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May 1, 2015

Karen DeSalvo, MD, MPH, MSc
National Coordinator
Office of the National Coordinator for Health IT
Department of Health and Human Services
200 Independence Ave, SW
Washington, DC 20201

Dear Dr. DeSalvo,

On behalf of the Healthcare Information and Management Systems Society (HIMSS), we are pleased to provide written comments to the Office of the National Coordinator for Health Information Technology (ONC) in response to the 2015 Interoperability Standards Advisory. HIMSS appreciates the opportunity to leverage our members' expertise in commenting on the Standards Advisory, and we look forward to continuing our dialogue with ONC on identifying, assessing, and determining the best available interoperability standards and implementation specifications.

HIMSS is a cause-based, global enterprise producing health information technology (IT) thought leadership, education, events, market research and media services around the world. Founded in 1961, HIMSS encompasses more than 58,000 individuals, of which more than two-thirds work in healthcare provider, governmental and not-for-profit organizations across the globe, plus over 640 corporations and 400 not-for-profit partner organizations, that share this cause.

HIMSS is committed to supporting and educating all stakeholders to achieve interoperability leading to information exchange that improves the quality and cost effectiveness of healthcare delivery. We will continue to leverage our resources and our diverse membership to ensure all individuals and communities have access to the tools necessary to share health information in a secure and appropriate manner. HIMSS intends to use our experiences as conveners and thought leaders to bring the broader community together to identify, execute on, and achieve the tenets of the Interoperability Roadmap as well as the Interoperability Standards Advisory.

Historically, HIMSS has taken a leading role in supporting the definition and specifications for interoperability, even prior to the enactment of the Medicare and Medicaid Electronic Health Record Incentive Programs. HIMSS began our committee-level interoperability expertise in September 2004 to provide oversight across the many integration and interoperability-related activities that HIMSS already had underway. Since then, HIMSS has evolved our efforts to provide thought leadership to advance the effective delivery of healthcare for individuals and communities by enabling healthcare community stakeholders to support widespread adoption and implementation of standards-based interoperable health IT

systems to achieve seamless, effective, and secure health information exchange practices worldwide.

As part of our efforts, HIMSS contributed actively to the Healthcare Information Technology Standards Panel (HITSP) in order to advance the mission of harmonizing and integrating standards that meet clinical and business needs for sharing information among organizations and systems. Subsequently, we have provided timely and realistic input into the HIT Standards Committee initiatives, and public response periods preceding Meaningful Use Stages 1 and 2.

Moreover, HIMSS offers substantial experience as a co-founder of Integrating the Healthcare Enterprise (IHE). Since 1998, IHE has achieved consensus on a common framework for going about the business of applying health IT standards to the real world.

In general, HIMSS supports the tenets of the 2015 Interoperability Standards Advisory. The key takeaways from our comments focus on five ideas:

1. **HIMSS applauds ONC for its endorsements of the best available and emerging standards listed in the 2015 Interoperability Standards Advisory to push forward the achievement of nationwide interoperability.**
    - Alignment on the best available standards will enable our nation to more rapidly make advances to achieve interoperability by building upon this consensus-based foundation of standards.
    - We should continue to develop standards and encourage the testing of emerging standards and tools such as application programming interfaces (APIs) and Fast Healthcare Interoperability Resources (FHIR) to support this effort.

2. **HIMSS supports the development of the 2015 Interoperability Standards Advisory and the process outlined in the Interoperability Roadmap for publishing an annual update of the best available standards and implementation specifications.**
    - The Interoperability Standards Advisory is a productive model. HIMSS encourages ONC to coordinate its efforts and capitalize on complementary healthcare community-led processes already underway to publicize and highlight the best available standards. HIMSS is committed to ensuring that those processes that are working are not interrupted.

3. **HIMSS encourages a cohesive set of best available standards.**
    - Through the use of electronic health records (EHRs), clinical documentation not only serves to record individual patient experiences but, if the data are collected and reported in a standardized fashion, they can also be aggregated to discern best practices in clinical care which will ultimately lead to improved care and outcomes.
    - The ONC 2015 Interoperability Standards Advisory should represent a cohesive set of standards and terminologies that, when used together, will enable the ability to share and compare quality data. The ability to share data will inform meaningful analysis of those data for all users who perform clinical care, quality audits,

clinical research and other healthcare related operations. Ultimately, the successful sharing of comparable evidence-based healthcare data will foster improvements in the quality of care as the Institute of Medicine has discussed in the context of the Learning Health System.

4. **HIMSS recommends other characteristics that should be considered for best available standards and implementation specifications.**
    - Include a column that indicates the level of adoption and maturity (as discussed in the JAMIA article published on May 2014 by Dixie Baker, et al) of the specified standard. The ability to identify implementation issues, barriers and impacts to the end user workflow and/or use cases would make this document more valuable.
    - Include a column for emerging standards that may potentially supplant the existing best available standard(s).
    - Include a separate column specifically for value sets that would allow for more guidance on which value sets should be used.
    - List more specific versions of the HL7 v2 messages in alignment with specific use cases to promote harmonization between organizations and enhance interoperability.

5. **HIMSS notes the absence of security standards in the 2015 Interoperability Standards Advisory.**
    - There are many security standards for controls such as authentication, audit log, risk assessment, etc., that are in widespread use as best practice, recommended by the National Institute of Standards and Technology (NIST) as well as other advisory bodies and/or that have been recommended by the workgroups of the Health IT Policy Committee or Health IT Standards Committee (HITSC).
    - Included in Appendix A of our comments, HIMSS worked with other stakeholders to develop a candidate list of security standards that should be considered for inclusion in the final version of the 2015 Interoperability Standards Advisory. We would be interested in further discussing these standards with ONC, either directly and/or through our participation with the HITSC.

HIMSS has prepared comments on the items in the following attached pages, listed according to the proposed best available standards and questions related to the Standards Advisory.

HIMSS appreciates the opportunity to submit comments on the 2015 Interoperability Standards Advisory. We hope that our comments help ONC recognize the importance of each stakeholder's role in advancing interoperability and health information exchange, and ensuring that each domain is invested in overcoming the inherent challenges, while further enhancing health IT's pivotal role in enabling healthcare transformation.

We look forward to the opportunity to meet with you and your team to discuss these issues in more depth. Please feel free to contact Jeff Coughlin, Senior Director of Federal & State Affairs, at 703.562.8824, or Eli Fleet, Director of Federal Affairs, at 703.562.8834, with questions or for more information.

Thank you for your consideration.

Sincerely,

Paul Kleeberg, MD, FAAFP, FHIMSS
Chief Medical Informatics Officer
Stratis Health
HIMSS Board Chair

H. Stephen Lieber, CAE
President & CEO

Attachment: HIMSS Response to ONC's 2015 Interoperability Standards Advisory

Section I: Best Available Vocabulary/Code Set/Terminology Standards and Implementation Specifications

Purpose (listed alphabetically)	Standard(s)	Implementation Specification(s)	HIMSS Comments
Allergy reactions	SNOMED-CT		The 2015 Edition Certification Criteria propose to adopt the September 2014 release.
Care team member (health care provider)	National Provider Identifier (NPI)		HIMSS suggests this may be the best available standard today, but not an adequate standard going forward. The more unique elements you have the more realistic you can be. There is a need for a standard that goes two to three levels deeper for the identifier.
Ethnicity	***[See Question #5-6]*** **[R]** OMB standards for Maintaining, Collecting, and Presenting Federal Data on Race and Ethnicity, Statistical Policy Directive No. 15, Oct 30, 1997		HIMSS proposes that there should be more detailed value sets recommended in terms of offering multi-racial or unknown data elements. The 2015 Edition Certification Criteria propose to adopt the CDC code system in the PHIN Vocabulary Access and Distribution System (VADS) Release 3.39. June 2011.
Encounter diagnosis	**[R]** SNOMED-CT		The 2015 Edition Certification Criteria propose to adopt the September 2014 release.
	[See Question #5-7] **[R]** ICD-10-CM		HIMSS recommends that the more traditionally considered "administrative" standards not be removed from this list. Administrative standards are relevant to value based care. Removing them may result in a loss of historical data.
Family health history	**[R]** SNOMED-CT		The 2015 Edition Certification Criteria propose to adopt the September 2014 release.

Purpose (listed alphabetically)	Standard(s)	Implementation Specification(s)	HIMSS Comments
Food allergies	*[See Question #5-8]*		The HIMSS Nutrition Informatics Community strongly supports the inclusion of food allergies in the appropriate standards. Food allergy is an increasing cause of morbidity and mortality in the US and is responsible for hundreds of preventable fatal outcomes each year. Additionally a number of immunizations and other pharmaceuticals contain residues of edible substances. The HL7 CDA Allergy and Intolerance templates (R 1.1 and R2.0) and FHIR allergy and intolerance resource provide for the capture of food allergies along with allergies to drugs and other substances. The published HL7 Allergy/Intolerance domain model includes foods and other substances along with drugs. Through the efforts of the nutritionist community and the Academy of Nutrition and Dietetics, HL7 v2 includes implementation guidance for food/nutrition orders, and Consolidated-CDA R2.0 includes templates for nutrition assessment and nutrition orders. Through the efforts of nutritionists and HL7, SNOMED CT codes for substances associated with food allergies have been updated as well. The inclusion of nutrition assessment parameters and nutrition orders will enable clinical decision support for food allergies and will have a significant patient safety impact only if food allergy is included in the best available standards.

Purpose (listed alphabetically)	Standard(s)	Implementation Specification(s)	HIMSS Comments
Functioning and disability	***[See Question #5-9]***		HIMSS does not support the use of the International Classification of Functioning, Disability and Health (ICF) as a best available standard at this time. We recommend the continued use of SNOMED-CT and LOINC to maintain terminology.
Gender identity	SNOMED-CT		The 2015 Edition Certification Criteria propose to adopt the September 2014 release.
Immunizations - Historical	***[See Question #5-10]*** • [R] HL7 Standard Code Set CVX—Clinical Vaccines Administered • MVX (Manufacturing Vaccine Formulation)		
Immunizations - Administered	***[See Question #5-11]*** National Drug Codes (NDC)		HIMSS recommends the use of the NDC codes for inventory management and public health reporting of the administration of vaccines.
Industry and occupation	***[See Question #5-12]***		HIMSS recommends the Standard Occupational Classification (SOC) codes be included in the 2016 Advisory. An alternative standard may be the National Uniform Claim Committee (NUCC) codes, but they are not widely adopted outside of the healthcare industry.
Lab tests	[R] LOINC		The 2015 Edition Certification Criteria propose to adopt the LOINC Database version 2.50.
Medications	[R] RxNorm		The 2015 Edition Certification Criteria propose to adopt the U.S National Library of Medicine, Feb. 2, 2015 Release.
Medication allergies	[R] RxNorm		The 2015 Edition Certification Criteria proposes to adopt the U.S National Library of Medicine, Feb. 2, 2015 Release.
Numerical references and values	The Unified Code of Units of Measure		The 2015 Edition Certification Criteria proposes to adopt the UCUM revision 1.9.

Purpose (listed alphabetically)	Standard(s)	Implementation Specification(s)	HIMSS Comments
Patient "problems" (i.e., conditions)	[R] SNOMED-CT		The 2015 Edition Certification Criteria propose to adopt the September 2014 release.
Preferred language	ISO 639-1		
	[R] ISO 639-2		
	ISO 639-3		
	RFC 5646		
Procedures (dental)	[R] Code on Dental Procedures and Nomenclature (CDT)		
Procedures (medical)	[R] SNOMED-CT		The 2015 Edition Certification Criteria propose to adopt the September 2014 release.
	[R] the combination of CPT-4/HCPCS		
	[R] ICD-10-PCS		
Race	[R] OMB standards for Maintaining, Collecting, and Presenting Federal Data on Race and Ethnicity, Statistical Policy Directive No. 15, Oct 30, 1997.		The 2015 Edition Certification Criteria propose to adopt the CDC code system in the PHIN Vocabulary Access and Distribution System (VADS) Release 3.39. June 2011.
Radiology (interventions and procedures)	RadLex		HIMSS recommends the creation of an implementation guide to encourage and facilitate adoption and widespread use of RadLex for interoperability between ordering systems and diagnostic imaging facilities.
Sex	HL7 Version 3 Value Set for Administrative Gender		
Sexual orientation	SNOMED-CT		The 2015 Edition Certification Criteria propose to adopt the September 2014 release.
Smoking status	[R] SNOMED-CT		The 2015 Edition Certification Criteria propose to adopt the September 2014 release.
Unique device identification	[R] Unique device identifier as defined by the Food and Drug Administration at 21 CFR 830.3		

Purpose (listed alphabetically)	Standard(s)	Implementation Specification(s)	HIMSS Comments
Vital signs	LOINC		HIMSS recognizes the feasibility of using LOINC for vital signs is limited today. The majority of EHR systems are using LOINC for vital signs; however this is primarily for manual entry. An increasingly large amount of vital sign data are provided by devices in different nomenclatures: • Medical devices – IEEE 11073 10101 (10101A is now in IEEE ballot) • Personal devices - SNOMED (specifications published by Continua) For medical device standard IEEE 11073 there is currently no SDO standard mapping to convert the vital sign observations. However, IHE is working with the VA and others to build a standards-based conversion of this data specifically into LOINC for vital signs, and they are putting together a clinical mapping of IHE profiles to manage the translation of IEEE codes into LOINC. Under the leadership of Clem McDonald of NLM, Swapna Abhyankar constructed the IEEE to LOINC mapping earlier this year. This mapping is being vetted and should be available in the NIST RTMMS (Rosetta Terminology Mapping Management System) later in 2015. We request support for this new mapping, when vetted, in the 2016 Standards Advisory.

Section II: Best Available Content/Structure Standards and Implementation Specifications

Purpose (listed alphabetically)	Standard(s)	Implementation Specification(s)	HIMSS Comments
Admission, discharge, and transfer	HL7 2.x ADT message[1]		
Antimicrobial use and resistance information to public health agencies	HL7 Clinical Document Architecture (CDA®), Release 2.0, Normative Edition	HL7 Implementation Guide for CDA® Release 2 – Level 3: Healthcare Associated Infection Reports, Release 1, U.S. Realm.	
Care plan	HL7 Clinical Document Architecture (CDA®), Release 2.0, Normative Edition	HL7 Implementation Guide for CDA® Release 2: Consolidated CDA Templates for Clinical Notes (US Realm) Draft Standard for Trial Use Release 2	
Cancer registry reporting	HL7 Clinical Document Architecture (CDA®), Release 2.0, Normative Edition	HL7 Implementation Guide for CDA® Release 2: Reporting to Public Health Cancer Registries from Ambulatory Healthcare Providers, Release 1 (US Realm), Draft Standard for Trial Use	
Case reporting to public health agencies	IHE Quality, Research, and Public Health Technical Framework Supplement, Structured Data Capture, Trial Implementation, HL7 Consolidated CDA® Release 2.0		
Clinical decision support knowledge artifacts	HL7 Implementation Guide: Clinical Decision Support Knowledge Artifact Implementation Guide, Release 1.2, Draft Standard for Trial Use.		
Clinical decision support services	HL7 Version 3 Standard: Decision Support Service, Release 2.	HL7 Implementation Guide: Decision Support Service, Release 1.1, US Realm, Draft Standard for Trial Use	

[1] Any HL7 2.x version messaging standard associated with ADT is acceptable.

Purpose (listed alphabetically)	Standard(s)	Implementation Specification(s)	HIMSS Comments
Clinical decision support – reference information	[R] HL7 Version 3 Standard: Context Aware Knowledge Retrieval Application. ("Infobutton"), Knowledge Request, Release 2.	• HL7 Implementation Guide: Service-Oriented Architecture Implementations of the Context-aware Knowledge Retrieval (Infobutton) Domain, Release 1. • HL7 Version 3 Implementation Guide: Context-Aware Knowledge Retrieval (Infobutton), Release 4.	
Data element based query for clinical health information	Fast Healthcare Interoperability Resources (FHIR)		HIMSS acknowledges the potential for use of HL7® FHIR® to enable data element query and retrieval for clinical health information. However, we recommend that the maturity of FHIR be evaluated and established prior to inclusion in the 2015 Standards Advisory.
Drug formulary checking	[R] NCPDP Formulary and Benefits v3.0		
Electronic prescribing (e.g., new Rx, refill, cancel)	[R] NCPDP SCRIPT Standard, Implementation Guide, Version 10.6		
Electronic transmission of lab results to public health agencies	[R] HL7 2.5.1	HL7 Version 2.5.1 Implementation Guide: Electronic Laboratory Reporting to Public Health, Draft Standard for Trial Use, Release 2 (US Realm), DSTU Release 1.1	
Family health history (clinical genomics)	[R] HL7 Version 3 Standard: Clinical Genomics; Pedigree	HL7 Version 3 Implementation Guide: Family History/Pedigree Interoperability, Release 1	
Health care survey information to public health agencies	HL7 Clinical Document Architecture (CDA®), Release 2.0, Normative Edition	HL7 Implementation Guide for CDA® Release 2: National Ambulatory Medical Care Survey (NAMCS), Release 1, US Realm, Volume 1- Introductory Material, Draft Standard for Trial Use.	
Images	Digital Imaging and Communications in Medicine (DICOM)		
Immunization registry reporting	[R] HL7 2.5.1	HL7 2.5.1 Implementation Guide for Immunization Messaging, Release 1.5	

Purpose (listed alphabetically)	Standard(s)	Implementation Specification(s)	HIMSS Comments
Lab - results (receipt)	***[See Question #5-14]*** [R] HL7 Version 2.5.1 Implementation Guide: S&I Framework Lab Results Interface, Release 1—US Realm [HL7 Version 2.5.1: ORU_R01] Draft Standard for Trial Use, July 2012		HIMSS recommends that the Advisory refer to a specific version and release of an HL7 standard. "Best available" is an inherent assertion that the standard (or implementation guide) exists.
Lab - orders	***[See Question #5-14]***		
Lab – Directory of services	***[See Question #5-14]***		
Patient education materials	[R] HL7 Version 3 Standard: Context Aware Knowledge Retrieval Application. ("Infobutton"), Knowledge Request, Release 2.	• HL7 Implementation Guide: Service-Oriented Architecture Implementations of the Context-aware Knowledge Retrieval (Infobutton) Domain, Release 1. • HL7 Version 3 Implementation Guide: Context-Aware Knowledge Retrieval (Infobutton), Release 4.	
Patient preference/consent	***[See Question #5-15]***		HIMSS suggests that the IHE Basic Patient Privacy Consent (BPPC) profile is perhaps the best electronic patient privacy consent we have today; however it is only usable for "blunt" consents. This means that it only works where the consent language is fixed ahead of time. It cannot be updated per patient with exceptions that the patient might wish to impose upon the policy. However, it provides a solid foundation that is in wide use in the US and internationally. For example the Social Security Administration (SSA) uses it as does the open source OpenEMR product in international markets.
Quality reporting (aggregate)	HL7 Clinical Document Architecture (CDA®), Release 2.0, Normative Edition	[R] HL7 Implementation Guide for CDA® Release 2: Quality Reporting Document Architecture - Category III (QRDA III), DSTU Release 1	

Purpose (listed alphabetically)	Standard(s)	Implementation Specification(s)	HIMSS Comments
Quality reporting (patient-level)	HL7 Clinical Document Architecture (CDA®), Release 2.0, Normative Edition	[R] HL7 Implementation Guide for CDA® R2: Quality Reporting Document Architecture - Category I (QRDA) DSTU Release 2 (US Realm)	
Segmentation of sensitive information (e.g., 42 CFR Part 2 requirements)	***[See Question #5-16]*** HL7 Clinical Document Architecture (CDA®), Release 2.0, Normative Edition	• Consolidated HL7 Implementation Guide: Data Segmentation for Privacy (DS4P), Release 1 • The HL7 Implementation Guide: Data Segmentation for Privacy, Release 1: Chapter 3, NwHIN Exchange XDS Metadata Content Standard was published in September 2013 as a Normative Standard.	HIMSS would also consider this the best available standard, but adoption has remained low. This may be related at least in part to the technical complexity of implementation, the limited participation of behavioral health in existing HIE implementations, and the challenges of policy implementations, particularly 42 CFR Part 2.
Summary care record	***[See Question #5-17]*** HL7 Clinical Document Architecture (CDA®), Release 2.0, Normative Edition	• [R] Consolidated CDA® Release 1.1 (HL7 Implementation Guide for CDA® Release 2: IHE Health Story Consolidation, Release 1.1 - US Realm) • Consolidated CDA® Release 2.0[2]	HIMSS supports the Consolidated-CDA R2.0 as the best available standard. Consolidated-CDA R 2.0 is a newer version than C-CDA R1.1. It intentionally updates and reconciles issues reported from the use of R1.1. C-CDA R1.1 includes 9 document templates and about 70 section templates. C-CDA R2.0 includes 3 new document templates and some 30 new section templates. Both are Implementation Guides for use of the CDA R2 Standard to implement the document types included (also referred to as clinical notes).
Syndromic surveillance to public health (emergency department, inpatient, and urgent care settings)	[R] HL7 2.5.1	PHIN Messaging Guide for Syndromic Surveillance: Emergency Department, Urgent, Ambulatory Care, and Inpatient Settings, Release 2.0	

Section III: Best Available Transport Standards and Implementation Specifications

Purpose (listed alphabetically)	**Standard(s)**	**Implementation Specification(s)**	**HIMSS Comments**
Simple way for participants to "push" health information directly to known, trusted recipients	Simple Mail Transfer Protocol (SMTP) RFC 5321 For security, Secure/Multipurpose Internet Mail Extensions (S/MIME) Version 3.2 Message Specification, RFC 5751		
Data sharing through Service Oriented Architecture (SOA) - that enables two systems to interoperate together	Hypertext Transfer Protocol (HTTP) 1.1, RFC 723X (to support RESTful transport approaches) Simple Object Access Protocol (SOAP) 1.2 For security, Transport Layer Security (TLS) Protocol Version 1.2, RFC 5246	HIMSS proposes the following additional implementation specifications: • Messaging Platform v3.0 • Patient Discovery v2.0 • Query for Documents v2.0 • Retrieve Documents v3.0 • Authorization Framework v3.0 • Messaging Platform v3.0 • Electronic Submission of Medical Documentation (esMD) v1.0 • Document Submission v2.0 • eHealth Exchange Specifications	HIMSS proposes the following additional IHE standards: • Audit Trail and Node Authentication (ATNA) • Consistent Time (CT) • Cross-Community Access (XCA) • Cross-Community Patient Discovery (XCPD) • Cross-Enterprise Document Sharing (XDS.b) • Cross-Enterprise Sharing of Scanned Documents (XDS-SD) • Cross-Enterprise User Assertion (XUA) • Cross-Enterprise User Assertion – Attribute Extension (XUA++) • Enterprise User Authentication (EUA) • IHE IT Infrastructure Technical Framework Supplement – Internet User Authorization (IUA)

Section IV: Best Available Standards and Implementation Specifications for Services

Purpose (listed alphabetically)	Standard(s)	Implementation Specification(s)	HIMSS Comments
An unsolicited "push" of clinical health information to a known destination	[R] Applicability Statement for Secure Health Transport ("Direct")	• [R] XDR and XDM for Direct Messaging Specification • [R] IG for Direct Edge Protocols • IG for Delivery Notification in Direct	HIMSS would like to note that the two NwHIN Specifications: Authorization Framework and Messaging Platform should not be listed under the standards column, but under the implementation specification column as they are implementation guides of the base standard for IHE profiles XCA and XCPD. The standard should be the IHE profiles not the NwHIN implementation guides. The following Implementation Guides from the EHR | HIE Interoperability Workgroup specifications will have the appropriate maturity level based on pilot program use by 2016 and should be considered for the 2016 Standards Advisory: • Statewide Send and Receive Patient Record Exchange Direct Framework • Statewide Send and Receive Patient Record Exchange HPD
	[R] SOAP-Based Secure Transport Requirements Traceability Matrix (RTM) version 1.0 specification.		
	IHE-XDR (Cross-Enterprise Document Reliable Interchange)		
	NwHIN Specification: Authorization Framework		
	NwHIN Specification: Messaging Platform		

Query for documents within a specific health information exchange domain	IHE-XDS (Cross-enterprise document sharing) IHE-PIX (Patient Identity Cross-Reference) IHE-PDQ (Patient Demographics Query)		HIMSS recommends that the following IHE profiles be included in the 2016 Standards Advisory. These are recently published IHE profiles that will have the appropriate maturity level by 2016. These profiles expand query for documents functionality to include REST (for mobile access) and HL7 FHIR® new generation components, specifically: • IHE Mobile access to Health Documents (MHD) – based on REST,FHIR including access to FHIR documents, and • IHE Mobile Patient Demographics Query (PDQm) – REST In addition there is the following IHE profile which facilitates user access: • Internet User Authorization (IUA) The following Implementation Guides from the EHR | HIE Interoperability Workgroup specifications will have the appropriate maturity level based on pilot program use by 2016 and should be considered for the 2016 Standards Advisory: • Statewide Send and Receive Patient Record Exchange • Statewide Patient Data Inquiry Service

Query for documents outside a specific health information exchange domain	IHE-XCA (Cross-Community Access)		HIMSS would like to note that the three NwHIN Specifications: Patient Discovery, Query for Documents, and Retrieve documents should not be listed under the standards column, but under the implementation specification column as they are implementation guides of the base standard for IHE profiles XCA and XCPD. The standard should be the IHE profiles not the NwHIN implementation guides.
	IHE-XCPD (Cross-Community Patient Discovery)		
	NwHIN Specification: Patient Discovery		
	NwHIN Specification: Query for Documents		
	NwHIN Specification: Retrieve Documents		
Data element based query for clinical health information	Fast Healthcare Interoperability Resources (FHIR)		HIMSS acknowledges the potential for use of HL7 FHIR® to enable data element query and retrieval for clinical health information. However, we recommend that the maturity of FHIR be evaluated and established prior to inclusion in the 2015 Standards Advisory
Image exchange	Digital Imaging and Communications in Medicine (DICOM)		HIMSS recommends the following profiles in the IHE Radiology Technical Framework provide implementation guidance for various modes of image exchange: • Cross-Enterprise Document Sharing for Imaging (XDS-I.b) • Cross-Community Access for Imaging (XCA-I) • Access to Radiology Information (ARI) • Portable Data for Imaging (PDI)
Resource location	IHE IT Infrastructure Technical Framework Supplement, Care Services Discovery (CSD), Trial Implementation		
Provider directory	IHE IT Infrastructure Technical Framework Supplement, Healthcare Provider Directory (HPD), Trial Implementation		
Publish and subscribe	NwHIN Specification: Health Information Event Messaging Production Specification		

Appendix A

Candidate List of Security Standards for Inclusion in the Final Version of the 2015 Interoperability Standards Advisory

Short Title	Name/Link	Security Control Area
OAuth 2.0	**The OAuth 2.0 Authorization Framework**, IETF* RFC 6749. http://tools.ietf.org/html/rfc6749	Authorization: Enables a third-party application to obtain limited access to an HTTP service.
TLS	**The Transport Layer Security (TLS) Protocol,** *IETF RFC 5246 http://tools.ietf.org/html/rfc5246	Provides communications security over the Internet. The protocol allows client/server applications to communicate in a way that is designed to prevent eavesdropping, tampering, or message forgery.
HTTPS	**Secure Hypertext Transfer Protocol** ("HTTP over TLS"), *IETF RFC 5246 http://tools.ietf.org/html/rfc2818	Provides communications security over the Internet. Uses TLS to secure HTTP connections over the Internet. Current practice is to layer HTTP over SSL (the predecessor to TLS), distinguishing secured traffic from insecure traffic by the use of a different server port.
SHS	**Secure Hash Standards** The current version of the SHS standard is the document NIST FIPS 180-4, which specifies seven: Secure Hash Algorithms: SHA-1, SHA-224, SHA-256, SHA-384, SHA-512, SHA-512/224 and SHA-512/256.	Integrity Assurance: a set of cryptographically secure hash algorithms specified by the National Institute of Standards and Technology (NIST).
AES or Triple-DES	**Advanced Encryption Standard**, Federal Information Processing Standards Publication 197, http://csrc.nist.gov/publications/fips/fips197/fips-197.pdf **Triple Data Encryption Algorithm ("Triple DES")**	Symmetric Encryption and Message Authentication: AES replaces/update to DES Triple-DES applies the DES cipher algorithm three times to each data block.
PKCS	A group of **public-key cryptography standards** by RSA, Inc. Some have begun move into the "standards-track" processes of relevant standards organizations such as the IETF and the PKIX working-group.	Asymmetric encryption: Standards #1-#15 for public key encryption

	http://www.emc.com/emc-plus/rsa-labs/standards-initiatives/public-key-cryptography-standards.htm	
DSS	**Digital Signature Standards** managed by the Organization for the Advancement of Structured Information Standards (OASIS), a global consortium that works on the development, convergence, and adoption of e-business and web service standards. https://www.oasis-open.org/committees/download.php/22725/oasis-dss-overview.pdf	Digital Signature

***** A Normative Internet Standard as developed by the Internet Engineering Task Force of the Internet Society – a NFP international organization dedicated to promoting the open development, evolution, and use of the Internet for the benefit of all people throughout the world.