

Electronic Case Reporting (eCR) - Presentation to ITAC



Agency Vision

Health and Wellness for all Arizonans

Agency Mission

To promote, protect, and improve the health and wellness of individuals and communities in Arizona

Electronic Case Reporting (eCR)

State of Arizona – Department of Health Services
Division of Preparedness

Date of ITAC – 09/16/2020

Presented By: ADHS eCR Project Team

Project Introduction

Problem Statement:

Currently, ADHS receives communicable disease case reports for a number of different conditions and syndromes from healthcare providers, facilities, and laboratories per AZ administrative code.

- The case reports are received through a variety of methods, including fax, phone, or direct (dual) entry by Healthcare Care Provider users into the integrated system, the Medical Electronic Disease Surveillance Intelligence System (MEDSIS).
- The traditional reporting methods are time consuming and have been identified as a burden from data submitters so reports are often submitted after the required timelines, leading to delayed public health control measures.
- Additionally, healthcare facilities and provider offices often do not have the additional IT support required to implement new electronic data exchange methods, like HL7 messaging, that would help to automate the reporting process.

In order to reduce the reporting burden, ADHS is proposing a partnership with the state health information exchange (HIE), Health Current, to improve case reporting.

- Health current currently receives admit, discharge, and transfer information from over 90% of Arizona healthcare providers, including large major hospital networks. This project with Health Current will take HIE data and format it into standardized HL7 messages (CDA or FHIR) and transmit that data to public health on behalf of healthcare facilities. ADHS will then process these new HL7 message types for routing and consumption into the appropriate downstream surveillance systems.

Overall, this project will help to reduce the manual entry process that is currently in place at healthcare facilities, provider offices, and ADHS; reduce the time required for staff to route paper records to the appropriate program areas; and improve overall data quality and timeliness of reports received by the health department.

Project Introduction

Benefits:

- **Agency:**

Any communicable disease reports that are received by ADHS via fax or secure email require data entry staff time to enter the data into the integrated disease surveillance systems. Depending on the volume of reports received, ADHS may add contracted data entry staff or reassign other staff in order to enter reports into respective systems (goal is to enter within 1 day of receipt). After reports are entered into the systems, they are then shared with local public health departments to initiate case investigation and contact tracing efforts, if needed, and implement public health control measures to prevent further spread. If there is a delay in entry into the systems, there is an inherent delay in possible mitigation strategies, leading to potentially high rates of illness.

- This project will allow for a large majority of these processes to be automated for healthcare data submitters as well as ADHS, reducing the overall need for manual data entry. In turn, this reduces the error rate that may occur through manual data entry processes, allows for additional data quality and validations, and increases the timeliness of reporting and response activities.
- Additionally, since ADHS is planning on utilizing a national platform, AIMS, there is a possibility that any out of state residents that are treated or tested for a reportable condition would also be automatically sent to the state of residence, reducing the need to send manual out of state reports via fax.

- **State:**

The proposed solution will reduce the burden for all Arizona State providers from dual entry of the case data into their EHR and ADHS Surveillance systems. The information that is being sent to Health Current (90% of the providers in AZ) will be then routed by Health Current electronically to ADHS via APHL Informatics Messaging Services (AIMS) inter-partner network and processed into ADHS systems.

Project Introduction

Benefits: Cont'd...

❖ **Strategic Importance:**

The proposed outcome will have the following strategic benefits for ADHS:

- The Division of Preparedness has been looking at this solution for years and have not been able to undertake the task due the costs of this project. This is an opportunity with availability of funds for a period of 2 years to implement a solution that will transform the way ADHS does Public Health – *“Government at the Speed of Business”*
- This proposed solution will eliminate coordination with individual providers and replace manual intervention at various stages of communicable disease surveillance providing cost savings, data timeliness/accuracy and process efficiencies – tangible and intangible ROI.
- This proposed solution will help alleviate some of the problems that we faced in dealing with the current pandemic and help prepare us to be better equipped to handle the next one. This will be an important process improvement that will position us better as Public Health to handle disease outbreaks and future pandemics.

❖ **Other Benefits:**

- Common architecture and services
- Centralized processing and message routing
- Real-time monitoring and auditing
- Reduced data translation and transformation complexity
- Reduced development and support costs
- Flexible capacity technical architecture
- Vocabulary and HL7 message support
- Strengthening security and compliance

Proposed Solution

Health current currently receives admit, discharge, and transfer information from over 90% of Arizona healthcare providers, including large major hospital networks. Most of this information exists in the healthcare electronic medical record (EMR), therefore it would be possible for electronic and automated exchange of this information to be sent to public health. This project with Health Current will take HIE data and format it into standardized HL7 messages (CDA or FHIR) and transmit that data to public health on behalf of healthcare facilities. ADHS will then process these new HL7 message types for routing and consumption into the appropriate downstream surveillance systems.

Overall, this project will help to reduce the manual entry process that is currently in place at healthcare facilities, provider offices, and ADHS; reduce the time required for staff to route paper records to the appropriate program areas; and improve overall data quality and timeliness of reports received by the health department.

Proposed Solution

Procurement

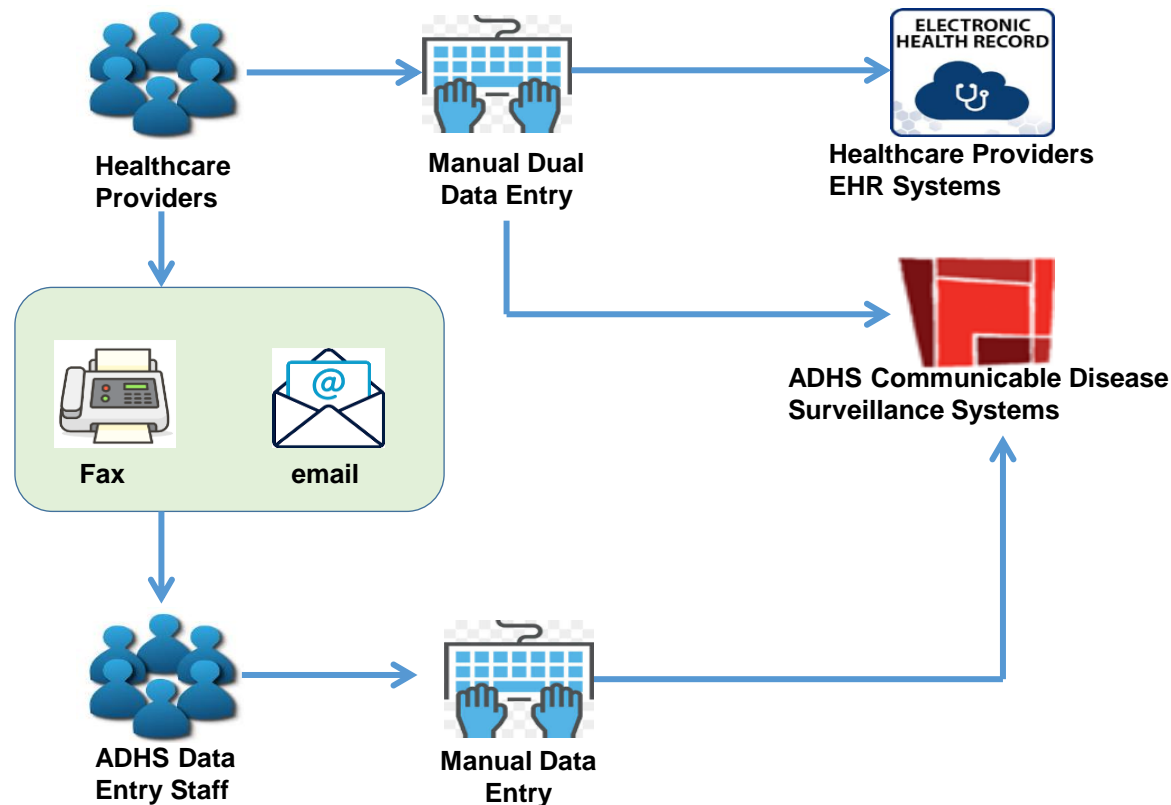
- Health Current Contract
- ADHS Contract Resources
- Project Infrastructure, Hardware and Software (expanding existing infrastructure to accommodate the new process and not adding anything new)

Technology (Currently existing and only expanding the process to add additional process)

- Standard HL7 message
- SFTP transport
- AWS Infrastructure (Servers, Windows 2016 or later)
- Rhapsody Integration Engine
- SQL Server (2016/2019) Database(s)
- .NET Custom Application (in place with modifications)

Proposed Solution

ADHS Case Reporting Processes – Current



FY2019 - Case Report Volume and Data Entry Costs:

Total Cases Reported by all HealthCare Providers:	241,483
Estimated Hours of Manual Data Entry:	40,328
Estimated Cost of Manual Data Entry:	\$1,008,192
Estimated Cost of Routing/Redaction:	\$72,500
Total Estimated Costs for FY2019:	\$1,080,692

FY2019 – Case Reporting Timeliness:

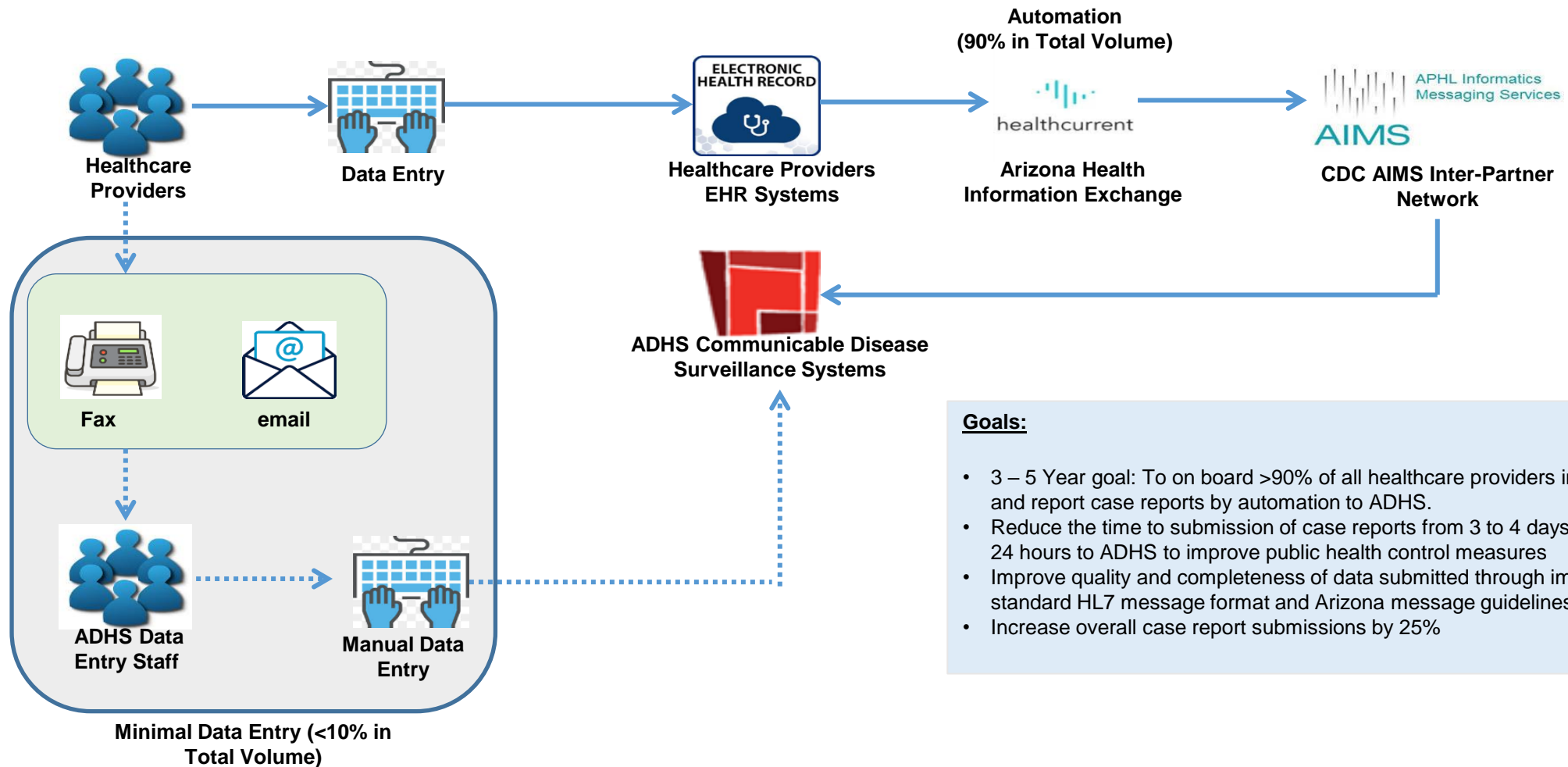
Average Case Report Timeliness:	3 – 4 Days
% of Case Reports estimated not reported:	~25%

Additional Information:

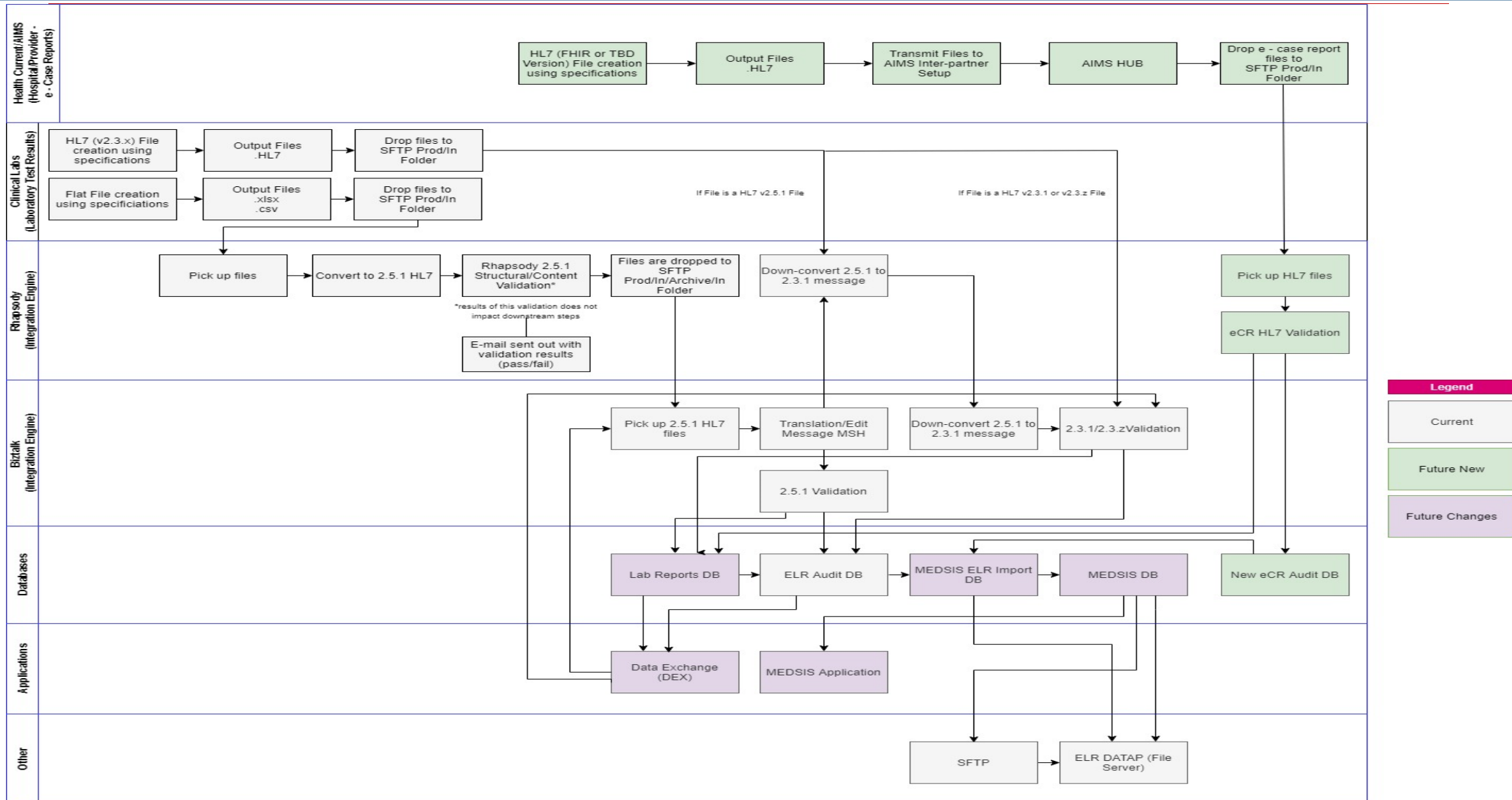
- All Case Reports are currently either directly (Dual) entered into the ADHS Disease Surveillance applications manually by healthcare provider staff or ADHS data entry staff.
- Case reports of conditions (diseases) that are mandated by statute to be reported to Public Health Department's within 24 hours are not being reported in time due to delays in data entry
- 0% Automation of case reporting
- Substandard quality and completeness of data submitted

Proposed Solution

ADHS Electronic Case Reporting (eCR) Processes – Future



Proposed Solution



Project Responsibilities

ADHS

1. Contract oversight
2. Project Management
3. SME's (ELR Program Resources)
4. Technical and Functional Project Management
5. HL7/CDA Functional Specialist
6. Technical Development and Support
7. Network, Systems and Database Administration

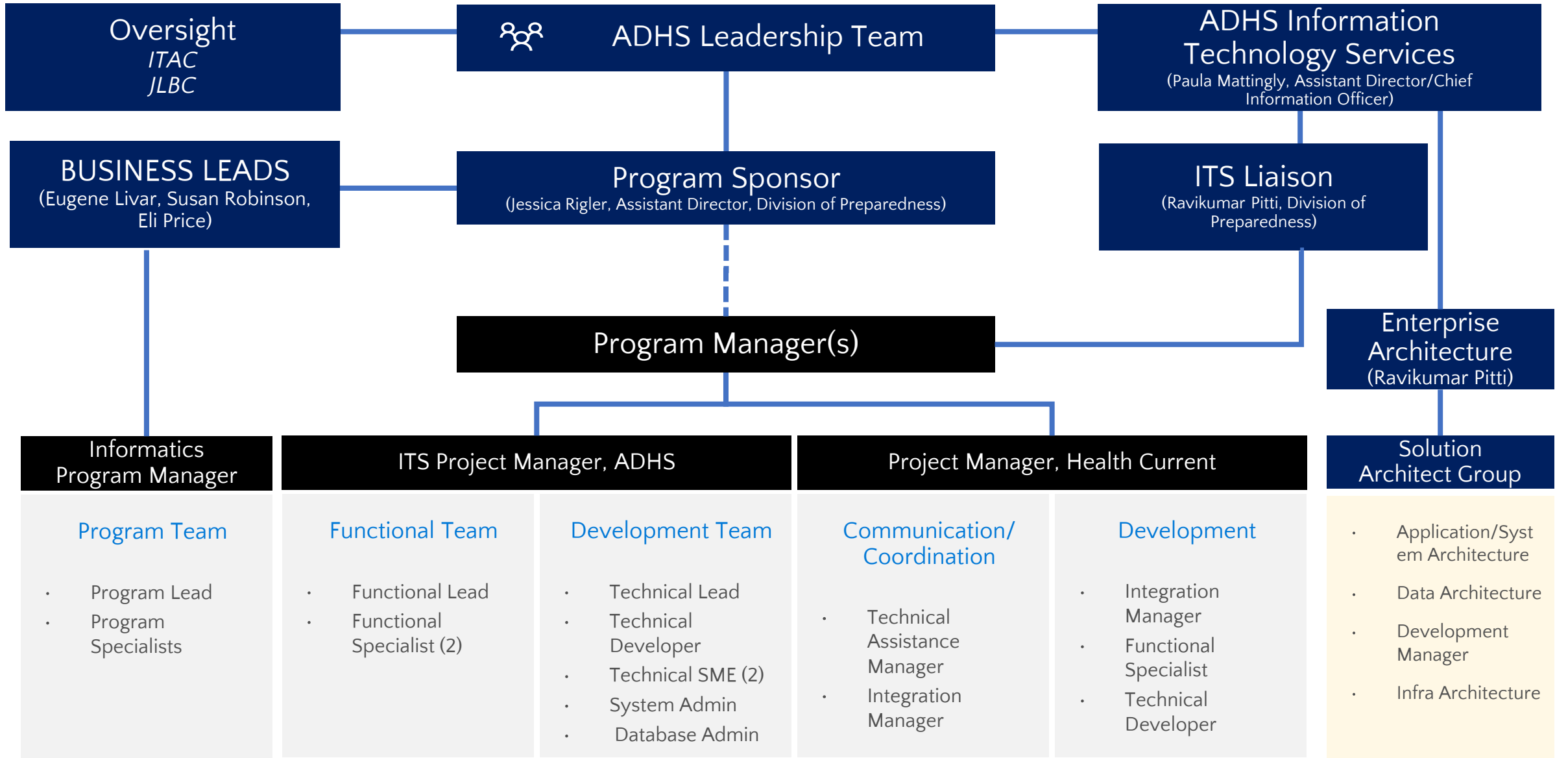
Shared

1. Project Scope and Planning
2. Project Monitoring

Health Current

1. Function Specialists
2. Technical Development and Support
3. Submitter Recruitment and Coordination
4. Project Management

Program Structure



Project Timeline

ADHS Electronic Case Reporting (eCR) Project Timeline																						
Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Mar-22	Apr-22	May-22		
Project Approvals																						
Project Kickoff																						
Project Initiation Tasks																						
	Project Design Phase																					
	Phase I Development																					
							Phase I Testing															
									Deploy Phase I													
										Phase II Development												
																Phase II Testing						
																			Deploy Phase II			
																			Project Signoff			
																			Post Implementation Support			

Project Costs

Project Costs by Category	FY21	FY22	FY23	FY24	FY25	Total
Professional & Outside Services (Contractors)	\$1,005,000	\$3,045,000	\$0	\$0	\$0	\$4,050,000
Hardware	\$77,106	\$67,332	\$0	\$0	\$0	\$144,438
Software	\$38,010	\$10,860	\$0	\$0	\$0	\$48,870
Communications	\$0	\$0	\$0	\$0	\$0	\$0
Facilities	\$0	\$0	\$0	\$0	\$0	\$0
License & Maintenance Fees	\$0	\$0	\$0	\$0	\$0	\$0
Other Operational Expenditures	\$0	\$0	\$73,848	\$73,848	\$73,848	\$221,544
Total Development	\$1,120,116	\$3,123,192	\$0	\$0	\$0	\$4,243,308
Total Operational	\$0	\$0	\$73,848	\$73,848	\$73,848	\$221,545

Financial Impact

Project Development Funding

Base Budget - Available	
Base Budget - To Be Requested	
APF Budget - Available	
APF Budget - To Be Requested	
Other Appropriated - Available	
Other Appropriated - To Be Requested	
Federal - Available	\$5,013,545
Federal - To Be Requested	

Operational Delta

Current 3-Year Operational Cost (Avg)	\$0
Proposed 3-Year Operational Cost (Avg)	\$73,848
Financial Impact of New System	\$73,848

Total Development Project Funding

Available Budget	\$5,013,545
To Be Requested Budget	

Total Operational Funding - Project

To Be Requested Budget	\$73,848/Year, from Year 3 Onwards
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What Success Looks Like

eCR Project - Change Management

- Project Phases/Milestones
 - Phase I (Pilot/POC)
 - Milestone 1: Hospital Project Kick-Off
 - Milestone 2: Hospital e-case data feed established w/ Health Current
 - Milestone 3: ADHS e-case data feed established w/AIMS Inter-partner Network
 - Setup ADHS eCR Infrastructure and Processing System(s)
 - Test/Validate e-case data feeds
 - Phase II (Hospital e-case report onboarding)
 - Milestone 4: Hospital Project Kick-Off
 - Milestone 2: Hospital e-case data feed established w/ Health Current
 - Milestone 3: ADHS e-case data feed established w/AIMS Inter-partner Network
 - Promote ADHS eCR Infrastructure and Processing System(s) to Production Environments

eCR Project - Measures of Success

- Hospital/Providers manual/dual case entry elimination, reducing costs
- Automation in case reporting for 90% of Arizona Hospital/Provider networks, increasing the case reporting turnaround times, improving the time to intervention by DHS to the citizens of AZ
- Increased data accuracy due to less manual intervention and systems validations put in place

Requesting Approval For

ADHS, Division of Preparedness and Information Technology Services are requesting the approval of a ELC CARES ACT grant (Federal) delivery project. The Electronic Case Reporting, commonly known as 'eCR' project work plan is an 18-month effort divided into two phases of development. The key activities to be accomplished during each phase are listed below:

PHASE 1 ACTIVITIES - Months 1-2

- Project kick-off / finalize project plan
- Develop detailed technical scope of work (CDC e-case definition and classifications and ONC, HL7 standard CDA R2 implementation specifications)
- In collaboration with ADHS, identify 10 e-cases, from which each participating hospital/health system will select, initiate and implement 6 e-cases each
- Recruit initial Phase 1 hospitals

Months 2-9

- Each participating hospital will select 6 e-cases it agrees to implement and will confirm collaboratively with Health Current the associated data sets
- Map data sets to Health Current existing dataset and identify any gaps in data sets as part of each e-case implemented
- Establish channel from Health Current to MEDSIS that allows for multiple data sources through single channel
- Standardize feed from Health Current to MEDSIS and identify data set gaps
- Validate all e-cases from source to MEDSIS for data set completeness

PHASE 2 ACTIVITIES - Months 10-19

- Identify and select 6 additional hospitals/health systems to implement
- Establish scaling and sequence for 2 hospitals every 3-4 months
- Onboard hospitals in accordance with project plan and adhering to CDC, ONC, HL7 CDA-R2 standards

Requesting Approval For

Key activities ADHS is requesting approval for developing the infrastructure and systems to:

- ❖ **Better Serving Public Health:** Creating the ability to share data efficiently, while hosting applications securely is a critical capability for public health. Contracting with Health Current (AZ HIE) and using the AIMS platform solves the difficult challenge for public health in creating and maintaining multiple point to point electronic interfaces and accommodating ever-changing transport mechanisms with a single source of data as a solution.
- ❖ **Connecting all Partners:** ADHS's partners include local health departments, regional commercial laboratories and hospitals, state health information exchanges and federal agencies.
- ❖ **Enabling Data Exchange:** The AIMS platform will securely transport hundreds of thousands of electronic case reports on a monthly basis to the Arizona disease surveillance system instead of being keyed into the system by local hospital resources (dual entry).
- ❖ **Creating Efficiencies:** Routing messages from Health Current, through AIMS services to Arizona disease surveillance applications greatly enhances the ability to manage data exchange routes and onboarding partners. Once a partner is on boarded by Health Current, their data can be received by ADHS with minimal effort. In addition, the translation and transformation services that Health Current and AIMS offer make it easier for ADHS and its partners for interoperability.

Q & A Session