HIT Policy & Standards Committee Enrollment Workgroup

RECOMMENDATIONS

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ENROLLMENT WORKGROUP RECOMMENDATIONS

TOWARD A MORE EFFICIENT, CONSUMER-MEDIATED AND TRANSPARENT
HEALTH AND HUMAN SERVICES ENROLLMENT PROCESS

On March 23, 2010, President Obama signed the Patient Protection and Affordable Care Act (ACA), which extends health care coverage to an estimated 32 million uninsured individuals and makes coverage more affordable for many others. Section 1561 requires the Secretary of the Department of Health and Human Services (HHS), in consultation with the Health Information Technology (HIT) Policy Committee and the HIT Standards Committee, to develop interoperable and secure standards and protocols that facilitate electronic enrollment of individuals in Federal and State health and human services programs.

The following recommendations are intended to encourage adoption of modern electronic systems and processes that allow a consumer to seamlessly obtain and maintain the full range of available health coverage and other human services benefits. The core of these recommendations is the belief that the consumer will be best served by a health and human services eligibility and enrollment process that:

- Features a transparent, understandable and easy to use online process that enables consumers to make informed decisions about applying for and managing benefits;
- Accommodates the range of user capabilities, languages and access considerations;
- Offers seamless integration between private and public insurance options;
- Connects consumers not only with health coverage, but also other human services such as the Supplemental Nutrition Assistance Program (SNAP) and the Temporary Assistance for Needy Families (TANF) program; and
- Provides strong privacy and security protections.

See Appendix A for additional information on the importance of consumer usability.

RECOMMENDATIONS[1]

Core Data
Recommendation 1.1: We recommend that Federal agencies and States administering health and human services programs use the National Information Exchange Model (NIEM) guidelines to develop, disseminate and support standards and processes that enable the consistent, efficient and transparent exchange of data elements between programs and States.

See Appendix B for information on standards for core data elements commonly exchanged across health and human service programs (e.g., Medicaid, Children's Health Insurance Program (CHIP), SNAP, TANF).

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[1] The standards and protocols in these recommendations will be applicable to health insurance exchanges. Under the ACA, States will administer health insurance exchanges unless they choose not to do so. The Federal government will operate an exchange for residents of any State that chooses not to operate an exchange. The Enrollment Workgroup intends for these standards to apply to both Federal and State operated exchanges. For simplicity, the Recommendations and Appendices use the term "State" to describe the responsibility of the Government entity operating the exchange. Similarly, in a State that delegates authority for determining eligibility for Medicaid, CHIP or the Exchange to counties or other local government entities, we intend that the same standards apply.

Verification Interfaces

Recommendation 2.1: We recommend that Federal agencies required by Section 1411 of the Affordable Care Act to share data with States for verification of a consumer's initial eligibility, renewal and change in circumstances for ACA health insurance coverage options (including Medicaid and CHIP) use a set of standardized Web services that could also support the eligibility determination process in other health and human services programs such as SNAP and TANF.

Recommendation 2.2: We recommend development of a Federal reference software model, implementing standards for obtaining verification of a consumer's initial eligibility, renewal and change in circumstances information from Federal agencies and States to ensure a consistent, cost-effective and streamlined approach across programs and State delivery systems.

The initial build of this toolset should include interfaces to the Federal agencies referenced in Recommendation 2.1. In order to ensure comprehensive and timely verification, additional interfaces to Federal, State or other widely-available data sources and tools should be added, including the National Directory of New Hires, the Electronic Verification of Vital Events Record (EVVE) system, State Income and Eligibility Verification (IEVS) systems, Public Assistance Reporting Information System (PARIS) and the U.S. Postal Service Address Standardization API.

See Appendix C for additional information about the Federal reference software model.

Business Rules

Recommendation 3.1: Federal agencies and States should express business rules using a consistent, technology-neutral standard format, congruent with the core data elements identified through the NIEM process. Upon identification of a consistent standard, Federal agencies and States should clearly and unambiguously express their business rules (outside of the transactional systems).

See Appendix D for additional discussion of technology options.

Recommendation 3.2: To allow for the open and collaborative exchange of information and innovation, we recommend the Federal government maintain a repository of business rules needed to administer ACA health insurance coverage options (including Medicaid and CHIP), which may include an open source forum for documenting and displaying eligibility, entitlement and enrollment business rules to developers who build systems and the public in standards-based and human-readable formats.

To allow for seamless integration of all health and human services programs, business rules for other health and human services programs such as SNAP and TANF should be added to the repository over time.

Transmission of Enrollment Information

Recommendation 4.1: We recommend using existing Health Insurance Portability and Accountability Act (HIPAA) standards (e.g., 834, 270, 271) to facilitate transfer of consumer eligibility, enrollment, and disenrollment information between ACA health insurance coverage options (including Medicaid and CHIP), public/private health plans and other health and human service programs such as SNAP and TANF.

Recommendation 4.2: We recommend further investigation of existing standards to acknowledge a health plan's receipt of an HIPAA 834 transaction and, if necessary, development of new standards.

See Appendix E for additional information on existing HIPAA standards.

Privacy & Security
All entities involved in health information exchange – including individual and institutional providers and third party service providers such as Health Information Organizations (HIOs) and other intermediaries – should follow the full complement of fair information practices (FIPs) when handling personally identifiable health information. Formulation of FIPs comes from the Office of the National Coordinator's *Nationwide Privacy and Security Framework for Electronic Exchange of Individually Identifiable Health Information.*

Recommendation 5.1: We recommend that consumers have: 1) timely, electronic access to their eligibility and enrollment data in a format they can use and reuse; 2) knowledge of how their eligibility and enrollment information will be used, including sharing across programs to facilitate additional enrollments, and to the extent practicable, control over such uses; and 3) the ability to request corrections and/or updates of such data.

This recommendation builds upon the Health Information Technology for Economic and Clinical Health (HITECH) Act, which gave consumers the right to obtain an electronic copy of their protected health information from HIPAA covered entities, including health plans and clearinghouses. Additional investigation into format and content of such disclosures is needed.

See Appendix F for additional steps Federal agencies and States may need to take to facilitate a consumer-mediated approach to data sharing and examples of administrative tasks which may require Federal agencies or States administering health plans to reuse data.

Recommendation 5.2: We recommend that the consumer's ability to designate third party access be as specific as feasible regarding authorization to data (e.g., read-only, write-only, read/write, or read/write/edit), access to data types, access to functions, role permissions and ability to further designate third parties. If third party access is allowed, access should be:

- Subject to the granting of separate authentication and/or login processes for third parties;
- Tracked in immutable audit logs designating each specific third party access and major activities; and
- Time-limited and easily revocable.

See Appendix F for information on existing standards that States may use to implement this recommendation.

Recommendation 5.3: We recommend that States administering health and human services programs implement strong security safeguards to ensure the privacy and security of personally identifiable information. Specifically, we recommend the following safeguards:

- Data in motion should be encrypted. Valid encryption processes for data in motion are those which comply, as appropriate, with NIST SP 800-52, 800-77, or 800-113, or others which are Federal Information Processing Standards (FIPS) 140-2 validated.
- Automated eligibility systems should have the capability to:
    - Record actions related to the PII provided for determining eligibility. The date, time, client identification, and user identification must be recorded when electronic eligibility information is created, modified, deleted, or printed; and an indication of which action(s) occurred must also be recorded.
    - Generate audit log. Enable a user to generate an audit log for a specific time period and to sort entries in the audit log.

Appendix A
Consumer-Centric Approach

Adopting a consumer-centric approach to eligibility determinations and enrollment in health and human services programs is essential to the core purpose of the ACA and should be a key focus for the successful modernization of new and existing electronic systems. Such an approach accounts for the needs and preferences of the consumer and considers functions, tools and/or applications that facilitate State efforts to support consumers in enrolling for and maintaining health coverage and other human services benefits.

Key components of a consumer-mediated approach include:

- Allowing consumers to apply for or renew benefits online;
- Providing superior customer service, facilitated by real-time transactions and multiple modes of communication between consumers and States;
- Allowing third parties to assist consumers in enrolling for and maintaining benefits; and
- Seamlessly integrating systems that serve the consumer in pursuit of health coverage (e.g., health insurance exchange, Medicaid, CHIP, private insurance) and human services programs (e.g. SNAP, TANF).

Definitions

- *Consumer Usability*: The International Standards Organization (ISO) defines usability as "the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use." Usability is a qualitative attribute that assesses how easy user interfaces are to use. The word "usability" also refers to methods for improving ease of use during the design process.

- *Consumer Mediated*: Adopting approaches where the consumer has the authority to make choices and direct use and reuse (i.e., for themselves, by programs or by other authorized third parties) of their enrollment information to the extent practicable.

Key Assumption
While the primary charge of the Workgroup was the development of protocols and standards for electronic eligibility and enrollment processes and systems, States will likely use a variety of strategies. These methods might include:

- Online or mail in applications;
- Phone service;
- Assistance from third parties such as family members, care givers, community-based organizations, health providers or others;
- In person services, when desired.

To accommodate the needs of various populations and ensure consumers have easy, timely access to the benefits they need, consumers should be able to begin the process through any available channel. Regardless of the method used to apply, the consumer should have access to

the full range of coverage options and services, should receive clear, understandable instructions on future steps, and should be continuously supported through the application process and into enrollment, if eligible.

For example, a consumer may begin the application process online, but find that he or she is unable to complete the application for any number of reasons including technical difficulties or lack of information. If this occurs, the consumer should be able to submit the remaining information and complete the application process through another modality including over the phone or in person, with assistance if desired. Flexible, adaptable processes that support consumers through the process ensure the consumer is able to obtain and retain the needed benefits.

Consumer-Friendly User Interface
Recommendation 2.2 provides for the development of a Federal reference software model, implementing standards for obtaining verification of a consumer's initial eligibility, renewal and change in circumstances information from Federal agencies and States. When planning for the integration of this reference software into new or existing systems, States should consider developing a reference application with a consumer-friendly user interface design. This application may, but not necessarily, be full-featured software. At a minimum, it should adequately represent a consumer-mediated workflow.

An initiative at the Internal Revenue Service (IRS) highlights a consumer-mediated approach that could be applied in the health and human services eligibility process. IRS provides an automated tool that allows individuals applying for student aid to obtain necessary tax return information from IRS electronically, review it, elect whether or not to export the data to the electronic student aid application and seamlessly use the data to complete the student aid application.

Consumer-Friendly Design and Access
Eligibility and enrollment systems should be designed and built to meet the diverse needs of users (e.g., consumers, State personnel, other third party assisters) without barriers or diminished function or quality. Guided by this framework, electronic eligibility and enrollment systems should include usability features or functions that achieve the following:

- Assist the consumer in understanding their rights and meaningfully choosing among available options (e.g., privacy options, application options, coverage options);
- Guide the consumer through screen-and-enroll processing in a reliable, accurate manner that supports efficient data entry (e.g., requiring the minimum amount of data and supporting documentation from the consumer) in as close to real-time as possible;
- Provide and solicit information at an appropriate literacy level that meets the language needs of the consumer;
- Accommodate the needs of persons with disabilities including through the use of assistive technologies;
- Allow for storage of data – including documents and data supplied by the consumer, obtained from other sources, and/or inferred or derived from other data – for reuse in the renewal process;

- Allow the consumer to view, print, save, and export the data in a format that can be used and reused by the consumer;
- Facilitate the consumer to submit documentation where necessary (e.g., to demonstrate a change in circumstances);
- Enable the consumer to use the system from multiple locations and over time without having to re-enter data or re-start the process;
- Provide status updates to inform the consumer of where they are in the enrollment process and what, if any, action may be required to complete the process;
- Provide a process whereby consumers can make inquiries to State personnel, resolve disputes regarding data inputs, verification and eligibility decisions and, where necessary, formally appeal decisions; and
- Facilitate a consumer's ability to obtain assistance from third parties such as family members, care givers, health care providers and community-based organizations in their efforts to complete the application and renewal process.

States should also consider implementing system functions or communication tools to ensure consumers receive clear, timely information on their application and enrollment status and benefits. A critical step to ensuring receipt of routine and/or urgent notices is allowing the consumer to designate a preferred mode of communication (e.g., email, text message, voicemail).

An initiative at the Department of Homeland Security (DHS) highlights the effectiveness of these types of consumer communication tools. DHS recently launched a new website that allows legal immigrants to check the status of their applications online and via text message. In its first month alone, three million people registered to receive text message updates on the status of their applications.

Appendix B
Core Data Analysis

The standard definition and expression of core data elements is necessary to support interoperability and electronic exchange of data between health and human service programs. Recommendation 1.1 provides that Federal agencies and States administering health and human services programs use the National Information Exchange Model (NIEM) guidelines to develop, disseminate and support the standards and processes that enable the consistent, transparent exchange of data elements between programs and States.

This recommendation is not intended to suggest that Federal agencies or States should modify either their core data elements or the way they collect and display those data elements within their own systems. Rather, the NIEM process ensures that common data elements can be sent between programs using a consistent standard such that the receiving program can easily identify and incorporate the data element into their own systems.

Overview of Core Data Analysis

As a first step, a review of the data elements collected from a consumer during the application process by a sample of Medicaid, CHIP, SNAP and TANF programs was conducted. This review revealed a core set of eleven data elements currently collected by all four programs (see Table 1 for a complete list).

Subsequently, a sample of 34 health and human services programs across ten States was used to identify similarities and gaps in data element definition across the programs and to assess the complexity of data harmonization. The following considerations were used to determine complexity:

- Variation of data name and definition across programs;
- Prevalence of similar variations across programs;
- Similarity and range of data values sets across programs; and
- Existing data standards such as those identified in HL7, X12, and NIEM.

Table 1 highlights initial findings regarding the anticipated complexity of harmonization for a given data element.

Table 1 – Core Data Element Complexity Rating

| Core Data Element Name	Complexity of Harmonization	Key Findings
Name	Low	Consistent terminology and similarity in foundational data values will enable creation of a harmonized data element definition and mapping to existing standards.
Date of Birth	Low	Consistent data values and semantics will facilitate creation of a harmonized data element definition and mapping to existing standards.
Social Security Number	Low	Consistent terminology and similarity in foundational data values will enable creation of a harmonized data element definition and mapping to existing standards.

Core Data Element Name	Complexity of Harmonization	Key Findings
Gender	Low	Consistent data values and semantics will facilitate creation of a harmonized data element definition and mapping to existing standards.
Address	Medium	Creation of a harmonized data element definition and mapping to existing standards must consider sub-concepts of address (e.g., mailing address, home address ,etc.).
Citizenship	Medium	To harmonize data element definition and accurately map to existing standards, clarification of business rules and interfaces is required.
Immigration Status	Medium	To harmonize data element definition and accurately map to existing standards, clarification of business rules and interfaces is required.
Incarceration	Medium	To harmonize data element definition and accurately map to existing standards, clarification of business rules and interfaces is required.
Race/Ethnicity	High	Wide variability occurring in the nomenclature and definition of race/ethnicity values within standards and between programs.
Household Composition	High	Harmonization to a consistent data definition across programs requires further understanding of underlying program and jurisdiction business rules.
Income	High	*Income* is a derived data concept, determined through calculation of several associated concepts. Harmonizing to a unique definition requires further elaboration of underlying program and jurisdiction business rules.
Primary Care Provider	N/A	Data element was only found in 1 of 34 State program enrollment applications.

An important aspect of the data analysis effort is mapping to existing data standards such as HL7, NIEM, and X12. In addition to providing for the reuse of existing standards, such mapping provides a mechanism to increase interoperability between eligibility and enrollment systems and creates an opportunity to address gaps, duplications, and/or overlaps in information.

Interoperability Specification Development

The ACA describes a set of guidelines and requirements that are intended to facilitate consumer enrollment in State health and human services programs. Figure 1 provides high-level use cases focusing on the consumer eligibility and enrollment process. It includes verification of core data elements to determine eligibility, as well as the exchange of data between programs for additional eligibility determinations.

Figure 1 – Consumer Eligibility and Enrollment Use Case Model
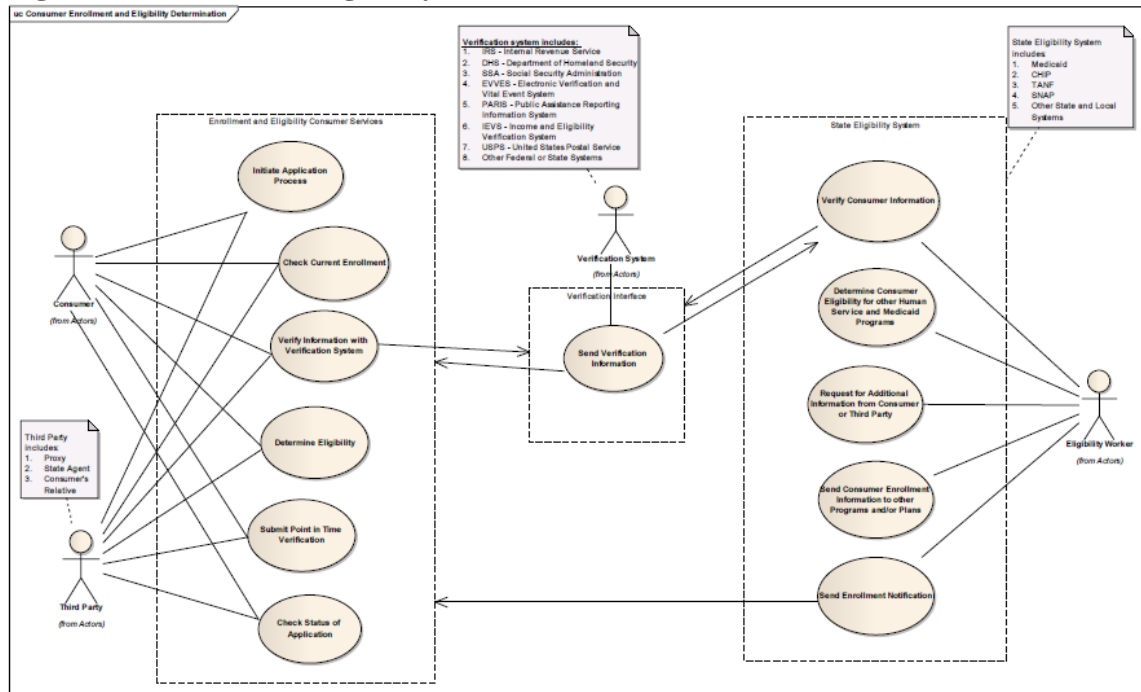
Details for each use case are described in Table 2.

Table 2 – Foundational Use Cases Supporting Enrollment and Eligibility Processes in Health and Human Services Programs

Use Case	Description
Initiate Application Process	A consumer or third party applies for a program by entering basic demographic information into the Enrollment and Eligibility Consumer Services.
Check Current Enrollment	The Consumer or Third Party checks for the Consumer's existing coverage. Matching is initially done using a single identifier, followed by a probabilistic formula, or other method to obtain current enrollment information.
Verify Information with Verification System	The Consumer electronically verifies their demographic information in real-time with the Verification System. The information received from the Verification System may be pre-populated in real-time on the Application. The Consumer may verify the following information: • Identify • Residency • Income • Citizenship • Legal Status • Household Size
Determine Eligibility	The Consumer reviews information about their potential eligibility for private insurance, subsidized insurance, Medicaid, CHIP, and other HHS programs.

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Use Case	Description
Submit Point in Time Verification	The Consumer or Third Party submits a Point in Time Verification where there is a change in the Consumer's circumstance or the information received from the Verification System is inaccurate or incomplete.
Check Status of Application	The Consumer checks the status of an existing enrollment application.
Send Verification Information	The verification system sends requested verification information to the consumer and Eligibility Worker. The verification information may include: • Identity verification • Residency verification • Income verification • Citizenship verification • Legal Status verification • Household Size verification
Verify Consumer Information	The Eligibility Worker obtains verification information from the Verification System after the Consumer has indicated that the information returned by the Verification System is inaccurate or does not reflect the Consumer's current circumstances. The Eligibility Worker may verify the following Consumer information: • Identity • Residency • Income • Citizenship • Legal Status • Household Size
Determine Consumer Eligibility for other Programs	The Eligibility Worker determines a Consumer's eligibility for other programs. This only happens if the Consumer indicates that the information returned by the Verification Systems is inaccurate or does not reflect the Consumer's current circumstances.
Request for Additional Information from Consumer or Third Party	If the information received from the consumer is incomplete or if the consumer's circumstances have changed the accuracy of information in the eligibility system, the Eligibility Worker may request additional information from the Consumer or Third Party.
Send Consumer Enrollment Information to other Programs and/or Plans	The Eligibility Worker sends the Consumer's enrollment information to other programs and/or plans, as authorized by the Consumer or otherwise permitted by law.
Send Enrollment Notification	The Eligibility System creates an official notice explaining the outcome (Approval or Denial) of the eligibility determination. This notice is mailed to the Consumer and also sent to the Enrollment and Eligibility Consumer Services. The Consumer is given an opportunity to appeal the decision.

Verification of consumer enrollment data against a verification system exemplifies the need to establish a common understanding of data elements prior to information exchange. For example, the "Verify Information with Verification System" use case above may require the exchange of personally identifiable information (e.g., name, date of birth, address, income, etc.) between a program system and multiple verification systems (e.g., SSA, DHS, IRS). The program system passes data elements to the respective verification system(s) to facilitate conclusive identification of a record in the verification system containing information belonging to the consumer applying for benefits. If the program system and the verification system do not use the same definition to define each data element, a discrepancy is created which could affect the consumer's eligibility for benefits if there is no standard method to bridge the gaps between the two definitions.

Table 3 illustrates how different definitions of income may result in different calculated values by the State program and Federal or State verification source.[2]

Table 3 – Sample Income Calculation Scenario for a Human Services Program

	Human Services Program	**Verification Source**
Definition of Income	Net adjusted monthly income	Gross monthly income

Example Income Calculation	**Scenario**:
	• One household member
	• Gross monthly income of $828.00
	• Monthly medical costs of $41.91
	• Standard credit of $141.00 for households of 1-3 people
	• Medical Expense Credit is applied when medical expense are greater than $35.00 per month
	
	Calculation:
	  $828.00 Gross Income
	- $141.00 Standard Credit
	- $ 6.91 Medical Expense Credit
	=$680.09 Net Adjusted Monthly Income
		Scenario:
		• One household member
		• Gross monthly income of $828.00
		• Monthly medical costs of $41.91
		• Verification Source does not apply a Standard Credit
		• Verification Source does apply a Medical Expense Credit
		
		Calculation:
		  $828.00 Gross Income
		- $ .00 Standard Credit
		- $ .00 Medical Expense Credit
		=$828.00 Gross Monthly Income

Summary of Proposed Enrollment Data Standards

Table 4 presents proposed data standards derived from preliminary data analyses findings, use case identification, application of known business rules, and mapping to existing data standards. The findings outlined below are intended as representative data standards and require further refinement and elaboration based on elaboration of use cases, business rules, and interface descriptions.

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[2] Note that this example is limited the calculation of income for a human services programs, as the ACA establishes modified adjusted gross income (MAGI) as the measure of income for the health insurance exchanges.

Table 4 – Proposed Enrollment Data Standards

Data Element Name	Data Type	Data Definition	Source
Name	niem-xsd: string	A combination of names and/or titles by which a person is known.	Source: NIEM v2.1 Path: nc:PersonName
Date of Birth	niem-xsd:date	The date a person was born	Source: NIEM 2.1 Path: nc:PersonBirthDate
Social Security Number	niem-xd: string	A unique reference to a living person; assigned by the United States Social Security Administration.	Source: NIEM v2.1 Path: nc:PersonSSNIdentification
Gender	niem-xsd: string	A gender or sex of a person.	Source: NIEM v2.1 Path: nc:PersonSex/nc:PersonSexCode
Address	niem-xsd: string	A postal location to which paper mail can be directed.	Source: NIEM v2.1 Path: nc:Address
Citizenship	niem-xsd: string	The legal standing of a person assigned by a country which provides rights, duties, and privileges due to the person's birth or naturalization.	Source: NIEM v2.1 Path: scr:Citizenship
Legal Status	niem-xsd: string	A role type used to qualify a person's legal status within a country or nation.	Source: HL7 Reference Information Model (RIM_0231). V 02-31 (3/21/2010) Path: RoleCode> AssocativeRoleType> MutualRelationshipRoleType> FormalRelationshipRoleType> CitizenRoleType
Incarceration	niem-xsd: boolean	A mandatory confined supervision of a person.	Source: NIEM v2.1 Path: j:Incarceration
Race[1]	niem-xsd: string	A classification of a person based on factors such as geographical locations and genetics.	Source: NIEM v2.1 Path: nc:PersonRaceCode
Ethnicity[1]	niem-xsd: string	A cultural lineage of a person.	Source: NIEM v2.1 Path: nc:PersonEthnicityCode
Household Composition[2]	N/A	N/A	N/A

Data Element Name	Data Type	Data Definition	Source
Income[3]	N/A	N/A	N/A
Primary Care Provider[4]	N/A	N/A	N/A

Notes:

1. Race and Ethnicity were originally recommended as the single data element. Splitting this data element into two separate data elements will allow for more accurate definition.
2. Proposed Household Composition definition and metadata are not provided, as further elaboration and comparison of applicable business rules are required to express the unambiguous definition of this attribute.
3. Proposed Income definition and metadata are not provided as further analysis is required to outline how discrete data elements (e.g., employment income, self-employment income, unearned income, utilities, medical expenses, etc.) are used to calculate income, as well as how States apply business rules to derive income.
4. Proposed Primary Care Provider definition and metadata are not provided, as data element was only found in one of 34 State program enrollment applications.

Further Elaboration

While we have identified data standardization priorities that will ultimately facilitate consumer enrollment and enable consistent eligibility and enrollment information exchange across health and human services programs, additional work is needed. The use cases, derived from the ACA, should be refined to ensure proper workflows that support consumer eligibility determinations and enrollment processes. As information becomes available, the use cases and associated artifacts should address system interactions and process flows in greater depth.

Future iterations in the interoperability specification development process will include a platform independent model that provides a logical data representation of the use cases. It will also include platform specific models with a representative physical data model and service description, specifying data types, data lengths, and other key metadata such as the originating source of data, data owner and system of record for ongoing maintenance and updates.

Appendix C
Verification Interfaces

Definitions
As used in these Recommendations and Appendices, the following definitions are applicable:

- *Application:* a program, potentially containing a graphical user interface, allows a human to interact so as to provide input or output.

- *Consumer*: human or machine or both.

- *Verification Interface*: the mechanism used to allow an information system to share information for the purposes of verification of a consumer's personal information (e.g. name, date of birth, address, income, etc.) with other information systems. A Web service is an example of an interface.

- *Web Service*: loosely coupled machine-to-machine interactions over a network consisting of sets of (HTTP) request and response messages along with a definition of the structure of the messages, expressed in a NIEM Compliant XML format.

Federal Reference Software
To achieve seamless integration with the Federal verification Web services, States must use the same standards (e.g., WSI based Web services and NIEM compliant XML messages).

We believe the Federal reference software recommended in Recommendation 2.2 should access Federal Web services to aid State programs in the creation and implementation of the verification Web services. This software must integrate Web services interfaces in a way that will minimize program implementation efforts. Given the variety of programming languages and business logic in use, we believe SDKs (Software Development Kits, including software and associated artifacts) should be accompanied by well documented, high-level sample source code and API messages. These SDKs and their sample implementations should be robust enough to allow for reuse by developers. Materials should be made readily available to the public, and collaborative improvement of the materials is strongly encouraged.

A critical first step in ensuring the data can be used in a consumer-mediated online system as called for in the recommendations is providing data for individuals rather than households. To support a consumer-mediated online application process, verification interfaces facilitated by the Federal reference software should be automated and real-time and, where practical and applicable, pre-populate the application when performing new enrollments, eligibility requests, renewals or changes across multiple programs.

Where real-time, automated verification information does not produce the required information, or information consistent with the consumer's current circumstance, States should implement processes to provide for the digital submission (e.g., ability to fax, scan or e-mail) of verification documentation that can be submitted and reused for initial and subsequent eligibility determinations.

Other Best Practices

In addition to verification data from Federal and State systems, new and existing State eligibility and enrollment systems should facilitate automated queries across programs to determine if an consumer is known to other eligibility and/or enrollment systems (e.g., because the consumer is currently or has been previously enrolled) prior to completing the application process. If a consumer is known to another eligibility and/or enrollment system, the system should allow for the retrieval of relevant eligibility data.

Further, streamlined eligibility and enrollment in an interoperable system requires the seamless transmission and receipt of data between programs. Rather than force legacy system changes to accommodate different verification sources and formats (e.g., HL7, XML), States may include Web services or translation tools that reliably and consistently translate or transform data from various sources and formats in their implementation plans.

To allow consumers to direct and manage use and reuse of their information, Federal and State data suppliers (e.g., SSA, IRS, DHS and other Federal and State entities) should examine data use, retention and reuse policies to allow for the reuse of a consumer's eligibility and enrollment information, where practicable. Areas to examine include the appropriate uses of personal information, including the sharing of data across health and human services programs to facilitate additional enrollments, renewals, and transitions between programs. Where allowed and practicable, States should provide for "express lane" determinations across programs (i.e., an eligibility finding for one program is a *de facto* finding for a second program with no additional eligibility verification necessary).

Appendix D
Business Rules

As used in these Recommendations and Appendices, a business rule is anything that captures and implements business, policies and practices and can be used to: 1) enforce policy (e.g., program hierarchy, exception handling), 2) make a decision (e.g., eligibility determination, point in time verification), and/or 3) infer new data from existing data (e.g., persons with the same address live in the same household).[3]

Given this definition, business rules should:

- Adopt a *consumer-mediated approach* by supporting efficient and timely eligibility determination, renewal and enrollment for the programs and in the context preferred by the consumer;
- Support *consistent, technology-neutral expression* of rules along a *continuum of implementation* modalities (e.g., enhancing legacy systems to developing new systems)*;*
- Support the *augmentation* of current State systems;
- Support interfaces between State eligibility systems and other systems that may support consumer enrollment, such as those used by community-based organizations, providers, and portals;
- *Accelerate* States' ability to comply with ACA requirements;
- *Support integration* across systems and across programs to support a seamless user experience by addressing program hierarchy and providing capacity for addition of other programs;
- Guide the adoption and utilization of federated *core data*;
- Where necessary and possible, "buffer" the impact of imperfect information and data whether from verification sources (e.g., automated and point-in-time) or others; and,
- Minimize *maintenance* and allow for *scalability.*

Consistent, Technology-Neutral Expression of Business Rules
Recommendation 3.1 applies to business rules used in multiple eligibility and enrollment contexts including:

- Screening a consumer for potential entitlements or benefits (e.g., determining which programs a consumer is eligible for, which are most likely to suit articulated needs, and why); and,
- Making an eligibility finding for a particular program (e.g., finding that a consumer is ineligible for SNAP benefits because the calculated income exceeds the threshold required for eligibility).

A key component of Recommendation 3.1 is that Federal agencies and States express their business rules in a consistent, technology-neutral standard. The clear and unambiguous

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[3] Definition taken in part from IBM: http://publib.boulder.ibm.com

expression of business rules, as well as the output of these business rules – the eligibility finding and justification – has enormous value for both developers and consumers. Clear and consistent expression will ease development of technology solutions and facilitate seamless interoperability between programs, as developers will be able to identify and understand the rules that should be coded into new and existing systems. In addition, compliance with Recommendation 3.1 would provide maximum transparency to the consumer by providing a foundation for clear, understandable eligibility determinations.

Recommendation 3.1 also recommends that Federal agencies and States express their rules outside transactional systems. The primary reason for this is to develop a consistent, reusable set of business logic that can be written once and applied broadly. In contrast, business rules which exist only as computer code are harder to understand, enforce, extract and modify. This recommendation provides optimal flexibility during the implementation phase, as Federal agencies and States will be able to choose amongst a number of implementation options for new and existing systems including:

- Hand coding business rules into existing legacy systems;
- Parameterized and consumed by new or existing systems; or
- Creating a comprehensive eligibility determination engine to apply new business rules.

Business Rules Repository
A business rules repository maintained by the Federal government, but including both Federal and State rules, is key to enhancing and encouraging collaboration around the clear expression of business rules. Documenting and displaying eligibility, entitlement and enrollment business rules in a standards-based format will be helpful for developers, while documenting and displaying the same rules in a human readable format will allow for greater transparency to the consumer and will aid consumer advocacy groups in explaining and assisting consumers with the eligibility and enrollment process.

To ensure maximum utility of this resource, we believe three representations of each Federal and State business rule should be included in this repository:

- *Business representation*: A consistent business representation of the rule (e.g., SBVR) such that an eligibility determination can be consistently interpreted and understood by business analysts;
- *Technical representation*: A consistent technical representation of the rule (e.g., RIF) such that common, Federal rules can be maintained and centrally reused; and
- *Consumer-friendly representation*: A consistent consumer-friendly representation of the rule such that consumers with varying literacy skills and language competency can clearly understand the basis for an eligibility determination using the rule.

Additionally, the open source forum referenced in Recommendation 3.2 is intended to be a resource for developers to use to exchange best practices, code and other information to ease development of Federal and State technology solutions implementing business rules. The open source forum is also intended to be a resource for States and others to store their own business rules (to support their own system development and generate consumer-friendly guidance), as well as a resource for States to share their business rules to reduce cost, complexity and time of

development. Ideally, Federal agencies and States should adopt a similar approach for other health and human service programs (e.g., SNAP and TANF) over time.

Federal agencies and States should also consider business rules when contemplating implementation and execution of the Workgroup's other recommendations. Federal agencies developing the Federal reference software in Recommendation 2.2, for example, should seek opportunities to use the business rules repository as a way of creating code that could be reused by States.

Appendix E
Transmission of Enrollment Information

Since 2003, standard HIPAA transactions have been used to enroll consumers into public and private health coverage programs. The core of these recommendations is that it is most practical to leverage existing, widely-used HIPAA transaction standards (e.g., HIPAA 834, 270, 271) to send and respond to eligibility queries, as well as transmit enrollment data between public and private insurance programs. Recommendations 4.1 and 4.2 are intended to support uniform and efficient transmission of enrollment information across a range of health coverage plans, human service programs and service providers.

The intended use of the HIPAA standards recommended in Recommendation 4.1 is described below:

- *Eligibility:* The HIPAA 270/271 transaction set should be used to determine if a consumer has coverage with a particular public or private health insurance program. The HIPAA 270 standard is used to send an eligibility inquiry and the 271 standard is commonly used to respond to that inquiry.

- *Enrollment and Dis-enrollment*: HIPAA 834 transactions should be used to transmit enrollment information necessary to enroll consumers into public and private health coverage options.

As required by Section 1104 of the ACA, the National Committee on Vital and Health Statistics (NCVHS) will be recommending that the Secretary designate an entity to draft standard operating rules for eligibility and claims systems. Entities administering health coverage programs should consult these operating rules for additional information.

Fair Information Practices
Consistent with laws and regulations requiring States to incorporate Fair Information Practices into new and existing electronic systems, States should implement the following best practices to address FIPs in new and existing State eligibility and enrollment systems:

- *Collection and Use Limitation:* State systems should be designed to collect and use the minimum data necessary for an eligibility and enrollment determination. This should be balanced with the desire to reuse information for multiple eligibility decisions.
- *Data Integrity & Quality:* States should establish a minimum threshold level for data matches, adopting a glidepath toward achieving advanced probabilistic matching.
- *Openness & Transparency:* Clear, transparent policies about authorizing access and use of data should be provided to the consumer in the Privacy Notice.

Consumer Mediated Approach
We believe that the following best practices should be used to facilitate a consumer-mediated approach to data sharing:

- Provide consumer information to the consumer in a human-readable form that allows them to view, print, or save data in a format they can use and reuse;
- Enable data to be exported into commonly-used software formats such as spreadsheets, text files, etc.;
- Develop separate pathways for download requests from the consumer and download requests via automated processes acting on the consumer's behalf; and,
- Limit data use to that specified in the Privacy Notice unless the consumer consents to additional uses.

 OAuth is an example of a consumer mediated authorization mechanism between third parties and their data origins. OAuth is a delegated authorization platform that allows a consumer to selectively grant, limit or revoke specific privileges to third parties without revealing their private credentials to those third parties or developers.

Consistent with the Privacy Act, the Privacy Notice provided to the consumer during the application process will govern the consumer's rights to confidentiality and privacy. The Privacy Notice should be provided to the consumer prior to or at the time of collection of personally identified information in a method the consumer can understand. The Privacy Notice should also clearly indicate all entities that will be permitted to use a consumer's eligibility data, as well as the permissible uses of such data.