

ESSENCE: SYNDROMIC SURVEILLANCE NETWORK FOR PUBLIC HEALTH & HOSPITALS

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The ESSENCE System

Electronic

Surveillance

System for the

Early

Notification of

Community-based

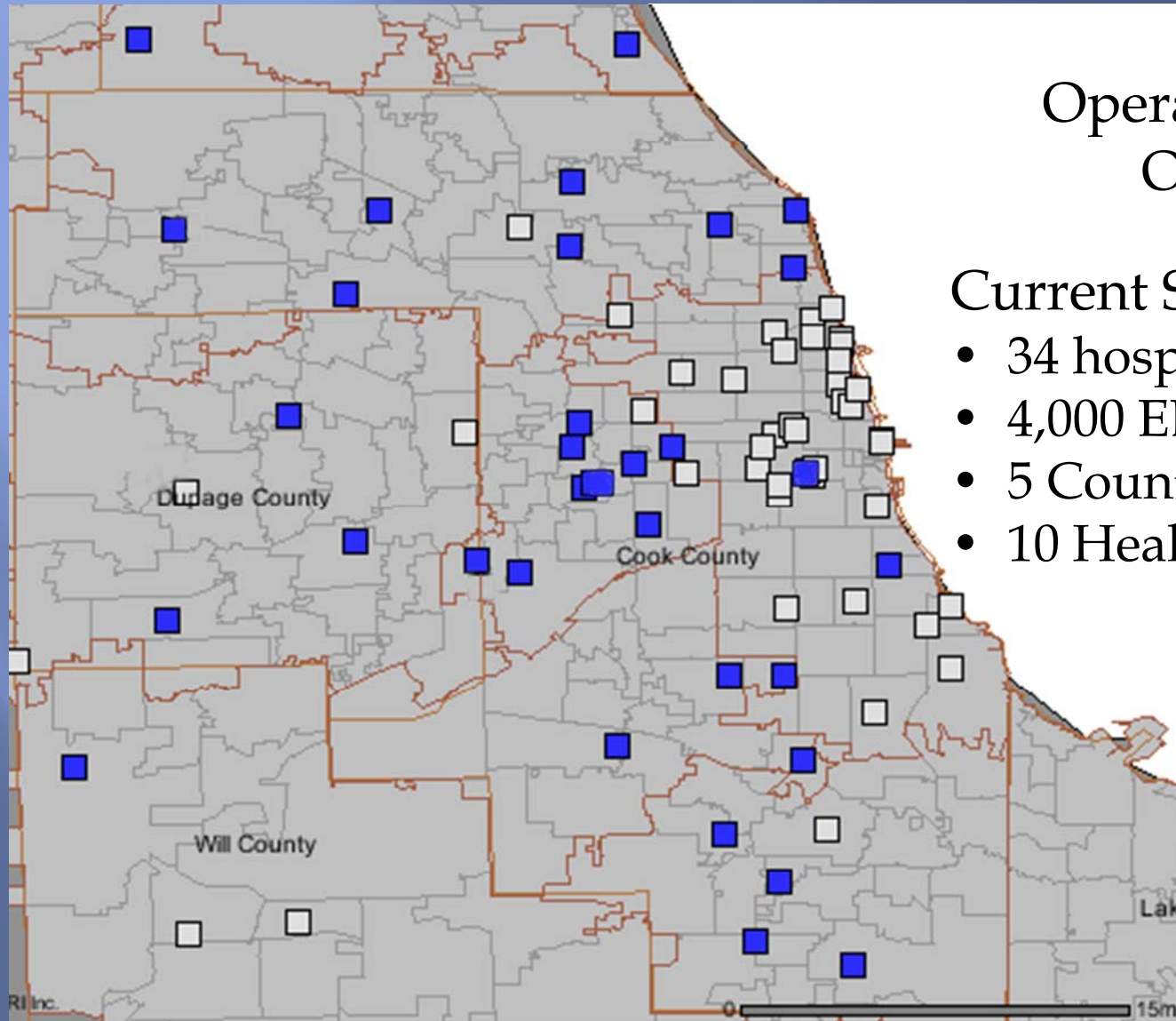
Epidemics

ESSENCE at CCDPH

Operational since
October, 2005

Current Status:

- 34 hospitals
- 4,000 ED visits/day
- 5 Counties
- 10 Health Jurisdictions



System Description

- Data Source: ED Chief Complaint
- Data Collection: Automatic (Pulled from EMR)
- Data Transfer: Secure FTP
- Data Sharing: Secure Web Portal
- Automated Analytic Methods:
 - Temporal Algorithms: EWMA, Auto regression, & CDC CUSUM
 - Spatial Algorithms: ArcIMS (Mapping) & SatScan

Variables Collected

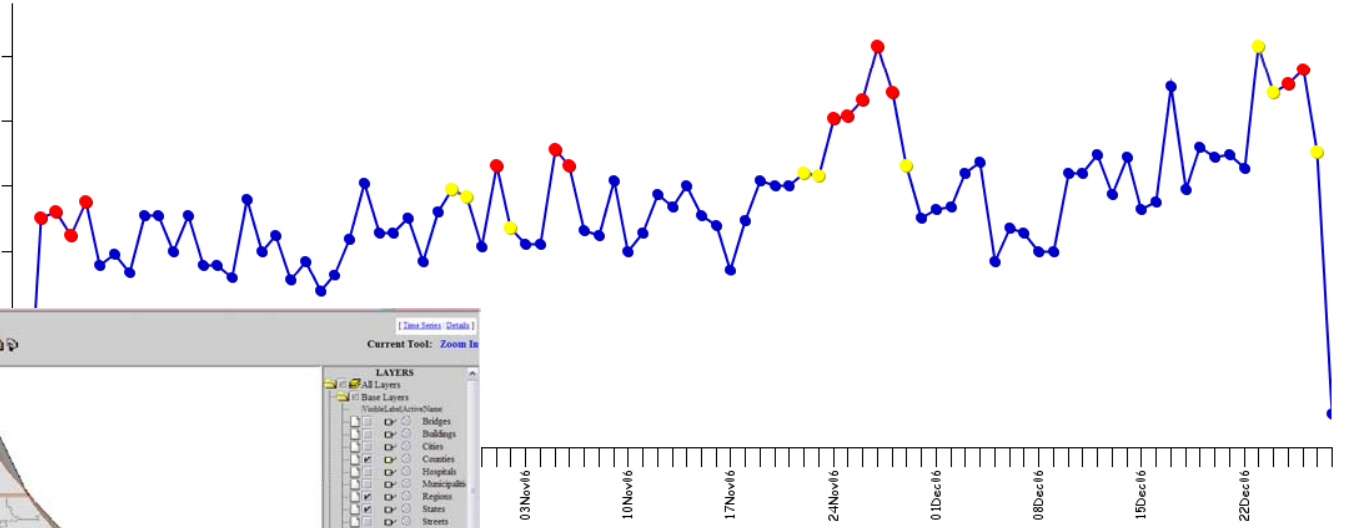
- Required Data
 - Date of visit
 - Time of visit
 - Hospital name
 - Patient's home zip code
 - Patient's age
 - Patient's gender
 - Patient's free text chief complaint
 - Unique identifier
- Optional Data
 - Patient's discharge diagnosis
 - Patient's discharge disposition

ESSENCE Output

Region/Syndrome Based Temporal Alerts

| Links | Date | Data Source | Region | Age | Sex | Syndrome | Detector | Level | Count | Expected | RareColor | RareLevel | NonZero |
|-----------------------------|---------|---------------|--------------------|------|--------|----------|---------------------|-------|-------|----------|-----------|-----------|---------|
| Time Series | 26Dec06 | ER by Patient | Southwest District | 0-4 | Female | GI | Regression/EWMA 1.2 | 0.013 | 4 | 1.308 | 14 | 8 | 16.712 |
| Time Series | 26Dec06 | ER by Patient | West District | 0-4 | Female | GI | Regression/EWMA 1.2 | 0.011 | 7 | 3.107 | 17 | 12 | 21.096 |
| Time Series | 26Dec06 | ER by Patient | West District | 5-17 | Female | GI | Regression/EWMA 1.2 | 0.021 | 5 | 1.962 | 20 | 12 | 20.548 |
| Time Series | 26Dec06 | ER by Patient | Southwest District | 65+ | Female | GI | Regression/EWMA 1.2 | 0.005 | 6 | 2.458 | 8 | 6 | 21.096 |
| Time Series | 26Dec06 | ER by Patient | Southwest District | All | Female | GI | Regression/EWMA 1.2 | 0.016 | 22 | 11.464 | 13 | 6 | 24.11 |
| Time Series | 26Dec06 | ER by Patient | West District | All | Female | GI | Regression/EWMA 1.2 | 0.018 | 33 | 21.5 | 14 | 9 | 23.836 |

Daily Data Counts



ESSENCE - Cook County : ER by Patient

Toggle: Navigation: Date Range: Other: Current Tool: Zoom In

| Date | Time | HospitalName | Zipcode | Region | AgeGroup | Age | Sex | ChiefComplaintOrig |
|---------|----------|--------------|---------|----------------|----------|-----|------|---------------------------|
| 15Sep09 | 09:29 PM | | 60194 | North District | 5-17 | 6 | Male | DIABETES/LOW BLOOD SUGAR, |
| 15Sep09 | 06:54 AM | | 60192 | North District | 5-17 | 16 | Male | ABD PAIN |
| 15Sep09 | 04:44 PM | | 60018 | North District | 5-17 | 8 | Male | VOMITING |
| 15Sep09 | 05:54 PM | | 60004 | North District | 5-17 | 7 | Male | VOMITING |
| 15Sep09 | 04:12 PM | | 60714 | North District | 5-17 | 14 | Male | VOMITING |
| 15Sep09 | 04:13 AM | | 60010 | North District | 5-17 | 16 | Male | pain:abdominal |

Layer Name: Results
 Data Source: ER by Patient
 Medical Grouping System: Syndrome
 Medical Subgrouping: All
 Sex: All

ESSENCE Utilization

Daily Percent of Selected Medical Grouping vs All Medical Groupings

