



**Arizona Health Care Cost Containment Health System  
Medicaid Transformation Grant Program**

**AHCCCS/ASU  
Clinical Data Project**

**March 17<sup>th</sup>, 2009**

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# Presentation Overview

- Project Mission
- Project Value Proposition and Goals
- Key Strategic Challenges
- Business Model
- Proposed System Architecture
- ASU/CHIR Link
- Business Components and Services
- Use Cases Supported
- Next Steps



# Project Mission

The mission of this project is to create and implement the requisite organizational and healthcare partnership elements, as well as the technological components, needed to facilitate an integration of healthcare information in a state-wide clinical data repository.



# Project Value Proposition

- Foundational work for integrating a broad clinical repository as part of a state-wide integrated health information architecture
- **Extend and Expand** the community of collaborators and contributors (time, effort, data, \$) to advance the implementation of HIT in Arizona
- Create value at a social level and at an individual provider level to produce benefit to the entire health industry

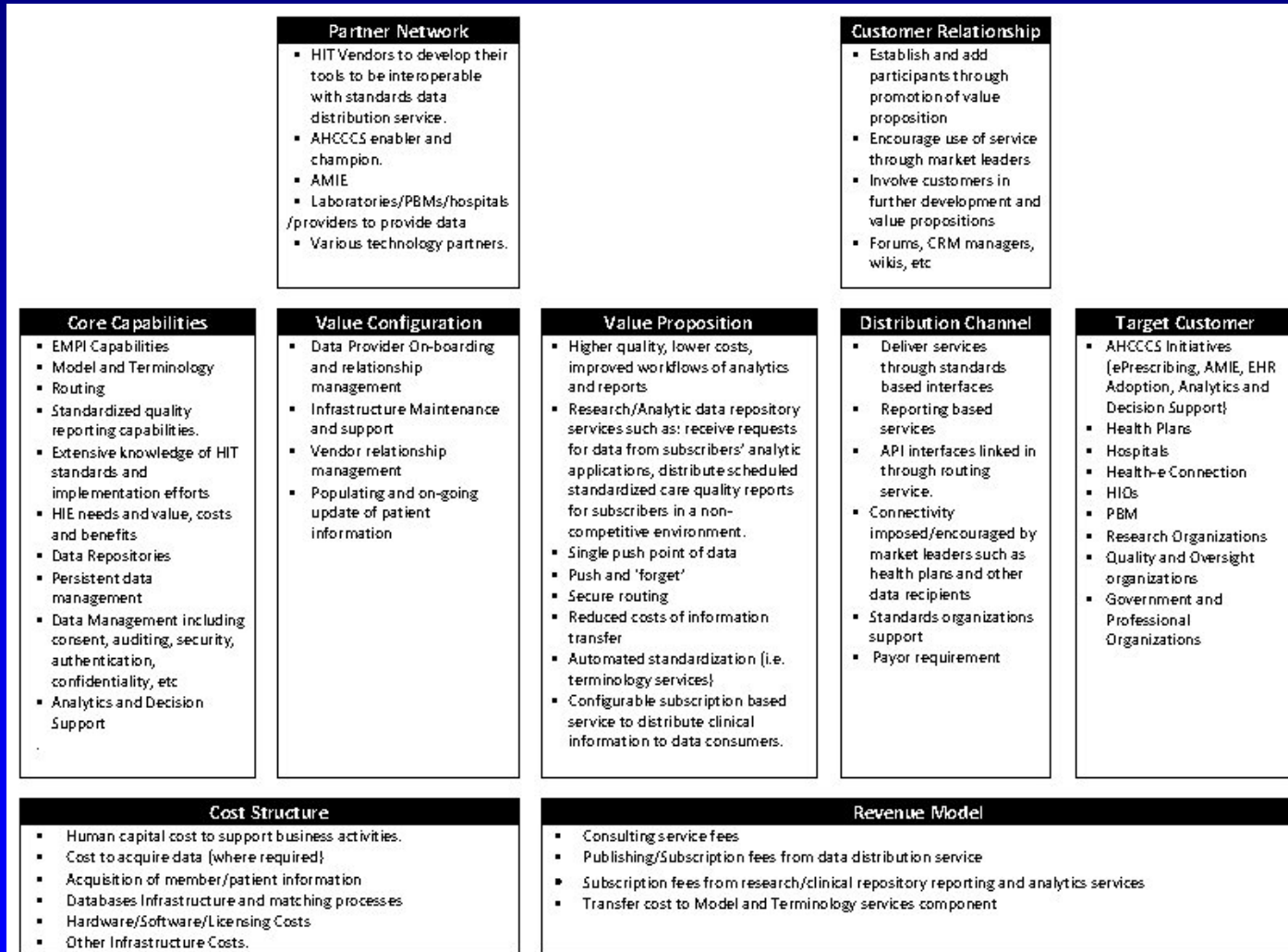
# Project Goals

- Short Term : Implement value proposition based functional components of HIT-HIE and integrate other potential and on-going state efforts such as ePrescribing, eLabs, AMIE, etc
- Mid Term : Create and maintain repositories of clinical Information
- Long Term : Incrementally add services that enhance value proposition to/for participants, and sustainability of the overall infrastructure

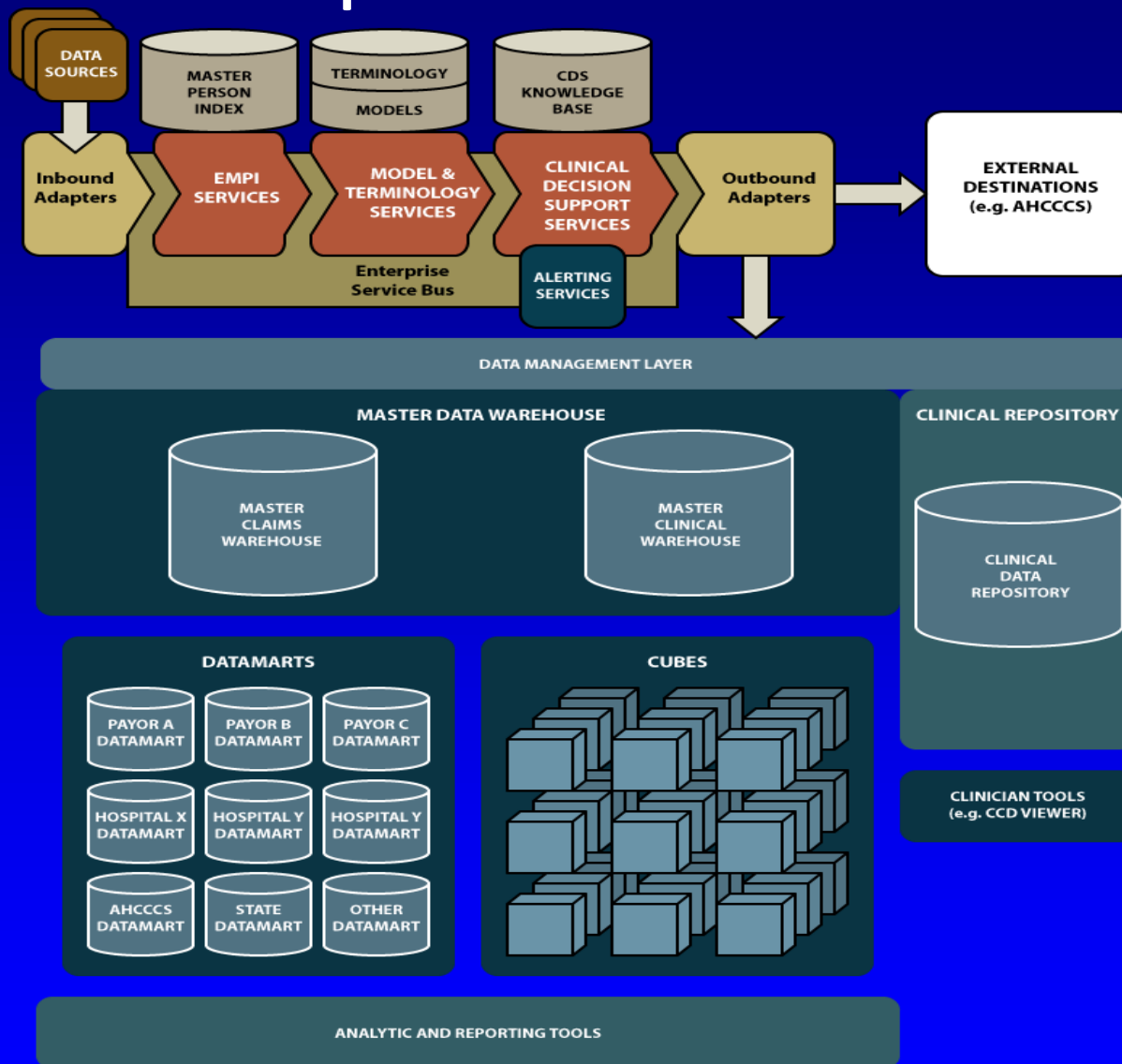
# Key Strategic Challenges

- **Business model**
- **Breadth of data and resource participation**
- **Integration with other on-going efforts (e.g. AMIE, EHR, etc)**
- **Availability in electronic format**
- **Build or buy**
- Protecting privacy
- Trust relationships & contracts
- Governance, accountability & data custodianship
- Controlling access
- Managing & applying consent directives
- Timeliness
- Harmonization
- Data structures (format)
- Vocabularies (encoding, normalization)
- Semantics
- Heterogeneous technology environments
- Number of organizations, connection points & systems
- Controlling feeds and queries to the data

# Business Model



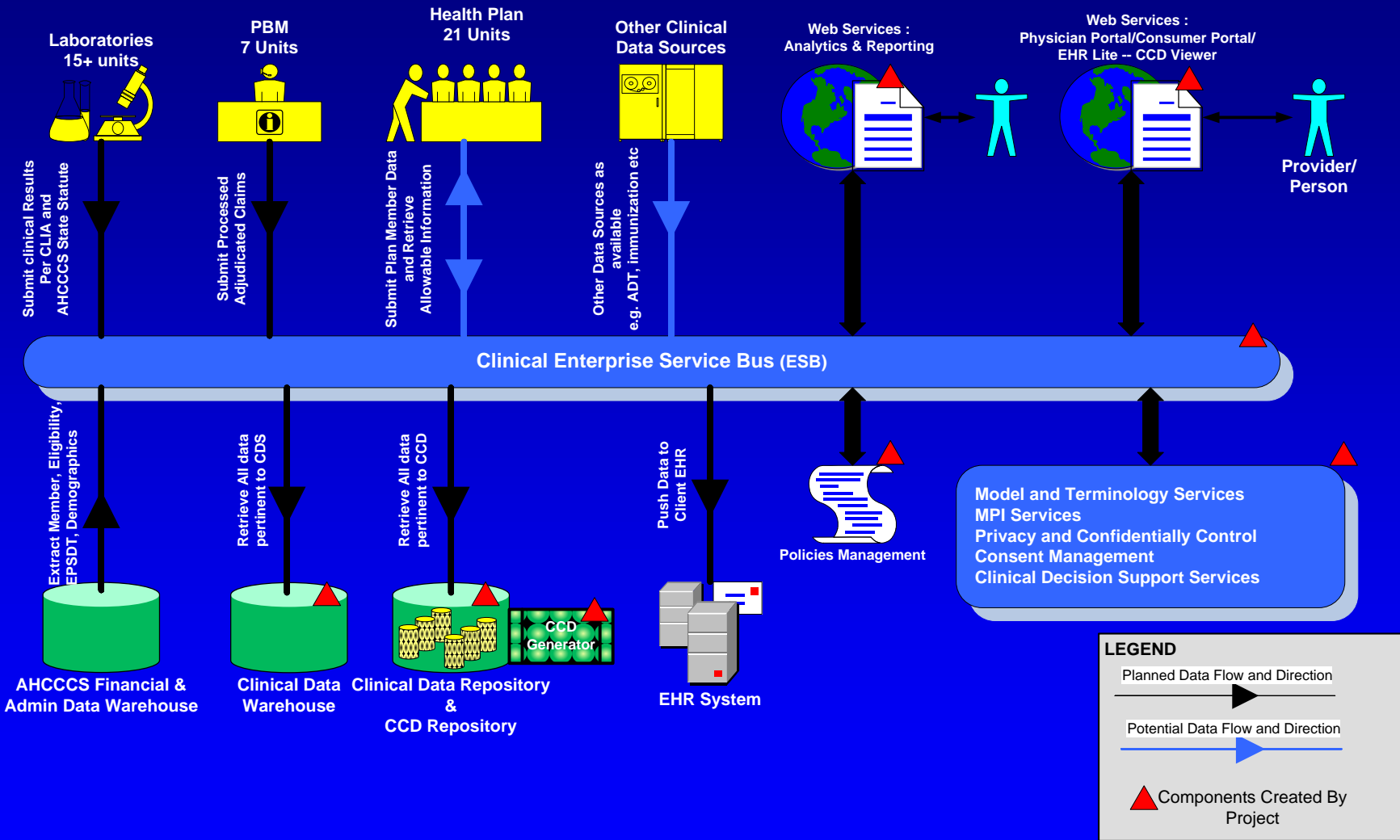
# Conceptual Architecture







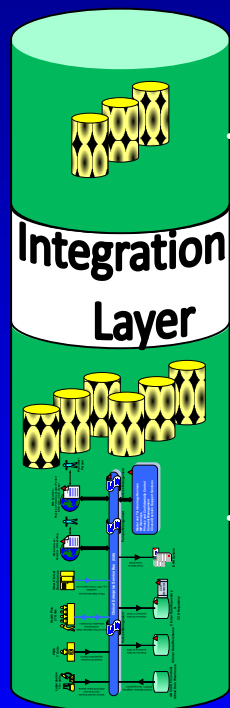
# Conceptual Connectivity Architecture



## Clinical Data Project

# ASU Connection

## CHIR Repository



Claims Data

Extensive Stewardship Agreements

Expanded Analytics

Clinical Data

AMIE Expanded Policy/Privacy/Consent/  
Use Agreements

## CDW & CDS Repositories System

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# Business Components and Services

- Clinical Repository and Data Warehouse
  - Report Generation and Delivery Service (Joint Commission, CDC, other quality reports)
  - CCD Generation and Delivery Service Quality
  - Client Risk Analysis
  - EHR Connectivity (push of client data)
  - Chronic Care Evaluation
- Health Information Exchange Infrastructure
  - EMPI – Statewide Master Patient Index
  - Terminology and Modeling Service
  - Routing Service
  - Consent Management Service
  - Data De-identification Service
  - Decision Support Alert Delivery Service
- Consulting Services
  - Interface implementations
  - Definition of reporting requirements
  - Healthcare business process improvement



# Business Use Cases Supported

- Unsolicited distribution of standardized clinical information to data consumer applications (PHRs, EHRs, etc).
- Unsolicited distribution of standardized clinical information to data repository integrated with on-demand analytic and reporting tools.
- Unsolicited distribution of scheduled standardized performance and quality reports for subscribers in a non-competitive environment.
- Generation and delivery of continuity of care documents to subscribers' systems for display.
- Delivery of decision support alerts to provider subscribers

# Next Steps

- Define and Detail Data and Services of “Value”
- Sign Up Data Providers
- Detail Data, Consent and Sharing Agreements
- Design Architecture Extension and Add Ons
- Implement Architecture
- Test Reporting and Analytics



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# Overall System Requirements

- Description of system level requirements that apply to all components and services
- Extensive adherence to comprehensive range of standards :
  - Security and Auditing
  - Privacy and Confidentiality
  - Open Source
  - HIT Policies, Procedures and Standards
- Integration of consent
- Transactional support



# Enterprise Service Bus (ESB)

- Partner and access management
- Implementation of consent functionality
- Audit at transaction level
- Message management
- Routing algorithm/logic/restraint
- System capacity, scalability and performance
- System health monitoring



# Master Person Index (MPI) Services

- Matching algorithm standards
- De-Identification of Patient data
- Security of privacy e.g. patient staff provider
- Centralization and distribution of updates
- Comprehensiveness of information

# Model and Terminology Services (MTS)



- Nomenclature translation
- Conformance to HL7 standards
- Mapping across systems

# Clinical Data Warehouse {OLAP}

- Architecture and structure of information/data
- Broad range of clinical data types
- Multi-year longitudinality
- Multiple aggregation schemas e.g. patient, payor, service type, institutional, etc
- Reporting functionality & analytical support
- De-identified and identified data
- Multi-level security of use of data

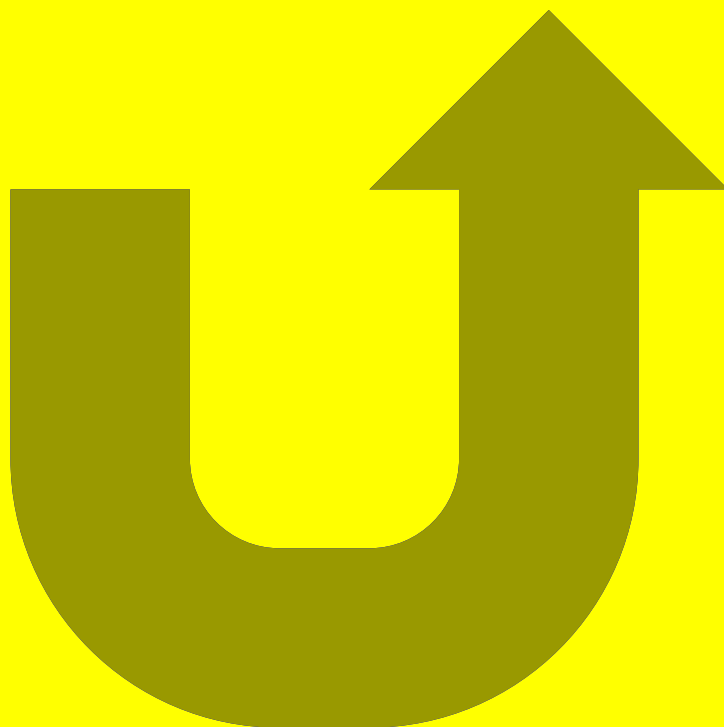
# Clinical Data Repository (CDR) {OLTP}

- Architecture and structure of information/data
- Patient oriented focus
- Longitudinal depth of information
- Demographic comprehensiveness
- Querying capability
- Access monitoring and control
- Indexing and information retrieval schemes
- Security of information access

# Physician Portal (including CCD viewer)

- Data presentation standards (structured and unstructured)
- Drill down and drill in functions
- Continuity of Care Document (CCD) support
- Proactive patient alerts
- Extended Functionalities

# Return To Main Presentation





# Alternate Project Mission

- Facilitate quality and performance reporting processes for healthcare organizations, such as hospitals, health plans, labs, while delivering clinical data electronically to health information systems in order to improve patient care and safety and reduce costs across various care settings by making key healthcare information available.





# CDR Stakeholder Conceptual Benefits

Audience/Stakeholder	Benefits
<b>AHCCCS/MCOs</b>	<ul style="list-style-type: none"><li>✓ Reduction of lab costs due to duplicate laboratory tests</li><li>✓ Reduction in Hospital, laboratory, and pharmacy claims</li><li>✓ Reduction of drug costs due to duplicate scripts</li><li>✓ Reduction in claim processing time due to availability of claim attachments</li><li>✓ Reduction in Adverse Drug Reactions in ED rooms and Hospitals.</li><li>✓ Reduction of administrative costs for generating and delivering reports</li><li>✓ Increased quality of care</li></ul>
<b>Payers</b>	<ul style="list-style-type: none"><li>✓ Reduction of lab costs due to duplicate laboratory tests</li><li>✓ Reduction in Hospital, laboratory, and pharmacy claims</li><li>✓ Reduction of drug costs due to duplicate scripts</li><li>✓ Reduction in claim processing time due to availability of claim attachments</li><li>✓ Reduction in Adverse Drug Reactions in ED rooms and Hospitals.</li><li>✓ Reduction of administrative costs for generating and delivering reports</li><li>✓ Increased quality of care</li></ul>
<b>Laboratories</b>	<ul style="list-style-type: none"><li>✓ Reduced costs for paper distribution for lab results</li><li>✓ Reduced administrative costs due to lab results request.</li><li>✓ Reduction of administrative costs for generating and delivering reports</li><li>✓ Increased quality of care</li></ul>
<b>Provider Organizations</b>	<ul style="list-style-type: none"><li>✓ Near real-time data access to complete patient history across providers and payers</li><li>✓ Reduced administrative costs due to clinical document requests.</li><li>✓ Reduction of administrative costs for generating and delivering reports</li><li>✓ Increased quality of care</li></ul>



# Stakeholder Financial Benefits

Stake holder	Savings	Units	Base Units	Unit Cost	% Savings	Maximum Potential Savings	Adoption Percent	Estimated Benefits	Total Benefits
<b>AHCCCS/MCOs</b>									
	Reduction in Duplicate Tests	Laboratory Claims	5,580,000	\$27.18	4.00%	6,066,576	15%	\$909,986	
	Reduction in Claims Processed	Laboratory Claims	5,580,000	\$4.29	4.00%	957,528	15%	\$143,629	
	Electronic Documents with Claims	Claims Requiring Lab Documentation	148,196	\$11.39	50.00%	843,976	15%	\$126,596	
	Reduction in Adverse Drug Reactions	ED Visits	656,378	\$338.00	2.00%	4,437,115	15%	\$665,567	
	Reduction in Adverse Drug Reactions	Hospital Admissions	226,934	\$5,283.00	2.00%	23,977,846	15%	\$3,596,677	
	Reduced Drug Costs for Duplicate Scripts	Duplicate Prescriptions	\$4,443,000	\$1.00	100.00%	4,443,000	15%	\$666,450	
	Reduced Hospital Claims	Hospital Claims	883,312	\$4.29	2.00%	75,788	15%	\$11,368	
	Reduced Pharmacy Claims	Duplicate Pharmacy Claims	56,500	\$4.29	100.00%	242,385	15%	\$36,358	
<b>Total AHCCCS/MCO</b>									\$6,156,632
<b>Laboratories</b>									
	Reduced Paper Distribution	Lab Orders	5,580,000	\$10.00	75.00%	41,850,000	15%	\$20,925,000	
	Reduced Requests for Results	Chart Requests	1,116,000	\$14.00	75.00%	11,718,000	15%	\$5,859,000	
<b>Total Laboratories</b>									\$26,784,000
<b>Providers</b>									
	Reduced Requests for Results	Chart Requests	1,116,000	\$10.00	75.00%	8,370,000	15%	\$4,185,000	
<b>Total Practitioners</b>									\$4,185,000
<b>Industry Benefits</b>									\$37,125,632

**Clinical Data Project**