

Using Decision Support for Public Health Alerting

HIMSS Interoperability Showcase

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EHR Opportunities for Public Health

- Exchange patient/ population data for surveillance, reporting & alerting
 - Using Standards for Information Exchanges e.g. HITSP T81, T63/C82 & RDF
- Improve quality by disseminating guidelines & protocols at the point-of-care

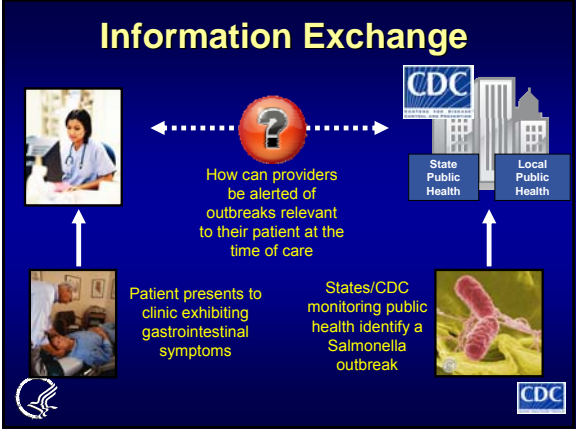
If EHRs are to catalyze quality improvement and cost control, physicians and hospitals will have to use them effectively. That means taking advantage of embedded clinical decision supports that help physicians take better care of their patients. (David Blumenthal, NEJM, March 25, 2009)



Considerations for Public Health Alerting

- Dynamic in nature
 - Urgency
 - Multiple alerts, same problem
 - Changing landscape of problem e.g. new cases, new locations
- Scope of information
 - Population vs. patient specific
- Multi-stakeholder response/involvement
 - CDC
 - State & Local Health Department
 - Healthcare Providers
 - Other federal agencies e.g. FDA

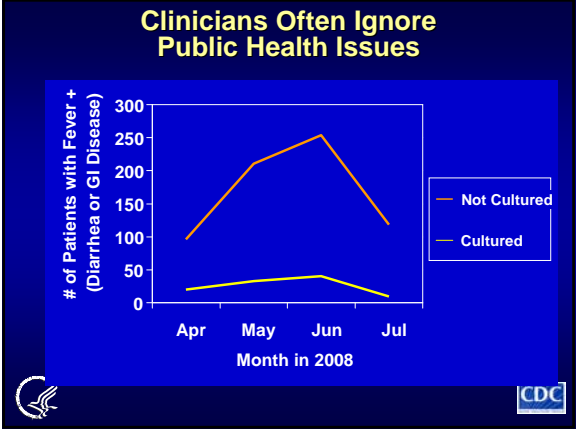




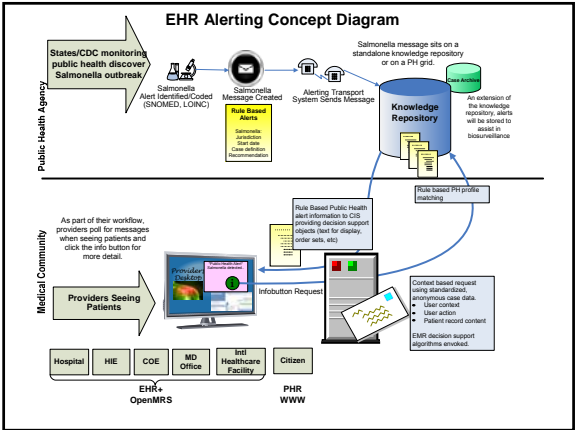
EHR Public Health Alerting Project

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- ### An Example Public Health Problem (Foodborne Diseases)
- 350 million episodes per year
 - 75 million foodborne illnesses per year
 - ◆ Average person has foodborne illness every 3-4 years
 - ◆ 1 in 1000 Americans hospitalized each year
 - ◆ 5,000 deaths
 - ◆ \$6.5 billion in medical and other costs
 - ◆ Salmonella most frequent – 14.8%
 - Outbreak epidemiology changing
 - Centralization, industrialization, globalization
 - Number of outbreaks has increased
 - Effective investigations and communication key to reducing burden of foodborne disease
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- ### Public Health - EHR Alerting (Long Term Objectives)
- To demonstrate the transmission & integration of public health information into the clinical workflow.
 - To determine if public health alerting systems can be leveraged to identify specific patients with risk factors related to the health condition identified in the alert.
 - To evaluate the impact using qualitative approaches on clinicians' behaviors.
 - To determine if this functionality should be considered as a criterion for EHR certification.
- CDC



Key Components

- EHR-friendly Message
- Central Alert Repository or Knowledge Base
- Standards based Information Retrieval Mechanism
(EHR to Repository) e.g. *Infobutton*
- Other uses (PHRs, Quality)



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EHR Message Components

- Message data elements:
 - Disease History/background
 - Symptoms
 - Patient demographics
 - Characteristics of agent
 - Clinical features of disease
 - Number of cases
 - Location, jurisdictions or geographic region of outbreak/cases
 - Dates of outbreak/illness
 - Case definition
 - Recommendations:
 - ▲ Diagnosis: lab testing identification
 - ▲ Reporting
 - ▲ Treatment
 - ▲ Prevention and education
 - Alert identifier
 - Date of last update
 - Expiry date



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EHR Friendly Message

Salmonella PH Alert Message
Message ID #: 2345643

As of 9/20/08, 100 persons with Salmonella have been reported to CDC from two states, Ohio and Pennsylvania. Onset dates range from 9/21/08 - 9/30/08. Illness possibly linked to chicken wings.

Symptoms:
Diarrhea
Fever
Abdominal Cramps

Patient Demographics:
Ages: all
Gender: all
Race: all

Jurisdiction:
Zip codes: 30308, 30331, 32098
45693, 42532, 44523

Recommendations:
Diagnosis by culture of a stool sample
Report positive findings to local health dept
Treatment: Fluids via ORS, Pedialyte, Gatorade
Antibiotic treatment for severe cases only
Prevention: Thoroughly wash and cook foods

Date of last update: 10/1/08 Expiration date: 11/1/08

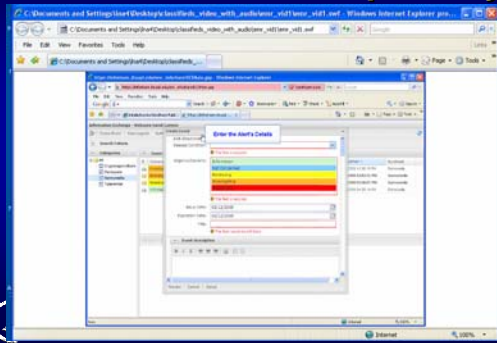


Alert Knowledge Repository

- Supports:
 - Authoring/editing alerts
 - Maintaining alerts
 - Archiving Alerts
 - Archiving Cases
- Interacts with chief complaint parser
- Supports matching algorithms



Public Health Alert Repository

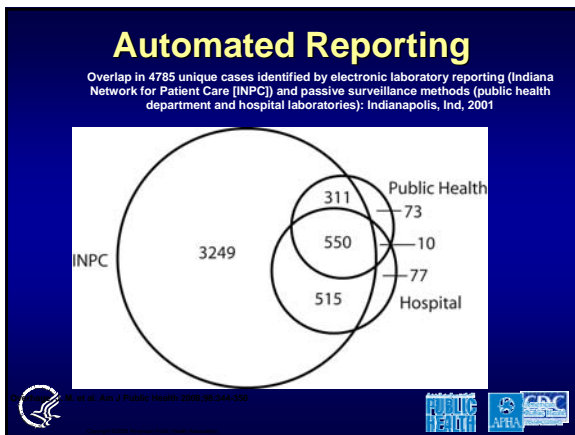


Information Retrieval Mechanism

- Infobutton: automatic or manual
 - T81 Infobutton standard
- Alternative standards
- Long term goal:
 - Vocabulary Service
 - Natural Language Processing (NLP)







Public Health Alerting in EHR Systems

View the live demonstration at the HIMSS Interoperability Showcase located in Hall B1 Booth 7750

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