

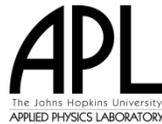
*Prepared for the:*  
Administration for Children and Families (ACF)

**National Human Services Interoperability Architecture  
Information Viewpoint Description**

**DRAFT Version D0.2**

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## 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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Note: This document and other NHSIA-related documentation are available for review from the NHSIA SharePoint site. Updates and any additional documents will be published on that site. The URL for the site is <https://partners.jhuapl.edu/sites/HSNIA>. The version D0.1 and D0.2 documents may be viewed or downloaded from the document library named [NHSIA Drafts](#).

Review and comments to this document are welcome. To comment, either post your feedback in the [NHSIA Drafts Comments](#) library or send comments to [NHSIAArchitectureTeam@jhuapl.edu](mailto:NHSIAArchitectureTeam@jhuapl.edu).

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# 1 Introduction

## 1.1 NHSIA Overview and Objectives

The National Human Services Interoperability Architecture is being developed for the Administration for Children and Families (ACF) as a framework to support common eligibility determination and information sharing across programs and agencies, improved delivery of services, prevention of fraud, and better outcomes for children and families.

The primary objective of the project is to build a business and information technology architecture to improve the delivery of services funded and regulated by the ACF. The key features of this improvement include:

- Interoperability of business processes and systems across human services
- Improved program integrity via better information sharing, enabling improved identification, eligibility screening, and fraud detection
- “No Wrong Door” for clients
- Case worker-oriented systems

Through the NHSIA Project, ACF will build architectural models that describe how to translate these strategies into practice. These models will provide the basis for ACF management to make decisions which lead to the desired results. The architecture will also provide guidance to state, local, and tribal governments, security and technology managers, and program leaders to ensure that the components come together in an interoperable manner.

## 1.2 Architecture Framework and Viewpoints

An architecture is a description of the components, structure, and unifying characteristics of a system. An enterprise architecture is a rigorous, comprehensive description of an enterprise, including mission and goals; organizational structures, functions, and processes; and information technology including software, hardware, networks, and external interfaces.

An architectural framework is a structure for describing an architecture. The NHSIA project has adapted the frameworks defined by the Federal Enterprise Architecture (FEA) and the DoD Architectural Framework (DoDAF), and has incorporated applicable features of the Medicaid IT Architecture (MITA) Framework. The DoD Architecture Framework (DODAF) <sup>1</sup> has evolved over a decade to include multiple viewpoints. NHSIA has adapted DODAF to include the viewpoints shown in Figure 1–1. The adaptations include merging the DODAF

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<sup>1</sup> DoD Architecture Framework, version 2.0, Volume 1: Introduction, Overview and Concepts, Manager’s Guide, 28 May 2009.

Systems and Services viewpoints into a single Systems Viewpoint and pulling out an Infrastructure Viewpoint as a separate item from the Systems Viewpoint. This document addresses the Information Viewpoint identified within this framework.

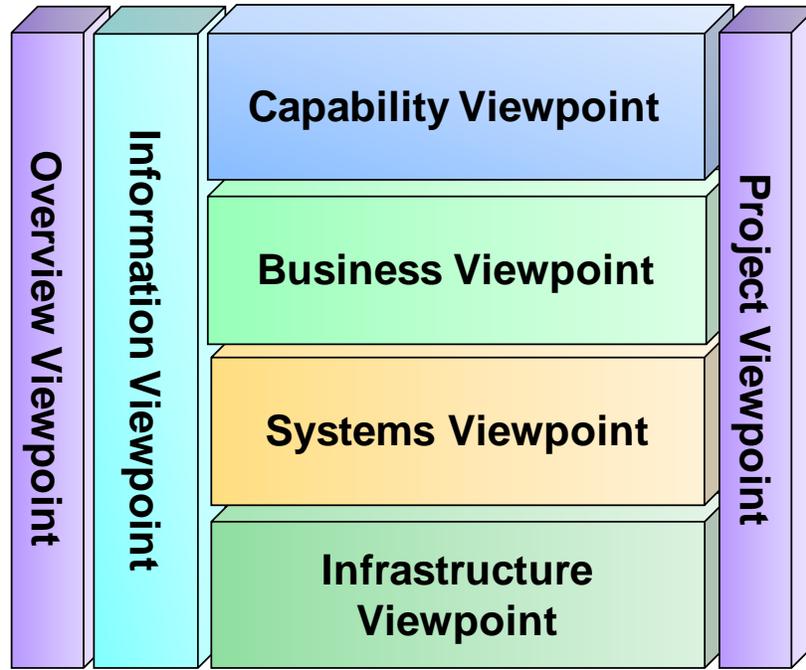


Figure 1–1: Architecture Viewpoints

## 2 Information Viewpoint Summary

### 2.1 Information Viewpoint Description

The Information Viewpoint describes the business information requirements for the NHSIA architecture. The Information Viewpoint leverages existing data standards and ongoing standardization efforts in the area of health and human services. The National Information Exchange Model (NIEM), as defined and governed by the Department of Homeland Security, is one example of the standards used in building this architecture.

The Information Viewpoint is intended to:

- Identify applicable standards for data definition, message coding, and exchange protocols.
- Define a conceptual data model (CDM) to support the Business Viewpoint.
- Identify information exchanges required among human service processes.
- Identify requirements for the definition of National Information Exchange Model (NIEM) Information Exchange Package Documentation (IEPD) to support the identified exchanges.
- Identify key data structures necessary to support shared or distributed data access (e.g., Master Person Index, Case Portfolio) and document their conceptual design in terms of the CDM.

The Information Viewpoint products can enhance interoperability among human services systems and processes at several levels:

- Alignment with the “Information Input and Output” terms defined in the Business Viewpoint Description document provides a common vocabulary for discussion of shared information.
- The NHSIA CDM identifies classes, attributes, and relationships between classes at a level of detail that can guide the development of standards, while leaving some flexibility to respond to specific stakeholder needs during the standards development process.
- Development of specific NIEM Information Exchanges as described in section 2.2, including XML message schemas for the identified Information Exchanges, will support actual implementation of interoperable interfaces that can be leveraged by current and future stakeholders.
- Implementation of common data structures that can be shared across agencies and potentially across jurisdictions improves interoperability and efficiency.

## 2.2 Information Viewpoint Support to NIEM

The Information Viewpoint provides a vocabulary, requirements, and context to harmonize with National Information Exchange Model (NIEM).

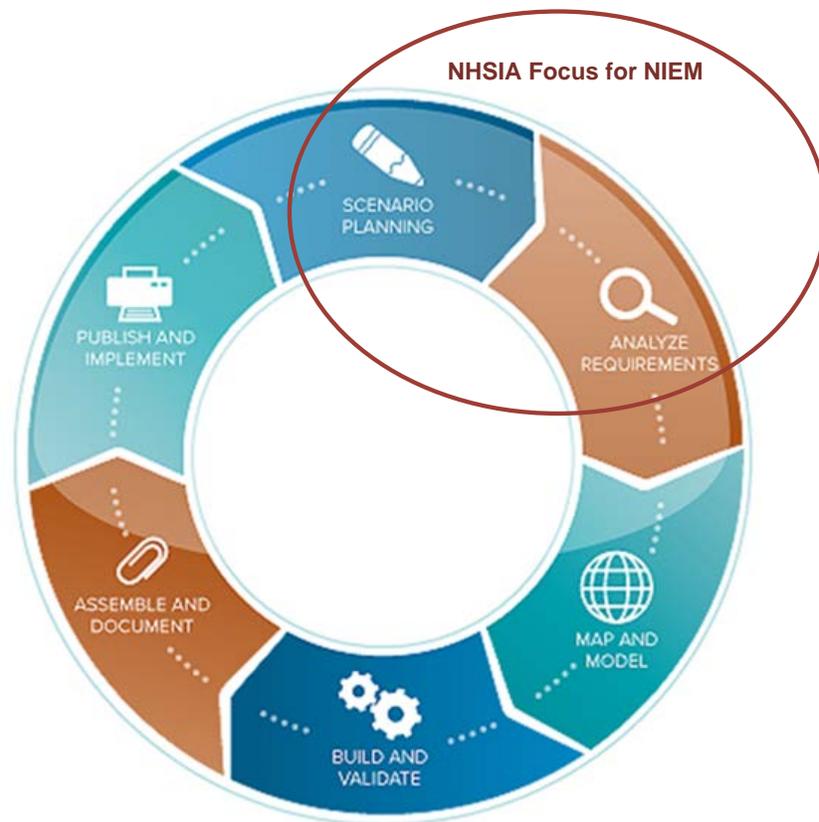
NIEM is designed to develop, disseminate, and support enterprise-wide information exchange standards and processes that can enable jurisdictions to effectively share critical information in emergency situations, as well as support the day-to-day operations of agencies throughout the nation.

NIEM is:

- A standardized data model for terms used in information exchanges between federal, state, local, and tribal government units,
- A process for defining and sharing the context, structure, and elements of messages exchanged between two stakeholders, and
- A process for collaborative extension of the model's vocabulary.

Figure 2–1 illustrates the standard NIEM development process and highlights the areas where NHSIA products support the development of Information Exchange Package Document (IEPD) artifacts. The following NHSIA products support the highlighted activities:

- **Specific Information Exchange:** The Information Viewpoint “List of Information Exchanges” identifies specific information exchanges based on the Business Viewpoint in support of Eligibility and Enrollment.
- **High-level Business Requirements:** The Business Viewpoint “Eligibility and Enrollment Business Processes” defines the business requirements in terms of processes, activities, and actions.
- **Data Requirements:** The Information Viewpoint “IEPD Requirements Artifacts – Mapping of Eligibility Data to NIEM” identifies specific classes and attributes, shows how they map to existing NIEM elements, and provides a means to identify gaps. This mapping can be finalized by stakeholders as an artifact for their specific IEPD.
- **Business Context:** The Business Viewpoint “Eligibility and Enrollment Business Processes” also puts the information terms in the context of the business model.
- **Exchange Model:** The Information Viewpoint “Eligibility Aspect of the CDM” provides a conceptual model that can be finalized by stakeholders as an artifact for their specific IEPD.



**Figure 2–1: NHSIA Support to Development of NIEM IEPDs**

Within the Information Viewpoint the IEPD Requirements Artifacts could be used to support a team in the development of an IEPD within the NIEM human services domain. These artifacts include a Conceptual Data Model (CDM) diagram for a family of information exchanges associated with the eligibility process, and a spreadsheet to map the data elements in the CDM to pre-existing NIEM components. The List of Information Exchanges identifies generic stakeholder pairs that would be involved in specific information exchanges. Human services stakeholders will have to include a data model and a NIEM mapping as part of their formal IEPD. These NHSIA products can be used as a starting point for these efforts. Leveraging a common data model across multiple information exchanges within human services increases the potential for data interoperability and simplifies the reuse of formal IEPD artifacts between multiple stakeholders.

Later iterations of the Information Viewpoint will provide similar IEPD requirements artifacts for other key business processes. More information on NIEM can be found at [www.niem.gov](http://www.niem.gov).

### 2.3 Description of Information Viewpoint Artifacts

The artifacts included in the Information Viewpoint are summarized in Table 2-1.

**Table 2-1: Information Viewpoint Artifacts**

Artifact	Form & Description
<b>List of Relevant Standards</b>	Form: Spreadsheet of standards with detailed descriptions.
	Description: A spreadsheet of existing information standards in the areas of data, coding, and exchange protocols relevant to health and human services. Includes oversight authority, definitions, and references.
<b>Conceptual Data Model</b>	Form: A data model generated in Enterprise Architect (EA), delivered in native EA format and as a portable document format (pdf) diagram.
	Description: A diagram identifying classes, attributes, and associations between classes. This model forms the basis for the model aspects for Information Exchanges (for IEPD Requirements Artifacts) and for Data Structures.
<b>Data Dictionary</b>	Form: A spreadsheet.
	Description: Definitions of data items identified in the CDM. Includes a mapping to the Information terms defined in the Business Viewpoint.
<b>List of Information Exchanges</b>	Form: Spreadsheet migrating to a modeling tool.
	Description: List and description of information exchanges between stakeholders, associated with business processes and activities from the Business Viewpoint.
<b>IEPD Requirements Artifacts</b>	Form: A data model generated in Enterprise Architect (EA), delivered in native EA format and as a pdf diagram, accompanied by a spreadsheet for the mapping.
	Description: Data Models derived from the NHSIA CDM focused on specific families of information exchanges. The spreadsheets map the CDM data elements to NIEM elements and identify potential NIEM gaps. The first NHSIA release addresses the “Eligibility and Enrollment” Information Exchanges.

Terms used above and throughout this document to describe the architecture products are defined in Appendix A.

### 3 List of Relevant Standards

The List of Relevant Standards artifact is presented as an Excel Spreadsheet. The spreadsheet addresses three types of standards relevant to the Information Viewpoint:

**Data Standards:** These standards help identify the fundamental building blocks for defining, formatting, and exchanging data. They have been identified from a variety of sources as potential guidance for standards selection and development within the human services domain.

**Coding Standards:** These standards provide very specific nomenclature and coding for specific elements that could be included in information exchanges. Most of these standards come from the medical community where coding has been used for many years to facilitate a clear and consistent understanding of information shared.

**Exchange Protocol Standards:** Exchange Protocols standards, predominantly technical in nature, address the rules that influence system-to-system communications; these may include syntax, sequencing, and formatting guidelines for the systems affected.

Most of the coding standards are for the health domain. While some of the specific codes could be applicable to personal health information needed by NHSIA, there is a real need to identify similar coding needs for human services.

Several speakers at the 2011 Medicaid Management Information System (MMIS) conference in Austin Texas made the observation that many of the existing data standards are too flexible to insure interoperability. The primary example cited was HL7. They expressed the hope that the work being done in the human services domain for NIEM will help to reduce the uncertainty for data sharing. The IEPD requirements artifacts being developed within this Information Viewpoint are intended to support this effort, initially focusing on common eligibility.

This artifact will be maintained with additions and updates as the NHSIA effort continues.

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## 4 Conceptual Data Model

The overarching Conceptual Data Model (CDM) for NHSIA identifies the data classes (often referred to as entities in other contexts) and their key attributes necessary to support the information flows identified in the Business Viewpoint for business processes and activities. By looking across multiple business areas and across several key programs, this Conceptual Data Model and the supporting data dictionary provide a common way of understanding data to facilitate building interoperable information exchanges.

The CDM contains many classes, which are listed in Appendix B and defined in the Data Dictionary. The classes and their attributes were identified from a variety of sources, including the following:

- The Business Viewpoint information terms were reviewed to make sure that the Information Viewpoint supports the identified processes and activities. Some of the terms were adopted as classes, some as attributes of classes, and some of the terms were further decomposed.
- Many of the necessary data types have been defined for other NIEM domains.
- Existing health exchanges, particularly HL7, provided guidelines for some of the common nomenclature.
- The federal regulations for eligibility criteria for the human services programs considered in the NHSIA Eligibility White Paper provided insight into some of the specific attributes necessary to support the eligibility determination process.

The classes of most significance across the business areas are “Person” and “Case Record”, which are related through the “Case Person” who is a type of “Person”. The “Person” class is related to many supporting classes that describe the person, including “Person Health Status” and “Person Education”. The “Case Record” provides connections through relationships to other classes that support the NHSIA business processes, including “Managing Agency” and “Service Provider”.

We are using the term “aspect of the CDM” to mean a subset of the CDM relevant to a specific topic. Focused aspects of the CDM can be extracted for specific families of business activities and actions and the associated stakeholders as a foundation for development of NIEM IEPDs for specific Information Exchanges. For example, Section 7.1 describes the aspect of the CDM specific to common eligibility determination for the eligibility-related information exchanges identified in the list of information exchanges described in Section 6.

The Enterprise Architect (EA) tool was used to create the CDM and the CDM aspect views used in this document. Within EA, the diagrams were developed using a

Business Process Model and Notation (BPMN) format that is consistent with UML. While there are several ways to represent a class diagram to support an IEPD, the UML format is preferred.

## 5 Data Dictionary

The Data Dictionary is presented in the Data Dictionary and NIEM Mapping spreadsheet with definitions for each class and attribute in the CDM. Additionally, this spreadsheet provides a mapping between the data model details of the Information Viewpoint and the Information terms used in the Business Model to describe information use from a stakeholder perspective.

The Data Dictionary and NIEM Mapping spreadsheet is formatted to support both the Data Dictionary artifact and the NIEM Mapping for the IEPD Requirements Artifacts described in section 7.2. Naming conventions are defined in the Notes tab of the spreadsheet.

The Data Dictionary tab illustrated in Table 5-1 is intended as a quick resource to describe elements of the CDM. It lists all classes and attributes in the NHSIA overarching CDM. For each entry, the Data Dictionary identifies the following:

- UML Class
- UML Attribute
- UML Association (Primary supported or related class)
- Data Element Description/Definition

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**Table 5-1. Example Extracted from the Data Dictionary**

UML Class	UML Attribute	Primary UML Association	Description/Definition
Access Authorization		Person	Whether or not an individual or system has the necessary permission to create, read, update, and/or delete information
Access Authorization	accessAuthorizationLevel		Level of access permissions for an individual or system to create, read, update, and/or delete information
Access Authorization	accessGroup;		Group association for an individual or system who has permission to create, read, update, and/or delete information
Address		Person Contact Information	
Address	addressInfoPedigree		Source of address
Address	city		City associated with a person or agency, part of an address.
Address	countryCode		Country part of address
Address	county		County location associated with address
Address	personIdentifier		Unique person identifier
Address	state		State or providence in USA associated with address
Address	Street	Address	Street is associated with address and is its own class. Address inherits street
Address	verificationDate		Date the address was verified
Address	verificationSource		Authoritative source for verification of address
Address	zipCode		Zip code associated with address

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The Information Mapping tab, illustrated in Table 5-2, maps the information terms from the Business Viewpoint to the classes and attributes in the CDM.

**Table 5-2. Business Viewpoint (BV) Information Mapping to CDM**

BV Information Term	UML Class	UML Attribute
Access authorization	Access Authorization	
Agency information	Agency	
Approval; Case Plan Approval	Case Plan	casePlanApproval
Case Entry; Case Person Entry	Case Entry	
Case identifier	Case Person	caseIdentifier
Case notes	Case Entry	notes
Case person identifier	Case Person	casePersonIdentifier
Case person information	Case Person	
case plan	Case Plan	
Case Portfolio; previous service history	Case Portfolio	
Case status; Case summary	Case Record	caseSummaryStatus
Communications event; Outreach Record	Outreach Record	
Confidentiality and Privacy Authorization	Confidentiality Privacy Authorization	
Credential/ License / Certification	Service Provider Credentials	
Documentation	Case Attachment	
Documentation	Person Attachment	

The IEPD NIEM Data Elements Mapping tab supports the IEPD Requirements Artifacts by mapping the CDM attributes to NIEM data elements as described in Section 7.

This spreadsheet was created as an Excel spreadsheet. The three information tabs described above are linked through the IEPD NIEM Data Elements tab so that data is only entered once. Hidden columns in the IEPD NIEM Data Elements tab are used to facilitate formatting and sorting.

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## 6 List of Information Exchanges

Within NIEM, a specific exchange of information is defined in an Information Exchange Package Documentation (IEPD). Each IEPD is a legal description of the business context and information content exchanged between two partners, and contains one or more specifications for messages that when implemented enable the dialog between those partners. While the intention of the NHSIA Information Viewpoint is to provide the foundation for a common vocabulary between all parties, every pair of legal entities can have different business rules, different interfaces, and different data needs. The List of Information Exchanges artifact is a spreadsheet that identifies the potential types of information exchanges based on the Business Viewpoint and the CDM. As states and other jurisdictions develop their individual IEPDs, they can leverage the CDM and other eligibility IEPDs to maximize reuse of products to maximize data interoperability.

For this release of NHSIA, the list of information exchanges has been developed to support the proposed core services as described in the “NHSIA Core” Concepts document. These information exchanges have been identified:

- Person Identification (CI-MPI-001)
- Person details (CI-PERS-001)
- Person in a case (CI-PERS-101)
- Citizenship (CI-PERS-201)
- Lawful Presence (not listed in the “NHSIA Core” Concepts)
- Residence (CI-PERS-202)
- Individual/Household Income (CI-PERS-203)
- Native American status (CI-PERS-204)
- SSN (CI-PERS-205)
- Person Information Verification (CI-PERS-251)
- Summary of Case(s) (CI-SUMCASES-001)
- Individual Case Summary (CI-CASE-001)
- Provider Registry (CI-PROVREG-001)
- Provider Information (CI-PROVIDER-001)
- Provider Credential (CI-PROVIDER-201)
- Provider Information Verification (CI-PROVIDER-202)
- Program Registry (CI-PROG-001)
- Program Information (CI-PROG-101)
- Program Report (CI-PROG-151)

For each exchange, the Information Exchange spreadsheet illustrated in Table 6-1 identifies the following:

- Information Exchange Name. A descriptive name for the exchange.
- Core Concept Name. The name of the exchange used in the “NHSIA Core” Concepts document.

- **Interface Designator.** The label assigned to this exchange in the “NHSIA Core” Concepts document.
- **Description.** A description of the intent of the interface.
- **Information Contents.** The information content of the message.
- **Source Organization Type and Destination Organization Type.** Generic descriptions of the types of parties involved.
- **References/Comments.** Additional information about the exchange.
- **Service Designator & Name.** The name of the shared service (as specified in the “NHSIA Core” Concepts document) that would use the exchange.

The information content may vary between stakeholders, depending on their use of shared information structures such as the Master Person Index.

**Table 6-1. Extract from Information Exchanges**

Information Exchange Name	Core Concept Name	Interface Designator	Description	Information Contents (audit inputs/outputs from B-VP and primary correlation to S-VP)	Source Organization Type	Destination Organization Type	References/Comments	Service Designator & Name
<b>Person Identification</b>	Master Person Selection	CI-MPI-001	This interface provides one or more entries from the Master Person Index. The interface may include multiple entries that match the specified criteria, if there is more than one potential match. The interface includes basic demographic data, contact data, and a list of pointers to available records about each person that potentially matches the criteria. The interface also provides a level of confidence about each match. The interface may also be used to submit the information required to establish a new entry in an MPI or to update an existing entry with revised identifying or pointer information. <person information type = Alternate Identifiers, Demographics, Contact information>	Person identifier; Person information; Person contact information; Person Demographics; Information pedigree; Alternate Identifiers; Information pointer(s); query = {person name + some elements of person contact information + some elements of person demographics OR person identifier}; Master Person Index(ices)	Agency, organization, or facility that is being used as the authoritative source for identity.	Agency(client point of entry)		CS-MPI-001 Find Person; CS-MPI-002 Identify Available Person Records; CS-MPI-003 Match Person; CS-MPI-004 Create Person Index Entry; CS-MPI-005 Register Person Data; CS-MPI-006 Update Person Identifying Information

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## 7 IEPD Requirements Artifacts

Each IEPD addresses an exchange between two stakeholders. The exchange can be a single message or a dialog of two or more messages between those stakeholders. The stakeholders can be two specific organizations or two organized collections of stakeholders. When an IEPD is developed, all of the stakeholders sign the IEPD to acknowledge the agreement to conform to the specified XML schemas for messages and to the specified business rules. If a new pair of stakeholders needs the same information exchange, they can leverage any or all of a previous IEPD. This would broaden the base of interoperable systems.

Within human services many programs perform gross income verification as an activity included in eligibility determination. An IEPD could be developed with the intent to uniformly streamline this verification process and set a standard exchange capability between the Internal Revenue Service (IRS) and multiple state human services programs that require income verification. There are several other exchanges that have the potential for high impact for multiple states and programs such as checking proactively for citizenship verification and fraud detection.

The artifacts required with an IEPD include a data model and a mapping of data elements to existing NIEM elements. The purpose of the NHSIA IEPD requirements artifacts is to provide resources for developing an IEPD: a core data model and initial NIEM mapping that can be leveraged by future stakeholders in the human services domain. This not only simplifies the work of the stakeholders, but it also provides a common starting point for data definitions to facilitate interoperability. With this common initial framework, independent organizations would be able to use the attribute definitions, standards, and previous NIEM XML code development without developing the mapping from scratch.

The first NHSIA IEPD requirements artifacts focus on the information exchanges identified for the Eligibility and Enrollment business processes in the Business Viewpoint.

### 7.1 Eligibility Aspect of the CDM

The eligibility aspect of the CDM, illustrated in Figure 7–1, is a direct extract from the NHSIA CDM described in section 4. By starting with a common core CDM, NHSIA builds a foundation for future interoperability within other business areas.

The key class in the Eligibility CDM is the “Case Person”, which builds on the more generic class “Person”. The “Person” class provides supporting classes for all of the different types of information that should be known about a person in need of human services. The “Case Person” provides the link to one or more “Case Records”, which provide information about how the person fits into a client group and what services may be provided to address their needs. Additional classes address the programs, agencies, workers, and service providers that are involved or

informed through the eligibility and enrollment processes. Altogether, most of the NHSIA classes are either directly involved or included to support relationships to classes that are involved in the eligibility and enrollment business processes.



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## 7.2 Mapping of Eligibility Data to NIEM

Part of the process for developing and IEPD is to map the attributes to data elements within the existing NIEM data model. This activity is intended to achieve two objectives:

- Maximize interoperability with existing and future systems by building on existing data definitions and supporting XML formats, and
- Identifying gaps in the NIEM data model for future extensions of its vocabulary that could be incorporated into the human services domain of NIEM.

Mapping data to existing NIEM elements is an iterative process. Some of the mappings are easy to identify based on commonly used nomenclature. For example, much of the information about a person can be found under the NIEM “Person Type”. Once the obvious mappings are identified, additional mappings can be found by searching NIEM for a variety of related terms. After the mappings are found, they are reviewed to make sure the NIEM elements have the intended meaning. Where no NIEM elements have been identified, additional searching can be done, but these items may be gaps in the existing NIEM model that could be proposed as extensions to the NIEM human services domain. Commonly used elements across the human services domain can be added to the NIEM model. Items that are unique to individual information exchanges can be documented for the exchanges, but do not need to be added to the NIEM model.

The NIEM mapping for the IEPD Requirements Artifact is captured in the IEPD NIEM Data Elements Mapping tab of the Data Dictionary and NIEM Mapping spreadsheet. A portion of the NIEM mapping is illustrated in Table 7-1. While the intent of the initial NIEM mapping was to address the data attributes identified in the Eligibility aspect of the NHSIA CDM, many of the other NHSIA attributes have also been mapped.

Terms used in the spreadsheet headings are defined in Appendix A. Class and attribute naming conventions are described in the notes page of the spreadsheet. This spreadsheet will be maintained and expanded as additional mappings are identified.

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Table 7-1. Extract from NIEM Mapping for IEPD Requirements Artifact

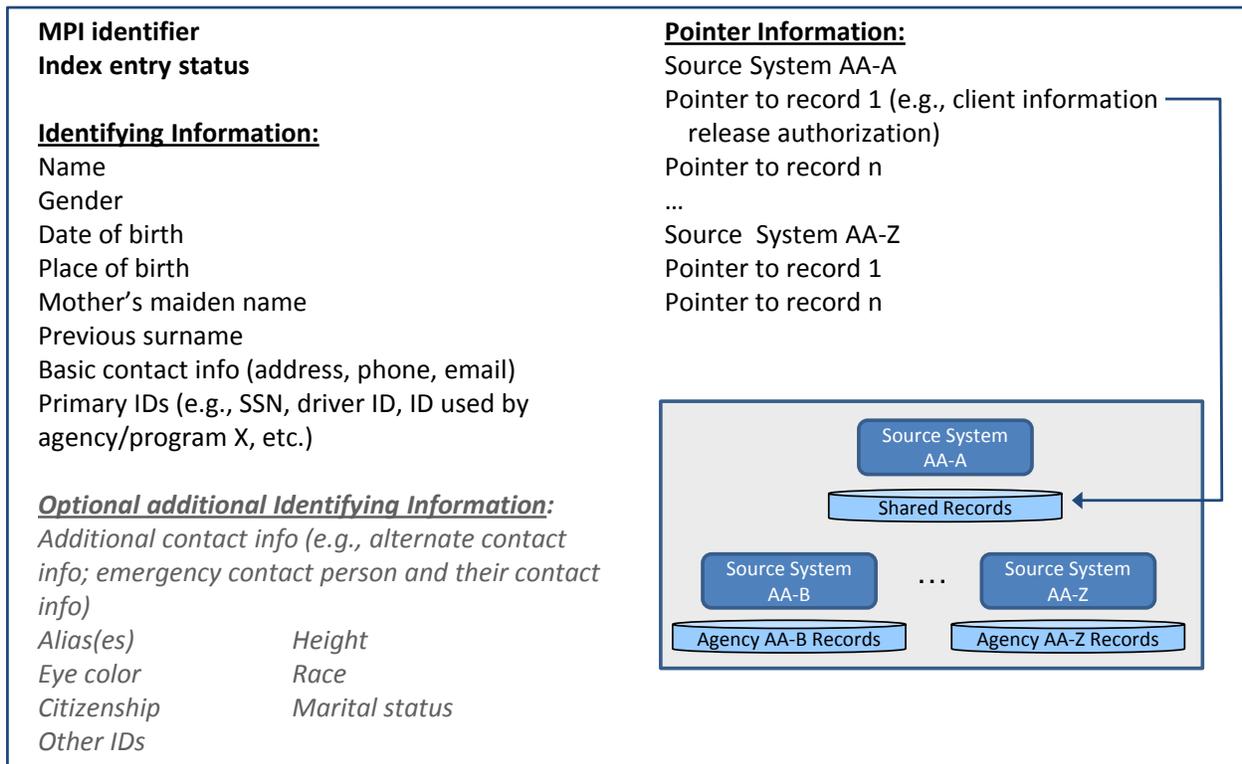
UML Class	UML Attribute	UML Class Inherits / Instantiates	Cardinality	NIEM Parent Object	NIEM Style Schema Mapping
<b>Address</b>				<b>ContactInformation</b>	
	addressInfoPedigree	string	0..n		
	city	string	0..n		nc:AddressType/nc:LocationCityName
	countryCode	string	0..n		nc:AddressType/nc:LocationCountryName
	county	string	0..n		nc:AddressType/nc:LocationCountyName
	personIdentifier	string	0..n		scr:PersonIdentification
	state	string	0..n		nc:AddressType/nc:LocationStateName
	Street	string	0..n		nc:AddressType/nc:LocationStreet
	verificationDate	date	0..n		
	verificationSource	string	0..n		
	zipCode	string	0..n		nc:AddressType/nc:LocationPostalCode

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## 8 Data Structure Conceptual Designs – Master Person Index

The purpose of this artifact is to illustrate the relationship between key NHSIA data structures and the NHSIA CDM described in section 4. NHSIA addresses the first data structure, which is the Master Person Index (MPI). This artifact is contained entirely within this section, and is not provided as a separate artifact.

The concept for the MPI is described in the NHSIA document “Master Person Index Services White Paper”. That paper provides the illustration in Figure 8–1, which identifies the key types of information that would be stored in a typical MPI.



**Figure 8–1: Information Types Identified in Master Person Index Services White Paper**

The identifying information maps to select attributes contained in the following classes in the CDM:

- Person
- Person Demographics
- Person Name
- Address
- Street
- Telephone Contact
- Email
- Person Alternate Identifiers
- Person Characteristics

Within each of the classes noted above is the attribute personIdentifier, which originates from the MPI as the MPI Identifier, and which links the information about all of the relevant classes.

Pointer information is determined within each source system based on how the data is stored. Information about the system itself is captured in the class:

- Source System

In addition to the classes that directly represent the MPI, the following classes that support the process could be either contained in the MPI or could be accessed from other systems:

- Release of Information – Indicates authorization from the people within the client to share personal information.
- Access Authorization – Indicates an individual, agency, or system authorization to access information.

## Appendix A. Definition of Terms

Attribute	A characteristic or defining property of a class.
CDM Aspect	A portion of the overall CDM that is focused on a particular topic.
Class	A cohesive, real-world object (noun) representing structured information.
Conceptual Data Model	Representation of relationships of data components at various levels.
Data association	Relationship between classes.
Information Exchange	A dialog of defined messages between two stakeholders. In NIEM, an information exchange is defined in Information Exchange Package Documentation (IEPD).
Interoperability	The ability of two or more systems or components to exchange information and use the information that has been exchanged.
UML	Unified Modeling Language: a standardized general-purpose modeling language in the field of object-oriented software engineering. Within NHSIA, UML conventions are used in the Conceptual Data Model to facilitate harmonization with NIEM.

## Appendix B. NHSIA Data Classes from CDM

- Access Authorization
- Address
- Administrative Agency
- Appeal
- Application for Services
- Business Address
- Business Organization Contact Information
- Business Street
- Business Telephone Contact
- Case Assessment
- Case Attachment
- Case Entry
- Case Person
- Case Plan
- Case Portfolio
- Case Record
- Case Report
- Contractor
- Credentials
- Email
- Emergency Contact
- Facility
- Federal Agency
- Household
- Inquirer Information
- Investigation
- Managing Agency
- Memorandum of Agreement
- Outreach Record
- Performance Indicator
- Person
- Person Alternate Identifiers
- Person Attachment
- Person Characteristics
- Person Demographics
- Person Education
- Person Employment History
- Person Finances
- Person Health Status
- Person Legal/Court History

- Person Name
- Person/Family and References
- Program
- Program Rules
- Referral
- Release of Information
- Service
- Service Plan
- Service Provider
- Source System
- Street
- Telephone Contact
- Worker
- Worker Contact Information

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