

# Public Health Information Network and the National Electronic Disease Surveillance System (NEDSS): Use of information system standards to improve public health surveillance

Claire Broome, MD  
Centers for Disease Control and  
Prevention  
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# Limitations of current surveillance systems

- Multiplicity of categorical systems
- Data incomplete, not timely
- Burden on respondents in health care sector increasingly unacceptable
- Systems do not utilize state of the art information technology



# NEDSS “at-a-glance”

- NEDSS is a broad initiative using national data and information system standards for development of efficient, integrated, and interoperable surveillance systems at the state and local levels
  - ◆ Data standards—Conceptual data model, <http://www.cdc.gov/cic>
  - ◆ Harmonizing with HL7 Reference Information Model
  - ◆ PHIN Architecture <http://www.cdc.gov/cic>
- Includes tools for electronic data transfer to health department from health care system:
  - ◆ Eg from multi-jurisdictional clinical labs
  - ◆ single “pipeline”: single format, receiving point, security
- Security standards (HIPAA compliant) to maintain public health track record in protecting sensitive data
- Starts with focus—infectious disease—but keeps big picture in mind

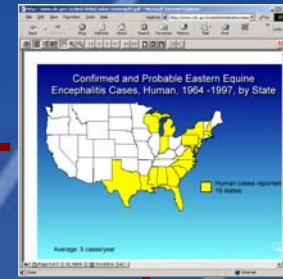




Local Health Department Or Clinical Site



State Health Department



Reporting, GIS and Analysis

Electronic Laboratory Messages



Integrated State / Local Data Repository

Security

Clinical Database

HL7



XML Data Exchange

Shareable Directory of PH Personnel

CDC and Other Health Depts.

Surveillance system architecture at state or local health department





# Funding history for PHIN/NEDSS

- 50 states, 6 cities, and 1 territory funded for NEDSS: 43 started with Assessment & Planning phase in 2000
- September 2001: 35 states and 1 city receiving funds for development of NEDSS compatible systems
  - ◆ 16 implementing NEDSS compatible state developed system
  - ◆ 20 proposed use of NEDSS Base System (NBS)
- January 2002: Public Health and Social Services Emergency Fund provides >\$1 billion for state and local public health capacity, including guidance from CDC and HRSA to use standards for IT investments
  - ◆ Initial estimate-30% of funding going to IT



# NEDSS Base System

A NEDSS compatible system for state and local use developed by an experienced web software developer (Computer Sciences Corporation)

- “Base system” includes Core Demographics; person based system; HL-7 messaging
- Also useful as a specific implementation of NEDSS e.g. standard messages, database model
- Base System now in production in NE; deployment to other 20 states in progress
- Version 1.0 includes 93 notifiable diseases, and modules for vaccine preventable diseases, hepatitis, bacterial meningitis and pneumonia



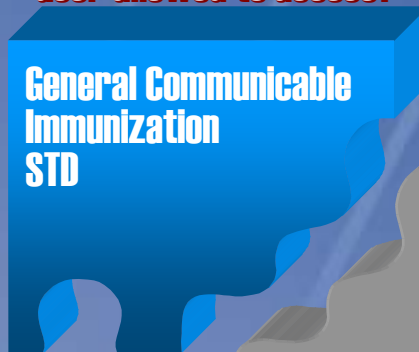
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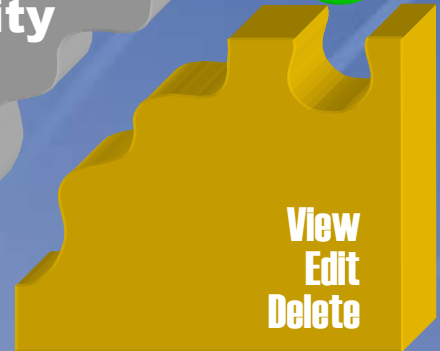
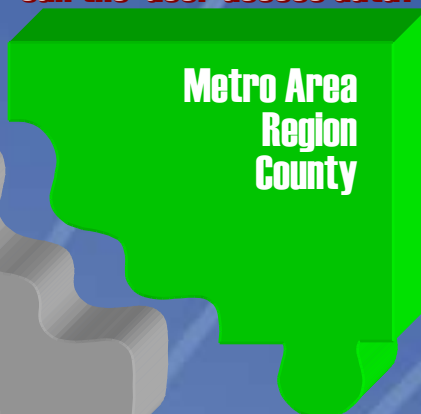
# NBS Security Overview

The data and functions a user can access are defined in 4 dimensions. An audit trail of user actions is in the database.

What program areas is the user allowed to access?



For what geographic areas can the user access data?



What forms can the user work with?

What can the user do?



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# NEDSS Base System –what is behind the screens?

- Open architecture/J2EE: easier incorporation of new technology. Avoids getting locked into non-standard, inflexible systems
- Messaging: Can handle HL 7 standard messages from labs, other clinical partners, immunization registry, BT related messages
- Person based system: permits longitudinal follow-up—eg tb



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# NEDSS continued

- FY2003 NEDSS grants offer NEDSS Base System to any interested state; awards in progress
- Systematic change management process is tracking requested enhancements to NBS, planning versions 1.1 (out 7/31/03), 1.2, and 2.0
- Conformance testing options for NEDSS compatible state systems to be discussed with partners at PHIN conference 5/2003



# Public Health Information Network Approach to Data Standards

For clinical data coming to public health:

- ◆ specific implementations of National Committee on Vital and Health Statistics (NCVHS) and Consolidated Health Informatics (CHI) endorsed industry standards
- ◆ Work with partners to encourage use of standards in clinical care services eg if industry standard messages are used for clinical data

For public health participants:

- ◆ Require the use of industry standard data model, vocabularies and messages
- ◆ Use technology standards to ensure that software can be used in many settings



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# How can Public Health Information Network and NEDSS help encourage progress toward NHII?

- Understanding of need for preparedness high among providers, public
- Public private partnership--eHealth Initiative public health, Standards Development Organizations, clinical systems vendors supporting 80% of US health care systems, providers
  - ◆ use data already in electronic format
  - ◆ practical solutions to implement standard messages
- Standards based electronic data reporting eases burden of reporting, whether to public health, or other entities



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# Background



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# What does Public Health Information Network have to do with HIPAA?

- **HIPAA mandates national health care data standards and policies in four areas:**
  - ◆ Transaction content; unique identifiers for providers, health plans; security; privacy
- **Public Health Information Network architecture standards are HIPAA compliant:**
  - ◆ supports “dual use” for security, messaging elements
- **Approach to Public Health Information Network data standards is HIPAA compliant:**
  - ◆ Adopting HIPAA standards where relevant eg electronic laboratory reporting in NEDSS uses proposed HIPAA claims attachment
  - ◆ Advocating inclusion of data elements relevant to public health with SDO's



# Public Health Related Messages

## Routine Public Health and Investigation of BT Detection Messages

### Clinical

- Microbiology results
- Orders
- Chief complaints
- Lab results
- Discharge diagnosis

### Public Health

- Nationally Notifiable Diseases
- Hepatitis
- Meningitis
- Electronic Lab Reporting

## Response Messages

- Lab test request
- Lab result
- Case report
- Test result available notification
- Specimen container shipment
- Specimen context
- Intervention request
- Intervention result report
- Contact list report
- LDIF directory exchange
- Alerts and public health information dissemination

