

Public Health Information Network

John W. Loonsk, M.D.
Associate Director for Informatics
Centers for Disease Control and Prevention

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Public Health Information Network



- Why now?
- What is the problem?
- What is PHIN?
- How do we get there?



Why Now?

A Unique Moment in Time for Public Health Information Technology

- **Anthrax attacks** – there are compelling and urgent needs
- **Recognition of public health's role** – a unique part of homeland defense
- **West Nile** – threat isn't only terrorism
- **SARS** – must depend on international colleagues



Why Now?

A Unique Moment in Time for Public Health Information Technology

- **Clinical care** - becoming computerized – best opportunity ever to get clinical data
- **Healthcare data standards movement** – now engaged at the federal level
- **Informatics** – have seen ways that IT can help public health do more
- **Accessible technology** – connectivity, software, development and resources



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What is the Problem?

- Public health and terrorism preparedness involve many organizations working together and exchanging information
 - ...most public health software still focuses almost exclusively on the primary user's needs
- The current public health information cycle (clinical event to response) is too long and frequently involves the manual exchange of data
 - ...almost all anthrax test results were communicated verbally over the phone
- Healthcare information technology's current state is fragmented and heterogeneous
 - ...most clinical care sites still do not regularly report data electronically to public health



What is the Problem?

- Public health decisions require rapid access to specific information
...public health knowledge resources can be hard to find and are poorly shared
- Public health information systems need to reliably and securely operate during the worst situations
...our systems are still too vulnerable to hardware failures, viruses and hacking
- The new realities of terrorism and disease trends require a new level of operation and coordination
...public health needs to assume its role as a major component of national defense



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Public Health Information Network - Vision

To transform public health by coordinating its functions and organizations with information systems that enable:

- real-time data flow
- computer assisted analysis
- decision support
- professional collaboration
- rapid dissemination of information to public health, clinical care and the public



Some Public Health IT Initiatives

Specific initiatives have shown the potential of public health information technology:

- **Health Alert Network (HAN)** – Internet connectivity, alerting and distance learning
- **National Electronic Disease Surveillance System (NEDSS)** – disease surveillance, electronic laboratory reporting
- **Laboratory Response Network (LRN)** – diagnostic capacity and information delivery
- **Epidemiology Information Exchange (EPI-X)** – Secure, interactive communications
- **CDC and other web sites** – Public information access
- **National Health Care Safety Network (NHSN)** – Patient safety data

Now that public health is being tested by new needs for preparedness and response, it is time to advance a public health information network that brings together the functions and organizations that are public health.

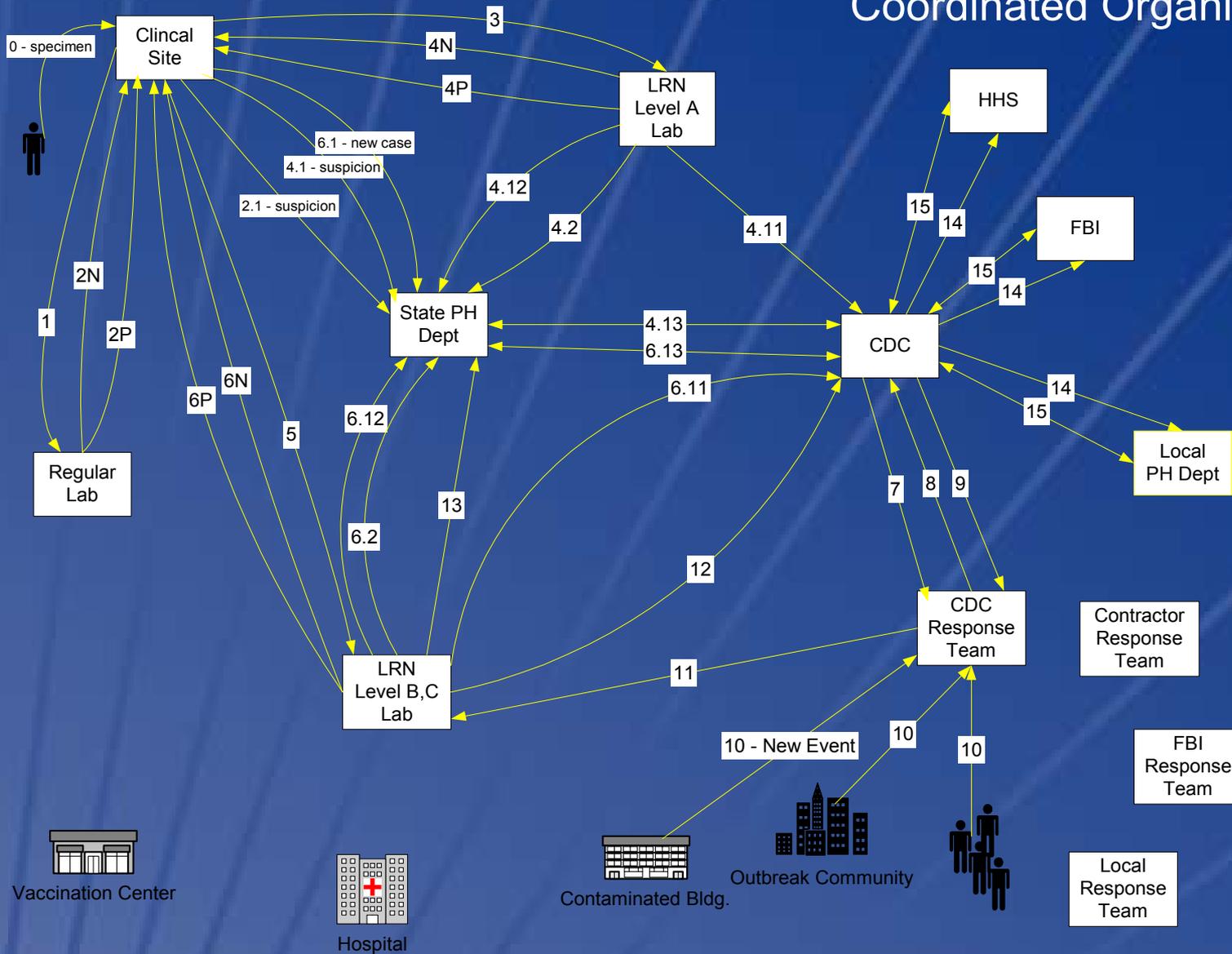


PHIN Coordinated Functions

- **Detection and monitoring** – support of disease and threat surveillance, national health status indicators
- **Analysis** – facilitating real-time evaluation of live data feeds, turning data into information for people at all levels of public health
- **Information resources and knowledge management** - reference information, distance learning, decision support
- **Alerting and communications** – transmission of emergency alerts, routine professional discussions, collaborative activities
- **Response** – management support of recommendations, prophylaxis, vaccination, etc.



Coordinated Organizations



What is PHIN?

Gartner – a multi-organizational business and technical architecture

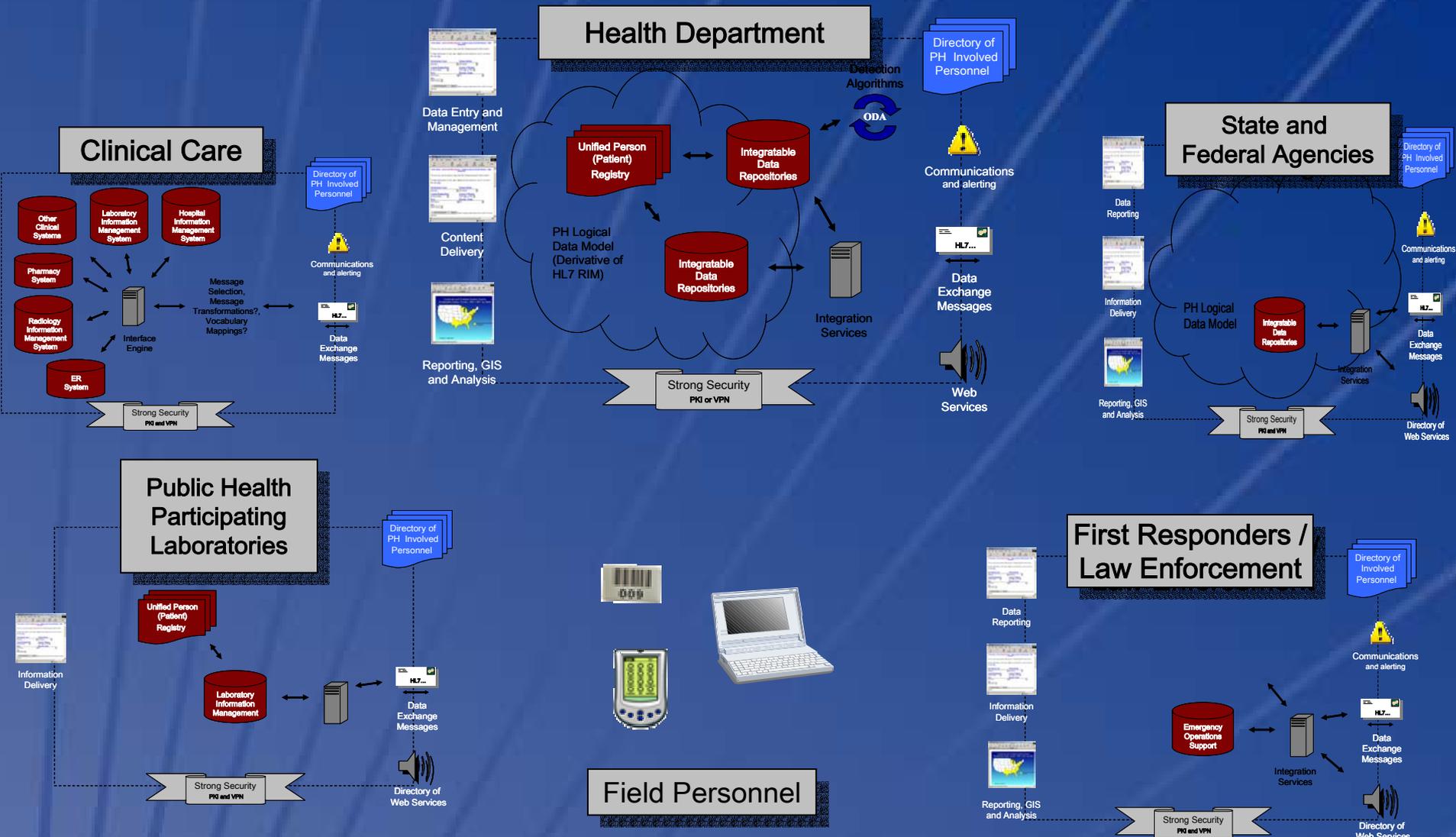
- Technical standards
- Data standards
- Specifications to do work

Is also a process

- Commitment to the use of standards
- Commitment to participating in development and implementation of specifications



Public Health Information Network – Architecture



Health Department

Directory of PH Involved Personnel



Detection Algorithms



Communications and alerting



Data Exchange Messages



Web Services



Data Reporting



Content Delivery and Knowledge Management



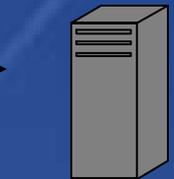
Reporting, GIS and Analysis

Unified Person (Patient) Registry

Integratable Data Repositories

Integratable Data Repositories

PH Logical Data Model (Derivative of HL7 RIM)



Integration Services

Strong Security
PKI or VPN



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Health Department

What it is about:

- Data you give to, and get from, other organizations

Defined specifications:

- ebXML transport
- HL7 2.x messages for exchange with labs and the clinical community
- HL7 2.x bioterrorism response messages
- HL7 3.0 messages for public health case reporting
- Specified vocabularies including standard reference tables, LOINC and SNOMED



Health Department

What it is about:

- How you store and manage information and knowledge

Specifications in progress:

- Information architecture for the categorization and storage of information
- Meta data for information description and management
- A public health thesaurus to aid in the subject classification of content



Content
Delivery and
Knowledge
Management



Health Department

What it is about:

- How you electronically ask another organization for data and services

Specifications to be developed:

- Web services that can operate in both of the major development environments
- A common security implementation
- Directories of available services



Web
Services



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Public Health Information Network

- Bioterrorism Functions and Specifications accepted as PHIN Version 1.0 Standards
- Were attached to over 1 billion in BT supplement (CDC and HRSA) and will be this year
- Gartner Group independent technical review
- ASTHO – NACCHO – CDC Data Standards Working Group
- ASTHO – NACCHO – CDC Technical Standards Working Group



How Do We Get There? - Standards

State and Local Standards and Policies



Public Health Information Network



Federal Health Architecture, NHII & Consolidated Health Informatics



Industry Data and Technology Standards – HL7, web services, etc.



Public Health Information Network - Process

1. Capture the **business requirements** that support the public health mission
2. Identify relevant **industry standards** - technical and data
3. Develop **specifications** based on standards that are concrete enough to do work
4. **Fund** through the specifications
5. Develop **“transitional software”** that implements the specifications now
6. Encourage **partners and private sector** to implement the specifications
7. Support **conformance testing**



Public Health Information Network - Software

Messaging system

- Secure industry standards based (ebXML) inter organizational, bi-directional messaging
- Specific web service for HL7 and other message payloads, encryption and security

Specimen Management and results reporting (LRN)

- Enables HL7 messaging for labs

NEDSS Base System

- Web based surveillance software for health departments
- Supports electronic laboratory reporting, case management, notifiable disease reporting

Vaccine administration support

- PVS system for Smallpox vaccination program

Laptop deployable systems

- Case management, contact tracing, specimen and results management, vaccination and prophylaxis management



PHIN Coordinated Organizations

- **Participate in an interoperable network** – implement the technical standards so systems work with other networks / systems
- **Use identified data standards** – build systems for current and future data partners
- **Provide “live” data** – allow for a continuous monitoring of the nations health, continuous detection and evaluation of threats
- **Include the requirements of others** – include stakeholder requirements from different organizations, not just the primary users of the system

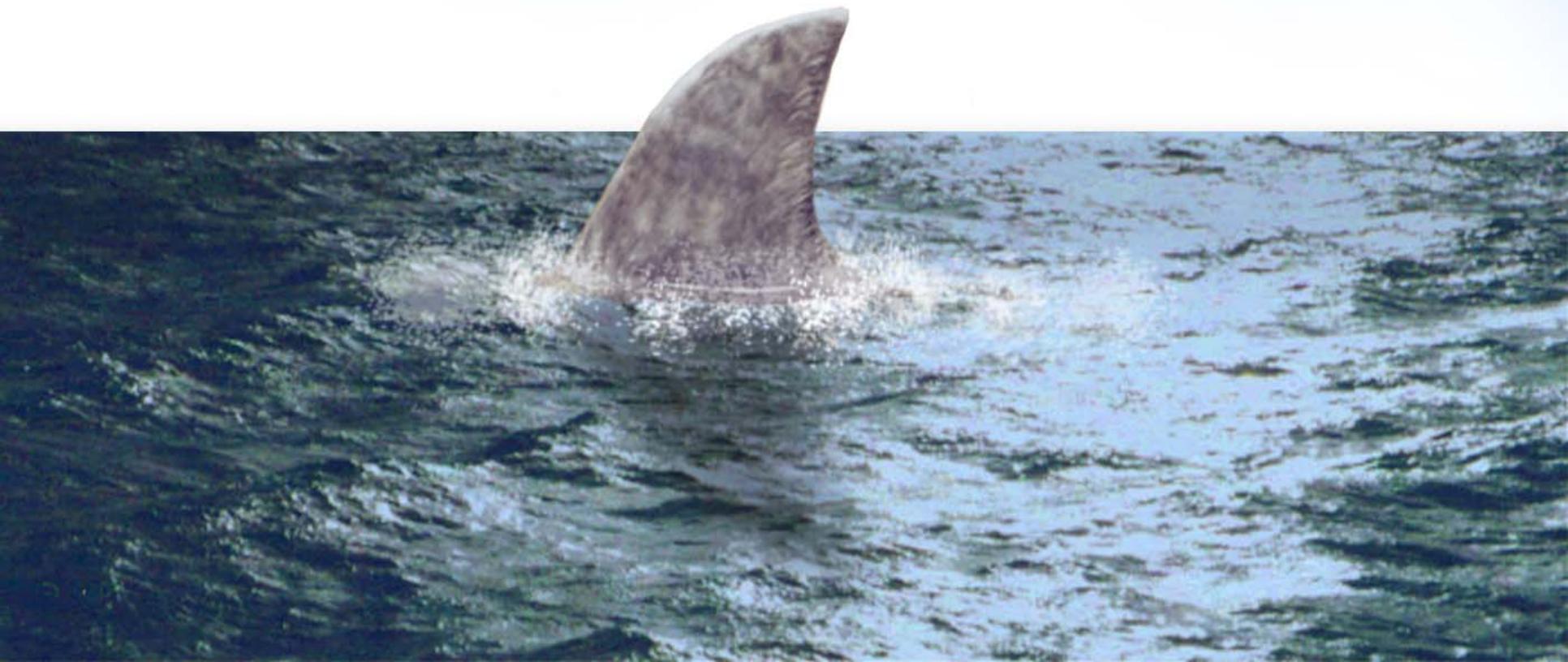


Questions to ask of your systems...

1. Have you documented the specific requirements of the processes you want them to serve?
2. Do they meet the specific requirements of other organizations in public health have of you?
3. Were PHIN technical specifications written into your development and implementation contracts? Was there implementation assurance?
4. Can you make use of existing functional or commercial components that are standards based?
5. Are you prepared for compliance testing?



PHIN is going to get you!





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