

Grant Final Report

Grant ID: 1 P20 HS014908-01

El Dorado County Safety Net Technology Project

Inclusive dates: 09/30/04 - 09/29/05

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Abstract

Purpose: The purpose of the El Dorado County Safety Net Technology Project is to develop an infrastructure enabling El Dorado County to coordinate patient care among multiple providers, improve information flow among providers, and support research data and provide outcome analysis. HIT will improve both the tangible processes for patients and distribution of information for providers and patients.

Scope: Much of the scope of planning focused on the need to implement a means to share clinical data between the providers of medical care and ancillary services. As a result of the information collected, the planning process was structured around a small focused set of applications and HIT services to be provided.

Methods: Methods used to gain understanding for the requirements of El Dorado County: Interviewing selected providers, hospital staff, county organizations, Conducting brief inventory of current technology, Identifying provider support alternatives

Results: Implement networked Care Connections Program to provide “medical home” and improved medical services to low income/minority, uninsured and/or publicly-insured residents. Implement county-wide technology infrastructure that permits high speed connectivity and interoperability amongst the disparate data sources needed for patient care.-Implement system based upon Master Patient Index (MPI) containing shared demographics amongst providers. This MPI can be expanded to create basic EHR capabilities and clinical data sharing for providers of care to the un and under-insured population. Implement a system of electronic prescription writing.

Key Words: Care Connections, Electronic Health Record (EHR), medical home, connectivity, electronic prescription writing, uninsured, underinsured

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Final Report

Purpose

The El Dorado County Safety Net Technology Project's purpose was to integrate the Network's "Access Product", a three pronged approach to: 1) Provide outreach and enrollment for children eligible for public insurance 2) Provide access for those children not eligible for public insurance, up to 300% of the poverty level, and 3) Access to healthcare to those families employed by local small businesses unable to provide coverage for their workers. Specifically, the objectives of the Planning Grant was to 1) Strengthen the Network by: ensuring appropriate leadership and staffing; strengthening relationships, team work, and working efficiencies of the Network members; Identifying and accessing other appropriate initiatives to further expand/enhance the Network to increase patient safety. 2) Achieve efficiencies within the Network by expanding/enhancing the Network's business/strategic plan. 3) Develop a comprehensive plan for HIT implementation/integration among the Network to promote and improve patient safety/quality of care by: Providing specific clinical and organizational needs that can be met through HIT; Assessing feasibility of HIT implementation; Defining Project parameters; Developing the implementation plan; Specifying procedures for ongoing evaluation and feedback. By the accomplishment of these objective the Network identified the most beneficial and feasible technology to integrate HIT with the Access Product which will increase patient safety/quality of care for the uninsured and underinsured in El Dorado County.

Scope

In 2002 the El Dorado County Board of Supervisors convened the Health Alliance to undertake a community needs assessment and to develop recommendations for health initiatives to be funded by Tobacco Master Settlement dollars. In 2003, this money was leveraged and the County received a three year grant from the federal Health Resources and Services Administration earmarked for improving access to medical care for individuals, particularly children, and the uninsured and underinsured in El Dorado County. This led to the formation of ACCESS El Dorado (ACCEL), with the vision to "Unite all our resources: connecting and committing to a healthier community." At this time, the components of ACCEL are:

- Provider Capacity efforts that focus on ways to reduce the barriers that currently make it difficult for providers to accept new patients, expand their capacity, and support improved quality and safety
- A Children's Health Initiative to enroll and retain children up to 300% of Federal Poverty Level using an enhance array of health insurance options

- A Small Business effort that brings businesses together to look at creative healthy workforce solutions, and
- A health Information Technology (HIT) effort to conduct county-wide technology assessment and strategic plan

One of the components of ACCEL was to insure that this endeavor had the appropriate type and level of health information technology (HIT) support. The HIT capabilities needed to include those systems and applications that are necessary for coordination and delivery of care, as well as connectivity and communication between the members of the county-wide health care community. The ACCEL team determined that it did not have the information technology knowledge and experience to perform such HIT planning internally. As such, they contracted with Daou Systems, Inc. to assist with the IT planning efforts and the development of the Strategic IT plan.

The participants included the Safety Net Provider Network members which include:

- Marshall Medical Center (Marshall)
- Barton Healthcare Systems (Barton)
- Barton Memorial Community Clinic (rural clinic)
- El Dorado County Department of Public Health (PHD)
- El Dorado County Department of Mental Health (MHD)
- El Dorado County Department of Human Services (HS)
- Job One
- First 5 El Dorado – Children’s & Families Commission
- Shingle Springs Tribal Health Program
- El Dorado County Community Health Center (FQHC)

Methods

The focus of the planning efforts became more than technology and included three major components:

- a. What was the current state and use of technology in the county
- b. What applications would be required to support ACCEL in the future
- c. How and when would the systems and applications be implemented and supported

One of the key factors considered during this planning process was the need to be realistic and practical about what technology could be implemented and supported over a reasonable period of time. That is, make certain that the HIT efforts can be divided into a series of small (or at least smaller) activities that will provide value as each are implemented but continue to build to the larger final outcome. Through a combination of interview, surveys, and meetings, the ACCEL team, with guidance from the Daou consultants, developed a strategy and approach to providing HIT support for ACCEL.

The following activities were undertaken in order to gain an understanding and appreciation for the requirements of El Dorado County.

- Interviewed selected county providers
- Interviewed selected hospital staff
- Interviewed selected county organizations
- Conducted brief inventory of current technology environment
- Identified provider support alternatives

As a result of the information collected from these activities, the planning process was structured around a small, focused set of applications and HIT services to be provided by ACCEL.

Applications

- Most survey participants have some form of system automation (billing, registration, appointment scheduling)
- Heterogeneous application environment with very limited commonality among ACCEL participants

- Five organization have an EMR implemented
 - Two additional organizations have plans to acquire an EMR within the next 18-24 months
 - One organization has Logician EMR implemented and it will be expanded to serve a majority of medical practices in South Lake Tahoe

Hardware

- Most participants have some servers installed locally
- Smaller organizations have a combination of limited in house computing capability (PC's/servers) and remote hosting of their applications
- Marshall, Barton , Office of Education, and El Dorado County Information Services Departments have data center and WAN capability to potentially host ACCEL applications

Results

Both of the hospitals in El Dorado County, Marshall in Placerville and Barton in South Lake Tahoe, participated in providing information. The following key items emerged from these discussions:

- There are differences between the hospitals in their approach to HIT
- Significant capital limitations & non-HIT commitments exist at both institutions
- Different philosophies exist regarding physician practice relationships (Barton pays physicians to staff its Community Center, while Marshall has no such relationship with the Divide Wellness Clinic).
- Strategic HIT planning is currently underway at Marshall; Barton has an HIT strategic plan, which has recently been updated.
- Each hospital takes great pride in its independence and exercise a strong sense of responsibility in their respective communities. Because of very little patient overlap due to geographic issues, lack of coordination is not big issue in care coordination. ACCEL can be a process to modify this, as desired.
- There are significant differences in the patient base served by each hospital.

- Both hospitals express willingness to consider participation in a community-wide HIT infrastructure

Highlights from County Organization Interviews

- No technology program coordination is present among/between county departments (silo-like), but there is some technical coordination between the departments.
- Departments are often influenced by state (and federal) requirements for systems and funding.
- No overall strategic technology plan exists for El Dorado County
- Most Departments are in the process of moving to new/different technology systems & platforms, without consideration of other Department's needs.
- There exists a narrow focus on specific health or social problems rather than a holistic view of the patient, family, etc. (Mental Health vs. Child Welfare vs. etc.)
- There are significant capital & cash flow needs.
- There is a significant geographic dispersion between the Departments, amplified by the bimodal characteristics of the County (eastern vs. western slopes). The County Departments on the western slope are spread over a wide area, each occupying its own set of building in some cases miles from any other. The primary operational centers are all on the western slope, with small or minimal satellite presences on the eastern slope in South Lake Tahoe.

Key Findings and Observations

- All of the provider organizations are in different stage of both use of and planning for the use of information systems.
- The lack of comprehensive strategic HIT plans creates significant difficulty in trying to create an effective overall infrastructure and may miss opportunities for beneficial group negotiations with vendors, health plan, and funding sources. This may also limit the ability to maximize HIT capabilities in the county.
- Successful models exist elsewhere (Oregon, Austin, and Santa Cruz County) would indicate effective alternatives do exist.
- There is no “right” answer, only intelligent choices, commitment, & appropriate implementation strategies will lead to success.

Functional Requirements and Capabilities for Clinical Information

Much of the planning process focused on the need to implement a means to share clinical data between the providers of medial care and ancillary services. As such, an emphasis was placed on defining the types of clinical information that could be shared. Much of the body of this document focuses on that clinical information and how to share it. As the document progresses to discussing staffing, budgets, and next steps, it will address the clinical information support as well as other applications and services to be provided by ACCEL.

Following a series of meetings of the Safety Net Provider Network (SNPN) and ACCEL Provider Capacity committees, the following was determined to be the minimum set of requirements for any application selected to support ACCEL operations:

1. Person information
 - a. Demographics
 - b. Eligibility
 - c. Coverage
 - d. Special needs
 - e. Social/Family (history, other programs, etc.)
2. Clinical Information (EHR)
 - a. Person Identification
 - b. Reason for visit
 - c. Problem list (current, chronic)
 - d. Allergies
 - e. Test results (lab, radiology, etc.)
 - f. Medications (current, prior)
 - g. Visit history (who, when, what)

- h. Visit summary/notes
- i. Personal health record
- 3. Clinical System (EMR)
 - a. Computer Physician Order Entry (CPOE)
 - b. Guidelines/recommendations
 - c. Interactions (drug-drug, drug-food, drug-condition)
 - d. Decision support/intelligence (prompts, warnings, alternative recommendations, etc.)
 - e. E & M coding including recommended level
- 4. Technical
 - a. HL7 interfaces
 - b. Non-standard interfaces
 - c. Web access
 - d. Reconciliation with ambulatory and facility EMR/EHR
- 5. Reporting & Analysis
 - a. Data mining
 - b. Management data & reporting

We realize that all applications and technologies must consider and be in compliance with the security and privacy laws.

A number of efforts similar to the one planned by ACCEL have been considered and implemented by other organizations (counties, regional consortiums, local communities). This provided us with an opportunity to examine the varied technical and application approaches that have been used by those organizations.

A number of different models for sharing clinical information were considered, ranging from a single, comprehensive system used by all participants to separate, disparate systems that only exchange data with specific point to point connections. Each of these models offers various strengths and weaknesses. The most likely, and probably most realistic, model for ACCEL to implement is one that: 1) supports the separate solutions from each partner organization, 2) provides a MPI of all persons in the county, and 3) allows sharing of appropriate clinical data electronically to those providers that need the information. This model will provide a core solution that can be used for those entities that do not have their own internal applications, but

will also provide the ability to interface to and exchange data with organizations that have or in the future acquire their own systems. That said, the clinical data solution for ACCEL will have at least these characteristics:

- ACCEL will acquire a solution that will provide an index to electronic data available in the county
- A County wide MPI will be implemented
- The solution will include a native capability to store at least a basic set of demographic and clinical data
- Clinical data will be shared between the ACCEL solution and the various EMR's used by the provider organizations in the county
- Web based access (requiring no footprint on the desktop)

No matter what solution is chosen, these are likely issues and considerations:

- A phased implementation will be necessary, both by location and by function. This will allow ACCEL to implement technologies in a controlled manner, insuring that the appropriate levels of support can be provided
- A governance process to control and manage the enterprise, systems, and activities will be required. This will be necessary to address such topics as:
 - Financing (both initial and on-going)
 - Legal issues (data sharing, MPI, HIPAA compliance, uniform patient release, etc.)
 - Ownership of applications, equipment and process
 - Provide a vehicle for contracting with vendors
- Agreements regarding data access and sharing will need to be developed in order to insure that the appropriate private and security regulations are followed
- The project must consider the ability and willingness of providers to participate and effectively address their needs and concerns so the systems can provide the most benefit to the providers as well as the patients
- The HIT solution must be able to co-exist with the current and planned HIT solutions of all involved organizations. ACCEL solutions will not exist in isolation: the ability to interface to other applications is critical.

Clinical Information Vendor Alternatives

One of the key supporting mechanisms for the ACCEL initiative is the ability to share clinical information about the people being serviced by the provider organizations. Several possible types of vendor solutions were examined by a clinical provider work group during this planning process. While the purpose of the HIT strategic planning process was not to perform a procurement, examination of a sampling of vendors provides an opportunity to explore different approaches and degrees of functional richness. Proposals from additional vendors are planned as we move to the procurement stage.

Implementation Effort

The discussion of the design and methods of the ACCEL project implementation effort focuses on four overall objectives:

Care Connections (Objective 1). By July 31, 2006 implement a networked Care Connections Program to provide a “medical home” and improved medical services to 16,479 low income/minority, uninsured and/or publicly-insured El Dorado County residents. This portion of the ACCEL project is patterned on the principles of chronic care in rural communities developed by E.H. Wagner¹ and targets those who have Medicaid; other public insurance coverage or not coverage, with or without a “medical home. Through a technology supported system, our grant partners in concert with the Care Connections staff will develop an organized system of interventions to support improved outcomes for patient health care and to foster provider willingness to care for publicly-insured patients.

County-Wide Technology Infrastructure (Objective 2). By December 31, 2006 implement a county-wide technology infrastructure that will permit high speed connectivity between participating organizations. This will include not only the technology backbone but also a vehicle for medical service providers to purchase equipment and provide a data center for the required centralized equipment. The ACCEL project will establish the technology infrastructure that will enable connectivity, clinical data sharing, and communication. This will include three separate but related components as follows:

1. Define “standard” PCs, (desktop and notebook)
2. Establish a standard high speed connection between ACCEL project partner organizations, using connectivity via the Internet.
3. Establish a data center for housing and supporting the centralized equipment that will be acquired.

This technology infrastructure will enable the implementation of information systems acquired by the ACCEL project that will support care coordination, clinical data sharing, and capture of county-wide clinical information. Even prior to the implementation of those applications, the infrastructure will promote the ability of providers to communicate via email. Finally, the development of “standard” equipment and telecommunication access at a reduced

cost will provide incentive to the individual and small physician practices to purchase equipment that will allow them to participate in ACCEL project sponsored initiatives.

Electronic Health Records (EHR) Capabilities (Objective 3). By December 31, 2007 implement a system with basic EHR capabilities and clinical data sharing via county-wide connectivity among the main providers of medical services in El Dorado County (Barton, Marshall, Public Health Department, Mental Health Department, FQHC and rural health clinics). By September 30, 2008, extend the basic EHR system to all providers interested in participating in the program (estimated to be at least an additional 30 private practice physicians). This EHR will provide a means to collect the electronic clinical and demographic data capture in the EMR solutions used by providers and share that data with other providers in the county. Two specific targeted sub-goals of this objective are:

1. Implement networked EMRs between local physicians and off-site specialty care physicians to monitor medical services not available in the rural service area.
2. Implement a networked system of timely/accurate reporting of communicable diseases between the El Dorado County Public Health Department and all county medical services providers

Electronic Prescriptions (Objective 4). By September 30, 2008 implement a system of electronic prescription writing for providers in hospitals (2), FQHC/rural clinics (3), Public Health Department clinics (2), Mental Health Department clinics (2), private physicians (30), and the county-wide pharmacies (23), either as separate application or a component of the basic EHR solution. With the implementation of a technology infrastructure and the clinical connectivity application, the ACCEL project will be positioned to introduce an electronic prescription writing application.

Conclusion

As a result of the Agency for Healthcare Research and Quality's Transforming Healthcare Quality Through Information Technology Planning Grant, El Dorado County has been able to develop a Strategic Information Technology plan that addresses a broad range of IT support and services; Care coordination support, EHR support, and Script writing, as well as the underlying technical infrastructure and IT staff support. As we move into the Implementation stage, continued support from the Agency for Healthcare Research and Quality and their resources, as well as the active participation of our healthcare community will be integral to our success.

List of Publications and Products

1. Wagner EH. Chronic Illness Management: What is the Role of Primary Care? *Ann Intern Med* 2003; 138: 256-61.