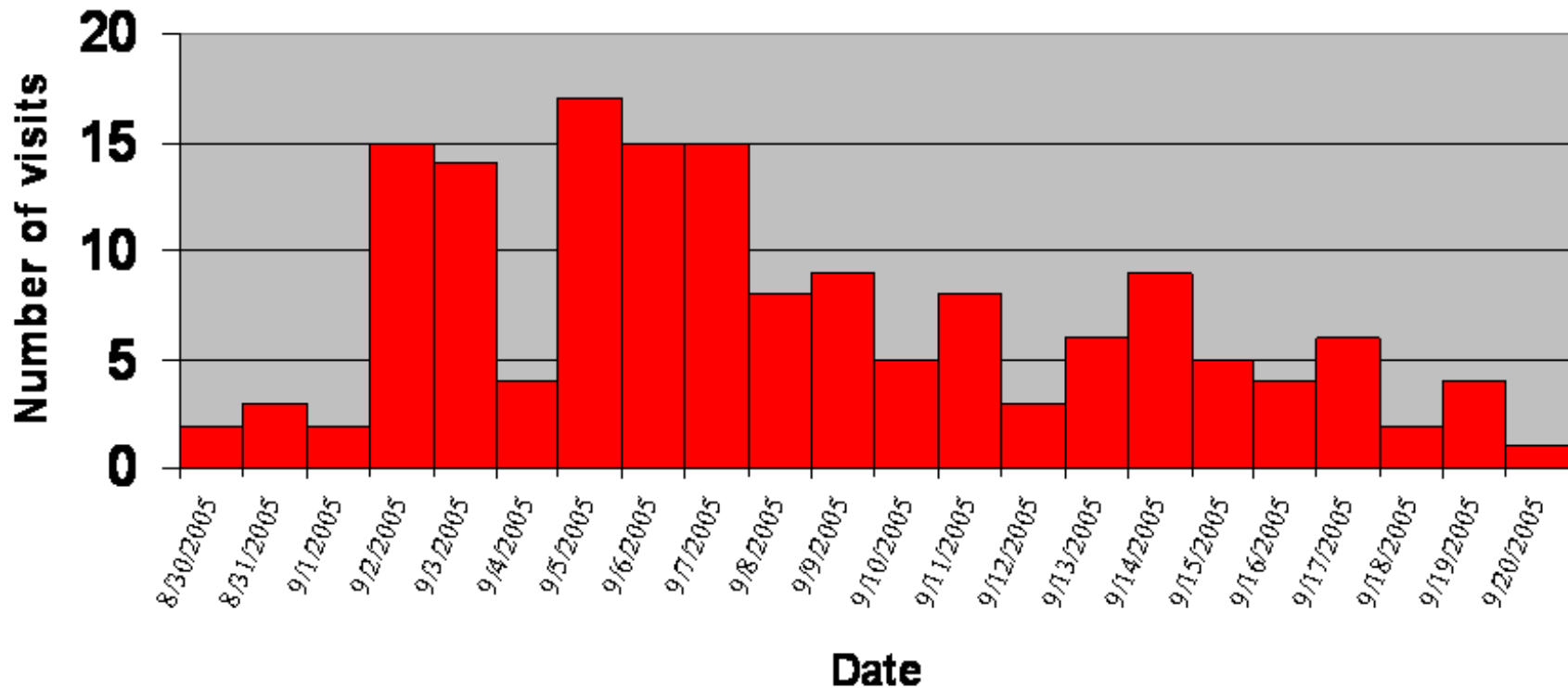


Influenza Monitoring: Comparing Syndromic surveillance (ED) and Sentinel Provider Network (SPN)



Katrina Evacuee Monitoring

Emergency Department Visits by Hurricane Katrina Evacuees,
North Carolina



Plans for Technical Improvement

- System redesign
 - Improved performance and ease of use
 - NC PHIN compliance
- Expanded syndrome development and evaluation
 - RTI / UNC BioSense grant
- Incorporating standardized chief complaint
 - UNC-developed Emergency Medical Text Processor (EMT-P)

Key Points

- Enhanced public health surveillance is key for preparedness and response
- North Carolina has demonstrated that such a system can be built, and used daily, for statewide public health surveillance
- Sustained funding is essential to maintain NC DETECT and address evolving user needs
- Expanded funding would allow inclusion and use of additional data sources, e.g., urgent care centers, primary care clinics

Public-Private Partnership



Department of Health and Human Services
Centers for Disease Control and Prevention



CAROLINAS POISON CENTER



MERCURYMD



NCSU CVML

KNIGHTSBRIDGE

