

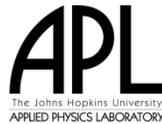
Prepared for the:
Administration for Children and Families (ACF)

**National Human Services Interoperable Architecture
Business Model: Scenarios and Vignettes**

DRAFT Version D0.1

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Applied Physics Laboratory (JHU/APL)



Draft Issue

It is important to note that this is a draft document. The document is incomplete and may contain sections that have not been completely reviewed internally. The material presented herein will undergo several iterations of review and comment before a baseline version is published.

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1 Introduction

NHSIA Business Viewpoint includes a catalogue of scenarios and vignettes that support examination of NHSIA objectives and expected benefits. Scenarios are real-world situations that serve to illustrate how the NHSIA architecture will enable human service operations; vignettes are operational threads describing scenarios that can span several business processes.

The scenarios and vignettes have a number of uses:

- Communicating NHSIA concepts to State stakeholders and explaining the architecture viewpoints.
- Providing a common context for further refinement of the NHSIA business model and NHSIA information exchanges and data services.
- Examining potential interactions between business processes in different business areas.

The two types of scenarios considered for NHSIA, Client in Need and Effective Human Services Programs, are summarized in Table 1–1.

Table 1–1: NHSIA Scenarios

NHSIA Objectives	Scenario Type	Scenario Focus
Integrated, cross-program delivery of human services to clients in need	Client in Need	Transition and expansion of services as needs are defined and change
		Synchronization of services across programs/ agencies
Effective program operations and evaluation	Effective Human Services Programs	Ability to implement program changes and support national level reporting
		Utilization of common resources

Four groups of stakeholders are considered in vignette descriptions: clients, workers, providers and agencies. In Figure 1–1, these categories are mapped to the more detailed list of stakeholders identified for NHSIA.

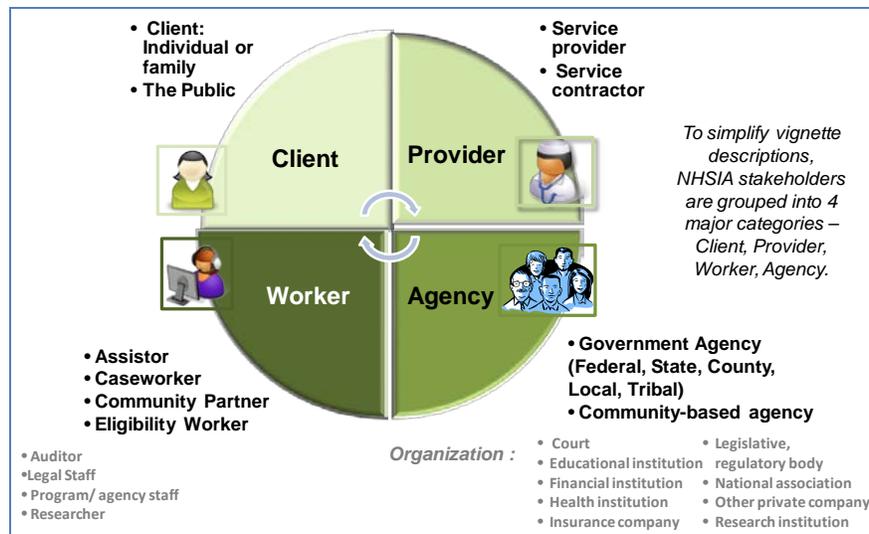


Figure 1–1. Stakeholders Considered in Vignette Descriptions

A short narrative is provided for each scenario. Multiple vignettes are considered per scenario. The following topics are presented for each vignette:

- Scenario narrative: Since vignettes are provided in separate attachments to this document, the relevant scenario narrative is included with each vignette to provide context.
- Vignette narrative and operational thread: A list of the significant events in the vignette is provided.
- Capability Viewpoint Discussion: The list of NHSIA capabilities invoked in the vignette is provided. Capability descriptions are defined in Appendix B.
- Business Viewpoint Discussion: A mapping of events to NHSIA business processes is provided.
- System Viewpoint Discussion: A preliminary list of the shared services expected to be employed in the vignette is provided.
- Information Viewpoint Discussion: A preliminary list of data exchanges and data structures expected to be employed in this vignette is provided.
- Infrastructure Viewpoint Discussion: A representative infrastructure pattern that could be employed in this vignette is provided.
- Summary Discussion: Each vignette exposes challenges and considerations that will need to be addressed by NHSIA. Also, NHSIA capabilities may yield opportunities to evolve business operations. These types of topics are addressed in the Summary Discussion.

- Working Decisions: Assumptions about capabilities and operations considered when developing the vignette descriptions are documented as “working decisions”. These working decisions may change as the architecture matures.

2 Client in Need Scenario Description: At-Risk Family with Small Children

This scenario involves a family unit, a “client group”, with needs that entail a variety of health and human services. Multiple health and human service agencies and the public school system will have to share information and coordinate case plans in order to address the complex needs of this client group. The family has recently moved to the county. The mother’s visit to a public health clinic (related to her pregnancy) is their initial contact with health and human services in this county. The family is directed to the local child welfare agency and over time, a variety of caseworkers become involved with the client group as medical, financial, housing, counseling and childcare services are initiated. At one point, the mother is hospitalized due to medical complications; during this time, her children are briefly placed in foster care.

- **42-year old with no extended family support**
- **Appears to be some domestic violence at home**
- **Has two children ages 2 and 6 – and is pregnant again**
- **2 year old needs child care, family can not afford it**
- **6 year old has special needs and housing is unstable**

Human Services offered to address these complex needs

- a. **Public Health Clinic**
- b. **Child Care Services, Child Foster Care**
- c. **Maternity Services**
- d. **Income Support Services**
- e. **Domestic Violence Services**
- f. **Adult Mental Health Services**
- g. **Housing Stabilization Services**
- h. **Education through Public School System**

Other benefits: Medicaid



Adapted from
“SAMHSA/DHHS Interoperability
Meeting” Brief, June 6, 2010
Montgomery County, MD Department
of Health and Human Services

Figure 2–1. At Risk Family with Small Children Scenario

Three vignettes are examined for this scenario:

- Multi-Program Eligibility Determination
- Multi-Program Service Management to Reduce Readmissions
- Multi-Program Monitoring of Client Status and Outcomes

3 Multi-Program Eligibility Determination

3.1 Narrative and Operational Thread

The events related to the Multi-Program Eligibility Determination vignette are described in Figure 3–1. While at the public health clinic, a caseworker interacts with the mother to identify the family’s needs and help determine which services this client group may be eligible to receive (1). The mother provides information that is captured via an on-line application system (2, 3). The caseworker retrieves any available information pertaining to this client group (4, 5). Given that the family is new to the county, available information is possible through sharing agreements in place with other entities (e.g., Medicaid agency in another jurisdiction). The mother grants agencies access to family data to facilitate timely procurement of services.

Initial eligibility determinations are generated per agency-specific guidelines (6) and the mother is notified of the family’s eligibility status (7). As part of the initial eligibility determination event, other agencies are notified of the client group preliminary eligibility status and appropriate processes are triggered via established automated workflow (8).

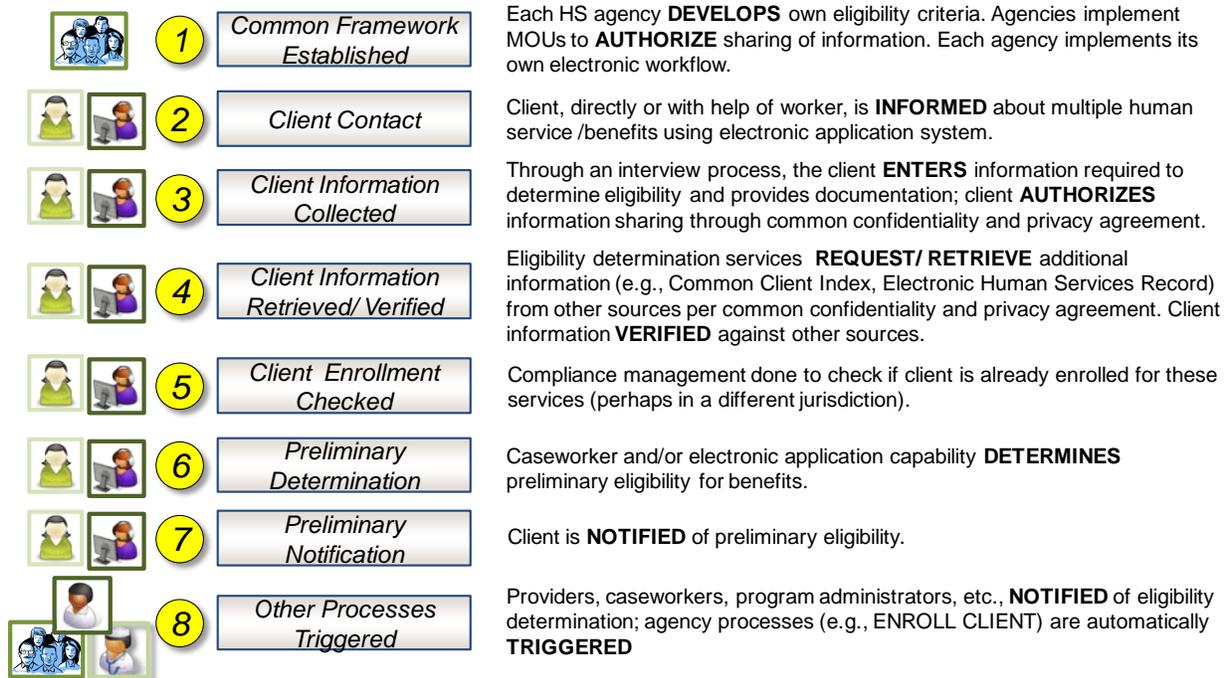


Figure 3–1. Multi-Program Eligibility Determination Operational Thread

3.2 Capability Viewpoint Discussion

The following NHSIA capabilities would be employed in this vignette.

Table 3–1: NHSIA Capabilities Pertaining to Multi-Program Eligibility Determination Vignette

High Level Capability	Capability Name	Primary Actor	Applies?
Multi-Program Eligibility Determination	Apply for Multiple Programs - Electronically	Applicant or client	X
Multi-Program Eligibility Determination	Real-Time Eligibility Check	Applicant or client	X
Convenient Access to Services for Clients	Apply for Multiple Programs - Physically	Applicant or client	X
Multi-Program Eligibility Determination	Enroll in Programs	Applicant or client	X
Convenient Access to Services for Clients	Access via Internet	Applicant or client	X
Electronic Workflow	Enter Information Once	Applicant or client	X
Electronic Workflow	Store Permanent Documents	Applicant or client	X
Electronic Workflow	Interview-Based Applications	Applicant or client	X
Multi-Program Eligibility Determination	Save Partial Applications	Applicant or client	X
Convenient Access to Services for Clients	Apply for Family or Household	Applicant or client	X
Convenient Access to Services for Clients	Access Administrative Status	Applicant or client	
Convenient Access to Services for Clients	Access Care Information	Applicant or client	
Convenient Access to Services for Clients	Single Confidentiality Agreement	Applicant or client	X
Nationwide Access to Systems and Data	Control Access	Applicant or client	X
Nationwide Access to Systems and Data	Change Jurisdictions	Applicant or client	X

Table 3–1: NHSIA Capabilities Pertaining to Multi-Program Eligibility Determination Vignette (Continued)

High Level Capability	Capability Name	Primary Actor	Applies?
Nationwide Access to Systems and Data	Locate Client Data	Assistor/case worker	X
Electronic Workflow	Periodic Situation Check	Assistor/case worker	
Nationwide Access to Systems and Data	Access Client Data	Assistor/case worker	X
Nationwide Access to Systems and Data	Access Provider Data	Assistor/case worker	
Electronic Workflow	Share Cases	Assistor/case worker	
Integrated Service Management	Coordinate Service Management	Assistor/case worker	
Integrated Service Management	View a Client Panel	Assistor/case worker	
Proactive Client Communications	Single Calendar	Assistor/case worker	
Proactive Client Communications	Electronic Conferencing	Assistor/case worker	
Proactive Client Communications	Video Conferencing	Assistor/case worker	
Electronic Workflow	Electronic Notifications	Assistor/case worker	X
Multi-Program Eligibility Determination	Change Rules Easily	Government agency	X
Convenient Access to Services for Clients	Local Service Centers	Government agency	X
Convenient Access to Services for Clients	Virtual Service Centers	Government agency	X
Automated Monitoring and Reporting	Automatic Data Collection	Government agency	
Automated Monitoring and Reporting	Retain Data Indefinitely	Government agency	
Nationwide Access to Systems and Data	National Provider Registry - Registration	Service provider	
Nationwide Access to Systems and Data	National Provider Registry - Access	Service provider	
Nationwide Access to Systems and Data	Discover Providers	Service provider	
Electronic Workflow	Paperless Business Transactions	Service provider	X
Nationwide Access to Systems and Data	Providers Exchange Client Information	Service provider	

Table 3–1: NHSIA Capabilities Pertaining to Multi-Program Eligibility Determination Vignette (Continued)

High Level Capability	Capability Name	Primary Actor	Applies?
Information Based Performance Management	Access Reports	Program analyst	
Information Based Performance Management	Decision Support Tools	Program analyst	
Information Based Performance Management	Longitudinal Studies	Program analyst	
Automated Monitoring and Reporting	Cross-Program Fraud Checks - Historical	Auditor	
Automated Monitoring and Reporting	Cross-Program Fraud Checks - Real Time	Auditor	
Electronic Workflow	Electronic Workflow	Human service application	X
Nationwide Access to Systems and Data	Entry Validation	Human service application	X
Electronic Workflow	Paperless Operations	Human service application	X
Electronic Workflow	Office Automation	Human service application	
Electronic Workflow	Standard Printed Forms	Human service application	
Electronic Workflow	Electronic External Interfaces	Human service application	X
Electronic Workflow	Electronic Information Sharing Among Personnel	Human service application	X
Automated Monitoring and Reporting	Automated Monitoring	Human service application	
Electronic Workflow	Automated Alerts and Notifications	Human service application	X
Convenient Access to Services for Clients	Access Control Mechanisms	Human service application	X
Proactive Client Communications	Proactive Client Communications	Human service application	X
Automated Monitoring and Reporting	System Activity Reports	Human service application	
Automated Monitoring and Reporting	Performance Reports	Human service application	

3.3 Business Viewpoint Discussion

As depicted in Figure 3–2, processes in the Client Management, Eligibility and Enrollment and Performance Management business areas are invoked during the course of the vignette. The Performance Management business processes are further addressed in Section 3.2.1 (Coordination of Benefits and Fraud Detection).

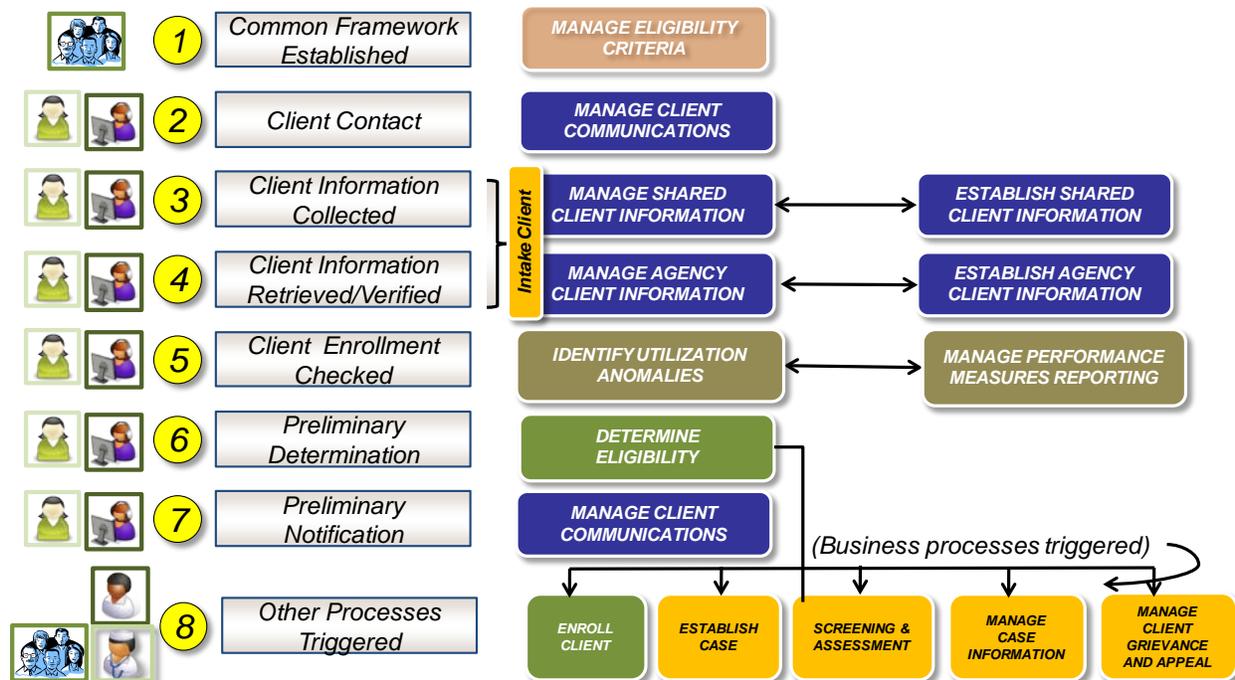


Figure 3–2. Multi-Program Eligibility Determination Business Processes

Prior execution of the Management Eligibility Criteria business process (Program Management business area) establishes the criteria employed by each agency during eligibility determination. Processes related to Client Management (Manage Client Communications, Establish / Manage Shared Client Information, Establish / Manage Agency Client Information) are invoked to interact with the client to collect and store information required to determine eligibility. The client can be an individual or a group (family, household) and eligibility determination can be done for multiple health and human service programs.

Intake Client business processes for the different human services programs may be invoked to collect information needed by those programs (data collection per program requirements). These processes are invoked again as part of Service Management to collect any additional information required to conduct screening and risk assessment prior to development of the case plan.

Performance Management processes, specifically compliance management and reporting, are invoked to check whether the client is already enrolled for services/benefits. The Determine Eligibility business process triggers processes in the Client Management, Eligibility and Enrollment and Service Management business areas. The client is notified of the preliminary eligibility status. Favorable eligibility determination may not mean confirmed enrollment; enrollment policies and procedures may entail additional approval.

3.4 Systems Viewpoint Discussion

The Systems Viewpoint describes a layered model for various ways to access IT systems, integrated applications, shared services, and a common infrastructure. Shared services enable stakeholders to retrieve and store data related to a client, verify data against different sources and notify stakeholders about eligibility status.

Share services employed in this vignette include:

- find person
- request client information
- request person employment information
- respond person employment information
- verify person employment information
- request person finances information
- respond person finances information
- verify person finances information
- interview client
- update person information
- record person documentation
- determine LIHEAP eligibility
- determine SNAP eligibility
- determine TANF eligibility
- approve client eligibility
- notify person
- ...

3.5 Information Viewpoint Discussion

The Information Viewpoint identifies the information exchanges associated with each step in the eligibility determination process as illustrated in Figure 3–3. The information content defined for each information exchange can be used as a starting point to establish National Information Exchange Model (NIEM) transactions between stakeholders, to be captured in NIEM Information Exchange Package Documentation (IEPD). The proposed contents for each Information Exchange are based on the Information Inputs and Outputs identified in the Business Viewpoint Business Model. The content details will be determined by stakeholders as they develop the associated IEPD, and may depend on their system maturity. As an example for information content, the Person Employment Information Exchange would contain the following:

- Person identifier
- Person demographics
- Person employment
- Information pedigree

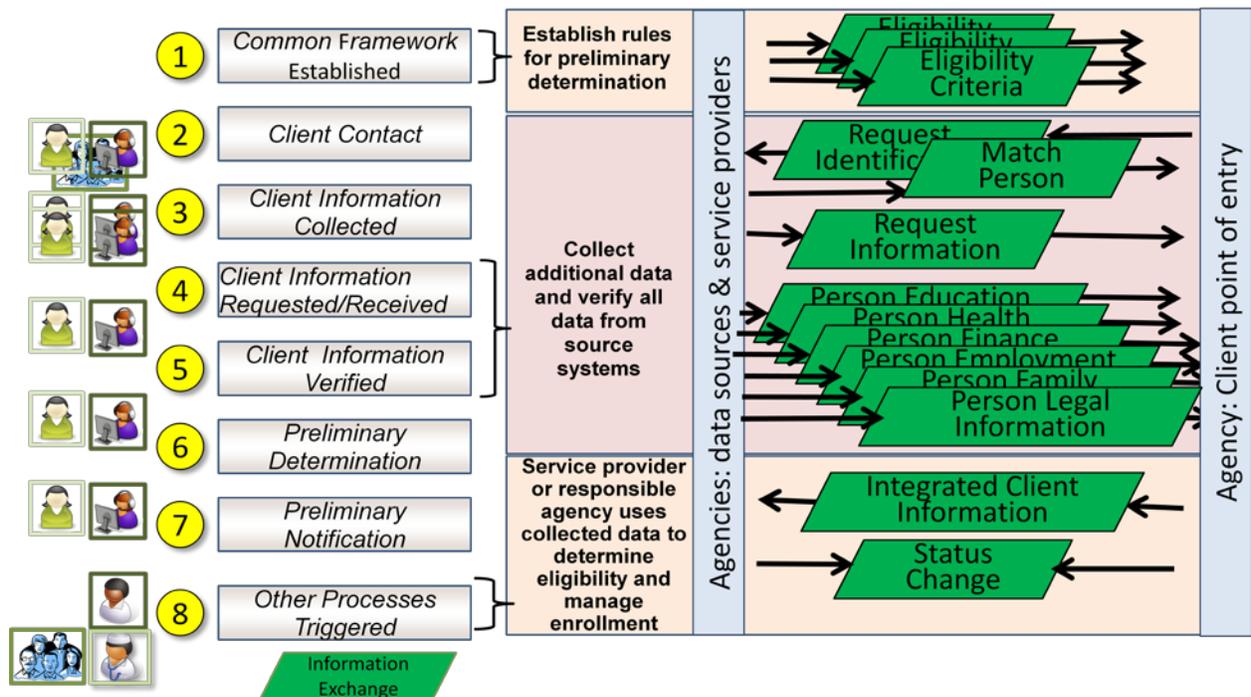


Figure 3–3. Information Exchanges for Eligibility

The Information Viewpoint also provides a conceptual data model (CDM) to illustrate the relationships between data necessary to support the business processes. The CDM is also based on the Business Model Information Inputs and Outputs, but the model provides additional detail about the information in a form that can supplement the NIEM IEPD development process. For the Eligibility and Enrollment portion of the CDM illustrated in Figure 3–4, the data elements have been mapped to existing NIEM data components where possible to identify existing opportunities for interoperability and to identify potential additional work for the Human Services team for NIEM.

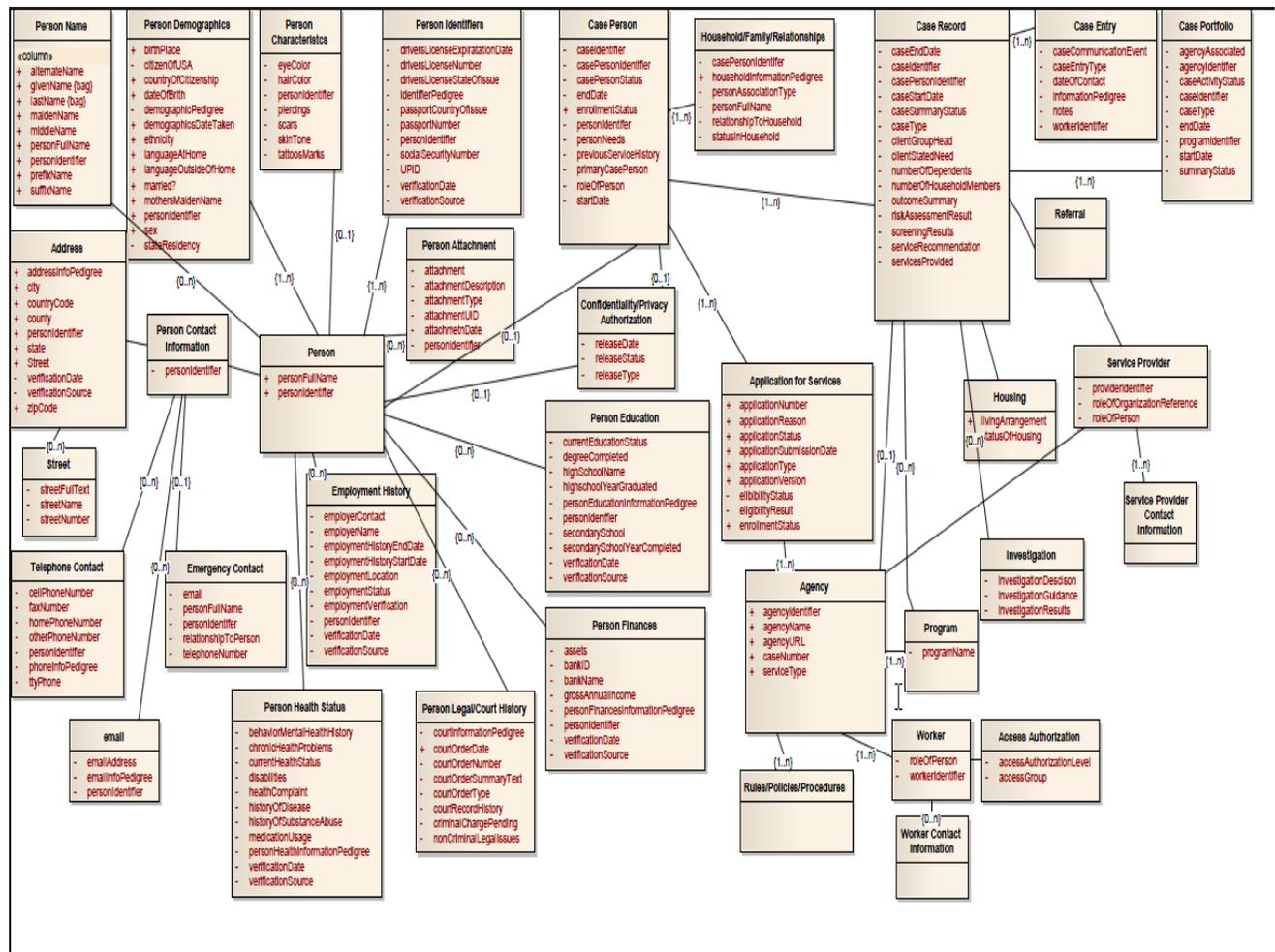


Figure 3–4. Eligibility Aspect of NHSIA Conceptual Data Model

3.6 Infrastructure Viewpoint Discussion

The Infrastructure Viewpoint presents a number of architecture patterns that can be used, alone or in combination, to build the required technology infrastructure necessary to support the multi-program eligibility determination scenario. In particular, two patterns are appropriate to this scenario:

- Self-Service Decomposition Pattern.** This pattern provides a mechanism to collect data via a web browser and to then route that information to one or more application systems. The web browser session would provide the means for the client or the caseworker to enter demographic or other data needed for eligibility determination. If necessary, the pattern provides a mechanism to store work in process in the event that the application is not completed.

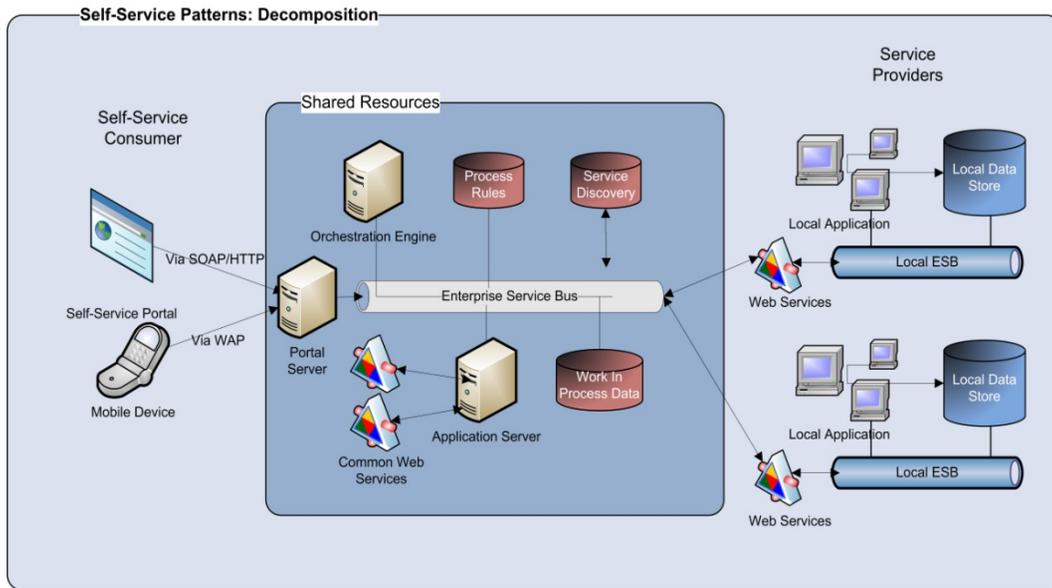


Figure 3–5. Self-Service Decomposition

- Information Aggregation Federation Pattern.** This pattern supports the aggregation of data from multiple sources. For example, this pattern would support the need to retrieve and verify client information from relevant data sources (e.g., Master Person Index, electronic human service records).

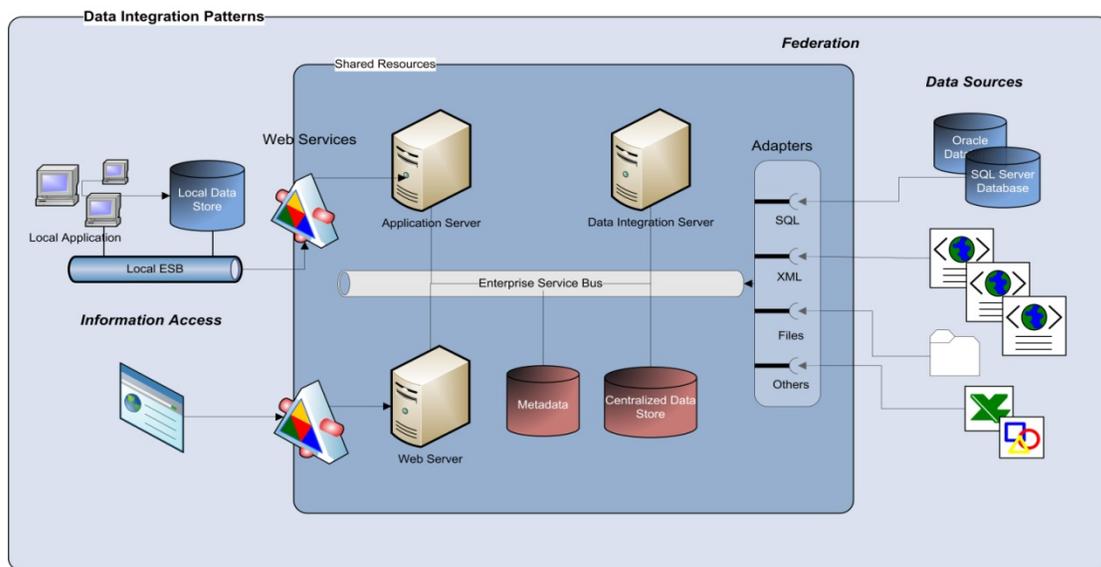


Figure 3–6. Information Aggregation Federation

- Extended Enterprise Managed Process Pattern.** This pattern provides a mechanism to implement an end-to-end business process that flows across organizational boundaries, if necessary. Using a rules engine and an orchestration engine, the deployed pattern would support the execution of

eligibility determination processes as appropriate and would also trigger any follow-on processes (e.g., enroll client).

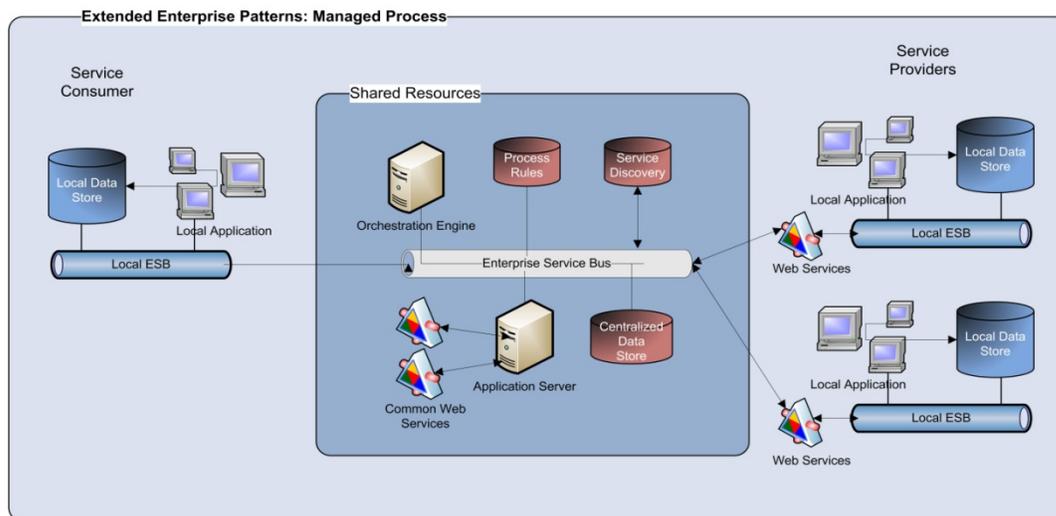


Figure 3–7. Extended Enterprise Managed Process

3.7 Summary Discussion

This vignette reflects a human services business strategy where eligibility determination is provided to the client as a coordinated, on-line capability. Each agency still manages its own eligibility criteria but from the client perspective, information entered once is used to make multiple determinations.

This scenario depicts *assisted* eligibility determination in that a worker is interacting directly with the client and aids the client in entering information. However, the worker might not be an expert in all human services domains (e.g., may not be an expert in child welfare or assisted housing) and may primarily assist the client in navigating the on-line application capability. Additional assistance from workers operating *remotely* may be required.

The same preliminary eligibility determination could be conducted in a *self-directed* mode where the client uses a web portal application to enter information and obtain eligibility status.

Human services business area metrics and process measures will be established as the architecture develops. Business area metrics contribute to program performance (i.e., business intelligence) and the assessment of strategic outcomes. Strategic outcomes are the overall impact expected in the client population as a result of receiving specified services.

Examples of possible *process measures* are:

- median time to verify information required to make preliminary eligibility determination
- % of data entries that are duplicative
- % key data elements that are verified against an authoritative source
- number of human services programs included in compliance (fraud) check.

These measures span Client Management and Eligibility and Enrollment processes.

Examples of potential *business area metrics* are:

- timeliness: median time to enroll new clients into programs when clients are eligible for services
- workforce productivity: number of completed eligibility determinations per number of workers supporting eligibility determination

An example of a possible *program metric (or output)* is the number of clients eligible to receive services who are receiving services. *Target outcomes* are monitored for each client, where the target outcome is the desired outcome for the client reflected in the case plan. Target outcomes are used in the evaluation of program outputs.

Strategic outcomes are defined for each human services program. By example, in this scenario the family is receiving TANF benefits where TANF strategic outcomes are tied to client employment.

3.8 Working Decisions

- A Master Person Index is created the first time a client interacts with any health or human services entity. An index is created per individual. This means that any entity (county or state agency, service provider, community provider, etc.) authorized to interact with clients to collect information has the ability to initiate creation of the master person index.
- Sharing of information across health and human services programs to execute eligibility determination requires authorization from the client allowing agencies to share their information. This means that a mechanism for resolving confidentiality and privacy matters, specifically across programs, is integrated with the eligibility determination capability. One strategy is an enterprise approach for user provisioning (managing user access) such as that implemented in the Kentucky.
- The coordinated, on-line application capability considered in this vignette is expected to yield *preliminary* determinations; worker and agency stakeholders have a role in final authorization of benefits and services. If this

is not the case, rules/policies/procedures must be incorporated into electronic workflow to incorporate requisite checks.

4 Multi-Program Service Management to Reduce Readmissions

4.1 Narrative and Operational Thread

The mother in the at-risk family scenario is briefly hospitalized due to issues related to her pregnancy. The hospital staff is concerned that her apparent poor prenatal practices and the family's situation may result in repeated readmissions. Prior to her release, human service agencies are notified of the hospitalization episode and the mother's status. The client's caseworkers are contacted by hospital social work. Caseworkers access the client's case records and document the need for follow up care. An electronic notice is sent to appropriate human services agencies, prompting them to make contact with the client after discharge from the hospital. Plans of care are notated in the case portfolio by each agency. Target outcomes are identified by each agency. These are used for monitoring and coordination of activities.

- The master person index is used to search for and retrieve the client's case portfolio and case records. Access to case information is per pre-defined authorizations; a new case entry documents hospital admission.
- Human services agencies are notified that client has been admitted into the hospital.
- Prior to discharge, caseworkers notified of concerns with client's health status and potential impact of family situation.
- Upon discharge, client's case portfolio (portfolio spans health and human services agencies) is updated (preferably from electronic health via automated workflow) with chief concerns, which generate alerts to appropriate human services agencies.
- Each agency receiving the alert documents plan to address client needs as outlined in the case entries generated by the hospital. Each plan contains specific dates, target outcomes, and identifies coordinating agencies or additional resources needed, which may trigger further alerts to other human services agencies.

The operational thread for this vignette is depicted in Figure 4–1.

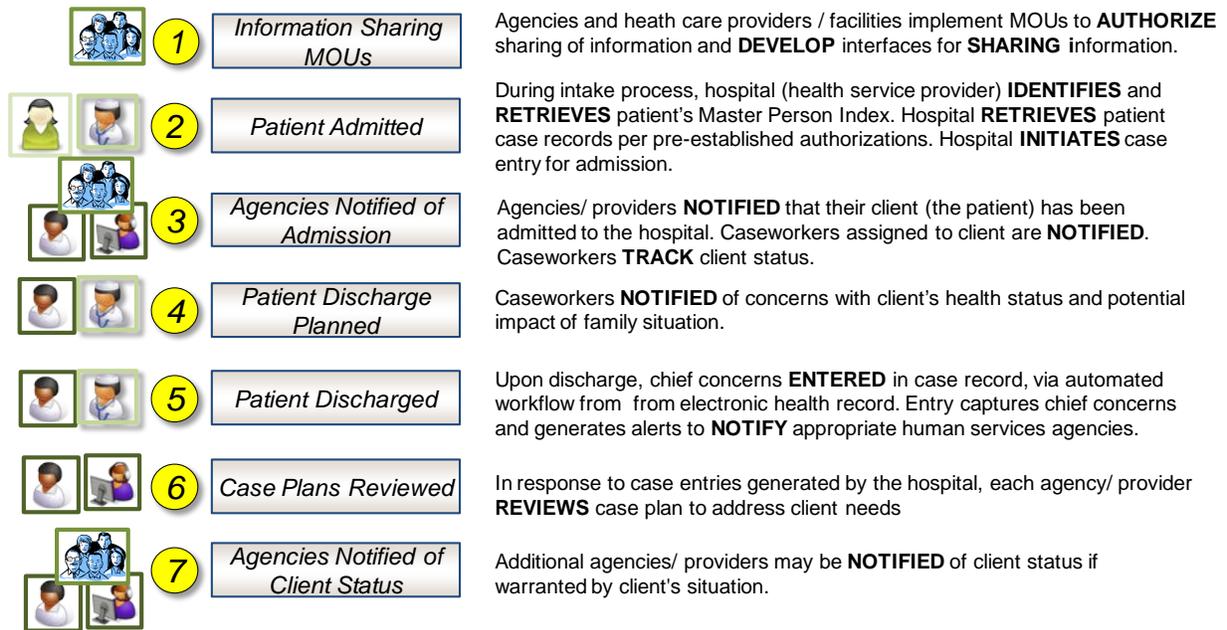


Figure 4–1. Reduce Readmissions Vignette Operational Thread

4.2 Capability Viewpoint Discussion

The capabilities employed in the course of this vignette are noted in the following tables.

Table 4–1: NHSIA Capabilities Pertaining to Reduce Readmissions Vignette

High Level Capability	Capability Name	Primary Actor	Applies?
Multi-Program Eligibility Determination	Apply for Multiple Programs - Electronically	Applicant or client	
Multi-Program Eligibility Determination	Real-Time Eligibility Check	Applicant or client	
Convenient Access to Services for Clients	Apply for Multiple Programs - Physically	Applicant or client	
Multi-Program Eligibility Determination	Enroll in Programs	Applicant or client	
Convenient Access to Services for Clients	Access via Internet	Applicant or client	
Electronic Workflow	Enter Information Once	Applicant or client	X
Electronic Workflow	Store Permanent Documents	Applicant or client	X
Electronic Workflow	Interview-Based Applications	Applicant or client	
Multi-Program Eligibility Determination	Save Partial Applications	Applicant or client	
Convenient Access to Services for Clients	Apply for Family or Household	Applicant or client	
Convenient Access to Services for Clients	Access Administrative Status	Applicant or client	
Convenient Access to Services for Clients	Access Care Information	Applicant or client	X
Convenient Access to Services for Clients	Single Confidentiality Agreement	Applicant or client	X
Nationwide Access to Systems and Data	Control Access	Applicant or client	X
Nationwide Access to Systems and Data	Change Jurisdictions	Applicant or client	

Table 4–2: NHSIA Capabilities Pertaining to Reduce Readmissions Vignette

High Level Capability	Capability Name	Primary Actor	Applies?
Nationwide Access to Systems and Data	Locate Client Data	Assistor/case worker	X
Electronic Workflow	Periodic Situation Check	Assistor/case worker	X
Nationwide Access to Systems and Data	Access Client Data	Assistor/case worker	X
Nationwide Access to Systems and Data	Access Provider Data	Assistor/case worker	
Electronic Workflow	Share Cases	Assistor/case worker	X
Integrated Service Management	Coordinate Service Management	Assistor/case worker	X
Integrated Service Management	View a Client Panel	Assistor/case worker	
Proactive Client Communications	Single Calendar	Assistor/case worker	X
Proactive Client Communications	Electronic Conferencing	Assistor/case worker	
Proactive Client Communications	Video Conferencing	Assistor/case worker	
Electronic Workflow	Electronic Notifications	Assistor/case worker	X
Multi-Program Eligibility Determination	Change Rules Easily	Government agency	
Convenient Access to Services for Clients	Local Service Centers	Government agency	
Convenient Access to Services for Clients	Virtual Service Centers	Government agency	
Automated Monitoring and Reporting	Automatic Data Collection	Government agency	
Automated Monitoring and Reporting	Retain Data Indefinitely	Government agency	
Nationwide Access to Systems and Data	National Provider Registry - Registration	Service provider	
Nationwide Access to Systems and Data	National Provider Registry - Access	Service provider	
Nationwide Access to Systems and Data	Discover Providers	Service provider	
Electronic Workflow	Paperless Business Transactions	Service provider	X
Nationwide Access to Systems and Data	Providers Exchange Client Information	Service provider	X

Table 4–3: NHSIA Capabilities Pertaining to Reduce Readmissions Vignette

High Level Capability	Capability Name	Primary Actor	Applies?
Information Based Performance Management	Access Reports	Program analyst	
Information Based Performance Management	Decision Support Tools	Program analyst	
Information Based Performance Management	Longitudinal Studies	Program analyst	
Automated Monitoring and Reporting	Cross-Program Fraud Checks - Historical	Auditor	
Automated Monitoring and Reporting	Cross-Program Fraud Checks - Real Time	Auditor	
Electronic Workflow	Electronic Workflow	Human service application	X
Nationwide Access to Systems and Data	Entry Validation	Human service application	X
Electronic Workflow	Paperless Operations	Human service application	X
Electronic Workflow	Office Automation	Human service application	
Electronic Workflow	Standard Printed Forms	Human service application	
Electronic Workflow	Electronic External Interfaces	Human service application	X
Electronic Workflow	Electronic Information Sharing Among Personnel	Human service application	X
Automated Monitoring and Reporting	Automated Monitoring	Human service application	X
Electronic Workflow	Automated Alerts and Notifications	Human service application	X
Convenient Access to Services for Clients	Access Control Mechanisms	Human service application	X
Proactive Client Communications	Proactive Client Communications	Human service application	X
Automated Monitoring and Reporting	System Activity Reports	Human service application	
Automated Monitoring and Reporting	Performance Reports	Human service application	

4.3 Business Viewpoint Discussion

As depicted in Figure 4–2, processes in the Multi-Program Service Management to Reduce Readmissions triggers processes in the Client Management, Service Management, and Business Relationships business areas. Specifically, the approach to meeting the client’s identified needs is coordinated through the use of case records and a case portfolio that spans time and services.

Client outcomes can also be monitored based on established targets recorded in each agency’s plan of care. Agencies are able to see each other’s plan, targets and dates so as to better coordinate overall activities.

This vignette depicts operations in which information sharing and proactive notification of changes in client status are conducted seamlessly across health and humans services. Case entries can be generated by both health and human services entities, promoting holistic awareness of the client’s situation.

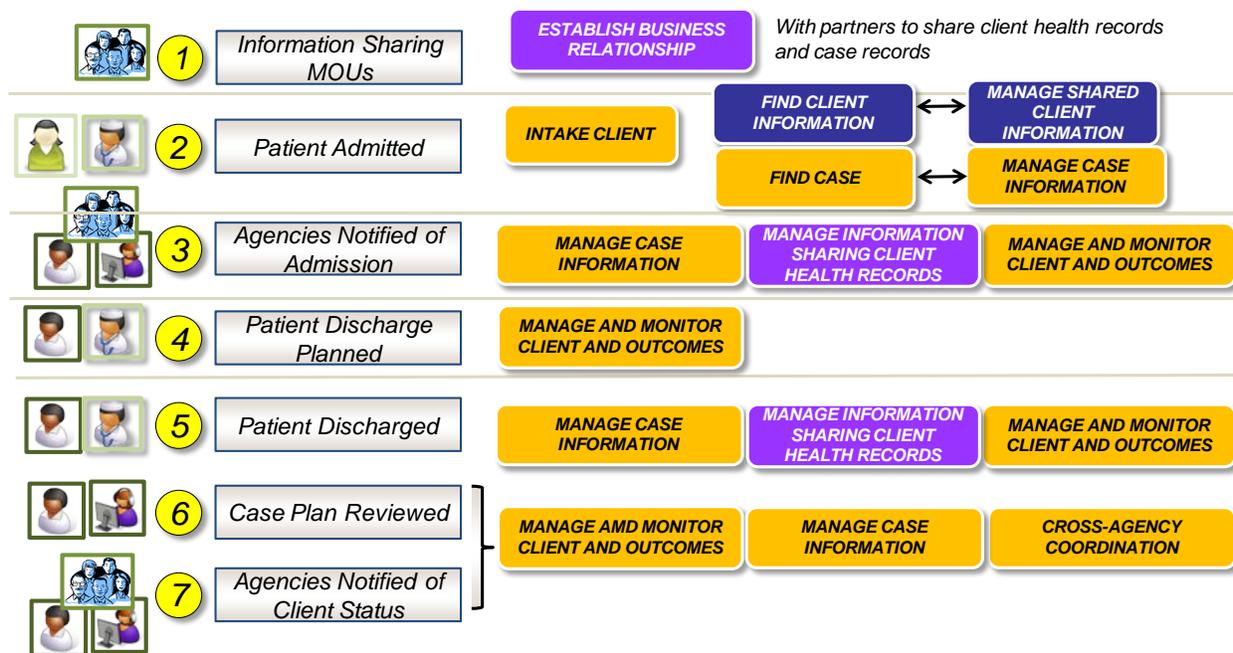


Figure 4–2. Multi-Program Service Management to Reduce Readmission

4.4 Systems Viewpoint Discussion

The Systems Viewpoint describes a layered model for various ways to access IT systems, integrated applications, shared services, and a common infrastructure.

Shared services support the sharing of key structures: Master Person Index, Case Record, Case Person Record, Case Portfolio, and Electronic Health Record. This vignette also highlights shared notification services. These services are used to alert workers and service providers of critical changes in client status.

The hand-off between health and human services results in additional case entries: case summary, clinical information, care plan recommendations and action items, target outcomes, and planned dates for each intervention. Share services support

generation of these case entries for appropriate case records.

4.5 Information Viewpoint Discussion

Not available at this time.

4.6 Infrastructure Viewpoint Discussion

Not available at this time.

4.7 Summary Discussion

This vignette reflects a human services business strategy where applicable human services agencies are notified of a client in need. In particular, the vignette illustrates interaction and interoperability between health services and human services. Working virtually, the identified agencies jointly establish a plan to coordinate activities designed to support the client's needs. Using a case portfolio structure, each agency's planned intervention is documented, including clearly established dates and target outcomes. Each agency still manages its own intervention (captured as case entries within their case records), but has the advantage of knowing what other agencies will be involved with the client, what they are planning, and over what time period the intervention will occur. This will allow the agencies to coordinate efforts, minimize duplicative efforts, and assess the overall client experience related to target. From the client perspective, needs are coordinated for the client.

Human services business area metrics and process measures will be established as the architecture develops. Business area metrics contribute to program performance (i.e., business intelligence) and the assessment of strategic outcomes. Strategic outcomes are the overall impact expected in the client population as a result of receiving specified services.

Examples of possible process measures are:

- % of agencies successfully notified that client had been admitted into hospital
- timeliness of notification that client has been admitted

Examples of potential business area metrics are:

- # of case plans reviewed and updated to reflect client's admittance into hospital – for individual admitted into facility as well as plans for other family members

An example of possible program metrics (or outputs): overall reduction in the number of times the client is admitted into a hospital and reduction in the number of times the children are placed in foster care while the parent is hospitalized.

Strategic outcomes are based on the service, and so strategic outcomes for TANF and other programs would still apply. However, a reduction in the number of avoidable hospitalizations would prevent hospitalizations from becoming a mediating factor that contributes to unfavorable strategic outcomes.

4.8 Working Decisions

- Sharing of information across health and human services programs to coordinate a virtual client “care plan” requires authorization from the client. This means that a mechanism for resolving confidentiality and privacy matters, specifically across programs, must be integrated with the sharing of clinical information.
- Linking the client’s case portfolio (which includes case records maintained by different human services agencies) to a hospital or regional electronic health record would significantly enhance functionality, minimize redundant data entry or transferring of data, and allow for more complete client case management in the community.
- Service providers (health or human services) can make case entries in a client’s case record. That is, providers can record entries that can be associated with a case record or case person record maintained for the client.
- Notification services utilize the case identifier to determine who should receive notices and alerts pertaining to a client.

5 Multi-Program Monitoring of Client Status and Outcomes

5.1 Narrative and Operational Thread

The mother's release from the hospital triggers increased monitoring of the client. Workers from different agencies individually assess the patient's/ client's needs based on the information shared prior to discharge. Each agency records their specific plan in case records; collectively, these records form the client's case portfolio.

Each plan specifies actions and a definition of each intervention, dates, and target outcomes. Each agency is able to view the "overall" plan for the client. This allows agencies to collaborate to determine whether changes to case plans are needed to deter future hospitalizations. Caseworkers are able to quickly share their case summary and status, allowing everyone to have a shared understanding of the client situation. Some adjustments are made to case plans and the client is involved in defining the course of action. The client is able to review the case plan and communicate during the development process.

Over the next several weeks, monitoring of the client is conducted by assessing completion of the identified elements in the case plan and achievement of targeted outcomes. Agencies document activities in their respective case records and are provided periodic updates on the comprehensive status of the client via electronic alerts. In particular, caseworkers receive alerts about any overdue elements specific to their agency.

The client's common portfolio includes a dashboard which allows for a quick review of all case plan elements, by agency and their current status. Each agency can see the overall case plan and has the ability to communicate with the other agencies involved in order to make appropriate adjustments as needed.

The client has the ability to view this dashboard to monitor activities, record the status of client-specific responsibilities (such as a follow-up appointment to a primary care provider), and engage in follow-up with agencies as needed.

Warning alerts are sent as due dates for elements approach. These notices go to agencies and the client. Past due elements (according to effective date) or targeted outcomes not met also trigger alert notices to the agency responsible for the element, other agencies and the client as appropriate. Escalation to higher levels within an agency may occur for critical elements that are past due or targets not met.

Data in the case portfolio is pulled automatically to populate agency performance management reporting.

An example of performance reporting in this vignette can be aligned with case plan compliance. For example, the percent of elements met on or before the due date that are agency dependent or the percent of patient objectives achieved that are patient dependent.

5.2 Summary Discussion

This vignette reflects a human services business strategy where applicable human services agencies are monitoring the status of the patient/client post-discharge against an “integrated” case plan. In this context, “integrated” means that each agency includes its case records in the client’s case portfolio and furthermore, aligns its case plan with the other plans to yield an integrated strategy.

Agency and client performance against the “integrated” plan is monitored through automated processes that use discrete data elements specified during the case planning process as targeted measures. Agencies and clients have the ability to receive reminders of upcoming events and warnings of overdue or missed targets. Agency management is informed if critical elements are missed or there is a trend of non-performance through escalation clauses.

Targets defined for clients could be aligned with agency targets (e.g. an element of performance might be “kept doctor appointment” while an agency measure of performance might be “% of all doctor appointments kept by clients”). By linking individual client performance targets to agency targets, roll-up data can be collected and reported automatically thus reducing reporting burden. Agency targets are quantified and available for use in evaluating program outputs.

The availability of a common client dashboard could be used to facilitate cross-program performance incentives and monitoring. Linking agencies through performance monitoring could be used to create more coordinated work processes potentially eliminating inefficiencies associated with duplicative efforts, missed opportunities to transition clients off subsidies, and failure to share best practices.

The client may use a web portal to access a designated section of their case portfolio to view the plans of care identified, the expected dates and outcomes, and also any items requiring client engagement. This could provide the client with more complete information (schedule of appointments, home visits, expectations) and enhance their understanding of the agencies supporting them, as well as client responsibilities.

5.3 Working Decisions

- Data structures discussed in prior vignettes (Master Person Index, Case Record, Case Portfolio, Electronic Health Records, etc.) are implemented and used.
- Each agency maintains a current case status
- Data elements used as targets are discrete and are captured as part of service management processes.
- Client targets are aligned to agency goals and outputs.
- A case dashboard is used to monitor overall performance against the integrated case plan and provide insight into the status of agency case plans.
- Services are in place to monitor client and agency activity relative to plans, and remind and alert agency staff and client of plan status.

6 Effective HS Programs: Managing Efficient Programs within a Region

A region (large metropolitan area and two adjoining states) is experiencing significant financial challenges and human services agencies have to prioritize expenditures. Agencies are under significant pressure to report performance outcomes as part of financial planning. They must consider both federal and state defined performance measures and outcomes.

Frequent relocation of clients within the region poses challenges to local human service agencies. There is concern that some clients may be receiving redundant services in multiple jurisdictions.

Agencies want to strengthen eligibility determination, authorization and monitoring processes. Agencies are also hoping to implement practices that allow access to previous and current service history, regardless of jurisdiction. Finally, timely, on-demand reporting is needed to improve effectiveness and efficiency of programs.

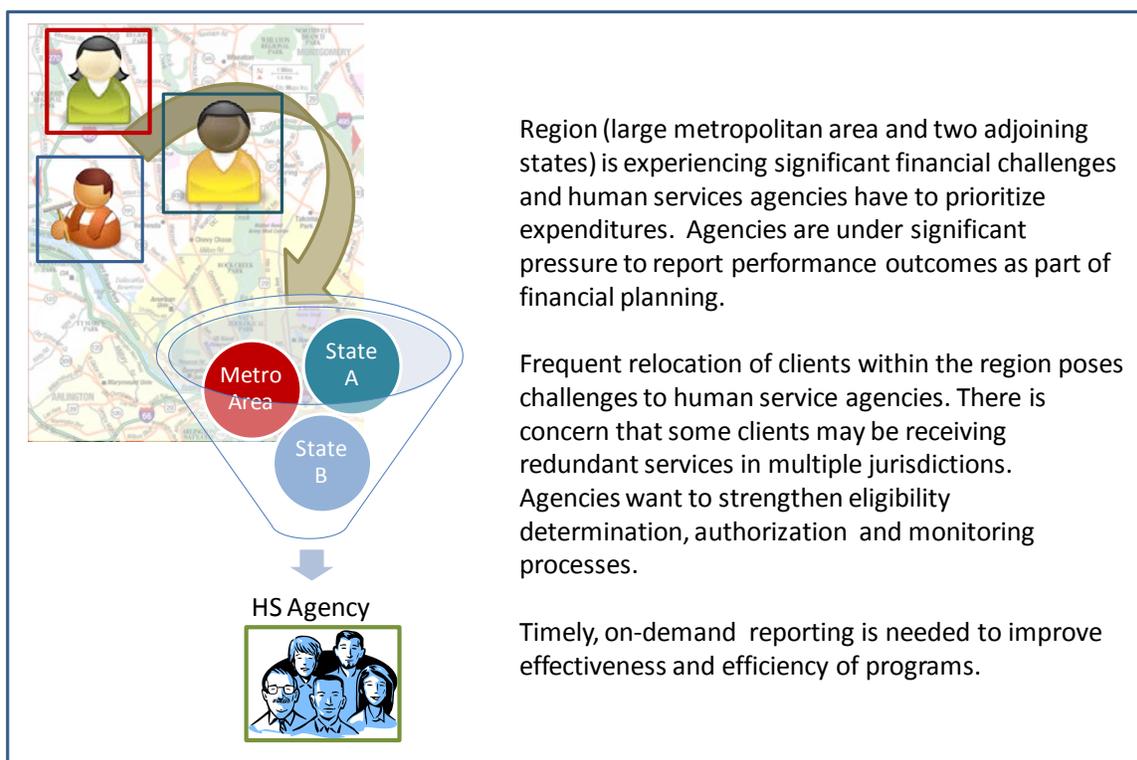


Figure 6–1. Managing Efficient Programs within a Region

The following vignettes are examined for this scenario:

- Real-time Monitoring – Coordination of Benefits and Fraud Determination
- Conduct Longitudinal Study that Involved Multiple Human Service Programs
- Compare State Program Usage and Status
- Portability of Data During Disaster

The vignettes examine region considerations while still retaining the perspective of the client family examined in the Client In Need scenario.

7 Real Time Monitoring - Coordination of Benefits and Fraud Determination

7.1 Narrative and Operational Thread

As part of its eligibility determination and enrollment processes, each agency ensures that client information is verified real-time against reliable sources. Agencies incorporate a daily check (if not more frequent) to determine if the client is receiving the same benefits in a different jurisdiction. This would indicate possible fraud. Agencies also implement on-going monitoring of factors that affect client eligibility status and are notified when eligibility should be re-evaluated.

- In the case of the family (mother and small children) seeking help, the worker assisting the mother enters client information into the system as part of the eligibility determination process. A check is made to determine if a master person index exists for the mother and her children.
- A master person index exists for the mother and each child. If a case portfolio exists, the indices support retrieval of case information.
- PARIS or a comparable capability is used to check if the client is already receiving any of the services for which they are applying. Checks are done on a daily basis: Federal, Veteran's Administration, Interstate and other databases are checked to determine if the client is already enrolled or receiving services, perhaps in another jurisdiction. The checks also determine if the client is utilizing alternatives sources of benefits. Potential matches are reviewed and when confirmed, are investigated and processed according to guidelines.
- In this case, it is determined that the client is enrolled in SNAP and Medicaid programs through the Commonwealth of Virginia.
- The client is applying for services in Maryland. Based on residency information received from the client and retrieved using the master person index, the worker verifies that the client is currently residing in Maryland.
- Workers in Maryland are able to coordinate with Virginia's Medicaid and SNAP agencies and resolve the client's enrollment in these programs.
- Enrollment is completed and program information is updated.
- When the case portfolio is established for the client in Maryland, a case entry notes prior enrollment in Virginia.

The operational thread for this vignette is depicted in Figure 7–1.

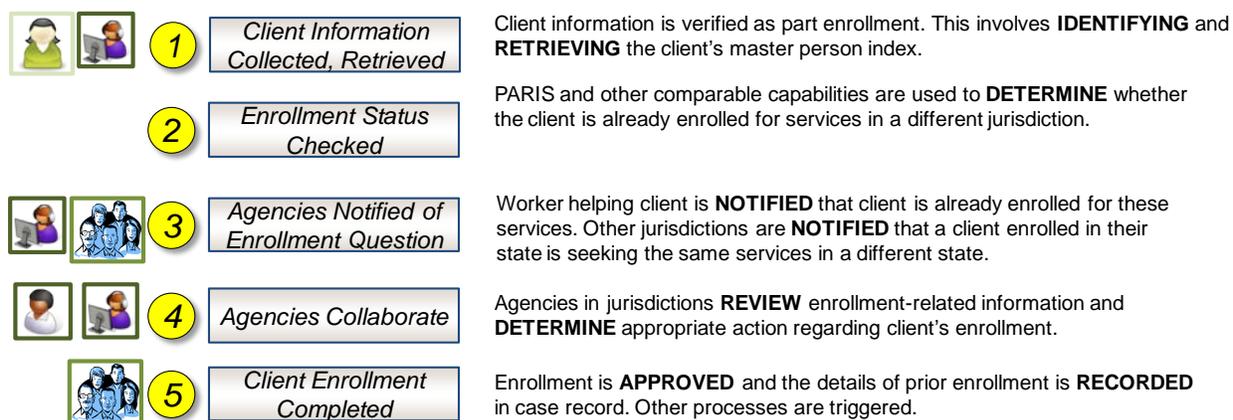


Figure 7–1. Real-Time Monitoring Operational Thread

7.2 Business Viewpoint Discussion

As depicted in Figure 7–2, retrieval of information during eligibility determination includes checking whether the client is already enrolled for benefits/ services in another jurisdiction. Performance Management processes, specifically Compliance Management processes, are invoked. These processes span initial identification of an anomaly, establishment of a compliance incident and collaboration between entities to resolve a compliance issue. When a case portfolio and case records are established for the client in the new jurisdiction, case entries document the client's previous receipt of services/ benefits in other jurisdictions. Enrollment-related performance measure data is captured and program information is updated. Automated workflow enables the triggering of business processes.

Through use of a master person index and a repository that maintains up-to-date enrollment data across jurisdictions, human services agencies are able to identify overlaps in services, duplication (receiving the same services in multiple jurisdictions), coordinate services across jurisdictions (same agency different localities), and identify fraud or alternative sources of benefits.

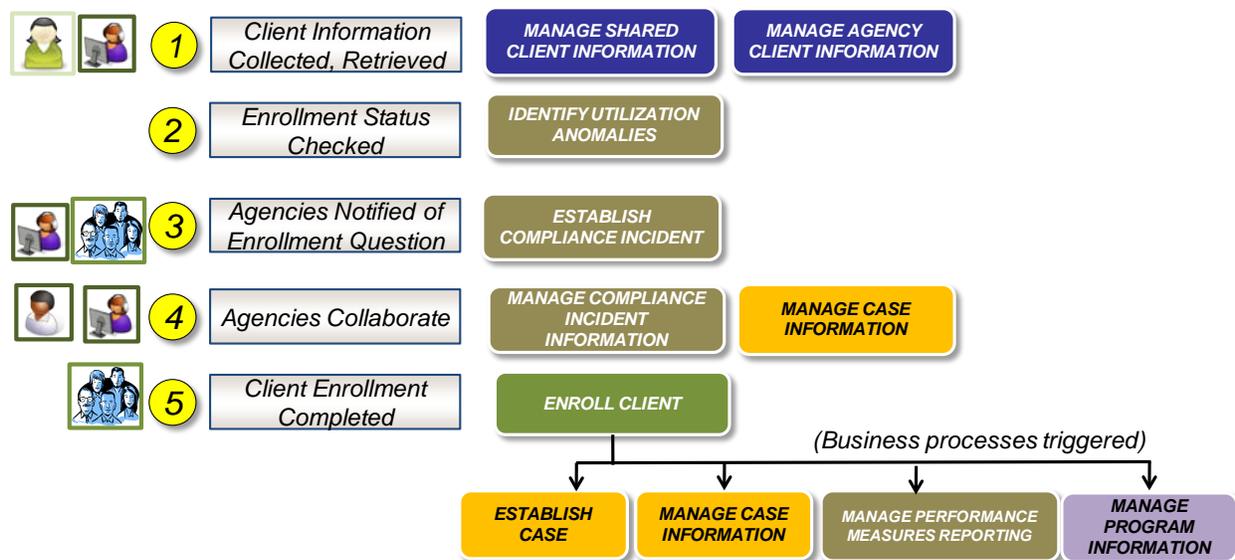


Figure 7–2. Real-Time Monitoring Business Processes

7.3 Summary Discussion

This vignette reflects a human services business strategy where applicable human services agencies are notified of potential duplicate client enrollment in real-time. The client enrollment process begins with a search of the master person index using person core data (e.g., surname, date of birth, gender, SSN). A subsequent check against a common repository of enrollment data identifies potential anomalies, e.g., the client is already receiving these benefits in another jurisdiction or comparable benefits through another program. The interstate matches allow for detection of unreported moves, thereby preventing the issuance of improper payments.

In some cases, anomalies can be coordinated and resolved, allowing for enrollment in the jurisdiction where the client currently resides.

Agencies provide daily updates of enrollment status data to support interstate matches.

The PARIS capability performs these types of interstate checks today. PARIS also checks if a client is no longer eligible to receive benefits. In the NHSIA concept, such eligibility checks would be consolidated in the Determine Eligibility process preceding Enrollment. Periodic checks (after enrollment) are conducted to verify that the client is still eligible to receive benefits. Today, those checks are done yearly; ideally they could be done daily.

7.4 Working Decisions

- A master person index which is searchable by entering core data elements.
- The master person index allows for discovery of information about an individual across jurisdictions.
- A repository maintains enrollment data across programs and jurisdictions.
- States update their enrollment status data on a daily basis.
- States have access to a capability like PARIS that identifies and notifies them of potential anomalies. States can receive anomaly reports on a daily basis (at a minimum).

8 Conduct Longitudinal Study that Involves Multiple Human Service Programs

8.1 Narrative and Operational Thread

States A and B are both enrolled in a longitudinal study that involves more than one human service agency. This several-year study is examining the impacts of housing assistance options on child welfare. The two states collaborate to determine how to instrument their respective processes so that data can be collected during the conduct of service management processes. They are interested in capturing quality data and minimizing the reporting burden on caseworkers, allowing them to focus on clients. States want to be able to periodically assess study findings while the study is still in progress.

1. An evaluation plan is developed for the study. It includes a logic data model that specifies the data to be collected for the study.
2. The client group (mother and children) is designated as participants in the study.
3. Upon discharge from the hospital, the client is moved into a group home with her children, providing a safe environment and facilitating case plan coordination.
4. Data elements, indicators and measures, required for the study are collected during service management processes. Information collected during the management of any service is available to the study (per established confidentiality rules and policy).
5. Performance management processes follow-up on closed cases to collect additional information to complete the study.
6. Study investigators are able to discover and access records (in States A and B) for all clients housed in a group setting with children.

8.2 Summary Discussion

This vignette reflects a human services business strategy where discrete data elements collected as part of agency business processes are included in case records. These data elements are electronically searchable and reportable. Study coordinators are able to extract client-level data and aggregate data across jurisdictions or client types as desired. This ability to use data generated as part of the business process, enhances data use efficiency and minimizes the need for special data collection activities.

8.3 Working Decisions

1. Data elements in the case records are as discrete as possible. Narratives are limited to comments or notes.
2. Appropriate IRB and confidentiality and privacy agreements are in place before access to these data are granted.

9 Compare State Program Usage and Status

9.1 Narrative and Operational Thread

Prompted by the fluidity of the client population between their respective jurisdictions, States A and B agree to share certain program usage and status data. The states receive periodic, automated reports. These reports support a joint panel established to review findings and recommend adjustments. These are used for monitoring and coordination of activities.

1. A monthly summary report of clients in a group home is prepared to assess overall performance to target outcomes.
2. The report shows the agencies involved, new clients added in the previous month, total number of clients in the system, percent of clients meeting targeted outcomes, percent of clients not meeting targets and percent of clients not meeting target for two reporting periods or longer.
3. Each agency has the ability to run the same report for its own client base and review the corresponding report of the counterpart agency in the other state.

9.2 Summary Discussion

This vignette reflects a human services business strategy where human services agencies are able to monitor agency performance through automated reporting of client target outcomes and other measures. The reports are used for the assessment of agency performance against approved metrics. The reports are shared between jurisdictions that need to synchronize their respective operations in order to be more effective and efficient.

9.3 Working Decisions

1. Performance measures are determined and approved annually.
2. Data elements to evaluate measures and metrics are collected as a part of business processes.
3. If additional (new) data elements are required for the evaluation of a particular metric, a process exists to add these additional data elements to data collection activities.
4. There is a coordinated process for determining metrics, creating consistent definitions, and assessing existing metrics to eliminate those no longer required.

10 Continuity of Services after a Disaster

10.1 Narrative and Operational Thread

A hurricane devastates a section of State A causing clients to relocate to other areas in State A as well as other locations within the region. Workers in these other jurisdictions are able access case records and enrollment data, thereby avoiding a significant disruption in the services provided to these clients.

1. Jurisdictions in the region agree to share human services data in the event of a natural disaster. Access privileges provide designated workers access to client and case data.
2. During routine operations, client management and service management is conducted using applications and data accessible from anywhere in the region.
3. A hurricane strikes several counties within State A, causing clients to relocate.
4. Some clients are able to update their information (status, address, etc) via the web site they normally use.
5. Other clients are helped by the workers in new jurisdictions to update their client information.
6. New service providers are assigned as required.
7. New case entries are created to capture the client's current status.

10.2 Summary Discussion

This vignette reflects a human services business strategy where human services agencies in different jurisdictions have implemented common standards that enable information sharing. Using the client's personal information, workers are able to access client and case information.

10.3 Working Decisions

1. States employ cloud computing to host human services applications and data.
2. The Master Person Index, person records, and case records can be retrieved using person information provided by the client.
3. There is a means of verifying that individual(s) applying for services are the same clients documented in person and case records.