

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

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- SE 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



Office of the National Coordinator Strategic Framework

Wisconsin direction



The screenshot shows the Wisconsin eHealth Action Plan website. The main content area features a map of Wisconsin with the text "Wisconsin eHealth Action Plan" overlaid. Below the map is a Venn diagram with three overlapping circles labeled "Value-based Purchasing", "eHealth Technology Platform", and "Prevention and Disease Management". At the bottom of the diagram is the text "eHealth Care Quality and Patient Safety Board". The left sidebar contains a navigation menu with items like "Home", "About", "News", "Privacy", "Security", "Partners", "Related Links", and "2008 eHealth Im Madison, Colorado June 12, 2008, 8 Register here". The date "August 20, 2008" is visible at the bottom left, and the number "5" is at the bottom right.



- 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

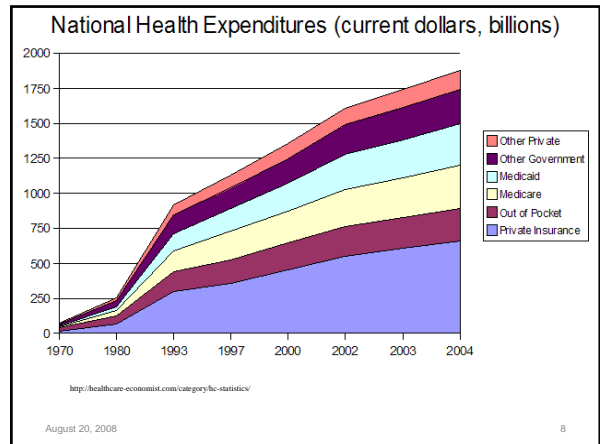
Who was ready to pay? What was easiest to achieve?

Medication reconciliation?

Syndromic Surveillance?

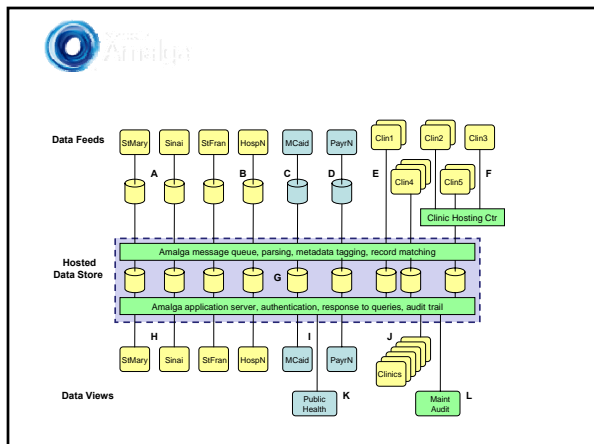
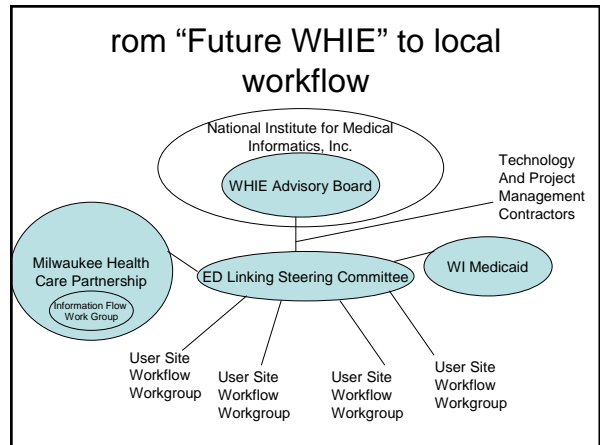
Test results and other document delivery?

Shared view of past care?



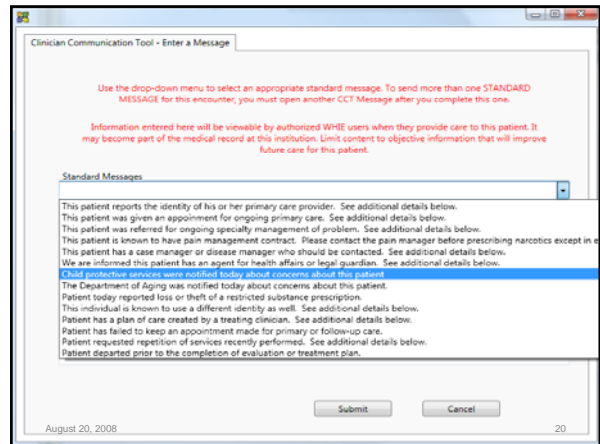
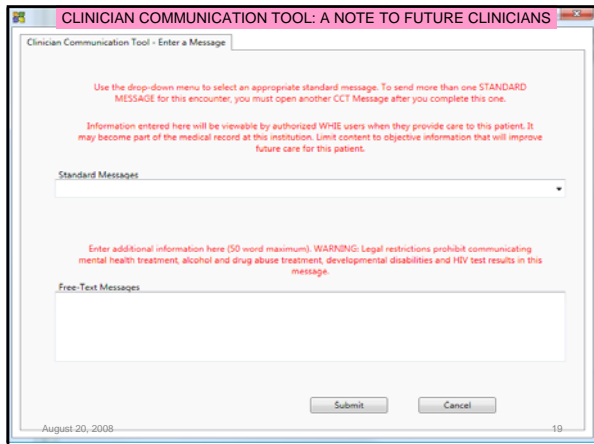
Since economics drives the agenda...

- 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



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

Secretary Hayden Applauds Legislature for Passing Bill to Remove Barriers to Health Information Exchange

Legislation seeks to transition health care delivery in Wisconsin

Secretary Kevin R. Hayden commends the legislature for passing Senate Bill 487, which provides physicians and patients with additional, more reliable information to make important decisions about what health care treatment is best and safest. Both the Senate and the Assembly passed the bill unanimously. It now awaits Governor Doyle's signature.

"Thank you to Senators Eperbach and Representatives Moulton, Hinson, Davis and Benedict for shepherding this bill through the legislative process," Secretary Hayden said. "I also want to recognize all of the stakeholders who worked toward a balanced approach to amending these statutes."

The Department worked for more than 18 months with privacy advocates, health information officers, providers, technology experts and consumers about how to maintain appropriate privacy protections while breaking down barriers to electronic health information exchange.

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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

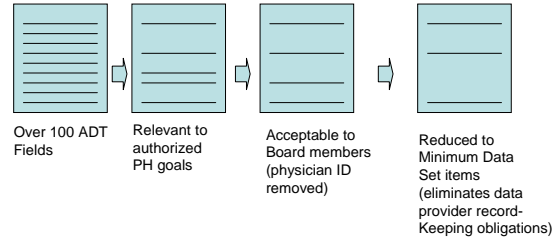
Confidentiality and Security: Public Health Users

- 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 cases 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

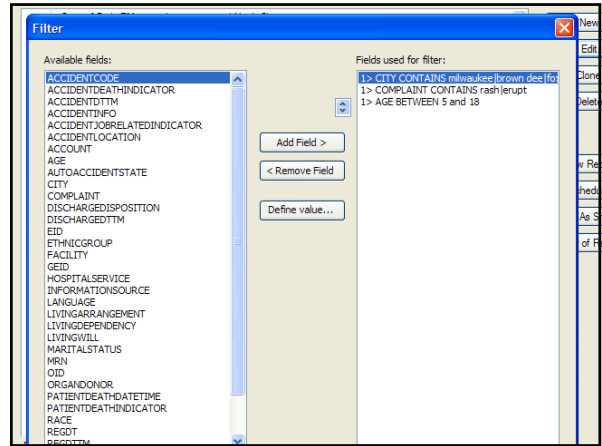
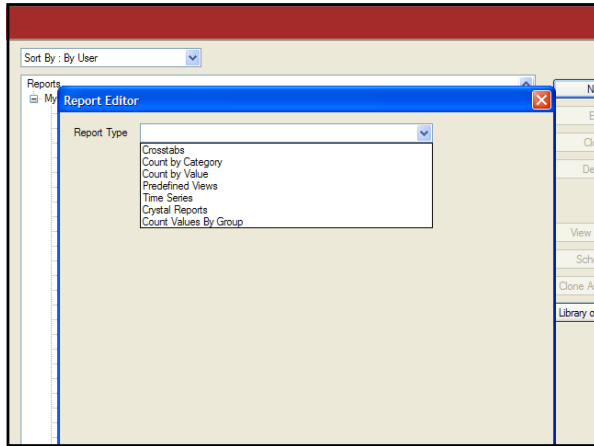
- Real-time screen views of encounters
- Export to Excel, text files
- On the fly reports, charts using Amalga
- Scheduled reports, charts
 - As PDF, Excel, XML or text
 - Sent by email or FTP (File Transfer Protocol)

The Public Health ED event view

Facility	Service	Complaint	City	Zip Code	Age
Columbia St. Mary's - Milwaukee Campus	Emergency Medicine HEADACHE	TRIP FALL	Milwaukee		26 F
Aurora Sinai	EMR	WORK INJURY			30 M
Columbia St. Mary's - Ozaukee Campus	Emergency Medicine ABD PAIN		Mequon		64 M
WFHC St Joseph	Emergency Medicine UNK		MILWAUKEE		18 F
WFHC St Joseph	Emergency Medicine UNK		MILWAUKEE		50 F
Columbia St. Mary's - Columbia Campus	Emergency Medicine PASSENGER IN VVA		Milwaukee		17 F
Aurora St. Lukes Medical Center	EMR	LEFT KNEE INJURY	Milwaukee		60 F
Aurora West Allis Memorial Hospital	EMR	BEE STING/CHALLOON FACE	Hudson		7 M
Columbia St. Mary's - Milwaukee Campus	Emergency Medicine LP SWELLING		Milwaukee		26 F
Columbia St. Mary's - Ozaukee Campus	Emergency Medicine BEE STING ARM		Mequon		64 M
WFHC St Joseph	Emergency Medicine UNK		WAUKESHA		51 M
Columbia St. Mary's - Columbia Campus	Emergency Medicine LT LEG FX SHOULDER		Milwaukee		33 M
Aurora St. Lukes Medical Center	EMR	FALL	Cudahy		84 F
WFHC St Joseph	Emergency Medicine UNK		MILWAUKEE		1 F
Aurora St. Lukes Medical Center	EMR	BILATERAL EYE REDNESS	Milwaukee		2 M
WFHC St Joseph	Emergency Medicine UNK		MILWAUKEE		21 M
WFHC St Francis	Emergency Medicine EVALUATION OF WOUND		MILWAUKEE		60 M
Aurora St. Lukes Medical Center	EMR	RIGHT HIP PAIN	Milwaukee		82 F
Aurora Sinai	EMR	COUGH, RASH	Milwaukee		1 M
WFHC St Joseph	Emergency Medicine UNK		MILWAUKEE		22 F

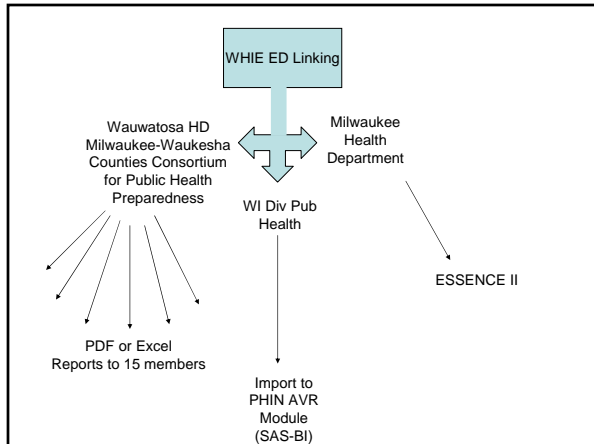
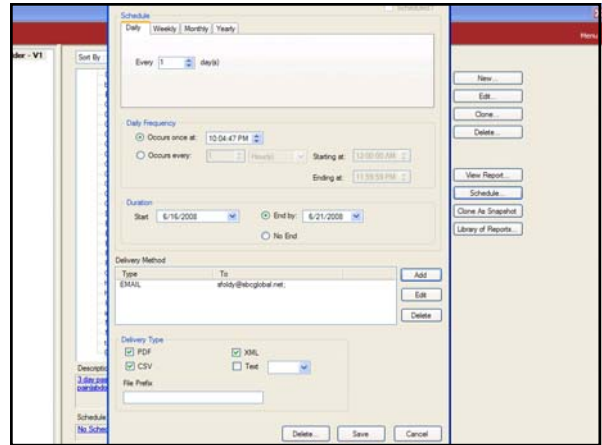
"All events" view (incl. no-shows)

Facility	Service	Complaint	City	Zip Code	Age	Sex	Race	Ethnic Group	Language
WFHC St Joseph	General Medicine	SLEEP APNEA	TECH DR LAC		50	F	White	Not Hispanic or English	
WFHC St Joseph	General Medicine		MILWAUKEE		58	M	African	Not Hispanic or English	
Columbia St. Mary's - FOS Delivered	MATERNITY		West Allis		26	F	White	Non-Hispanic	English
Columbia St. Mary's - FOS Delivered	MATERNITY		Milwaukee		31	F	White	Non-Hispanic	English
WFHC Franklin	General Medicine	OBSTRUCTIVE SLEEP APNEA	DAIR CREEK		35	M	Asian	Not Hispanic or English	
WFHC St Joseph	General Medicine	PRENATAL	MILWAUKEE		20	F	African	Not Hispanic or English	
WFHC St Joseph	General Medicine		MILWAUKEE		58	M	African	Not Hispanic or English	
WFHC St Joseph	General Medicine		MILWAUKEE		40	F	African	Not Hispanic or English	
WFHC St Joseph	General Medicine		MILWAUKEE		29	M	African	Not Hispanic or English	
WFHC Franklin	General Medicine	SNOBING, SLEEP APNEA	WATERFORD		40	M	White	Not Hispanic or English	
WFHC St Francis	General Medicine	CERVICAL AND LUMBAR SP	MILWAUKEE		72	M	White	Not Hispanic or English	
WFHC St Francis	General Medicine	LOW BACK PAIN	SOUTH MILWAUKEE		51	M	White	Not Hispanic or English	
WFHC St Francis	General Medicine		CUDAHY		44	M	White	Not Hispanic or English	
WFHC St Joseph	General Medicine		MILWAUKEE		46	F	White	Not Hispanic or English	
WFHC St Joseph	General Medicine		WALWATOSA		33	F	White	Not Hispanic or English	
WFHC St Joseph	General Medicine		WEST ALLIS		53	F	White	Not Hispanic or English	
WFHC St Joseph	General Medicine	PREGNANCY SIZE AND DATE	MILWAUKEE		32	F	African	Not Hispanic or English	
WFHC St Francis	General Medicine		DAIR CREEK		46	M	White	Not Hispanic or English	
WFHC St Joseph	General Medicine		MILWAUKEE		30	F	White	Not Hispanic or English	
WFHC St Joseph	General Medicine	BREAST CA SCREENING	WALWATOSA		53	F	White	Not Hispanic or English	
WFHC St Joseph	General Medicine		WALWATOSA		42	F	White	Not Hispanic or English	
WFHC St Joseph	General Medicine		WALWATOSA		27	F	White	Not Hispanic or English	
WFHC St Francis	General Medicine		SOUTH MILWAUKEE		39	F	White	Not Hispanic or English	
WFHC St Francis	General Medicine		MILWAUKEE		64	F	Other	Hispanic or Latin	English
WFHC St Joseph	General Medicine		REEDY		33	F	African	Not Hispanic or English	

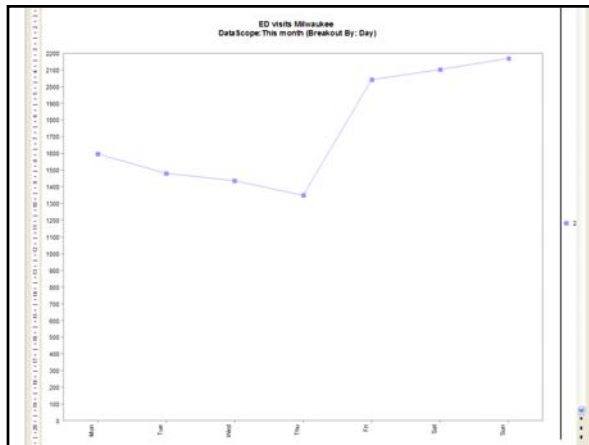
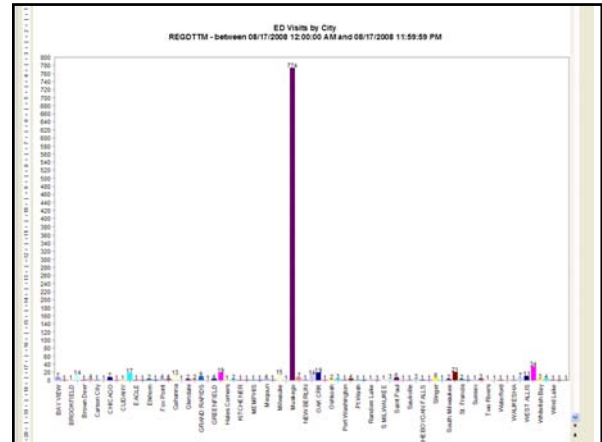
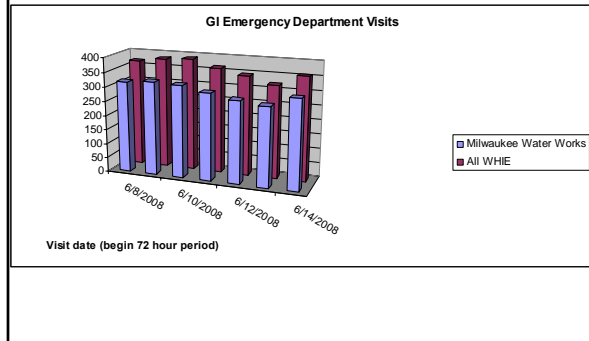


ED visits for rash school age North Shore
REGDTM: between 01/01/2007 12:00:00 AM and 12/31/2007 11:59:59 PM

CITY	WOUND OR SKIN INFECTION	RASH	RASH ALL OTHER CODES	RASH ON ARM	RASH TO HEAD	Total
WISCONSIN	25	25	0	0	0	50
INDIANA	19.44	66.67	3.33	6.66	2.78	100.00



72 hour rolling ED GI illness visits



Finding the Patient (if Authorized)

Unique patient ID with no meaning outside EDLinking

HEALTH DEPARTMENT

A Reportable Condition?

HEALTH CARE

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

Acknowledgments

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- HEI colleagues nationwide in eHealth Initiative Connecting Communities workgroup (<http://ehealthinitiative.org>) and Connecting for Health (<http://connectingforhealth.org>)