MHC Healthcare
quality healthcare with a heart

A. Cover Sheet

- *Name of Organization/Lead Applicant*

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- *Date applying to ASET*

  November 16, 2012

- *Total dollar amount requested*

  $100,000

B. Grant Application

1. Project Description and Partner Relationship/Collaborative Structure

Organizational Description:

The Marana Health Center, Inc. (MHC) has been an active participant in health information exchange activities in Southern Arizona for the past four years. Currently we are a key member of the area ACO, working jointly toward the integration of health information services across common patient populations. MHC is supportive of both the state health information exchange (HIE) and REC efforts and expects to continue to collaborate and provide leadership in health information exchange as the HIE expands.

There are two components of our proposed request:

- Component 1 – Plan and implement an information exchange between the Arizona Department of Health Services (ADHS) and MHC to establish an early success with healthcare data exchange to include providing more complete immunization records to MHC patients through a patient portal.
- Component 2 – Develop a Strategic Plan for unconnected healthcare providers in the Southern Arizona ACO to facilitate transitions of care sharing Patient Summary Records between the Federally Qualified Health Center, MHC, and Tucson Medical Center (TMC), an acute care hospital. Test the feasibility of the plan through a pilot implementation project.

Geographic area and demographics of population served:

MHC serves a large rural population in Northwest Pima County Arizona. The primary service area covers over 600 square miles. In addition to its primary service area, MHC has twelve satellite clinics to provide family practice services to serve low income families on the north, central and east sides of Tucson, Arizona. MHC's combined services area has a total population of 271,890 patients, with over 108,000 outpatient clinic visits annually. There are no other medical providers in this rural area and the entire area has been designated a Health Professions Shortage Area (HPSA) and a Medically Underserved Area (MUA). Approximately 48% of the total served population either have no health insurance or are enrolled in AHCCCS. The overall average income in our total service area is low, with 53% of the households having incomes below 200% of the FPL. Factors having the most significant impact on the health status of residents of these areas include the large shortage of physicians and physicians willing to take AHCCCS, the state Medicaid program, and the low income level of the families.

Although the above information is the average for our service areas, there are several locations served by MHC where the percent of low income families is much higher. A breakdown of these statistics by individual health centers clinic site is provided in Table 1:

Table 1. MHC Patient Population Demographics

Client Site	Total Population	Caucasian	Hispanic	Other	44 Years Old or Under	Under 20 Years Old	200% Below FPL
Keeling	8,500	40%	47%	13%	76%	30%	79%
Clinical Del Alma	66,552	18%	73%	8%	75%	38%	68%

Client Site	Total Population	Caucasian	Hispanic	Other	44 Years Old or Under	Under 20 Years Old	200% Below FPL
Freedom Park	17,901	47%	41%	12%	75%	34%	63%
Wilmot	36,726	76%	16%	8%	55%	20%	54%
MHC Primary Care	3,499	83%	12%	5%	42%	17%	53%
MHC Main	7,997	66%	26%	8%	69%	32%	50%
Flowing Wells	16,373	74%	20%	6%	59%	26%	45%
Ortiz	9,397	82%	14%	4%	67%	32%	43%
Santa Catalina	9,388	77%	19%	3%	56%	26%	41%
East Side	55,361	68%	20%	12%	69%	31%	37%
West Side	7,726	48%	42%	10%	62%	23%	36%
Pima Partnership	15,733	44%	38%	18%	76%	26%	70%
Ellie Towne	16,737	73%	24%	5%	59%	26%	54%

Description of issue/business process that HIE will assist with improving:

As the HIE is implemented across the state, health information exchange will benefit from the tools and services tested through this grant. Creating this environment will require successful demonstration projects. Our team believes opportunities exist today for rapid success. One such opportunity is the ability to exchange immunization records between clinical systems and public health to the benefit of patient empowerment, while more complex issues such as summarized patient record exchanges require planning and a phased implementation process.

- Component 1: ADHS and MHC Immunization Exchange

The Electronic Health Record System (EHR) currently in operation within MHC is provided by GE-Centricity. The EHR provides a patient portal to allow individuals to access their records. The system does not exchange patient health information data with 3rd parties and effectively is an island of critical health information, a barrier that can be brought down through an effective HIE implementation and plan.

Workflow – MHC pediatricians and nurses log in daily to the GE-Centricity system; at the time of patient care the information retained in the system is available to the provider. In terms of an immunization history, this data is not as complete as that contained in the ADHS Arizona State Immunization Information System (ASIIS). In addition, if an immunization event occurs the data retained in the MHC EHR is not electronically provided to ASIIS to support coordinated patient care for vaccine preventable disease.

It is possible for providers at MHC to separately log in to ASIIS and review patient records but the fact that this requires multiple steps impacts the clinical care workflows to decrease efficiency, with evidence that over-immunization also occurs, adding cost to the patient visit. There is an opportunity to not only simplify the workflow but also increase the value of real-time information exchange. A plan will be developed and the operational technology components will be put into place for electronic exchange of immunization records between our EMR and ASIIS. This exchange will be bidirectional and will ensure compliance with Meaningful Use (MU) Stage 2. Extending our patient

portal with updated immunization histories will add value to our patients and our efforts to empower them with their medical information will be advanced.

Figure 1 illustrates the proposed solution architecture. The exchange is expected to initially be established through a direct link between GE-Centricity and ASIIS and is expected to be migrated to the HIE framework when available.

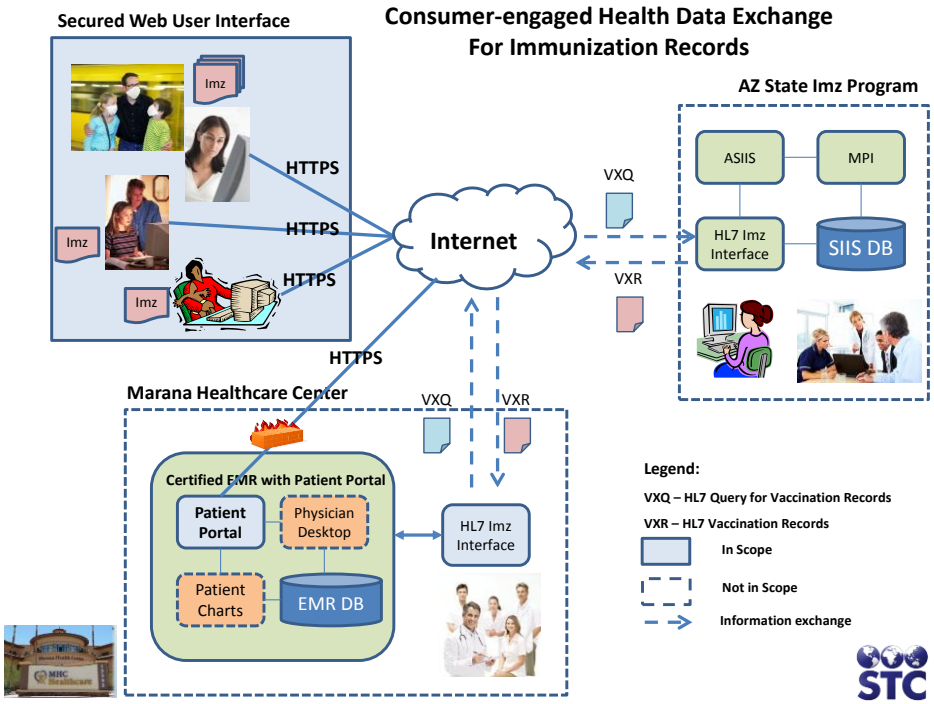

Figure 1. MHC Immunization Data Exchange

Summary: Three systems are involved in the proposed health information exchange: the certified EMR with a Patient Portal, the state immunization information system, and the secured web user interface for consumers. GE-Centricity is a certified EMR and deployed in MHC. The proposed solution includes an HL7 message immunization interface, with bidirectional data exchange with ASIIS. The Patient Portal is a gateway into medical practice and information for patients. It is a secured, HIPPA-compliant, two way communication channel between the patients and their healthcare providers, with convenient 24-hour service and self-service functions.

- Component 2: MHC and TMC Patient Registration and Data Exchange

Whereas Component 1 is oriented to early HIE success with exchanges between clinical and public health, Component 2 of our grant request includes the development of a plan and a pilot implementation to support transitions of care by sharing patient care summaries within two members of our area ACO. Operationally the exchange of a complete patient record between disparate EHRs is more challenging yet more important for coordinated patient health care. The concept is that when a MHC patient arrives at TMC, electronic sharing of information will be initiated. Figure 2 illustrates the conceptual architecture for the proposed system.

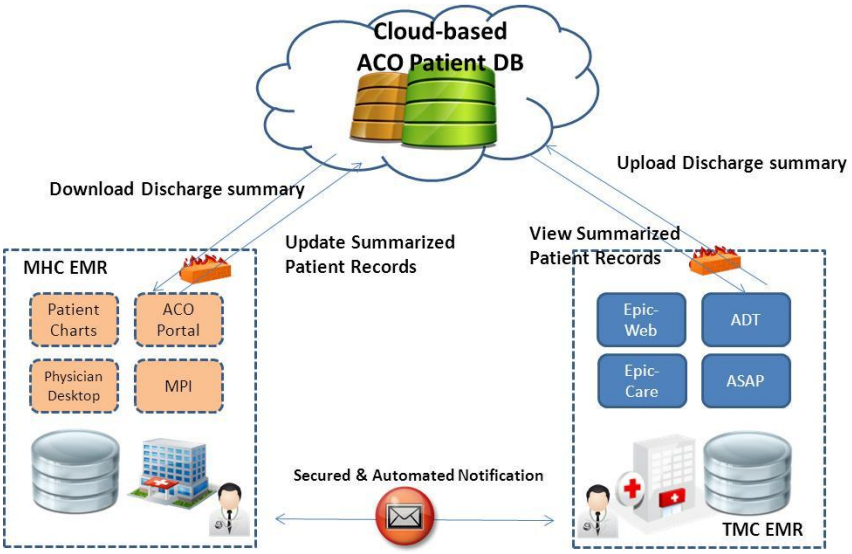

Figure 2. Illustration of Proposed MHC-TMC Patient Record Exchange

Our initial review of a solution which will be detailed and evaluated in the planning portion of this grant is likely to consist of three subsystems:

- A cloud-based and shared patient demographic database with potentially a subset of patients' summarized medical records (TBD), which can be accessed by authorized physicians both in TMC and MHC when needed. The summary content will include basic data sets for administrative (e.g., patient demographics, insurance, and registration) and clinical information (problem list, allergies, latest test results. and medication list). Summary records can be updated either by schedule or triggered by an event.
- A secured and automated rule-based email notification.
- A secure system to manage 'pushed communication,' which will help MHC update the patient records and TMC to upload the patient discharge summary document.
- A web UI to support physician query and view of patient charts in TMC when the patient enters the hospital.

Time and budget constraints limit the pilot to a simple approach with structured messages from MHC and unstructured messages (such as the scanned documents) from TMC. The Strategic Plan will assess how this exchange can be expanded and evolved to support communication of fully structured messages, such as NwHIN Direct.

The planning phase will further determine the requirements for patient records sharing and the operational practicalities specific between the GE-Centricity and EPIC. The plan will include options, alternatives, costs, and timelines to develop a solution for the MHC and TMC exchange.

Description of how the HIE grant funds will enable us to meet our business objectives:

This grant allows us to plan and operationalize a bi-directional immunization link in an efficient manner that supports our providers at the time of patient care, reduced health care costs to VPD, vaccine waste, and over vaccination. It will increase workflow efficiency, saving time and cost, and will provide staff with decision support information based on more complete medical records.

In addition, the ability to develop a systematic plan, then implement a cloud-based system to support transitions of care with patient record exchanges between two major unconnected healthcare systems within an ACO, will enhance the partnership and improve the health care efficiency, which is a critical step for MHC and TMC to meet MU requirements.

Description of how project will serve the needs of the underserved and low income population we care for:

MHC serves the rural community in the northern portions of Pima County which includes patients under 18 years of age, the majority of which are enrolled in the state Medicaid program or are eligible for a sliding fee: 65% of the patient population are low income (AHCCCS – 45%, Sliding Fee – 25% and Other Insurance – 30%). Over 53% of the patients have incomes below 200% FPL.

Name of organization to serve as the fiscal agent on this project:

Marana Health Center, Inc.

Project Collaboration Structure:

1. Marana Health Center, Inc., a FQHC, with 46 providers in 13 clinics serving a population of 271,890 patients.
2. Tucson Medical Center, a nonprofit regional hospital providing emergency care and pediatric care, with over 600 licensed beds. TMC and MHC are collaborating in Arizona Connected Care, building on Patient-Centered Medical Home methods to improve access to team-based primary care services. [TMC Letter of Support is included as a separate attachment.]
3. ADHS Immunization Program.
4. Scientific Technologies Corporation, Arizona-based Health Information Service Provider, supports state health department clients and immunization systems containing > 200 million patient records, to include MU exchanges through active HL7 links between EMRs and public health agencies. [STC Letter of Support is included as a separate attachment.]

Project Team:

- Mr. Luis Velasco, MHC Director Health Information Systems – Project Lead/Coordinator. [Resume is included as a separate attachment.]
- Dr. Xiaohui Zhang, STC Chief Scientist – Technical Architect and Systems Designer. [Resume is included as a separate attachment.]
- Michael Griffis, TMC CIO for Innovative Practice.
- Michael Duckworth, GE-Centricity Interoperability Expert.
- Janet Balog, RN, STC Senior Public Health Advisor – Immunization Specialist.
- John May, STC Senior Software Engineer and Technical Lead for Application Development.

2. Project Work Plan

The proposed project work plan is illustrated in Figure 2 followed by detailed milestones in Table 2.

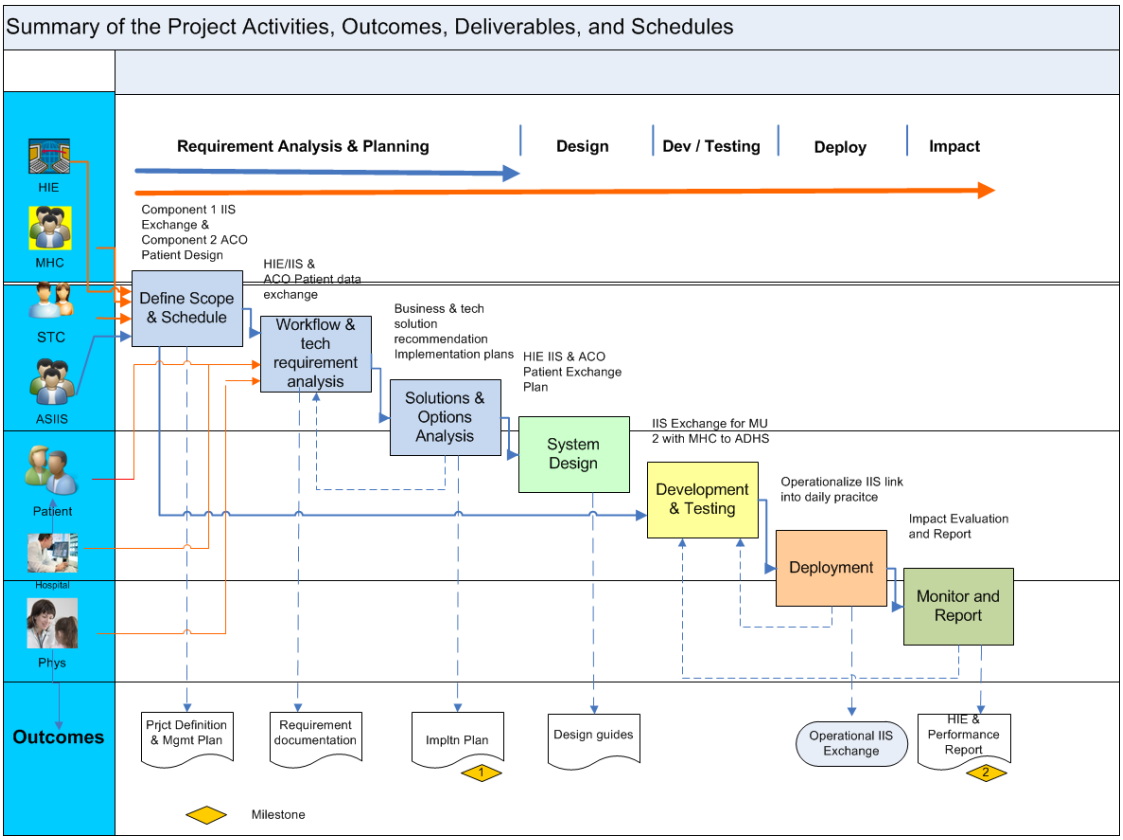

Figure 3. Planned Project Activities, Expected Outcomes, and Deliverables

Table 2. Description of Planned Project Activities

Task	Duration	Proposed Project Activity	Expected Outcome
1.1	2 days	▪ Project definition and plan.	▪ Definition of project plans, team, goals, scope, schedules and deliverable.
1.2	5 days	▪ Collaboration meetings. ▪ Promotion of consumer engaged HIE, increase trust.	▪ Promote consumer engagement in HIE and HIE sharing among ACO, state public health agencies, and consumers.
1.3	5 days	▪ Description of EMR env and imz data, current data exchange, workflow, Patient Portal and data.	▪ Report of existing healthcare data environment analysis with focusing on imz data (in EMR and Patient Portal).
1.4	20 days	▪ Analysis of the business and technical solutions and options, the feasibility, Implementation plans.	▪ HIE IIS Exchange plan. ▪ Solution summary. ▪ Implementation plan.
1.5	10 days	▪ Design of the Solution.	▪ Interface specifications.
1.6	35 days	▪ Implementation of the exchange.	▪ Solution implementation.
1.7	10 days	▪ Attestation, System Testing and UAT.	▪ QA and testing.

Task	Duration	Proposed Project Activity	Expected Outcome
			▪ UAT document.
1.8	5 days	▪ Deployment.	▪ Deploy exchange.
1.9	60 days	▪ Outcome Monitoring and Reporting (In-kind match).	▪ Assessment of Results, report and presentations.
2.1	5 days	▪ Project initial meeting, interviews, assessment of EHRs, clinical needs and requirements of record sharing.	▪ Project definition document. ▪ Project plan. ▪ Scope and timeline. ▪ High level Requirements.
2.2	5 days	▪ Interview and review of AZ HIE plans, ACO collaboration plans.	▪ Collaboration plan. ▪ and Requirements Update.
2.3	10 days	▪ Analysis of exchange options, costs, benefits, impacts.	▪ Document potential solutions, options and evaluation.
2.4	3 days	▪ ACO and Partner reviews	▪ Review recommendations.
2.5	10 days	▪ Development of Design and Implementation Plan.	▪ Design document, implementation plan, costs and resources analysis, timelines, milestones.
2.6	3 days	▪ Partner reviews and approval of the design and implementation plans.	▪ Presentations and review of plan, modifications as required and action plan for implementation.
2.7	50 days	▪ Development of Pilot Implementation with Cloud-based DB, automated notification, summarized record sharing.	▪ MHC's selected EMR data ETL to Cloud-based DB, Application for notification. ▪ Web application to support physicians.
2.8	10 days	▪ Testing.	▪ Application Unit testing. ▪ System testing. ▪ Test report.
2.9	5 days	▪ Pilot Deployment.	▪ Installation / configuration. ▪ Deployment report.
2.10	5 days	▪ User pilot training.	▪ Pilot User training.
2.11	5 days	▪ Project final reports.	▪ Final reports and presentations.

There are four major deliverables and expected outcomes of the grant request as follows:

- Component 1 Deliverables

  1. Plan an operational immunization record exchange between MHC and ADHS.
  2. Patient portal populated with combined immunization record events and augmented with decision support information.

- Component 2 Deliverables

  3. Plan for supporting transitions of care with summarized patient data exchange between MHC and TMC (GE-Centricity and EPIC).
  4. A pilot implementation in support of transitions of care in the ACO for MHC and TMC.

The stakeholders will be proactive partners in this grant request. Throughout the six-month duration of the project, weekly status calls and monthly formal meetings and presentations will be held between all parties to monitor progress, address issues and provide key decisions.

Note: the operational immunization exchange will continue beyond the stated six-month grant period. The implementation of this link will include training of MCH staff expected to be key users.

An ongoing support plan will be prepared and included in the final report that includes the administration activities to maintain the link going forward.

3. Budget

Table 3 includes a cost breakdown of budgeted line items for key deliverables to include in-kind services equating to 50% of the grant award.

Table 3. Cost Breakdown of Budgeted Line Items

	Budget	**Tasks and Major Deliverables**					
		1	**2**	**3**	**4**	**5**	
Notes		**IIS Record Exchange**	**Patient Portal**	**Workflow and Assessment**	**HIE IIS Design Plan and Document**	**Coordinated Patient Exchange Plan**	**Total**
1	Hours	120	125		120	200	565
2	In-Kind Hours	30	30	110	60	100	330
	Loaded Labor Rate	$150	$150	$150	$150	$150	
	Total Labor Cost	$ 22,500	$ 23,250	$ 16,500	$ 27,000	$ 45,000	$ 134,250
	Travel	$ 2,000	0	0	$ 1,000	0	$ 3,000
	Equipment	$ 1,750	0	0	0	$ 4,000	$ 5,750
3	Software	$ 3,000	$ 2,000	0	0	$ 2,000	$ 7,000
	Supplies	0	0	0	0	0	$ -
	Total Cost	**$ 29,250**	**$ 25,250**	**$ 16,500**	**$ 28,000**	**$ 51,000**	**$ 150,000**
	Notes						
	1	MHC and STC team					
	2	MHC, STC and TMC will provide additional staff resources					
	3	STC provided IIS exchange software					

Financial and/or In-kind match: The in-kind match will be the service hours provided by MHC physicians and nurses and STC IT team, equal to a total 330 hours.

4. Budget Narrative

Equipment: The project requires hardware testing environments. Two servers ($4,000) are planned which will host the database, Web server and application servers. The Cloud-based patient database budget is $2,000 for the patient record exchange pilot.

Software: The implementation of real-time, bi-directional immunization exchange between EMR and state immunization registry requires integration of a third party tool, the budget is $3,000 and similarly $2,000 license fee for integration with the Patient Portal and another $2,000 planned for Cloud service.

Travel: The travel budget is planned for team members to work with MHC, TMC, and state programs, such as the interviews with providers, HIE groups, and state immunization program staff.