Grant ID: 5UC1HS016151

Transforming Healthcare Quality through Information Technology (THQIT)

Inclusive Dates: 09/30/05 - 09/29/08

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- Bayou Teche Community Health Network
- Chitimacha Health Clinic
- Franklin Foundation Hospital Iberia Comprehensive Community Health Center (ICCHC)
- Leonard Chabert Medical Center
- Community Health Systems of Louisiana
- LSU-University Medical Center (UMC)
- LSU School of Public Health
- Office of Public Health Region III
- Partnership for Access to Healthcare (PATH)
- St. Mary Community Action Agency (CAA)
- Teche Action Clinic, Inc. (TAC)

Performing Organization:
Franklin Foundation Hospital – (Lead Agency)
Bayou Teche Community Health Network (ByNet)

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Submitted to:
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Abstract

Purpose: The Bayou Teche Community Health Network has partnered with Franklin Foundation Hospital (Critical Access Hospital), lead grantee agency, in a Service Integration Grant to the Agency of Healthcare Research and Quality (ARHQ) to establish an integrated clinical and human services health information exchange (HIE) for public and private health service providers of residents of St. Mary and surrounding parishes in the state of Louisiana. Safety net providers serving this target area have committed in-kind administrative time and IT staff to complete an intensive three-year implementation process to reach specific goals as described in the subsections following.

Scope: A detailed analysis includes but is not limited to the following key components:

- Connecting existing information systems to allow for 1) sharing population demographic data between systems, and 2) sharing of relevant data elements between medical and social service providers;

- Expanded sharing of information, with demographics, financial and clinical data made available in the following sequence: 1) Franklin Foundation Hospital; 2) Teche Action Clinic; 3) Office of Public Health; 4) Chitimacha Health Clinic; 5) Iberia Comprehensive Community Health Center; 6) LSU Health Services Division member hospitals, and 7) Community Action Agency;

- Creation of medication management system and electronic note writing capability;

- The feasibility of deploying clinical software program currently in operation Partnership in Access to Health (PATH) in New Orleans;

- Creation of credentialing model to allow access to clinical data for physicians in relevant project partner organizations;

- Establishment of information sharing agreements to allow sharing of clinical data among professional and support staff in the project partnership.

Methods: Throughout the duration of the implementation grant, three major components of the HIT-related initiative affecting specific ByNet partners were implemented. One aspect of this process was to assess the potential to leverage one or more of these initiatives as a tool to enhance the HIT capacity of all network partners..

Results: The Service Integration Project's initial implementation phase achieved its primary objective of forming a collaborative functional HIE to facilitate the linking of safety-net providers' existing HIT systems to allow the sharing of patient clinical, demographic and billing data. .

Key Words: none

Final Report

Purpose

The overall purpose of this HIT Service Integration Project is to create a healthcare environment for clinicians of ByNet partner organizations that supports the provision of high quality and safe healthcare delivered in the most efficient manner possible. This implementation phase follows a comprehensive, thorough assessment of the nine organization member sites to include each organization's current IT capacity, electronic infrastructure, analysis of existing software and openness to venders to access and share data, as well as each organization's future IT plan. The three major objectives sought through the project include, 1) Clinical: To increase the coordination of care, thus increasing access; 2) Organizational: To build upon existing assets by developing a system that allows for significantly enhanced clinical and administrative information sharing among ByNet partners; and 3) To enable the ByNet Partners to interface with the emerging Louisiana Regional Health Information Organization. The network consists of the safety-net providers in the St. Mary Parish area, several private providers, and The Bayou Teche Community Health Network (ByNet). The latter organization was engaged to serve as a neutral coordinative broker for the project moving forward.

The first year's goals for the HIT Implementation identified by the ByNet members comprise a significant amount of governance activities. In particular, data sharing, confidentiality and security, and access and credentialing are among the policies identified and implemented in the stakeholders' organizations. With respect to quantitative analyses, baseline measures of manual patient record requests, shared patient populations, and inappropriate Emergency Room (ER) were to be gathered. These metrics serve as a 'Dashboard' for the ByNet partners in future years of the consortium and as quantitative data inputs for measuring the financial sustainability of the effort. Second and third year objectives encompass the following:

- Link existing electronic information systems to a common data repository (these can include OPH, CLIQ, laboratories, individual partners' clinical data from EHR's, etc.)

- Concurrently develop individual ByNet partner steps to EHR, tailoring interventions resource allocation to partners level of readiness, etc. as a result of AHRQ planning

- Create a MPI and system program needed to export and import data from project partner systems

- Go live with LHII sharing of relevant clinical and administrative data across ByNet sites (CAH-> FQHC-> LSU-> TRIBAL CLINIC-> OPH -> BYNET -> (Note: Overall Project Roll Out Noted Extends Beyond AHRQ Implementation)

- Continue to support individual ByNet partners in moving to electronic records, and interface new information sources to the repository as they come on line

- Make enhancements that could include CPOE, referral tracking, links to eligibility screening and network-wide scheduling

- Build and implement the automatic "required disease reporting" component.

Scope

The nine member sites included in the assessment are the safety-net medical and social service providers serving rural St. Mary Parish (eight facilities), the state's Integrated Service Delivery Initiative (ISDI) network grantee and the state's two Healthy Community Access Program (HCAP) grantee organizations. The evaluator's observations of committee meetings, review of reports, survey of project partners, and interviews with key stakeholders all indicate there is a significant level of community support for the Service Integration effort. Further, participants indicated that the planning process was effective and believe that the project has the potential to create an effective system across safety-net providers for sharing some forms of clinical information. Respondents indicated that strict adherence to the Plan-Do-Study-Act (PDSA) cycle must occur and that any incompatibility be addressed prior to further roll-out of the implementation.

The measures to be gathered can broadly be group into three categories; 1) governance and coordination measures; 2) cost measurement and reduction opportunity identification and quantification; and 3) identification opportunities to participate beyond the region in health information exchange. The specific goals related to each category are:

Governance and Coordination Measurement and Action:

1. Vendor selection to develop software able to integrate partners' registration systems into a common intake record system.

2. Baseline measure - Survey of ByNet Partners' health record management and access policies.

3. Baseline measure - Survey of current policies and systems for data back-up/security.

4. Develop a common set of policies among ByNet members for data exchange, provider access and management of protected health information (PHI).

5. ByNet Partners adopt and implement common data exchange policies and procedures.

6. Execution of Memoranda of Understanding (MOUs) and Business Associate Agreements (BAAs).

Potential Cost Savings Base-line Measurements:

1. Baseline measure - Record Request Log audit of partners; Paperwork handling cost survey. Before and After Measure - Reduction in information sharing cost through interoperable systems.

2. Identify the number of shared patients in quarterly among selected provider organizations to identify opportunities for improvements in timeliness of reporting, care coordination and efficiencies.

Identify Opportunities to Expand Regional Health Information Sharing:

1. Identify other regional initiatives (e.g. LaCare RHIO (ONCHIT contract) and LINKS, CLIQ, CPSI, Pharmacy).

2. Prioritize other RHIO initiative relationships to be pursued.

3. Monitor other initiatives' sharing models and specifications to be integrated into the ByNet effort.

4. Baseline measure - Inappropriate (ambulatory sensitive conditions) ER visits (FFH, UMC & Chabert).

5. Establish business plan for maintaining shared interoperability beyond grant period.

6. Number of grant applications submitted and funded.

Methods

Background

ByNet has developed a health information exchange (HIE) allowing caregivers within its immediate collaborative network a summarized view of a patient's recent health history. The initial phase of the implementation provided authorized caregivers an online view of a patient's demographics details and recent encounters including the dates and locations with narrative diagnoses and procedures. This patient information is printable as a PDF and can easily be attached to a paper chart to support a care episode. As additional patient care occurs in the ByNet community, the patient's demographics and encounters are updated to reflect this new information. In subsequent phases, the patient view includes additional clinical details regarding the patient such as discharge summaries, medications

prescribed, lab results from local facilities and national references labs, allergy and adverse reaction details, and radiology transcription reports.

Process

As a first step in developing the ByNet HIE, Browsersoft requested demographic and encounter data extracts or reports for patients beginning with discharges on or after January 1, 2006. Based on the preference of the submitting organization, Browsersoft established either a Secure File Transfer Protocol (SFTP) site or an https site for uploading this data. Once Browsersoft received this data, it was loaded to a repository and the process was begun of organizing the data to match patient demographic records between the various submitting providers. This process is referred to as populating a record locator service to allow caregivers to quickly find a patient's multiple records in a community repository.

In the circumstances of community providers not wishing to submit patient encounters or other clinical data to a centralized repository, Browsersoft can support a federated query on a just-in-time basis of a clinical repository or other local database provided by this organization. This edge server or federated approach still requires the submitting organization to provide demographic data to the record locator service to support the query process.

To support the need to keep demographic and encounter data current, Browsersoft works with the participating providers to refresh or update the patient data on either a daily (preferred) or a weekly (manual) basis. Browsersoft supports a number of different processing for these updates based on the capabilities of the provider. One option is to develop a daily or weekly report or extract to capture demographic and encounter updates since the last data submission. This report may be generated using an automated scheduling system that moves the output to a designated, secure location for Browsersoft to retrieve. Another option is to implement an HL-7 ADT messaging process that pushes new events to Browsersoft in a real-time or batch mode. The ADT approach usually requires the submitting organization to purchase this interface from their hospital or practice management system vendor.

For subsequent or future expansion phases, Browsersoft will work with participating providers to determine the best approach for capturing additional patient clinical details such as discharge summaries, medications, lab results, allergies, and radiology reports. Options for collecting this data include additional reports or extracts, HL-7 interfaces, and other transaction standards supported by the Health Information Technology Standards Panel (HITSP).

File Specifications – Updated 01.31.2008

ByNet participating facilities must review the attached file format and respond with specific questions prior to attempting to develop these extracts. Each provider is requested to populate all extract data in the order designated and return the data in a pipe or comma-delimited format. Questions and exceptions for developing this output are directed to the IT Supervisor at ByNet. The following is a description of what a patient record file consists of:

Table 1. Patient Demographics – one record per patient

Field	Usage	Notes/Situation
Medical Record Number	Required	
Patient Last Name	Required	
Patient First Name	Required	
Patient Middle Name or Initial	Situational	If this is a discrete field, otherwise include with first name
Suffix	Situation	If available
Patient Maiden	Situational	If available
Patient Alias	Situational	If available
Patient Social Security	Situational	If available
Driver's License or ID Card Number	Situational	If available
Patient Date of Birth	Required	Any format
Patient Address line 1	Required	
Patient Address line 2	Situational	If available
Patient Address line 3	Situational	If available
Patient City	Required	
Patient State	Required	
Patient Zip	Required	Send zip + 4 if available
Patient Home Phone	Situational	If available
Patient Work Phone	Situational	If available
Patient Emergency Contact Phone	Situational	If available
Patient Employer	Situational	If available
Ethnicity	Situation	If available
Last Update Demographic Record	Situational	Include if available

Table 2. Encounter data – one record per encounter

Field	Usage	Notes/Situation
Medical Record Number	Required	
Patient Account Number		Specific to an episode of care
Patient Last Name	Situational	If available in this record
Patient First Name	Situational	If available in this record
Patient Middle Name or Initial	Situational	If this is a discreet field, otherwise include with first name
Patient Date of Birth	Situational	If available in this record
Admission Date	Situational	For inpatients
Discharge Date	Required	Date of service for outpatient encounters
Primary Insurance Type Code	Required	Type of Insurance, (i.e. Medicaid, Medicare)
Primary Insurance Name	Required	
Principal Diagnosis	Situational	ICD-9
E-code Diagnosis	Situational	Required whenever a diagnosis is needed to describe an injury, poisoning or adverse effect
Patient Reason for Visit Diagnosis	Situational	Patient Reason for Visit Diagnosis is required for all unscheduled outpatient visits
Diagnosis Related Group (DRG)	Situational	DRG Information is required when an inpatient hospital is under DRG contract with a payer and the contract requires the provider to identify the DRG to the payer.
Additional Diagnosis Codes -1	Situational	ICD-9.
Additional Diagnosis Codes -2	Situational	ICD-9.
Additional Diagnosis Codes -3	Situational	ICD-9.
Additional Diagnosis Codes -4	Situational	ICD-9.
Principal Procedure Information	Situational	CPT-4, HCPCS
Additional Procedure Codes -1	Situational	CPT-4 HCPCS
Additional Procedure Codes -2	Situational	CPT-4, HCPCS
Additional Procedure Codes -3	Situational	CPT-4, HCPCS
Additional Procedure Codes -4	Situational	CPT-4, HCPCS

Results

The evaluation was performed by Dr. Eric Ford of Tulane University's School of Public Health and Tropical Medicine. Evaluation methods included reviews of project documentation, a participant survey, in-depth interviews with key stakeholders, and observation of several planning meetings. The *Service Integration Project's* first year of the implementation phase by-in-large-achieved its primary objectives. In particular, the network partners were able to, coordinating and harmonizing the governance structures related to personal health information, adopt the appropriate MOUs after being reviewed by constituents' legal departments, which has improved the partners' health information infrastructures. With respect to the evaluation goals related to demonstrating the cost effectiveness of the effort, the partnership was able to identify gaps in key partners' data gathering systems and institute changes to allow for the effective gathering of baseline data – albeit later than anticipated. The status of each goal indicated above is described in detail.

Governance and Coordination Measurement and Action

1. Select vendor to develop software able to integrate partners' registration systems into a common intake record system. Scientific Technologies Corporation (STC) was retained beginning October 1, 2006 with a contract running through September 30, 2007. The specific tasks agreed to include administrative support and consultation in the areas of:

- Building a Regional Health Information Organization ("RHIO") technology system including necessary integration per STC Requirement Document ("Requirements")

- Overall project cohesiveness

- Project implementation strategy

- Communication linkages to relevant Health Information Technology (HIT) initiatives in the state and nation / partnership development

- Sustainability and business planning and coordination assistance

- Documentation of program outcomes, publication of findings as a part of final acceptance document pursuant to this contract

The contract explicitly delegated many of the substantive goals of the first year to STC.

2. Baseline measure - Survey of ByNet Partners' health record management, technology, and access policies.

3. Baseline measure - Survey of current policies and systems for data back-up/security. The ByNet members agreed, in the MOU, to harmonize their policies to the agreed upon standards. The final MOU is contained in the attachments sent to the Project Officer.

4. Develop a common set of policies among ByNet members for data exchange, provider access and management of protected health information (PHI). STC and ByNet coordinated and successfully concluded these negotiations with the partners. At the end of the contract term the Project Management Team, with the network partners' endorsement terminated the relationship with STC and sought a new vendor, Browsersoft, Inc., which introduced a product known as OPENHRE, an open source system of data sharing. The efforts initiated through the relationship with STC, continued through Browsersoft with only minor modifications due to the different system approach. The summary of requirements from all ByNet partners and associates are:

- Patient demographic, guardian and insurance information is very important to all partners sites; All partner sites could benefit from a directory of services based on geography, how patient fits the program's qualifications, etc;

- All partner sites expressed interest in GIS capabilities to demonstrate the special needs in certain geographic areas within the ByNet covered territory and for Emergency Preparedness planning.

- All partner sites strongly expressed the desire that the patient medical record store the following information from all of the ByNet participating sites:

  - Medical procedure documentation and discharge diagnosis

  - Medications given to the patient and any adverse reaction to them

  - Laboratory results

  - Digital X-ray images (when available) and radiologist's impression

  - Consent forms signed at the participating facilities

  - Dietary /nutritional recommendations.

- Requirements were expressed about keeping patient information secure.

  - Most partners were concerned about HIPAA and procedures / mechanisms to protect the security of the data.

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- Concerns were expressed and explanations requested about the data transfer process, the ease of that transfer and merging patient records into a central location.

5. ByNet Partners adopt and implement common data exchange policies and procedures.

6. Execution of Memoranda of Understanding (MOUs) and Business Associate Agreements (BAAs). The final MOU is contained in Appendix B. To date, four partners have officially signed the MOU and have been actively engaged in the data sharing process. Two additional partner sites are in position to sign the MOUs, namely the Louisiana State University's Charity System, which encompasses the Leonard J. Chabert and University Medical Centers. The exigencies associated with Hurricanes Katrina and Rita previously, and more recently Hurricanes Gustav and Ike caused a significant delay in getting the legal department of the LSUHSD to finalize the agreement. The delay is not considered to be problematic as the technical and leadership components of those organizations continue to work with the project in a positive manner.

Potential Cost Savings Base-line Measurements

1. Baseline measure - record request log audit of partners; paperwork handling cost survey. before and after measure - reduction in information sharing cost through interoperable systems. During the formative focus group, ByNet partners indicated that their organizations kept detailed record request logs that could be used in the record request audit activity.   An email was sent by the Evaluation Team to ByNet partner IT contacts, requesting their assistance in providing copies of their patient record request logs for the period of January 22-28, 2006 (7 days). The email also requested a tally of the partners' total record requests for the year 2005.

When no responses were received by the deadline, a member of the Evaluation Team attended the Vendor Contract Initiation Meeting in an effort to answer any questions from the ByNet partners regarding the request for information. Personal visits to partner facilities also were made to attempt to collect the logs. Those visits and subsequent communication with several partner organizations revealed a wide disparity of tracking record request activities, few of which were gathering data appropriate to the study. To address this obstacle, the Evaluation Team developed a tracking instrument for use by the partner health information departments to capture the appropriate data required for the baseline measure. See Appendix C for the data collection instrument.

2. Identify the number of shared patients in quarterly among selected provider organizations to identify opportunities for improvements in timeliness of reporting, care coordination and efficiencies. Please see comment above.

Identify Opportunities to Expand Regional Health Information Sharing

1. Identify other regional initiatives (e.g., LaCare RHIO (ONCHIT contract) and LINKS, CLIQ, CPSI, Pharmacy). Please see Appendix D for a complete list of state projects related to health information exchange.

2. Prioritize other RHIO initiative relationships to be pursued. In the aftermath of Katrina, the Statewide Transformation Grant and LaHIE projects are clear, natural partnerships. The project PI's are in contact with the leadership of both efforts. The evaluation team is also integral to those other projects in varying capacities and gives regular updates on their progress.

3. Monitor other initiatives' sharing models and specifications to be integrated into the ByNet effort. With respect to the shared governance, MOU, and BAA processes, the LaHIE project has evolved in a manner that is largely compatible with the ByNet effort. As to the technical components, Oracle was contracted by LaHIE to develop the interface and the progress on that portion of the project has experienced some difficulties. It is unclear what the implications of those developments are for building an interoperability capability across the state.

4. Establish business plan for maintaining shared interoperability beyond grant period. The state of Louisiana in partnership with insurers (most notably Blue Cross / Blue Shield) is developing business models to facilitate the expansion of health information exchange. The ByNet partners are interacting with LaHIE and other state representatives to see how they might engage. As part of this demonstration, ByNet is attempting to demonstrate the cost savings across the community to ensure continued participation by the key stakeholders.

5. Number of grant applications submitted and funded. The ByNet organization has submitted two grant applications. The first is the *Project Outreach* application which has been submitted to the Louisiana State Access Initiative. The purpose of the proposed project is to expand ByNet's existing efforts to increase access to prescription drugs for under- and uninsured residents of the St. Mary, Iberia, Vermilion and Terrebonne Parish region. This task will be met by leveraging additional support to gain patient access to such services by providing enhanced patient access to a broader variety of prescription assistance opportunities through partnerships with various entities and providers. Additionally, ByNet will expand its services to target the younger, nontraditional working class, low-income under- and uninsured population not directly targeted in the past. ByNet is requesting a sum total of $50,000 in State of Louisiana funding for the purpose of implementing the proposed project.

The second, funded application is to The Department of Health and Human Service's Health Resources and Services Administration (HRSA) as part of the *Rural Health Care Services Outreach Grant Program*. The funding amount is for a $375,000 and for the period of May 1, 2006 through April 30, 2009.

Summary of ByNet's Three Year Accomplishments

Year 1.

1. Established a Governance Team to regulate the overall function of the data exchange among the partners and to establish policies in the case of system breaches

2. Visited partner sites to collect information on site procedures

3. Establish a procedure for data sharing based on information collected from partner sites

4. Establish a policy for data backup and the significance of having a system that has the ability to be accessed from two location (one being the backup location, accessible via the internet)

5. Reconfirmed the need to share information between partner facilities

6. Accessed each partners level of involvement and commitment

7. Created an Information Sharing Agreement for all ByNet partners

Year 2.

1. Transition from a proprietary system to the open source software system

2. Loaded the server with the database for record access

3. Established a method of gathering data

4. Identified 3 partner sites for information sharing

5. Revised the information sharing agreement to accommodate the Initial Production Sites

6. Identified a method of cost saving through the de-duplication of services process

7. Established a set of operating procedures for

8. Developed training manual for use of the ByNet HIE

9. Identified additional components to include in the data exchange (imaging and pharmacy information)

10. Secured a T1 line to access the ByNet server at a more accelerated speed

11. Established a secure data upload for our partners to upload their patient data to the secure ByNet server

12. Developed a successful test site for information sharing

Year 3.

1. Established a go-live date

2. Developed a list of users

3. Held training sessions for users

4. Purchased equipment for the patient intake process

5. Developed a consent document for patient sharing

6. Developed a security document for governing use of shared patient information

List of Publications and Products

1. ByNet Memorandum of Understanding, "Attachment C" (To ByNet Original Memorandum of Agreement); Governance Document; ByNet Governance Committee/Board of Directors (Including Franklin Foundation Hospital); Document available for viewing as electronic attachment

2. ByNet HIE Governance Committee Operating Guidelines; Governance Document ByNet Governance Committee/Board of Directors (Including Franklin Foundation Hospital); Document available for viewing as electronic attachment

3. ByNet Business Associate HIPPA Agreement; Governance Document; ByNet Governance Committee/Board of Directors (Including Franklin Foundation Hospital); Document available for viewing as electronic attachment

4. ByNet OpenHRE Patient Finder Training Manual, Version 1.0; Governance Document; ByNet Governance Committee/Board of Directors (Including Franklin Foundation Hospital); Document available for viewing as electronic attachment

5. ByNet Patient Consent Form; Governance Document; ByNet Governance Committee/Board of Directors (Including Franklin Foundation Hospital); Document available for viewing as electronic attachment

6. ByNet OpenHRE Architecture Design Document; Governance Document; ByNet Governance Committee/Board of Directors (Including Franklin Foundation Hospital); Document available for viewing as electronic attachment