WHOOSH!: Building and Controlling Wisconsin HIE’s Clinical Data Stream for Local and State Health Departments

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Wisconsin (Milwaukee area)
Non-profit member organization launched Fall 2005 (one year pre-preparation)
Milwaukee Health Department was a catalyst
50 members include major providers and payers
- Board includes elected representatives of above and clinicians, public health, patient advocate, labs, pharmacies, research
- Data provider majority on the board
- Board establishes data sharing policies

WHIE vision:
- Improving the quality, safety, efficiency, and accessibility of health care and public health

WHIE mission:
- Collaborating to enable secure delivery of timely, accurate electronic health information to authorized users across institutional boundaries

Federal Direction

Goal 1: Inform Clinical Practice
Goal 2: Interconnect Clinicians
Strategy 1. Foster regional collaborations
Strategy 2. Develop a national health information network
Strategy 3. Coordinate federal health information systems
Goal 3: Personalize Care
Goal 4: Improve Population Health

Wisconsin direction

- Business plan: opportunities and risks for sustainability
  - Governance – social capital, happy stakeholders
  - Valued information products (use cases)
  - Executive and staff
  - Technology deployment
  - Risk management
  - Financial projections
Who was ready to pay?
What was easiest to achieve?

Medication reconciliation?
Syndromic Surveillance?
Shared view of past care?
Test results and other document delivery?

Since economics drives the agenda...

- Providers want to manage unneeded under-reimbursed care costs
- Payors want to reduce unneeded care
  - Thus focus on emergency department/community health center “shared view” with emphasis on Medicaid and uninsured
- Public health reuse of same data flow recognized and welcomed by all

Microsoft Amalga provides:

1. Data repository for diverse systems and data types
   - Easy to use data parsing system
   - No need for rip and replace
2. Unique metadata tagged data storage
   - Handles massive data quantities
   - Does not standardize vocabulary
3. High throughput architecture
   - Real time data acquisition
   - Rapid response to queries
Microsoft Amalga provides:

4. Option of secure, hosted, mirrored environment
   VPN from providers/users to data centers

5. Intuitive interface
   Similar to Excel

6. Easy to use query tool
   Individual patient care or business intelligence
   No need for separate systems

6. Future integration to Health Vault platform
   Patients can view and add to their own info

Overall HL7 Data View

Whoosh! Current Information Flow

- Went live in Emergency Rooms March 2008
- Went production in Public Health July 2008

- Holds over 1.16 million event records
- 142,000 new records in the last month
- Takes ~15 seconds to retrieve a view 1 million records long

Emergency Department View

Clinician’s Patient-Centric View

Takes clinician to further info
Evaluation Focus

- Medicaid claims: reductions in cost?
  - Adjusted for other changes in patient flow, safety events, etc.
- Physician impact on ordering and decision-making
- Usability analysis

Patient Confidentiality and Consent: Clinical Users

- WHIE is not a HIPAA covered entity - facilitates a relationship between data providers and users
- ED users only see THEIR patients registered in last 72 hours
- HIPAA and state laws accommodate information sharing for “emergency” care
  - Ergo, no patient consent at current version
- Consent will be necessary for sensitive information sharing with non-ED clinicians
- Clinicians not able to create reports, mine data
  - State law emergency care exemptions do not extend to these functions

Confidentiality and Security: Public Health Users

- HIPAA and state laws accommodate information sharing for legally-authorized public health purposes
  - Relevant PH authorizations under state and federal laws cited in Participation Agreement
  - HIPAA “Minimum required” doctrine
  - Name not provided-no general authorization for named access
  - Exceeding the HIPAA Minimum Data Set creates extra obligations on data providers
- Medicaid still requires review prior to release of reports by public health agencies (pending greater trust and full integration of data use agreements)
Goals of Public Health Tools

- ↑ information timeliness & comprehensiveness to facilitate:
  - Early detection of outbreaks, mass casualty events and other public health emergencies;
  - ↑ ability to characterize and monitor populations (e.g., location, age, etc.) affected by outbreaks or other public health problems;
  - Investigation of causes and causes of episodes or patterns of infectious disease, chronic disease, trauma, environmental, occupational, reproductive or other health problems;
  - Situational awareness regarding the utilization and availability of health care resources in outbreaks, emergencies or periods of high demand;
  - Distribution and administration of medical countermeasures and scarce medical resources during outbreaks and public health emergencies; and
  - Communication of findings of such analyses and processes to data providers to facilitate their planning, execution and recovery
- Minimize the need for Data Providers to create multiple different data feeds to serve multiple different public health surveillance programs.
- The Exchange Administrator intends to work with Data Providers and Public Health Authorities to facilitate the use of exchange data and current and future surveillance applications, such as BioSense and ESSENCE.

Selecting Fields for Public Health Display and Analysis

Selected public health fields (black are MA-not yet implemented)

- Provider Facility
- Provider Service
- Provider Street address
- Provider Phone
- Date of Visit
- Time of Visit
- Sex
- Age Integer (years)
- Zip Code of patient residence
- Municipality of patient residence
- Admit Type (e.g. emergency, elective)
- Chief Complaint
- 1st, 2nd and 3rd diagnoses
- Admission Date
- Discharge date
- Discharge disposition
- Death Status
- Prescription NDC description (drug name)
- Prescription fill date
- Prescription date
- Accident information *
- Accident date/time *
- Accident Code *
- Accident Job related *
- Accident Death indicator *
- Race
- Language, Patient
- Marital Status
- Ethnic group
- Living will status
- Organ donor *
- Living status *
- Living dependency *
- WHIE Amalga unique Object ID

* rarely provided

Products

- Real-time screen views of encounters
- Export to Excel, text files
- On the fly reports, charts using Amalga
- Scheduled reports, charts
  - As PDF, Excel, XML or text
  - Sent by email or FTP (File Transfer Protocol)
WHIE ED Linking

Wauwatosa HD Milwaukee-Waukesha Counties Consortium for Public Health Preparedness

Milwaukee Health Department

PDF or Excel Reports to 15 members

Import to PHIN AVR Module (SAS-BI)

ESSENCE II

13 Dead In Midwest Floods; Hundreds Flee
72 hour rolling ED GI illness visits

![GI Emergency Department Visits](chart)

Visit date (begin 72 hour period)

Finding the Patient (if Authorized)

![Finding the Patient](chart)

Unique patient ID with no meaning outside EDLinking

A Reportable Condition?

Lessons Learned

- Build relationships and social capital. Not for those who lack trust in each other!
- First satisfy data providers; keep it simple
- Anticipate large bandwidth and data management
- May choose between front-end and back-end vocabulary standardization
- Exchange can feed secondary information management programs

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