



Indiana System Interoperability and Integration Project

*Indiana Vital Events Registry (IVER) and the
Indiana Client Eligibility System (ICES)*

Family Social Services Administration (FSSA) with the Indiana State Department of Health (ISDH)
01/31/2014

Creating a real-time/near real-time interface between the ISDH and FSSA programs specifically targeting the Indiana Client Eligibility System, Medicaid, and the birth-death registry.

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Project Description:

The Indiana Family Social Services Administration (FSSA) serves as the state human services agency. The Indiana State Department of Health (ISDH) is the health agency. FSSA houses the Medicaid program for the state while ISDH houses the State Registrar responsible for the Vital Records system for documenting all births, deaths, marriages, and other mandated vital events.

This project will automate and improve the State of Indiana's Vital Records information, collection, and data-sharing of the birth/death registry information. This will, in turn, streamline human services enrollment and eligibility processes of newborns through the real-time or near-real-time transmission of birth information to the Indiana Client Eligibility System (ICES) and Medicaid systems. This interoperability project will also make the first steps toward automating the transmission of death information to the ICES and Medicaid systems providing the fastest notification of a death; greatly reducing the opportunity for fraud.

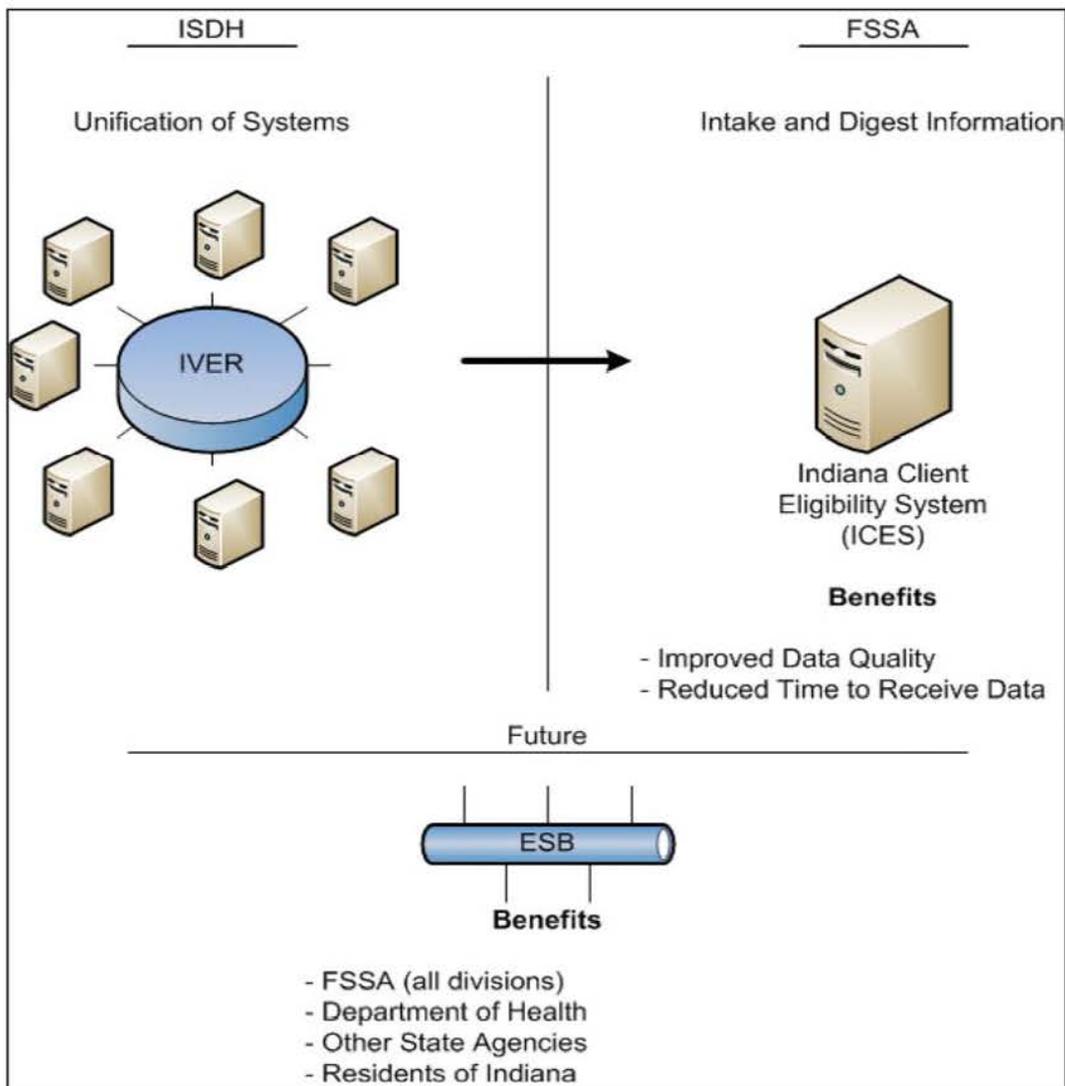
Problem Overview:

The Indiana State Department of Health maintains multiple disparate systems for collecting and sharing Vital Records. There are no established standards for data sharing formats or protocols and reusability is virtually nonexistent. In addition, the current system is third party software that is very expensive to maintain and operate (M&O) while modifications are difficult due to a limited number of solution specific, knowledgeable resources.

FSSA, which is one of more than ten state agencies that request Vital Records, receives multiple data feeds of various data, frequencies and protocols. Most information is time-lagged and paper / labor intensive.

Need Defined:

FSSA needs timely, automated and accurate Vital Records information to help determine residents' eligibility in various State and Federal programs. ISDH needs a system that will integrate its multiple registries that are either paper based, dated, expensive or proprietary and provide standardized protocols for sharing data in (near) real time. The diagram below shows this unification of registries and the single feed to FSSA. This will serve as the foundation for disseminating data throughout Indiana's many state agencies in a simplified and efficient environment.



Outcomes:

The State seeks to improve outcomes in the following areas:

1) Improve system data quality: reduce errors and increase completion rates

Elimination of the human factor in redundant data entry (i.e. social security number) will reduce number of errors; required fields completed earlier in the process will transfer among enrollments and therefore increase completion rates across programs where information was omitted previously.

2) Staff process improvement: reducing the labor (paper and data entry) required for enrollments and processing of a death notification

Many processes will be streamlined or eliminated by automating the transfer of data from the birth/death registry to the Indiana Client Eligibility System (ICES) and Medicaid systems; key identifiers can be verified to establish a match with a client and therefore eliminating many data entry points. Paper-based processes related to newborn enrollment and death record processing can be made paperless or steps requiring paper will also be significantly reduced.

3) Client benefit process improvement: decrease number of enrollments required and length of time required for enrollment in all eligible benefits

With the proposed system integration, clients will be able to apply once for all eligible benefits for their newborn. With the integration into the Indiana Client Eligibility System (ICES) other benefits may also be found at the time of enrollment of the newborn. The streamlined approach will ask for all information at the front end and then pass through all required information to the respective programs. With one enrollment the length of time from application to benefit receipt of all eligible programs will be dramatically reduced.

4) *Decrease number of fraudulent claims after death*

Near real time notification of death events will empower the state to end benefits upon death thus reducing the number of fraudulent claims. The near immediate notification will reduce the time to enroll other eligible people for benefits.

With improvements in these areas, the State should realize the following benefits:

- 1) *Address fraudulent claims across benefits including Medicaid and Food Stamps*
- 2) *Improvement in programmatic quality of data and reportability of the data*
- 3) *Fewer resources required to implement programs*
- 4) *Clients receiving all eligible benefits*

Exploration Questions:

In pursuing the proposed project, ISDH and FSSA will look at how manual processes can be eliminated to better streamline the enrollment and processing procedures. The most critical question asked in this project will be the future needs for use of the data and how federal and/or state requirements might impact the information/data needs. In order to answer these questions, the ISDH/FSSA team will carefully examine business practices and anticipate future needs and requirements of Medicaid and all stakeholders based on trends and projections.

Options Considered:

Indiana has a series of decisions to make in reviewing its options to transmit Vital Records more efficiently, effectively and with greater speed. Genesis, the system of record, was evaluated for its operational capabilities as well as the solution architecture and finally the legal path to share the data.

Source System

The first decision was what to do with the source system which is Indiana's system of record for Vital Records. The current solution is a third party system that is very costly to maintain and to modify when changes are required. The options included staying with the current system, implementing a Commercial off-the-shelf (COTS) product or building an 'in-house' custom solution.

The first option of maintaining the current system has its advantages. Even though the system uses old technology, it works. There is always value in a system that works where the support staff knows its ins and outs. With that said, it is very expensive to maintain due to its technological age and lack of abundance of technical as well as business resources to maintain it.

The second option is to implement a COTS solution which usually entails 80% configuration and 20% development (custom code). Using a COTS product usually shortens the system development life cycle (SDLC) timeline as it provides a foundation of functionality. This option requires maintaining the current system while the new system progresses through the SDLC which includes requirements gathering, design, development, testing, training and implementation.

The final option is to develop an application from the ground up. The downside of this option is it lacks foundational functionality like a COTS product; which, usually leads to a longer SDLC timeline. The advantage of this option is more precise code as it is specific to each application's requirements. As with option two, the current system remains in place until the cut over to the new system.

Solution Architecture

The second decision was to determine the solution architecture. The current architecture involves a large number of point to point connections as well as many secure file transfer protocol (sFTP) locations, file shares and even securely emailed Excel spreadsheets. The options included staying with the current architecture, implementing an Enterprise Service Bus (ESB) or placing a data file in single location allowing all target systems access to the file.

One option is to stay the course with many disparate connections and transfer methods. This option requires a lot of time to manage as well as troubleshooting up to twenty different methods to

send data which is cumbersome and inefficient. These twenty connections are just within FSSA where ISDH shares data with many other agencies on a daily, weekly, monthly and quarterly basis.

A second option is to use an Enterprise Service Bus (ESB) which will reduce the data feeds between ISDH and target systems to one. The ESB will accept the source data and apply business rules to the data transfer to the target systems. These business rules can include when the target system expects to see the data, the format of the data and what data elements each system is allowed to receive.

The third option is for ISDH to deposit the data into a secured location and allow all other target systems to 'pick up' or copy the data at various intervals. This will force all target systems to adhere to the format ISDH decides and the possibility for issues is very high due to many different systems accessing the same file. (see the second option of the Memorandum of Understanding section below for additional complications when allowing the target system to only use the data elements it has been approved to use)

Memorandum of Understanding

The third decision was to determine the legal path that allows the transfer of Vital Records from the source to the target systems. The current method is a Memorandum of Understanding (MOU) for each data exchange (source to target). The options include staying with the current 'one to one' relationship of MOUs to data transfer, a single, Agency level MOU that includes all data elements and one Agency level MOU with an appendix for each target system outlining the approved data elements.

One option is to continue the one MOU to one data transfer relationship. This option requires each MOU to be individually processed through legal, contracts and the business departments of both organizations. This inefficient process requires duplicated effort for each MOU as the verbiage of the body of the MOU rarely changes.

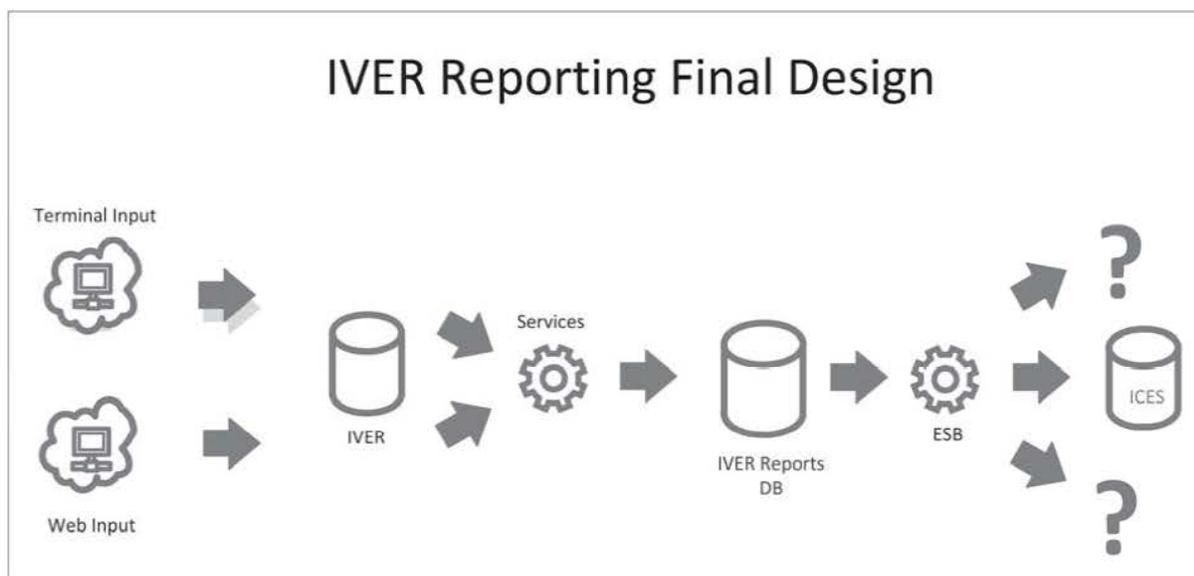
The second option is a single, Agency level MOU that includes all data elements. This option will require legal, contracts and the business units to review and approve this document once thus removing the main issue with the first option. All data elements will be delivered to all target systems thus requiring them to ignore the data elements they are not allowed to use per statute or federal law. This

is problematic for privacy and it will require a lot of development and testing on each target system to properly test this functionality.

The third option is a single, Agency level MOU with an appendix for each target system outlining the approved data elements. As with the second option, this will require legal and contacts to review and approve the MOU once. However, the difference is the business units will approve each data transfer after reviewing the legal path for sharing the data thus allowing for specific data to be transferred to the various target systems.

Selected Options

The state of Indiana ultimately chose to replace Genesis with a custom .Net application, use BizTalk ESB and implement a single MOU with a separate appendix for each target system. Below is a conceptual diagram of the technical solution.



Options Impact and Goals:

The outcomes and exploration questions above relate to all three of the State Systems Interoperability and Integration Projects program goals: improve service delivery, reduce errors and improve program integrity, and/or improve administrative efficiency.

Improve service delivery for clients:

This project will reduce the amount of documentation families must submit to apply for multiple benefits with the birth of a new child, as the birth information will be populated from the birth registry. By providing identifying information for the child, FSSA will be able to match the applicant child to the existing birth record already transmitted to the Indiana Client Eligibility System (ICES) and Medicaid systems. With all FSSA systems linked to the Indiana Client Eligibility System (ICES), one application can then reduce the time spent by families applying or retaining eligibility in services. By automatically transmitting information from the birth/death registry, Indiana will improve the quality of service

families receive because FSSA programs providing these services will have access to the information they need to deliver more effective services.

Reduce errors and improve program integrity:

By eliminating human intervention in data entry for significant amounts of information and improving the timeliness of data availability from the ISDH Vital Records system to (near) real-time automated population of information into the Indiana Client Eligibility System (ICES) and Medicaid systems, the accuracy of eligibility determinations will significantly improve. FSSA's ability to make changes in eligibility and benefits as appropriate will also improve, based on State and Federal policy and families' circumstances. This project will also build in approaches to ensure that information reported to or available in one program can be shared appropriately with other programs in support of program integrity efforts through data and business process integration.

Improve administrative efficiency:

This project will create a fully electronic system that is fully digital on the ISDH side eliminating the paper vault and elaborate document storage system requirements. For FSSA, this project will result in reduced duplicative administrative processes such as verification, document storage, and eligibility determinations for newborn enrollment or processing of death notification.

Options Cost Benefit:

FSSA and ISDH reviewed their respective process and determined there is a real cost savings with the implementation of a new IVER system as well as moving Vital Records through an ESB and delivering this information via automation.

Source System

The first decision was to determine the future of the source system which is Indiana's system of record for Vital Records.

The first option of maintaining the current system is the most costly. ISDH uses four full time employees (FTEs) to maintain Genesis at an average cost of \$60,000 per year. In addition, ISDH spends over \$500,000 a year in licensing and maintenance costs. However, this option will not require any work to migrate from Genesis to another solution. There is always value in a system that works where the support staff knows its ins and outs.

The second option is to implement a COTS solution. This option requires maintaining the current system while the new system progresses through the system development life cycle in addition to purchasing the software and paying annual maintenance.

The final option is to develop an application from the ground up. As with option two, the current system remains in place until the cut over to the new system. This will reduce the number of FTEs and Genesis' large annual costs.

Solution Architecture

The second decision was to determine the solution architecture.

Option one is to continue the course with many disparate connections and transfer methods. This option requires a lot of time to manage as well as troubleshooting up to twenty different methods to send data which is cumbersome and inefficient.

A second option is to use an Enterprise Service Bus (ESB) which will reduce the data feeds from ISDH to target systems to one.

The third option is for ISDH to deposit the data into a secured location and allow all other target systems to 'pick up' or copy the data at various intervals.

Memorandum of Understanding

The third decision was to determine the legal path that allows the transfer of Vital Records from the source to the target systems.

One option is to continue the one MOU to one data transfer relationship. This option requires each MOU to be individually processed through legal, contracts and the business departments of both organizations.

The second option is a single, Agency level MOU that includes all data elements. This option will remove the issue with option one by running through the legal and contracts process once as the body of the MOU is the same for each data transfer.

The third option is a single, Agency level MOU with an appendix for each target system outlining the approved data elements. The appendix will outline the source and target systems as well as what data elements will be shared and the legal path for the sharing.

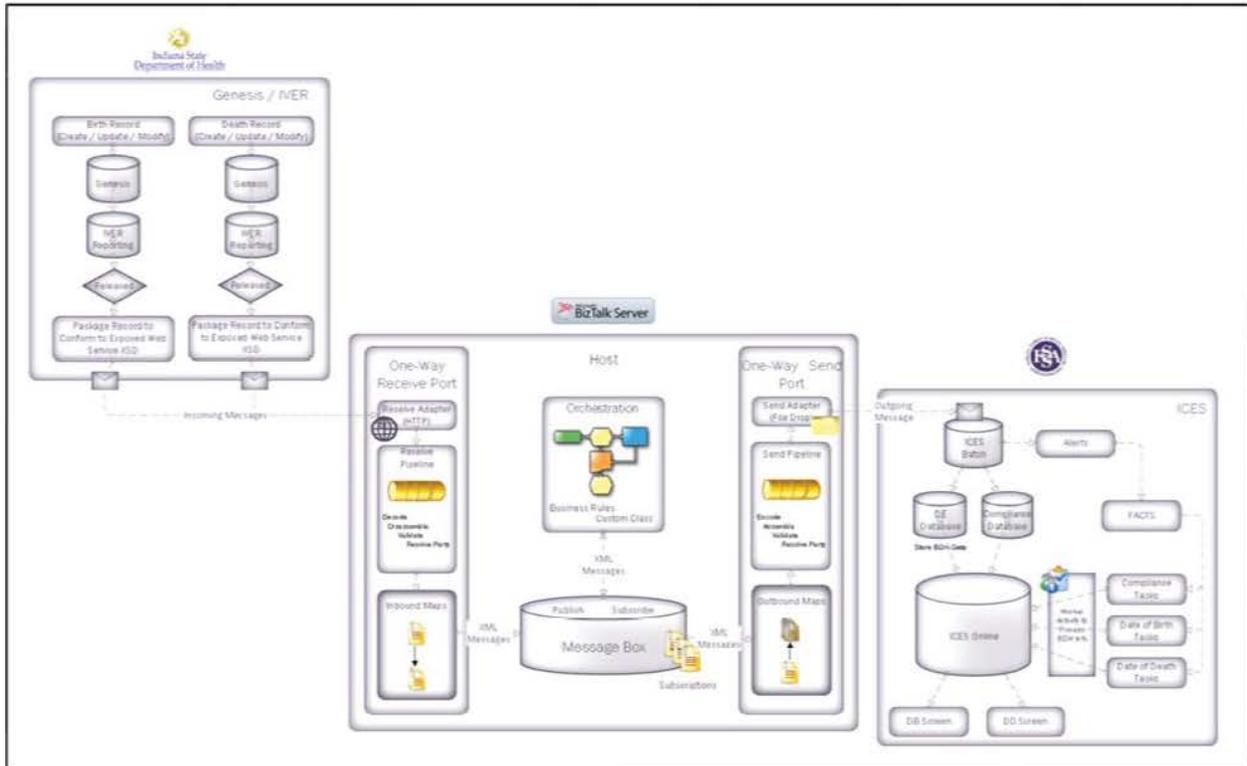
Selected Options

The state of Indiana ultimately chose to replace Genesis with a custom .Net application, use BizTalk ESB and implement a single MOU with a separate appendix for each target system.

Options Enterprise Architecture and/or Modules:

The Interoperability grant is about reusability. FSSA and ISDH started this grant with several ideals including using today's technology to solve yesterday's and tomorrow's issues.

The use of Service Oriented Architecture (SOA) and implementing an Enterprise Service Bus (ESB) moved the enterprise architecture into the current and next generation. The following diagram shows the high level flow of information from ISDH to FSSA via an ESB. Once this connectivity is established, ISDH will only need to maintain a single data feed while the ESB disseminates the approved data elements to many disparate systems.



Exploration Answers:

As stated previously, Indiana’s ‘Exploration Questions’ are: In pursuing the proposed project, the ISDH and FSSA will look at how manual processes can be eliminated to better streamline the enrollment and processing procedures. The most critical question asked in this project will be the future needs for use of the data and how federal and/or state requirements might impact the information/data needs. In order to answer these questions the ISDH/FSSA team will carefully examine business practices and anticipate future needs and requirements of Medicaid and all stakeholders based on trends and projections.

The result of this project equals the required answers. Implementing an Enterprise Service Bus (ESB) and using Master MOUs will allow Indiana to share data faster and more efficiently. The ESB significantly reduces the work from each source and target system required to send and receive

(respectively) data. The old way requires custom work for each data share while the ESB allows for a single setup of a source and simplified setup for each target system. The Master MOU reduces the legal and contractual burden by approving the overarching rules to share data between any two agencies. Then, each data transfer is approved by the businesses on both sides while documenting the legal path to allow the data sharing.

End Result:

At the conclusion of this grant, the State of Indiana will have a working ESB to move Vital Records from ISDH to FSSA in near real time, streamlined MOU process between FSSA and ISDH and the new IVER system will be over 50% complete with Birth records scheduled to go live August 2014 and Death records on March 2015.

Building on this success, FSSA looks to replicate the successes of this project to other relationships. FSSA is already in talks with Department of Child Services (DCS) to exchange data via the ESB and to implement the same Master MOU process.

In 2014, FSSA will move all legacy Vital Record transmissions to the new ESB feed. Once complete, FSSA will look to move all data that goes to ISDH into the ESB.

After the new IVER system is in place, ISDH will work on the intake process and streamline it. This will allow hospitals, funeral homes and other sources to submit birth and death data electronically via secured web technologies.

Breadth:

As discussed below, there are many stakeholders of the birth/death registry that must be taken into consideration when planning for the increased interoperability and integration of the Birth-Death Registry and the Indiana Client Eligibility System (ICES) and Medicaid systems. Four of the five major divisions within FSSA will be affected by the proposed project to improve the connection to the ICES system including the Office of Medicaid Policy and Planning (OMPP), Division of Family Resources (DFR),

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Division of Disability and Rehabilitative Services (DDRS), and the Division of Aging (DA). Receiving more timely notifications will positively impact all FSSA programs that utilize the eligibility system in question (ICES) to store client data. FSSA currently serves more than 1.3 million Hoosiers with services and assistance through such programs as Medicaid, SNAP, and TANF. This project will help by providing updated information to the people who work tirelessly to serve those in need through those programs.

The ISDH programs have a significant interest in the new birth/death registry and the ability to interface more directly with the system: approximately 60% of the agency's programs utilize the information within the registry. Some of the programs utilizing the system most frequently include HIV/STD, Maternal and Child Health, Epidemiology Resource Center, Children's Special Healthcare Services, and Immunization. Outside of FSSA and ISDH, other State agencies also require the use of the information within the registry: Indiana Department of Workforce Development, Indiana Public Defender Council, Indiana State Board of Accounts, Office of the Indiana Attorney General, and the Indiana State Police. Federal agencies also require the data housed within the registry: National Institute for Occupational Safety and Health (NIOSH) and Social Security Administration (SSA). These agencies will also be taken into consideration during the planning of the new system.

Human Services Program and Initiatives:

The Family Social Services Administration programs, both State and Federal, will be taken into consideration when planning and implementing the scope of the proposed solution, they include:

- Cash Assistance Programs
 - a) Temporary Assistance for Needy Families (TANF)
 - b) Refugee Cash Assistance (RCA)
- Healthcare Assistance Programs
 - a) Medicaid,
 - b) Children's Health Insurance Program (CHIP)
 - c) Hoosier Healthwise
 - d) Healthy Indiana Plan (HIP)
 - e) Presumptive Eligibility for Pregnant Women
- Supplemental Assistance for Personal Needs payments (SAPN)
- Indiana Manpower and Comprehensive Training (IMPACT)
- Supplemental Nutrition Assistance Program (SNAP)

Information Technology Initiatives:

FSSA

The ICES application is a current priority for Indiana. FSSA added this project to the IT work queue for eligibility system changes to prioritize and successfully implement needed changes. Work effort involved existing technical and program staff. The FSSA conducted project activities using technical resources from its ICES team, which support DFR and the eligibility process. This project affected the staffing and workload of all projects currently in queue for ICES.

ISDH

The Indiana State Department of Health has several information technology projects, which were leveraged, benefitted by, or linked into the new IVER system. Such systems will include, but are not limited to, the following

Children and Hoosiers Immunization Registry Program (CHIRP)

The Children and Hoosiers Immunization Registry Program (CHIRP) has had an established connection to the Indiana Birth System since May 2007. Every Thursday the registry receives a file with the current birthing information which includes patient demographics, guardian information, and information about the administration of a birth dose Hep B vaccine. With this connection Indiana became one of the first states to have a regular connection with its vital records system and receive the Hep B information. Indiana now ranks as the second highest in the nation for reported birth dose Hep B. CHIRP is an application developed by STC, the automated interface setup to receive the birth information was developed in house by the application programmer.

Indiana Birth Defects and Problems Registry (IBDPR)

The Indiana Birth Defects and Problems Registry (IBDPR) is a population-based birth defect surveillance system designed to aid in the prevention of birth defects and childhood developmental disabilities and to enhance the quality of life of affected Indiana residents. Birth defects are conditions present at birth that affect the structure or function of an infant's body. They can cause physical,

mental, and medical problems. Some birth defects, such as cleft lip or club foot, are easy to observe, but others, such as heart defects, can only be identified using special tests such as echocardiograms. About one out of every 33 babies in the United States is born with a major birth defect. Birth defects are the leading cause of death in infants. Some of these defects are entirely preventable, while others could be identified early and treated or managed in order to improve the quality of life of affected infants and their families.

Data from the IBDPR is used to detect trends in birth defects and suggest areas for further study; to identify epidemiological factors associated with birth defects; to address community concerns about the environmental effects on birth outcomes; to evaluate education, screening, and prevention programs; and to establish efficient referral systems that provide special services for the children with identified birth defects and their families.

Health Intersection:

When this project started, Indiana was still in the planning phase and had not made final determinations around Medicaid expansion or approach to the health insurance exchange due to timing of state elections. During the duration of this project, Indiana has since worked with CMS regarding approaches. Indiana has determined its current approach will not expand the existing Medicaid population, and will use the Federal Data Hub to participate in the Federal Health Insurance Exchange.

Stakeholders:

The Vital Events Registry has many stakeholders from those who are required to notify the State of an event, those that maintain the system, and those that utilize the data and information within the system. In addition to those mentioned above, some of the stakeholders FSSA and ISDH must take into consideration for this project include:

- ISDH & FSSA employees

- ISDH & FSSA clients
- Hospitals, Birthing Centers
- Coroners, Physicians, Medical Certifiers
- Local Health Departments, Clerk of Courts, Voter Registration
- Department of Homeland Security, Department of Revenue, Medicaid
- National Center for Health Statistics

While this is not an exhaustive list, a representative sample is provided of the groups that must be considered when developing and implementing the vital events system. These stakeholders will have input on the improvements of the business process and system functionality requirements as sought in direct communication and business requirement meetings for functionality and operations. They will also be fully trained on the use of the new system in the launch phase of the project.

FSSA and ISDH collaborated on the interface between the IVER and ICES to fully integrate business practices and streamline approaches to fully realize projected outcomes and goals of the project.

As interfaces are required for additional stakeholders, efficiencies will also be sought in the automation of process and elimination of redundancy of data entry, validation, and/or client burden.

Privacy and Confidentiality Framework:

The new Master Data MOU, data exchange and IVER system all include provisions to ensure privacy and confidentiality.

The MOU process includes steps to ensure that data is exchanged in a responsible manner. In the drafting of this document, both legal and contacts gave input to ensure the proper language is in place. This review occurred both in FSSA and ISDH. After the MOU is signed, it will undergo a biannual

legal and contractual review for then-current statues and policies. In addition, each appendix will be reviewed for current legal path.

The birth and death data is transferred via the State's internal network in a secure manner. The connections from ISDH to the ESB and from the ESB to FSSA are encrypted via third party certificate. The ESB also logs the transfers for future audits to ensure compliance.

The IVER system is being built from the ground up with the proper security, privacy and confidentiality in mind.

Benefit to Other States:

As with the other state participants in this grant, Indiana has several options that other states can internalize and implement with their own flavor of business.

1) Benefit to States Interested in Similar Issues

The work Indiana has completed over the past year can provide benefits to other states that want to streamline data exchange. Indiana has built an infrastructure that allows for easier data exchange in multiple ways including the legal / contractual process, networking and systems integration.

Indiana has shown that multiple agencies can work together with technology that enables them to move forward. This forward motion can be money saving and life enhancing at the same time. In addition, this effort brings better collaboration among state agencies which makes a difference. Sometimes, knowing someone else has accomplished what we want to do is encouraging. As with all states participating in this InterOp Grant, one success can and will lead to another.

2) Road Map for Implementation of the Indiana Effort for Other States

The road map below outlines five crucial steps that other states can follow.

Idea → Partner → Funding → Approach → Create Path

Idea

Indiana started with an idea. We want to share data easier, faster and more reliably. Moving data from one agency to another via batch files and CSV files are not the answer to the question.

But what is?

Partner:

While sharing data intra-agency is a good thing to do but it does not move the government or the people of any state forward. FSSA decided that receiving birth and death data from ISDH in a faster, automated and secure manner was a great idea. Thus, FSSA reached out to ISDH about an opportunity to reduce their overhead of maintaining many disparate data feeds.

Funding:

As with any state or local government, budgets are limited in Indiana. When states use their own money in addition to matching federal funds, more quality work gets done in an expedited manner. ACF and CMS are two great sources for money to help move states forward in serving their residents.

Approach:

Once an idea is formed, a partner is identified and funding source is found, how is the project done? The approach is researched and planned via Request for Information (RFI), Request for Quote (RFQ) or other manners. Sometimes, the technical solution was identified before this process starts.

Create Path:

Now that budget, resources and schedule are laid out, the final step is to document the legal path to share data. The Memorandum of Understanding (MOU) is a vehicle to document what is being shared, the business reason(s) why, and the legal path to allow the sharing, among other information.

3) Listing of Planning Documentation Developed and Provided

Below is a list of the documentation produced during this project.

- *InterOP-Grant-Nov27-28-v7*
 - *Project kick off presentation given by Indiana on November 27, 2012*
- *IN-Grant-Meeting-Material-Feb12-2013*
 - *Agenda, presentation and notes from ACF visit to Indiana on Feb 12, 2013*
- *Indiana-InterOP-Concept*
 - *Conceptual diagram*
- *IVER_Design*
 - *Indiana Vital Records design*
- *IN-Grant-Meeting-Material-May15-2013*
 - *Agenda, presentation and notes from ACF visit to Indiana on May 15, 2013*
- *PC0424 - Birth and Death Match System Design -V3*
 - *ICES system design*
- *FSSA ISDH Master Data Share MOU 082113*
 - *Memorandum of Understanding (MOU) Body*
- *FSSA ISDH Master MOU Final Appendix Template 082113*
 - *Memorandum of Understanding Appendix*
- *InterOP-Grant-Sept-v6*
 - *Project conclusion presentation given by Indiana on September 18, 2013*
- *Indiana-InterOp-Project-Plan*

- *Final project plan*

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