

Standards Recommended to Achieve Interoperability in Minnesota

Guide 2: Updated August 2011



Minnesota Department of Health
Division of Health Policy / Office of Health Information Technology
85 East Seventh Place | P.O. Box 64882 | St. Paul, MN 55164-0882

Phone: 651-201-5979 | Fax: 651-201-3830 | TDD: 651-201-5797 | www.health.state.mn.us/e-health/



A companion to:

Minnesota Statewide Implementation Plan, 2008

*A Prescription for Meeting Minnesota's
2015 Interoperable Electronic Health
Records Mandate*

Minnesota e-Health Initiative

The Minnesota e-Health Initiative is a public-private collaborative whose Vision is to accelerate the adoption and use of health information technology in order to improve health care quality, increase patient safety, reduce health care costs and improve public health.

INFORMATION ON GUIDES

GUIDE 1:

Addressing Common Barriers to
EHR Adoption: A Practical Guide for
Health Care Providers

Released June 2008

GUIDE 2:

**Standards Recommended
to Achieve Interoperability
in Minnesota**

Updated August 2011

GUIDE 3:

A Practical Guide to
Electronic Prescribing

Released June 2009

GUIDE 4:

A Practical Guide to Effective
Use of EHR Systems

Released June 2009

ACKNOWLEDGEMENTS

The Minnesota Department of Health thanks the many members of the Minnesota e-Health Initiative for their ideas, their expertise and their time in developing this guide. Please refer to the Appendix A for a listing of work-group members.

Upon request, this material will be made available in an alternative format such as large print, Braille, or CD.



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Preface

Standards Recommended to Achieve Interoperability in Minnesota

This guide introduces the Minnesota e-Health Initiative’s:

- Approach to electronic health information exchange
- Coordination with national efforts on standards
- Framework for interoperability
- Recommended e-health standards and their role in interoperability

and presents

- Standards for Achieving Meaningful Use
- Key actions and resources for using standards and helping achieve interoperability

The guide was developed to provide practical support to those having to meet Minnesota’s 2015 interoperable EHR mandate, as well as to achieve the Minnesota e-Health Initiative goals of improving care and supporting healthier communities. This guide has been updated to meet requirements on standards related to meaningful use.

The area of standards and health information exchange is highly dynamic; readers should check for the latest updates at www.health.state.mn.us/ehealth. Resources can be found at the end of this guide.



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e-Health is the adoption and effective use of electronic health record (EHR) systems and health information technology (HIT).

Executive Summary

Health information exchange is described as the mobilization of health information electronically across organizations within a region or community according to nationally recognized standards.

The vision for exchange of health information by the Minnesota eHealth Initiative is to electronically move health information among disparate health care information systems while maintaining the meaning of the information exchanged. The goal is to facilitate access to and retrieval of health data in order to improve health care quality, increase patient safety, reduce health care costs and improve public health.

This guide introduces the Minnesota e-Health Initiative's:

- Approach to electronic health information exchange
- Coordination with national efforts on standards
- Framework for interoperability
- Recommended e-health standards and their role in interoperability

and presents

- Standards for Achieving Meaningful Use
- Key actions and resources for achieving and advancing electronic health information exchange

The guide was developed to provide practical support to those having to meet requirements on standards related to meaningful use, Minnesota's 2015 interoperable EHR mandate, as well as to achieve the Minnesota e-Health Initiative goals of improving care and supporting healthier communities.

Priorities for electronic exchange of health information in Minnesota currently include the following:

- Electronic Prescribing
- Laboratory Results Reporting
- Immunization Information Exchange
- Exchange of Clinical Summaries
- Public Health Surveillance and Case Reporting

The Initiative also defined *interoperability* for purposes of Minnesota's 2015 mandate: Interoperability of Electronic Health Records (EHR) systems in Minnesota means the ability of two or more EHR systems or components of EHR systems¹ to exchange information electronically, securely, accurately and verifiably, when and where needed. It is comprised of "technical," "semantic" and "process" interoperability, and the information exchanged includes transactions and standards as defined by the Minnesota Commissioner of Health.

¹ Electronic health record systems include ancillary health information systems such as laboratory, pharmacy and radiology as identified in Appendix B of statewide implementation plan. <http://www.health.state.mn.us/e-health/ehrplan2008.pdf>

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- Technical interoperability is the accurate and secure conveyance of data from one point to another.
 - Semantic interoperability focuses on accurately communicating the meaning of the data being exchanged; that is, communicating information in a form that will be understood in exactly the same way by both sender and receiver.
 - Process interoperability is an emerging concept that pertains to accurate and useful integration of information in a work setting.

The action steps providers are encouraged to take include:

- Acquire only nationally-certified EHR systems to ensure compliance with national standards and to meet requirements for meeting meaningful use.
- Achieve consensus within your organization, and ideally with other healthcare organizations in your service areas, on priority areas for exchange based on those listed above and on what would qualify your organization for financial incentives under federal programs.
- Work collaboratively with regional extension centers, state designated entities for exchange, professional/trade associations, EHR user groups and other means to help drive adoption of the EHR functionality and standards needed to achieve priority exchange areas and to improve the health and care of your patients.
- Use standards during the collection and recording of patient information. This is critical to achieving meaningful information exchange between entities.



Electronic Health Information Exchange: Minnesota’s Approach

The area of standards and health information exchange is highly dynamic; readers should check for the latest updates at www.health.state.mn.us/e-health.

One of the steps in achieving and measuring the adoption of interoperable EHRs is to define the concept of interoperability. This guide focuses on the electronic exchange of health information and the key elements of interoperability for Minnesota.

It introduces the concepts (technical, semantic and process) related to interoperability and how these three types of interoperability are required for effective exchange of health information. Ongoing efforts will address additional details related to these types of interoperability as they apply to specific transactions.

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Exchange of health information to support clinical care occurs every day in Minnesota, by phone, fax, paper and increasingly by electronic methods. This guide focuses on electronic exchange of health information, and the standards and types of interoperability required to make that exchange occur effectively. The emphasis of this effort is primarily on clinical transactions. It also provides guidance to support widespread adoption of electronic exchange, using a functional approach based on specific use cases or transactions.

Health information exchange is described as the mobilization of health information electronically across organizations within a region or community according to nationally recognized standards. The vision for exchange of health information by Minnesota eHealth Initiative is to electronically move health information among disparate health information systems while maintaining the meaning of the information exchanged. The goal is to facilitate access to and retrieval of health data in order to improve health care quality, increase patient safety, reduce health care costs and improve public health.

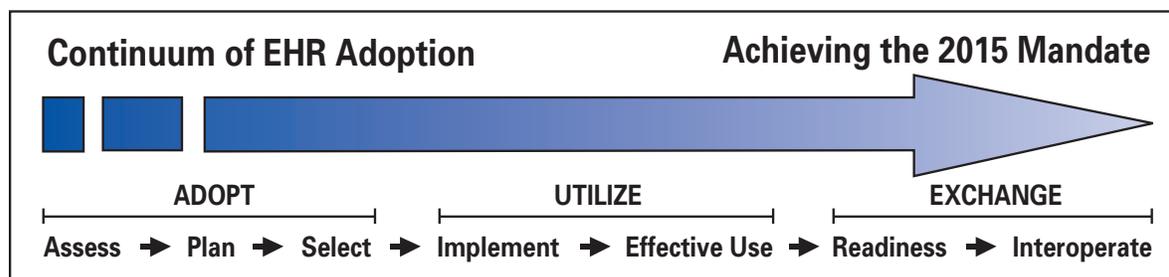
Table 1 identifies initial priority information exchange transactions for Minnesota—priorities which would benefit from a collaborative approach to implementation. Standards for each of these transactions have been or are being identified by the Minnesota e-Health Initiative, based largely on national activities and recommendations.

Table 1: Initial Priority Exchange Transactions for Minnesota

Electronic Prescribing
Laboratory Results Reporting
Immunization Information Exchange
Exchange of Clinical Summaries
Public Health Surveillance and Case Reporting

Health Information Exchange is part of a broader framework for the adoption and use of interoperable EHR systems developed by the Minnesota e-Health Initiative.

Figure 1: Minnesota Model for Adopting Interoperable Electronic Health Records



As first published in the *A Prescription for Meeting Minnesota's 2015 Mandate for Interoperable Electronic Health Records—A Statewide Implementation Plan*², the Continuum of EHR Adoption framework identifies seven major steps in adopting, implementing and effectively using an interoperable EHR system. The seven steps in turn are grouped into three major categories:

- **Adopt**, which includes the sequential steps of Assess, Plan and Select.
- **Utilize**, which involves implementing an EHR product and learning how to maximize its value to your organization and patients.
- **Exchange**, which includes readiness to exchange health information with other partners, as well as having an EHR system that actually interoperates electronically with other systems.

The Guide focuses on the last category, Exchange, including *Readiness for Exchange* and *Interoperability*. The statewide implementation plan referenced above contains additional guides for the *Adoption* and *Utilize* categories.

² Available for free download at www.health.state.mn.us/e-health

Electronic Exchange—Readiness

Readiness to exchange health records electronically consists of several related factors including:

- The consistent use of health data standards during the collection and recording of patient information. This is critical to achieving meaningful information exchange between entities (see *semantic interoperability* below).
- The capacity of the EHR system (or other technology) to exchange information with another system. This includes the ability to select what information is to be exchanged (both sending and receiving), the ability to generate an output file based on recommended standards for that selection, and the ability to transmit and receive such files to and from other entities in a standardized and secure way.
- Having internal data sharing policies in place, as well as the data sharing agreements between trading partners.

It is important to note that achieving electronic exchange is much more than a technical issue; there are significant policy dimensions as well. These include forging inter-organizational data sharing agreements, crafting inter-organizational policies around issues such as patient consent, and effectively using implementation guides to ensure that standards and exchange protocols are implemented consistently across organizations.

Electronic Exchange—Interoperability

Achieving the final stage of widespread, timely and ongoing electronic exchange of data is what will finally bring healthcare into the digital information age, with the ultimate goal being safer and higher quality healthcare and improved health of communities. Beginning with the five priority areas listed in Table 1 above, eligible professionals and hospitals aiming for achieving meaningful use and organizations covered by Minnesota’s 2015 interoperable EHR mandate will incrementally achieve having the *right information* available at the *right time*, *right place* and to the *right person* in order to make the *best decision*. Refer to interoperability section for more information.

HITECH ACT, MEANINGFUL USE AND ROLE OF STANDARDS

The Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009 presents an unprecedented opportunity to utilize the power of health IT to facilitate comprehensive management of health information and to increase its secure exchange.³ The HITECH Act provides funding for health information technology infrastructure, training, dissemination of best practices, telehealth, inclusion of health information technology in clinical education, and State grants to promote health information technology. The Act is administered by the Office of the National Coordinator for Health Information Technology (ONC) with guidance from federal advisory committees, the HIT Policy Committee and the HIT Standards Committee.

In addition, the legislation provides significant financial incentives through the Medicare and Medicaid programs to encourage eligible professionals and hospitals to adopt and use certified electronic health records (EHRs). The eligible professionals and hospitals need to be “meaningful users” of EHRs in order to qualify for the incentives.⁴ The definition of meaningful use of EHR has a significant impact on health IT standards since it includes requirements for standards to meet the certain criteria for meaningful use.

The HITECH Act has established a transparent and open process for the development of standards that will allow for the nationwide electronic exchange of health information. The Health IT Standards Committee is



³ Health Information Technology for the Future of Health and Care. Accessed at <http://healthit.hhs.gov>.

⁴ Medicare and Medicaid Programs - Electronic Health Record Incentive Program: <http://edocket.access.gpo.gov/2010/pdf/2010-17207.pdf>

charged with making recommendations to the National Coordinator for Health IT on standards, implementation specifications, and certification criteria for the electronic exchange and use of health information. It serves as a forum for the participation of a broad range of stakeholders to provide input on the development, harmonization, and recognition of standards, implementation specifications, and certification criteria.

The ONC approved recommendations from the HIT Standards Committee form the foundation for requirements on standards related to meaningful use. The rules which outline the standards needed for achieving Stage 1 meaningful use are available at: Health Information Technology: Initial Set of Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology: <http://edocket.access.gpo.gov/2010/pdf/2010-17210.pdf>. HITECH Act and meaningful use promoted market adoption of standards by requiring eligible professionals and hospitals to use certified EHR technology. Many of the criteria for certification included testing and incorporation of standards. The process is made transparent through establishment of certification program, publishing of criteria and listing of all certified products. Rules outlining details of permanent certification program available at: <http://www.gpo.gov/fdsys/pkg/FR-2011-01-07/pdf/2010-33174.pdf>. Information on meaningful use criteria, standards recommended for achieving meaningful use for various transactions and corresponding certification criteria are outlined towards the end of this document.

MINNESOTA E-HEALTH FRAMEWORK FOR INTEROPERABILITY

The framework consists of:

- **Definition**
- **Types of interoperability**
- **Transactions for exchange**

Interoperability in health care in broad terms refers to information exchanges/communications between health care systems and users (people). Much of the benefit of improving the continuity, quality and safety of care depends upon the ability to securely and meaningfully exchange health records from point to point in a timely manner. This seamless exchange is one of the solutions to many of the problems currently seen with ensuring continuity of care, the lack of complete medication and medical histories when needed, and the absence of timely, complete and accurate information in emergencies.

Efficient methods of exchanging this data and information will have a profound positive impact on healthcare delivery. Utilizing the power of health information technology (health IT) to increase these exchange efficiencies is one of the

primary goals of unprecedented collaborative work across the country, with the understanding that health IT is not an end unto itself but a means to an end—which is higher quality, safer, more value-driven, and accessible health-care for all Americans⁵.

Interoperability is a concept that is relational; that is, it does not exist by itself but only in exchanges between disparate systems either within an organization, across different organizations, or between systems and users. In any given community, there are also levels of interoperability, from non-existent to seamless, fully automated system-to-system exchange.

Why is healthcare in America only working on interoperability now, in some cases decades after other major industries? Much of the answer rests with the sheer amount, diversity and complexity of healthcare information, much of it considerably less amenable to standardization than, say, the financial transactions of the banking industry. Another reason is the numerous different settings in which care is delivered, each driven by different information and reporting needs. While there are certainly other historical and cultural reasons, what matters today is that there is significant, historic action being taken by the industry and state and federal government to move the healthcare sector into the information age. At the center of this overall goal is the interoperable EHR system.

One of the preliminary steps in achieving and measuring the adoption of interoperable EHRs is to define the concept of interoperability. In 2008-2009, the Minnesota e-Health Initiative defined the key elements of interoperability for Minnesota, and created a Roadmap for Standards and Interoperability. The former is needed to understand the various concepts that are part of health care interoperability and to assess progress toward meeting meaningful use requirements and the 2015 Minnesota mandate for interoperable EHRs. The Roadmap, is essential to guide, focus and coordinate Minnesota's efforts in the complex and rapidly evolving arena of standards.

Minnesota e-Health Definition of Interoperability

A variety of definitions for interoperability have been developed nationally, and Minnesota's definition draws from this thoughtful work. Minnesota's definition for interoperability focuses on electronic exchange between organizations, and is built on the principles listed on the next page.

⁵ Improving Our Nation's Health and Healthcare Through Information Technology
An Executive Summary Drawn From eHealth Initiative Blueprint: Building Consensus for Common Action and eHealth Initiative Consensus Policy, December 2008. Available from <http://www.ehealthinitiative.org>

- Builds on national work to define interoperability, including key conceptual components of the Health Level 7 organization's white paper⁶ and the national eHealth Initiative definition⁶.
- Provides a sufficient level of specificity so as to be useful.
- Is dynamic so that it can be updated as needed.
- Is logical and can be readily understood within the context of the Minnesota e-health environment.
- Supports the needs of Minnesota as it relates to meaningful use requirements and the 2015 EHR mandate.

⁶ Health Level Seven, EHR Interoperability Work Group, "Coming to Terms: Scoping Interoperability for Health Care", <http://www.hl7.org/ehr/>, 2007.

⁷ Glossary, e-Health Initiative Connecting Communities Tool Kit, <http://toolkit.ehealthinitiative.org/glossary/>.

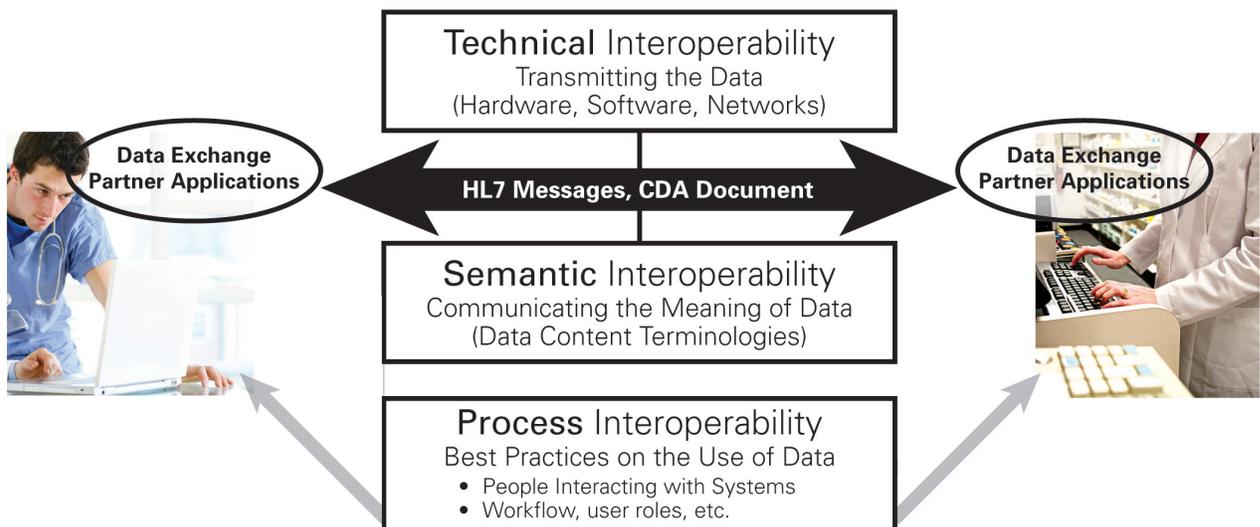
Minnesota e-Health Definition of Interoperability

Interoperability of Electronic Health Records (EHR) systems in Minnesota means the ability of two or more EHR systems or components of EHR systems⁷ to exchange information electronically, securely, accurately and verifiably, when and where needed. It is comprised of "technical," "semantic" and "process" interoperability, and the information exchanged includes transactions and standards as defined by the Minnesota Commissioner of Health.

Types of Interoperability

The concepts of technical, semantic and process interoperability mentioned in the definition are described below and shown in Figure 2.

Figure 2: Types of Interoperability



Technical interoperability (transmitting the data)

The focus of technical interoperability is on the accurate and secure conveyance of data from one point to another. This refers to hardware, software, networks, data transmission, and closely related functions like access and security management. Technical interoperability has to do with connectivity and messaging across the network and across disparate applications/systems. Technical interoperability in healthcare reduces the effect of distance between clinicians, whether in the same building or across the country.

The HITECH ACT of 2009 aims to promote technical interoperability amongst the different health information systems by requiring specific standards for exchange. For example, one of the meaningful use objectives related to electronic prescribing requires the use of recommended content exchange standard NCPDP SCRIPT Version 8.1 and Version 10.6.

Semantic interoperability (communicating the meaning of data)

The focus of semantic interoperability is on communicating the meaning of the data being exchanged; that is, communicating information in a form that will be understood in exactly the same way by both sender and receiver. This is essential in healthcare due to the complexity of the information, the various stakeholders involved, and the implications of accurate information interpretation to ensure quality and safety and to facilitate the care of the patient. Semantic interoperability requires standard representation of data and information using data content terminologies such as ICD-9, SNOMED CT® and LOINC®.

One of the requirements of Stage 1 meaningful use is to incorporate clinical lab-test results into EHR as structured data. The recommended code set is LOINC® and the objective aims to capture coded laboratory results in an electronic health record, when LOINC® codes have been received from a laboratory.

Vendors today are being driven to rapidly move away from proprietary methods for recording and coding information toward adopting national data content and other standards.

Process interoperability (best practices on exchange and use of data)

Process interoperability is an emerging concept that pertains to accurate and useful integration of information in a work setting. This refers to coordination of work processes, user role specifications, and the presentation of data and information within the context of workflows.

The current requirements for stage 1 meaningful use focus on technical and semantic interoperability. As meaningful use requirements progress into stage 2 and 3, inclusion of process interoperability metrics to subsequent objectives would add value.

All three types of interoperability are required for the consistent, accurate, secure and timely exchange of health information among various stakeholders in healthcare.

These various types of interoperability are also interdependent. For data to be transmitted from one entity to another, technical interoperability is required. Once the data moves, semantic interoperability assures that the data is interpreted correctly by the receiver, whether a machine or a person. Process interoperability assures that these data are all put to correct use within the context of human-machine interactions.

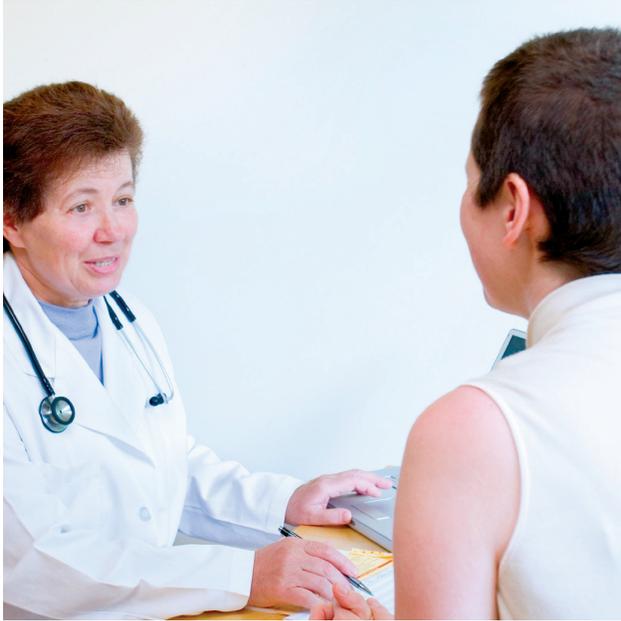
Key Transactions for Exchange

The transactions and standards referred to in the definition currently include the following:

- Electronic Prescribing
- Immunization Information Exchange
- Laboratory Results Reporting
- Exchange of Clinical Summaries
- Public Health Surveillance and Case Reporting

All these transactions are part of meaningful use requirements (except case reporting) The key transactions needed to meet EHR interoperability requirements for Minnesota will increase over time and will be aligned with meaningful use objectives.

An example of interoperability framework applied to electronic prescribing transaction is described in Guide 3 from Minnesota e-Health Initiative titled “A Practical Guide to Electronic Prescribing”. Available at <http://www.health.state.mn.us/ehealth/summit/g3e-prescribing2009.pdf>



The area of standards and health information exchange is highly dynamic; readers should check for the latest updates at www.health.state.mn.us/e-health.

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Standards Recommended for Use in Minnesota

(Updated August 2011)

Minnesota Statutes 2007, Section 62J.495 [2009]

“By January 1, 2015, all hospitals and health care providers must have in place an interoperable electronic health records system within their hospital system or clinical practice setting. The commissioner of health, in consultation with the e-Health Advisory Committee, shall develop a statewide plan to meet this goal, *including uniform standards to be used for the interoperable system for sharing and synchronizing patient data across systems. The standards must be compatible with federal efforts. The uniform standards must be developed by January 1, 2009 and updated on an ongoing basis. The commissioner shall include an update on standards development as part of an annual report to the legislature.*”

Minnesota Approach for Recommending e-Health Standards

The standards recommendations put forth by the Minnesota e-Health Initiative focuses on consensus standards recommended at the national level for MN e-Health priority transactions and various stages of meaningful use. This is essential in order to facilitate the qualifications for meaningful use incentives and to ensure that nationally certified EHR products can also meet Minnesota requirements.

The Minnesota Department of Health coordinates the Minnesota e-Health Initiative Standards Workgroup, which is charged with identifying, monitoring and recommending specific standards for sharing and synchronizing patient data across interoperable electronic health record systems and across the continuum of care. The workgroup consists of industry experts who follow a detailed process for recommending statewide adoption and use of specific types and versions of standards based on Minnesota needs and industry readiness (see Figure 3). This process has been adapted to fit the changing national health information technology scenario due to 2009 HITECH (Health Information Technology for Economic and Clinical Health) Act. One of the guiding principles of the workgroup has been to ensure that the recommendations are in alignment with standards requirements from ONC

The workgroup process has five related activities for developing standards recommendations including:

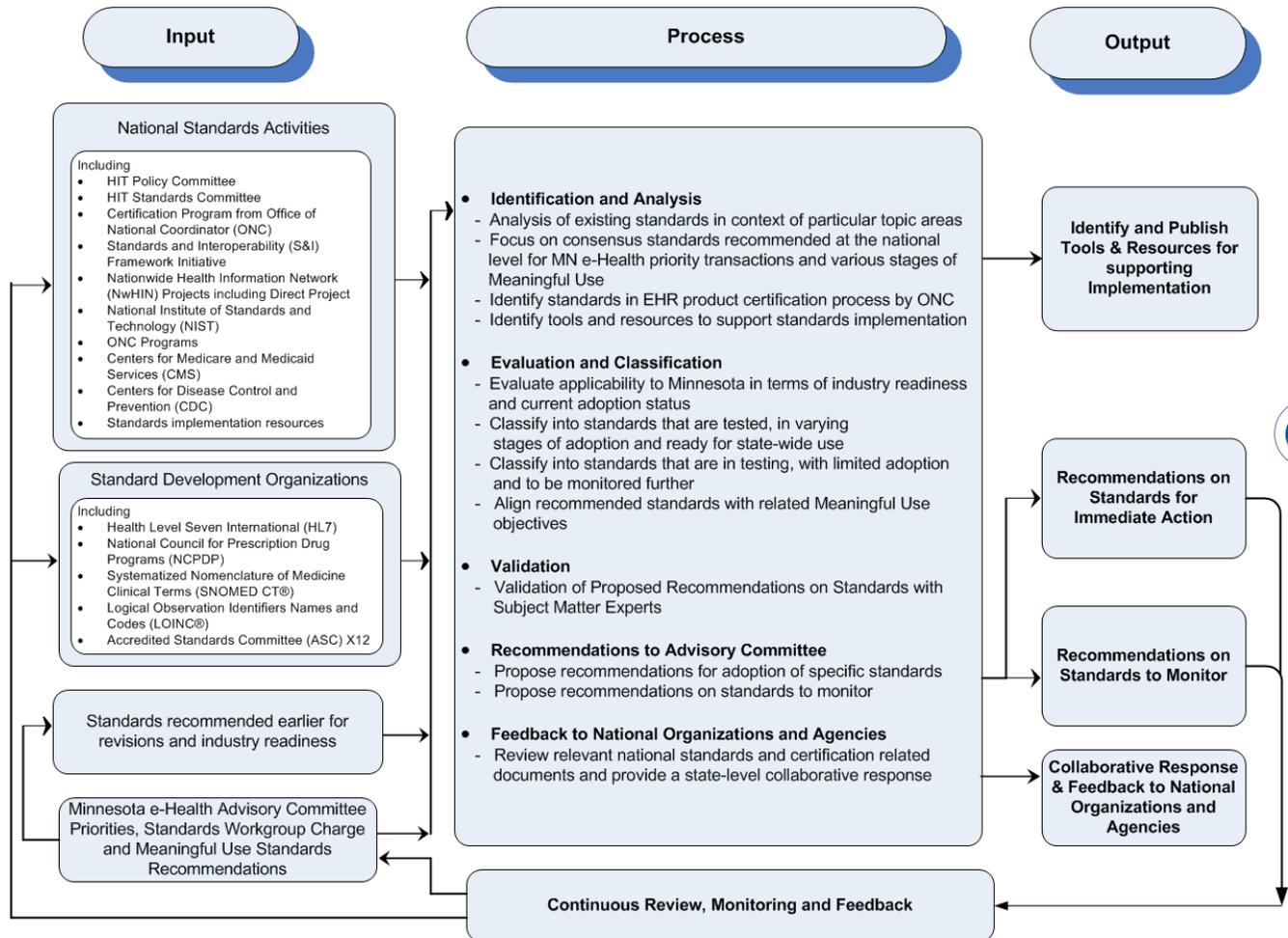
- **Identification and Analysis**
 - Analysis of existing standards in context of particular topic areas
 - Focus on consensus standards recommended at the national level for MN e-Health priority transactions and various stages of Meaningful Use
 - Identify standards in EHR product certification process by ONC
 - Identify tools and resources to support standards implementation

- **Evaluation and Classification**
 - Evaluate applicability to Minnesota in terms of industry readiness and current adoption status
 - Classify into standards that are tested, in varying stages of adoption and ready for state-wide use
 - Classify into standards that are in testing, with limited adoption and to be monitored further
 - Align recommended standards with related Meaningful Use objectives
- **Validation**
 - Validate proposed recommendations on standards with subject matter experts
- **Recommendations to Advisory Committee and Commissioner of Health**
 - Propose recommendations for statewide adoption of specific standards
 - Propose recommendations on standards to monitor
- **Feedback to National Organizations and Agencies**
 - Review relevant national standards and certification related documents and provide a state-level collaborative response

This process is a constant cycle as standards are continually improved and new versions are released to meet user needs. Even as standards are recommended and adopted, successive versions are already under development. This does not preclude adoption of standards. Rather, it reflects the reality that standards need to be constantly monitored for revisions and appropriate versions recommended for statewide use.

The standards recommended for Minnesota aims to be comprehensive and will cover more transactions than recommended by meaningful use. Over time, the standards recommended as part of meaningful use transactions will be a subset of MN e-Health standards recommendations.

Figure 3. Minnesota Approach for Recommending e-Health Standards



Recommended Minnesota e-Health Standards

1. INTEROPERABLE ELECTRONIC HEALTH RECORD REQUIREMENTS

Minnesota Statutes 2008, Section 62J.495, Subd. 3. [2009]

To meet the requirements of subdivision 1, hospitals and health care providers must meet the following criteria when implementing an interoperable electronic health records system with their hospital system or clinical practice setting.

- (a) The electronic health record must be a qualified electronic health record.
- (b) The electronic health record must be certified by the Office of the National Coordinator pursuant to the HITECH Act. This criterion only applies to hospitals and health care providers only if a certified electronic health record product for the provider’s particular practice

setting is available. This criterion shall be considered met if a hospital or health care provider is using an electronic health records system that has been certified within the last three years, even if a more current version of the system has been certified within the three-year period.

- (c) The electronic health record must meet the standards established according to section 3004 of the HITECH Act as applicable.
- (d) The electronic health record must have the ability to generate information on clinical quality measures and other measures reported under sections 4101, 4102, and 4201 of the HITECH Act.
- (e) A health care provider who is a prescriber or dispenser of legend drugs must have an electronic health record system that meets the requirements of section 62J.497.



2. ELECTRONIC PRESCRIPTION DRUG PROGRAM

Minnesota Statutes 2009, Section 62J.497 [2009]

Subd. 2. Requirements for Electronic Prescribing

- (a) Effective January 1, 2011, all providers, group purchasers, prescribers, and dispensers must establish, maintain, and use an electronic prescription drug program. This program must comply with the applicable standards in this section for transmitting, directly or through an intermediary, prescriptions and prescription-related information using electronic media.
- (b) If transactions described in this section are conducted, they must be done electronically using the standards described in this section.⁸
- (c) Providers, group purchasers, prescribers, and dispensers must use either HL7 messages or the NCPDP SCRIPT Standard to transmit prescriptions or prescription-related information internally when the sender and the recipient are part of the same legal entity. If an entity sends prescriptions outside the entity, it must use the NCPDP SCRIPT Standard or other applicable standards required by this section. Any pharmacy within an entity must be able to receive electronic prescription transmittals from outside the entity using the adopted NCPDP SCRIPT Standard. This exemption does not supersede any Health Insurance Portability and Accountability Act (HIPAA) requirement that may require the use of a HIPAA transaction standard within an organization.

⁸ For a listing of standards in the various transactions related to electronic prescribing, please refer to Table 2.

Subd. 3. Standards for electronic prescribing.⁸

- (a) Prescribers and dispensers must use the NCPDP SCRIPT Standard for the communication of a prescription or prescription-related information. The NCPDP SCRIPT Standard shall be used to conduct the following transactions:
- (1) get message transaction;
 - (2) status response transaction;
 - (3) error response transaction;
 - (4) new prescription transaction;
 - (5) prescription change request transaction;
 - (6) prescription change response transaction;
 - (7) refill prescription request transaction;
 - (8) refill prescription response transaction;
 - (9) verification transaction;
 - (10) password change transaction;
 - (11) cancel prescription request transaction;
 - (12) cancel prescription response transaction
 - (13) fill status transaction;
 - (14) medication history transaction.
- (b) Providers, group purchasers, prescribers, and dispensers must use the NCPDP SCRIPT Standard for communicating and transmitting medication history information.
- (c) Providers, group purchasers, prescribers, and dispensers must use the NCPDP Formulary and Benefits Standard for communicating and transmitting formulary and benefit information.
- (d) Providers, group purchasers, prescribers, and dispensers must use the National Provider Identifier to identify a health care provider in e-prescribing or prescription-related transactions when a health care provider's identifier is required.
- (e) Providers, group purchasers, prescribers, and dispensers must communicate eligibility information and conduct health care eligibility benefit inquiry and response transactions according to the requirements of section 62J.536.

⁸ For a listing of standards in the various transactions related to electronic prescribing, please refer to Table 2.

3. LABORATORY RESULTS REPORTING

This use case is comprised of transactions related to transmission of preliminary, final and updated laboratory results from a Laboratory Information System (LIS) to:

- EHR (Electronic Health Record) system (local or remote) or other clinical data system
- Authorized public health agencies
- Health Information Exchange (HIE) entity (which acts as an intermediary to route the data as needed)

Recommendation on Standards – For Immediate Action

All Minnesota health care organizations should use the following three standards for laboratory results reporting

- *For laboratory results reporting between laboratory and providers:*
HL7 v 2.5.1 message
- *For representation of laboratory test in orders and results and for incorporation of clinical lab-test results into EHR as structured data:*
LOINC® (Logical Observations Identifiers, Names, Codes)
- *For representation of laboratory result contents:*
SNOMED CT® (Systematized Nomenclature of Medicine Clinical Terms)

Recommendation on Standards – To Monitor

All Minnesota health care organizations should prepare for implementation of the following three standards and should implement them when they are part of national standards recommendations from the Office of the National Coordinator (ONC).

- *For reporting of toxicology screens*
RxNorm
<http://www.nlm.nih.gov/research/umls/rxnorm/index.html>
- *For coding of units in laboratory results*
UCUM (HL7 code set)
<http://aurora.regenstrief.org/UCUM/ucum.html>
- *Laboratory Results Reporting using Document method*
HITSP/C37 (HITSP Lab Report Document Component)
<http://www.hitsp.org>

The following data elements are recommended for monitoring for the exchange of laboratory results information:

Person information, Lab report provider information, Order information, Testing information including specimen etc., Preconditions, observations, values, reference values.

4. IMMUNIZATION INFORMATION EXCHANGE

Recommendation for immediate action:

All Minnesota health care organizations should use the following standards for electronic communications of immunization data.

- *Reporting of immunization data to an immunization information system:*
 - For immunization data exchange between provider EHRs and immunization information system: HL7 v2.3.1 or HL7 v2.5.1 messages
 - For representation of immunization data: CVX (Vaccine Code Set) + MVX (Vaccine Manufacturer / Distributor code set) + Vaccine Lot Number⁹
or
 - CPT (Current Procedural Terminology) code set + MVX (Vaccine Manufacturer / Distributor code set) + Vaccine Lot Number⁹
- *Query and retrieve immunization status and history:*
 - For immunization data exchange between provider EHRs and immunization information systems: HL7 v2.3.1 or HL7 v2.5.1 messages
 - For representation of immunization data: CVX (Vaccine Code Set) + MVX (Vaccine Manufacturer / Distributor code set) + Vaccine Lot Number
or
 - CPT (Current Procedural Terminology) code set + MVX (Vaccine Manufacturer / Distributor code set) + Vaccine Lot Number

⁹ The federal requirements for meaningful use recommend just CVX code set; the recommendations of CVX + MVX + Vaccine Lot number or CPT + MVX + Vaccine Lot number is specific to Minnesota

Recommendation on standards to monitor:

All Minnesota health care organizations should prepare for implementation of the following standards and should implement them when they are part of national standards recommendations from the Office of the National Coordinator (ONC)

- Interface Requirements between EHRs and Registries and sharing of decision support and immunization schedules: Revised HL7 standards (underway) / TBD
- Population-Specific reports and alerts from immunization information system to EHRs: Standards TBD
- For representation of allergy and adverse reactions to immunizations: Codes (TBD based on national recommendations)

5. EXCHANGE OF CLINICAL SUMMARIES

All Minnesota health care organizations¹⁰ should use the Health Level Seven (HL7) Clinical Document Architecture (CDA) / Continuity of Care Document (CCD) as a document structure for core content for clinical information exchange during transitions in care and referrals.

Health Information Technology Standards Panel Summary Documents using HL7 Continuity of Care Document (CCD) Component - HITSP/ C32 (version 2.1) or the most recent version certified by the national certification process is recommended as a basis for the exchange of summary information.

Several Meaningful Use Stage 1 objectives call for key clinical information and/or Summary Records to be exchanged among providers and to be made available from providers to patients. One of the standards specified in the Standards Final Rule for this purpose is the HL7 CDA Release 2, Continuity of Care Document (CCD) to be implemented according to HITSP C32. The CDA Harmonization Project as part of Standards and Interoperability (S&I) Framework Initiative will identify and address issues which are impacting implementation of C32 and other clinical content specifications that are based on Templated CDA.

¹⁰ Health care organizations recommended for use - hospitals, urgent care centers, ambulatory surgical centers, primary care clinics and specialty care clinics. The following settings are also encouraged to use the standard for defined transactions - pharmacies, laboratories, radiology, long term care facilities, home health agencies, local health departments, habilitation, dental, mental / behavioral health, chiropractic clinics.

Table 2: Summary of Standards by Types of Interoperability for Initial Priority Transactions

See www.health.state.mn.us/ehealth and click on standards for updates and detailed resource guide.

Priority Exchange Transactions for MN	Interoperability		
	Technical <i>(Standards for transactions)</i>	Semantic <i>(Standards for representation)</i>	Process <i>(Best Practices/Standard Protocols for Practice)</i>
Electronic Prescribing			
			<i>All prescribers prescribe electronically completing formulary, benefit and medication history checks with automated drug utilization review (DUR) occurring. Prescriptions are routed electronically to dispensers and are received and filled without manual re-entry.</i>
Eligibility and benefits inquiries & responses between prescribers and plan sponsors	Accredited Standards Committee (ASC) X12N 270/271 4010A (use of two versions: 4010/4010A and 5010 until December 31, 2011, at which point only the most recently adopted HIPAA transactions standards will be permitted) <ul style="list-style-type: none"> • ASC X12 http://www.x12.org/ • AUC (Administrative Uniformity Committee) http://www.health.state.mn.us/auc/index.html 		Details to be developed
Eligibility and benefits inquiries & responses between dispensers and plan sponsors	NCPDP Telecommunication Standard Specification, Version 5.1 (use of two versions: 5.1 and D.0, until December 31, 2011, at which point only the most recently adopted HIPAA transactions standards will be permitted) <ul style="list-style-type: none"> • Implementation Guide Proprietary and available to members at http://www.ncdp.org • NCPDP Basic Guide to Standards http://www.ncdp.org/PDF/Basic_guide_to_standards.pdf 		Details to be developed
Transactions between prescribers and dispensers	NCPDP SCRIPT 8.1 or NCPDP SCRIPT 10.6 <ul style="list-style-type: none"> • Implementation guide Proprietary and available to members at http://www.ncdp.org 	Recommended Vocabulary standard Any code set by an RxNorm drug data source provider that is identified by the United States National Library of Medicine as being a complete data set integrated within RxNorm	Details to be developed
Exchange of Medication History	NCPDP SCRIPT 8.1 or NCPDP SCRIPT 10.6 <ul style="list-style-type: none"> • Implementation guide available (see above) 	Recommended Vocabulary standard Any code set by an RxNorm drug data source provider that is identified by the United States National Library of Medicine as being a complete data set integrated within RxNorm	Details to be developed
Formulary & Benefit Information	NCPDP Formulary and Benefits Standards 1.0 <ul style="list-style-type: none"> • Implementation guide available (see above) 		Details to be developed

Priority Exchange Transactions for MN

Interoperability

Technical
(Standards for transactions)

Semantic
(Standards for representation)

Process
(Best Practices/Standard Protocols for Practice)

Laboratory Results Reporting

Laboratory results reporting from laboratory to:

- Providers (electronic health record systems)
- Authorized public health entities
- Health Information Exchanges (HIE)

HL7 v 2.5.1 (Health Level Seven message format)

- HL7 Standards <http://www.hl7.org>
- Implementation guide proprietary and available to members at <http://www.hl7.org>

- Representation of laboratory test in orders and results and for incorporation of clinical lab-test results into EHR as structured data LOINC® (Logical Observations Identifiers, Names, Codes) <http://www.regenstrief.org/medinformatics/loinc/>
- Representation of laboratory result contents SNOMED CT® (Systematized Nomenclature of Medicine Clinical Terms) <http://www.ihtsdo.org/our-standards/>

Details to be developed

Immunization Information Exchange

Reporting of immunization data to an Immunization Information System

HL7 v2.3.1 or HL7 v2.5.1 (Health Level Seven message format)

Implementation Guide for Immunization Data Transactions using Version 2.3.1 of the HL7 Standard Protocol <http://www.cdc.gov/vaccines/programs/iis/stds/downloads/hl7guide.pdf>

HL7 Version 2.5.1 Implementation Guide for Immunization Messaging, Release 1.0, 05/01/2010 is available at <http://www.cdc.gov/vaccines/programs/iis/stds/downloads/hl7-guide2010-508.pdf>

- CVX (Vaccine Code Set) + MVX (Vaccine Manufacturer / Distributor code set) + Vaccine Lot Number¹¹
- or
- CPT (Current Procedural Terminology) code set + MVX (Vaccine Manufacturer / Distributor code set) + Vaccine Lot Number¹¹
- CVX codes <http://www.cdc.gov/vaccines/programs/iis/stds/cvx.htm>
 - MVX Codes <http://www.cdc.gov/vaccines/programs/iis/stds/mvx.htm>
 - CPT Codes for Vaccines <http://www.cdc.gov/vaccines/programs/iis/stds/cpt.htm>
 - Current Procedural Terminology (CPT) Codes Mapped to CVX Codes <http://www.cdc.gov/vaccines/programs/iis/stds/cpt.htm>
 - Vaccine Lot Number <http://www.cdc.gov/vaccines/programs/iis/stds/coredata.htm>

Details to be developed

Query and retrieve immunization status and history

HL7 v2.3.1 or HL7 v2.5.1 (Health Level Seven message format)

See above for details

- CVX (Vaccine Code Set) + MVX (Vaccine Manufacturer / Distributor code set) + Vaccine Lot Number
- or
- CPT (Current Procedural Terminology) code set + MVX (Vaccine Manufacturer / Distributor code set) + Vaccine Lot Number
- See above for codes related to immunization information exchange

¹¹ The federal requirements for meaningful use recommend just CVX code set; the recommendations of CVX + MVX + Vaccine Lot number or CPT + MVX + Vaccine Lot number is specific to Minnesota

Technical
(Standards for transactions)

Semantic
(Standards for representation)

Process
(Best Practices/Standard Protocols for Practice)

Exchange of Clinical Summaries

Several Meaningful Use Stage 1 objectives call for key clinical information and/or Summary Records to be exchanged among providers and to be made available from providers to patients.

Health Level Seven (HL7) Clinical Document Architecture (CDA) / Continuity of Care Document (CCD) as a document structure for core content for clinical information exchange.

- HITSP Summary Documents Using HL7 Continuity of Care Document (CCD) Component - HITSP/C32 (version 2.1) or the most recent version certified by the national certification process

Resources available at
<http://www.hl7.org>
<http://wiki.siframework.org>

Further details to be added.

Representation of data

- LOINC® (Logical Observations Identifiers, Names, Codes)
- SNOMED CT® (Systematized Nomenclature of Medicine Clinical Terms)

Details to be developed

Standards Recommended for Meaningful Use

The three main components of meaningful use include:

1. The use of a certified EHR in a meaningful manner, such as e-prescribing.
2. The use of certified EHR technology for electronic exchange of health information to improve the quality and coordination of health and health care.
3. The use of certified EHR technology to submit clinical quality and other measures.

One of the underlying requirements for meaningful use is use of standards for data capture and exchange of health information. The following matrix presents the various meaningful use criteria, the corresponding certification criterion and recommended standards. *The following resource is from the Office of National Coordinator of Health Information Technology and we would like to thank Steven Posnack, Jennifer Frazier and Mike Lipinski for their effort.*

Table 3: Reference Grids to Navigating the Meaningful Use and Standards and Certification Criteria Final Rules

MEANINGFUL USE 42 CFR 495.6(d)-(g) Stage 1 Objective Stage 1 Measure		CERTIFICATION CRITERIA 45 CFR 170.302, 170.304, & 170.306	STANDARD(S) 45 CFR 170.205, 170.207, & 170.210	
EPs / EHs & CAHs		Ambulatory Setting / Inpatient Setting		
CORE SET	<p>§495.6(d)(1)(i) / §495.6(f)(1)(i) Use CPOE for medication orders directly entered by any licensed healthcare professional who can enter orders into the medical record per state, local and professional guidelines. [75 FR 44331-34]</p>	<p>§495.6(d)(1)(ii) / §495.6(f)(1)(ii) More than 30% of unique patients with at least one medication in their medication list seen by the EP or admitted to the eligible hospital's or CAH's inpatient or emergency department (POS 21 or 23) have at least one medication order entered using CPOE. §495.6(d)(1)(iii) - Exclusion: Any EP who writes fewer than 100 prescriptions during the EHR reporting period.</p>	<p>§170.304(a) / §170.306(a) Computerized provider order entry. Enable a user to electronically record, store, retrieve, and modify, at a minimum, the following order types: (1) Medications; (2) Laboratory; and (3) Radiology/imaging. [75 FR 44624-25] [75 FR 44635-36]</p>	
	<p>§495.6(d)(2)(i) / §495.6(f)(2)(i) Implement drug-drug and drug-allergy interaction checks. [75 FR 44334-36]</p>	<p>§495.6(d)(2)(ii) / §495.6(f)(2)(ii) The EP/eligible hospital/CAH has enabled this functionality for the entire EHR reporting period.</p>	<p>§170.302(a) Drug-drug, drug-allergy interaction checks (1) Notifications. Automatically and electronically generate and indicate in real-time, notifications at the point of care for drug-drug and drug-allergy contraindications based on medication list, medication allergy list, and computerized provider order entry (CPOE). (2) Adjustments. Provide certain users with the ability to adjust notifications provided for drug-drug and drug-allergy interaction checks. [75 FR 44600-03]</p>	
	<p>§495.6(d)(3)(i) / §495.6(f)(3)(i) Maintain an up-to-date problem list of current and active diagnoses. [75 FR 44336-37]</p>	<p>§495.6(d)(3)(ii) / §495.6(f)(3)(ii) More than 80% of all unique patients seen by the EP or admitted to the eligible hospital's or CAH's inpatient or emergency department (POS 21 or 23) have at least one entry or an indication that no problems are known for the patient recorded as structured data.</p>	<p>§170.302(c) Maintain up-to-date problem list Enable a user to electronically record, modify, and retrieve a patient's problem list for longitudinal care in accordance with: (1) The standard specified in §170.207(a)(1); or (2) At a minimum, the version of the standard specified in §170.207(a)(2). [75 FR 44603-04]</p>	<p>Problems. §170.207(a)(1) - The code set specified at 45 CFR 162.1002(a)(1) for the indicated conditions. §170.207(a)(2) - IHTSDO SNOMED CT,® July 2009 Version.</p>
	<p>§495.6(d)(4)(i) Generate and transmit permissible prescriptions electronically (eRx). [75 FR 44337-38]</p>	<p>§495.6(d)(4)(ii) More than 40% of all permissible prescriptions written by the EP are transmitted electronically using certified EHR technology. §495.6(d)(4)(iii) - Exclusion: Any EP who writes fewer than 100 prescriptions during the EHR reporting period.</p>	<p>§170.304(b) Electronic prescribing. Enable a user to electronically generate and transmit prescriptions and prescription-related information in accordance with: (1) The standard specified in §170.205(b)(1) or §170.205(b)(2); and (2) The standard specified in §170.207(d). [75 FR 44625-27]</p>	<p>Electronic prescribing. §170.205(b)(1) - NCPDP SCRIPT Version 8.1. §170.205(b)(2) - NCPDP SCRIPT Version 10.6. Medications. §170.207(d) - Any source vocabulary that is included in RxNorm, a standardized nomenclature for clinical drugs produced by the United States National Library of Medicine.</p>
	<p>§495.6(d)(5)(i) / §495.6(f)(4)(i) Maintain active medication list. [75 FR 44338-39]</p>	<p>§495.6(d)(5)(ii) / §495.6(f)(4)(ii) More than 80% of all unique patients seen by the EP or admitted to the eligible hospital's or CAH's inpatient or emergency department (POS 21 or 23) have at least one entry (or an indication that the patient is not currently prescribed any medication) recorded as structured data.</p>	<p>§170.302(d) Maintain active medication list. Enable a user to electronically record, modify, and retrieve a patient's active medication list as well as medication history for longitudinal care. [75 FR 44604]</p>	

****Unofficial Recitations of Portions of 42 CFR Part 495 and 45 CFR Part 170**** Note: MU measures may be subject to paragraph (c) of 495.6 and exclusions to measures may be subject to either paragraph (a) (eligible professionals) or paragraph (b) (eligible hospitals and CAHs) of section 495.6. Adapted from Meaningful Use Grids: Quick Reference to Navigation, available at http://healthit.hhs.gov/media/MU/n508/MU_SCC_CombinedGrid.pdf

Table 3: Reference Grids to Navigating the Meaningful Use and Standards and Certification Criteria Final Rules

MEANINGFUL USE 42 CFR 495.6(d)-(g) Stage 1 Objective Stage 1 Measure		CERTIFICATION CRITERIA 45 CFR 170.302, 170.304, & 170.306	STANDARD(S) 45 CFR 170.205, 170.207, & 170.210
EPs / EHs & CAHs		Ambulatory Setting / Inpatient Setting	
<p>§495.6(d)(6)(i) / §495.6(f)(5)(i) Maintain active medication allergy list. <i>[75 FR 44339-40]</i></p>	<p>§495.6(d)(6)(ii) / §495.6(f)(5)(ii) More than 80% of all unique patients seen by the EP or admitted to the eligible hospital's or CAH's inpatient or emergency department (POS 21 or 23) have at least one entry (or an indication that the patient has no known medication allergies) recorded as structured data.</p>	<p>§170.302(e) Maintain active medication allergy list. Enable a user to electronically record, modify, and retrieve a patient's active medication allergy list as well as medication allergy history for longitudinal care. <i>[75 FR 44605]</i></p>	
<p>§495.6(d)(7)(i) / §495.6(f)(6)(i) Record all of the following demographics: (A) Preferred language. (B) Gender. (C) Race. (D) Ethnicity. (E) Date of birth. (F) Date and preliminary cause of death in the event of mortality in the eligible hospital or CAH. <i>[75 FR 44340-42]</i></p>	<p>§495.6(d)(7)(ii) / §495.6(f)(6)(ii) More than 50% of all unique patients seen by the EP or admitted to the eligible hospital's or CAH's inpatient or emergency department (POS 21 or 23) have demographics recorded as structured data.</p>	<p>§170.304(c) / §170.306(b) Record demographics. Enable a user to electronically record, modify, and retrieve patient demographic data including preferred language, gender, race, ethnicity, date of birth, and date and preliminary cause of death in the event of mortality. Enable race and ethnicity to be recorded in accordance with the standard specified at 170.207(f). <i>[75 FR 44627] [75 FR 44636]</i></p>	<p>Race and Ethnicity. §170.207(f) – The OMB Standards for Maintaining, Collecting, and Presenting Federal Data on Race and Ethnicity, Statistical Policy Directive No. 15, October 30, 1997.</p>
<p>§495.6(d)(8)(i) / §495.6(f)(7)(i) Record and chart changes in the following vital signs: (A) Height. (B) Weight. (C) Blood pressure. (D) Calculate and display body mass index (BMI). (E) Plot and display growth charts for children 2–20 years, including BMI. <i>[75 FR 44342-43]</i></p>	<p>§495.6(d)(8)(ii) / §495.6(f)(7)(ii) More than 50% of all unique patients age 2 and over seen by the EP or admitted to eligible hospital's or CAH's inpatient or emergency department (POS 21 or 23), height, weight and blood pressure are recorded as structured data. §495.6(d)(8)(iii) – Exclusion: Any EP who either see no patients 2 years or older, or who believes that all three vital signs of height, weight, and blood pressure of their patients have no relevance to their scope of practice.</p>	<p>§170.302(f) Record and chart vital signs (1) Vital signs. Enable a user to electronically record, modify, and retrieve a patient's vital signs including, at a minimum, height, weight, and blood pressure. . (2) Calculate body mass index. Automatically calculate and display body mass index (BMI) based on a patient's height and weight. (3) Plot and display growth charts. Plot and electronically display, upon request, growth charts for patients 2–20 years old. <i>[75 FR 44605-06]</i></p>	
<p>§495.6(d)(9)(i) / §495.6(f)(8)(i) Record smoking status for patients 13 years old or older. <i>[75 FR 44344-45]</i></p>	<p>§495.6(d)(9)(ii) / §495.6(f)(8)(ii) More than 50% of all unique patients 13 years old or older seen by the EP have smoking status recorded as structured data. §495.6(d)(9)(iii) – Exclusion: Any EP who sees no patients 13 years or older. §495.6(f)(8)(iii) – Exclusion: Any eligible hospital or CAH that admits no patients 13 years or older to their inpatient or emergency department (POS 21 or 23).</p>	<p>§170.302(g) Smoking status. Enable a user to electronically record, modify, and retrieve the smoking status of a patient. Smoking status types must include: current every day smoker; current some day smoker; former smoker; never smoker; smoker, current status unknown; and unknown if ever smoked. <i>[75 FR 44606-07]</i></p>	

****Unofficial Recitations of Portions of 42 CFR Part 495 and 45 CFR Part 170**** Note: MU measures may be subject to paragraph (c) of 495.6 and exclusions to measures may be subject to either paragraph (a) (eligible professionals) or paragraph (b) (eligible hospitals and CAHs) of section 495.6. Adapted from Meaningful Use Grids: Quick Reference to Navigation, available at http://healthit.hhs.gov/media/MU/n508/MU_SCC_CombinedGrid.pdf

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MEANINGFUL USE 42 CFR 495.6(d)-(g) Stage 1 Objective Stage 1 Measure		CERTIFICATION CRITERIA 45 CFR 170.302, 170.304, & 170.306	STANDARD(S) 45 CFR 170.205, 170.207, & 170.210	
EPs / EHs & CAHs		Ambulatory Setting / Inpatient Setting		
CORE SET	<p>§495.6(d)(10)(i) / §495.6(f)(9)(i) Report ambulatory/hospital clinical quality measures to CMS or, in the case of Medicaid EPs/eligible hospitals, the States. <i>[75 FR 44348]</i></p>	<p>§495.6(d)(10)(ii) / §495.6(f)(9)(ii) Subject to paragraph (c) of this section, successfully report to CMS (or, in the case of Medicaid EPs, the States) ambulatory clinical quality measures selected by CMS in the manner specified by CMS (or in the case of Medicaid EPs, the States). Subject to paragraph (c) of this section, successfully report to CMS (or, in the case of Medicaid eligible hospitals or CAHs, the States) hospital clinical quality measures selected by CMS in the manner specified by CMS (or, in the case of Medicaid eligible hospitals or CAHs, the States). [Preamble Reference] • For 2011, provide aggregate numerator, denominator, and exclusions through attestation as required by CMS or State. • For 2012, electronically submit the clinical quality measures as required by CMS or State.</p>	<p>§170.304(h) / §170.306(i) Calculate and submit clinical quality measures (1) Calculate. (i) Electronically calculate all of the core clinical measures specified by CMS for eligible professionals. (ii) Electronically calculate, at a minimum, three clinical quality measures specified by CMS for eligible professionals, in addition to those clinical quality measures specified in paragraph (1)(i). (2) Submission. Enable a user to electronically submit calculated clinical quality measures in accordance with the standard and implementation specifications specified in §170.205(f).</p>	<p>Quality reporting. §170.205(f) - CMS PQRI 2009 Registry XML Specification. Implementation specification: PQRI Measure Specifications Manual for Claims and Registry.</p>
	<p>§495.6(d)(11)(i) / §495.6(f)(10)(i) Implement one clinical decision support rule relevant to specialty or high clinical priority/related to a high priority hospital condition along with the ability to track compliance with that rule. <i>[75 FR 44350-51]</i></p>	<p>§495.6(d)(11)(ii) / §495.6(f)(10)(ii) Implement one clinical decision support rule.</p>	<p>§170.304(e) / §170.306(c) Clinical decision support (1) <i>Implement rules.</i> Implement automated, electronic clinical decision support rules (in addition to drug-drug and drug-allergy contraindication checking) based on the data elements included in: problem list; medication list; demographics; and laboratory test results. . (2) <i>Notifications.</i> Automatically and electronically generate and indicate in real-time, notifications and care suggestions based upon clinical decision support rules. <i>[75 FR 44628-29] [75 FR 44636-37]</i></p>	
<p>**Unofficial Recitations of Portions of 42 CFR Part 495 and 45 CFR Part 170** Note: MU measures may be subject to paragraph (c) of 495.6 and exclusions to measures may be subject to either paragraph (a) (eligible professionals) or paragraph (b) (eligible hospitals and CAHs) of section 495.6. Adapted from Meaningful Use Grids: Quick Reference to Navigation, available at http://healthit.hhs.gov/media/MU/n508/MU_SCC_CombinedGrid.pdf</p>				

Table 3: Reference Grids to Navigating the Meaningful Use and Standards and Certification Criteria Final Rules

MEANINGFUL USE 42 CFR 495.6(d)-(g) Stage 1 Objective Stage 1 Measure		CERTIFICATION CRITERIA 45 CFR 170.302, 170.304, & 170.306	STANDARD(S) 45 CFR 170.205, 170.207, & 170.210
EPs / EHs & CAHs		Ambulatory Setting / Inpatient Setting	
<p>§495.6(d)(12)(i) / §495.6(f)(11)(i) Provide patients with an electronic copy of their health information (including diagnostic test results, problem list, medication lists, medication allergies, discharge summary, procedures), upon request.</p> <p>[75 FR 44353-55]</p>	<p>§495.6(d)(12)(ii) / §495.6(f)(11)(ii) More than 50% of all patients of the EP or the inpatient or emergency departments of the eligible hospital or CAH (POS 21 or 23) who request an electronic copy of their health information are provided it within 3 business days.</p> <p>§495.6(d)(12)(iii) - Exclusion: Any EP that has no requests from patients or their agents for an electronic copy of patient health information during the EHR reporting period.</p> <p>§495.6(f)(11)(iii) - Exclusion: Any eligible hospital or CAH that has no requests from patients or their agents for an electronic copy of patient health information during the EHR reporting period.</p>	<p>§170.304(f) / §170.306(d) Electronic copy of health information. (1) Enable a user to create an electronic copy of a patient’s clinical information, including, at a minimum, diagnostic test results, problem list, medication list, medication allergy list, and procedures: (1)(i) Human readable format; and (2)(ii) On electronic media or through some other electronic means in accordance with: (i)(A) The standard (and applicable implementation specifications) specified in §170.205(a)(1) or §170.205(a)(2); and (ii)(B) For the following data elements the applicable standard must be used: (A)(1) Problems. The standard specified in §170.207(a)(1) or, at a minimum, the version of the standard specified in §170.207(a)(2); (2) Procedures. The standards specified in §170.207(b)(1) or §170.207(b)(2); (B)(3) Laboratory test results. At a minimum, the version of the standard specified in §170.207(c); and (C)(4) Medications. The standard specified in §170.207(d). (2) Enable a user to create an electronic copy of a patient’s discharge summary in human readable format and on electronic media or through some other electronic means.</p> <p>[75 FR 44629-30] [75 FR 44637-38]</p>	<p>Patient summary record. §170.205(a)(1) - HL7 CDA Release 2, CCD. Implementation specifications: HITSP Summary Documents Using HL7 CCD Component HITSP/C32. §170.205(a)(2) - ASTM E2369 Standard Specification for Continuity of Care Record and Adjunct to ASTM E2369.</p> <p>Problems. §170.207(a)(1) - The code set specified at 45 CFR 162.1002(a)(1) for the indicated conditions. §170.207(a)(2) - IHTSDO SNOMED CT,® July 2009 version.</p> <p>Procedures. §170.207(b)(1) - The code set specified at 45 CFR 162.1002(a)(2). §170.207(b)(2) - The code set specified at 45 CFR 162.1002(a)(5).</p> <p>Laboratory test results. §170.207(c) - LOINC® version 2.27, when such codes were received within an electronic transaction from a laboratory.</p> <p>Medication. §170.207(d) - Any source vocabulary that is included in RxNorm, a standardized nomenclature for clinical drugs produced by the United States National Library of Medicine.</p>
<p>§495.6(f)(12)(i) Provide patients with an electronic copy of their discharge instructions at time of discharge, upon request.</p> <p>[75 FR 44355-56]</p>	<p>§495.6(f)(12)(ii) More than 50% of all patients who are discharged from an eligible hospital or CAH’s inpatient or emergency department (POS 21 or 23) and who request an electronic copy of their discharge instructions are provided it.</p> <p>§495.6(f)(12)(iii) - Exclusion: Any eligible hospital or CAH that has no requests from patients or their agents for an electronic copy of the discharge instructions during the EHR reporting period</p>	<p>§170.306(e) Electronic copy of discharge instructions. Enable a user to create an electronic copy of the discharge instructions for a patient, in human readable format, at the time of discharge on electronic media or through some other electronic means.</p> <p>[75 FR 44638-39]</p>	

****Unofficial Recitations of Portions of 42 CFR Part 495 and 45 CFR Part 170**** Note: MU measures may be subject to paragraph (c) of 495.6 and exclusions to measures may be subject to either paragraph (a) (eligible professionals) or paragraph (b) (eligible hospitals and CAHs) of section 495.6. Adapted from Meaningful Use Grids: Quick Reference to Navigation, available at http://healthit.hhs.gov/media/MU/n508/MU_SCC_CombinedGrid.pdf

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MEANINGFUL USE 42 CFR 495.6(d)-(g) Stage 1 Objective Stage 1 Measure		CERTIFICATION CRITERIA 45 CFR 170.302, 170.304, & 170.306	STANDARD(S) 45 CFR 170.205, 170.207, & 170.210	
EPs / EHs & CAHs		Ambulatory Setting / Inpatient Setting		
CORE SET	<p>§495.6(d)(13)(i) Provide clinical summaries for patients for each office visit. [75 FR 44358-59]</p>	<p>§495.6(d)(13)(ii) Clinical summaries provided to patients for more than 50% of all office visits within 3 business days. <i>§495.6(d)(13)(iii) - Exclusion: Any EP who has no office visits during the EHR reporting period.</i></p>	<p>§170.304(h) Clinical summaries Enable a user to provide clinical summaries to patients for each office visit that include, at a minimum, diagnostic test results, problem list, medication list, and medication allergy list. If the clinical summary is provided electronically it must be: (1) Provided in human readable format; and (2) Provided on electronic media or through some other electronic means in accordance with: (i) The standard (and applicable implementation specifications) specified in §170.205(a)(1) or §170.205(a)(2); and (ii) For the following data elements the applicable standard must be used: (A) Problems. The standard specified in §170.207(a)(1) or, at a minimum, the version of the standard specified in §170.207(a)(2); (B) Laboratory test results. At a minimum, the version of the standard specified in §170.207(c); and (C) Medications. The standard specified in §170.207(d). [75 FR 44631-32]</p>	<p>Patient summary record. §170.205(a)(1) - HL7 CDA Release 2, CCD. Implementation specifications: HITSP Summary Documents Using HL7 CCD Component HITSP/C32. §170.205(a)(2) - ASTM E2369 Standard Specification for Continuity of Care Record and Adjunct to ASTM E2369. Problems. §170.207(a)(1) - The code set specified at 45 CFR 162.1002(a)(1) for the indicated conditions. §170.207(a)(2) - IHTSDO SNOMED CT,® July 2009 version. Laboratory test results. §170.207(c) - LOINC® version 2.27, when such codes were received within an electronic transaction from a laboratory. Medication. §170.207(d) - Any source vocabulary that is included in RxNorm, a standardized nomenclature for clinical drugs produced by the United States National Library of Medicine.</p>
	<p>§495.6(d)(14)(i) / §495.6(f)(13)(i) Capability to exchange key clinical information (for example, discharge summary, procedures, problem list, medication list, medication allergies, diagnostic test results), among providers of care and patient authorized entities electronically. [75 FR 44360-62]</p>	<p>§495.6(d)(14)(ii) / §495.6(f)(13)(ii) Performed at least one test of certified EHR technology's capacity to electronically exchange key clinical information.</p>	<p>§170.304(i) / §170.306(f) Exchange clinical information and patient summary record. (1) Electronically receive and display. Electronically receive and display a patient's summary record, from other providers and organizations including, at a minimum, diagnostic tests results, problem list, medication list, medication allergy list, and procedures in accordance with the standard (and applicable implementation specifications) specified in §170.205(a)(1) or §170.205(a)(2). Upon receipt of a patient summary record formatted according to the alternative standard, display it in human readable format. (2) Electronically transmit. Enable a user to electronically transmit a patient summary record to other providers and organizations including, at a minimum, diagnostic test results, problem list, medication list, medication allergy list, and procedures in accordance with: (i) The standard (and applicable implementation specifications) specified in §170.205(a)(1) or §170.205(a)(2); and (ii) For the following data elements the applicable standard must be used: (A) Problems. The standard specified in §170.207(a)(1) or, at a minimum, the version of the standard specified in §170.207(a)(2); (B) Procedure. The standard specified in §170.207(b)(1) or §170.207(b)(2); (B)(C) Laboratory test results. At a minimum, the version of the standard specified in §170.207(c); and (C)(D) Medications. The standard specified in §170.207(d). [75 FR 44632-35] [75 FR 44639-40]</p>	<p>Patient summary record. §170.205(a)(1) - HL7 CDA Release 2, CCD. Implementation specifications: HITSP Summary Documents Using HL7 CCD Component HITSP/C32. §170.205(a)(2) - ASTM E2369 Standard Specification for Continuity of Care Record and Adjunct to ASTM E2369. Problems. §170.207(a)(1) - The code set specified at 45 CFR 162.1002(a)(1) for the indicated conditions. §170.207(a)(2) - IHTSDO SNOMED CT,® July 2009 version. Procedure. §170.207(b)(1) - The code set specified at 45 CFR 162.1002(a)(2). §170.207(b)(2) - The code set specified at 45 CFR 162.1002(a)(5). Laboratory test results. §170.207(c) - LOINC® version 2.27, when such codes were received within an electronic transaction from a laboratory. Medication. §170.207(d) - Any source vocabulary that is included in RxNorm, a standardized nomenclature for clinical drugs produced by the United States National Library of Medicine.</p>

****Unofficial Recitations of Portions of 42 CFR Part 495 and 45 CFR Part 170**** Note: MU measures may be subject to paragraph (c) of 495.6 and exclusions to measures may be subject to either paragraph (a) (eligible professionals) or paragraph (b) (eligible hospitals and CAHs) of section 495.6. Adapted from Meaningful Use Grids: Quick Reference to Navigation, available at http://healthit.hhs.gov/media/MU/n508/MU_SCC_CombinedGrid.pdf

Table 3: Reference Grids to Navigating the Meaningful Use and Standards and Certification Criteria Final Rules

MEANINGFUL USE 42 CFR 495.6(d)-(g) Stage 1 Objective Stage 1 Measure		CERTIFICATION CRITERIA 45 CFR 170.302, 170.304, & 170.306	STANDARD(S) 45 CFR 170.205, 170.207, & 170.210
EPs / EHs & CAHs		Ambulatory Setting / Inpatient Setting	
<p>§495.6(d)(15)(i) / §495.6(f)(14)(i) Protect electronic health information created or maintained by the certified EHR technology through the implementation of appropriate technical capabilities. [75 FR 44368-69]</p>	<p>§495.6(d)(15)(ii) / §495.6(f)(14)(ii) Conduct or review a security risk analysis in accordance with the requirements under 45 CFR 164.308(a)(1) and implement security updates as necessary and correct identified security deficiencies as part of its risk management process.</p>	<p style="text-align: right;">§170.302(o)</p> <p>Access control. Assign a unique name and/or number for identifying and tracking user identity and establish controls that permit only authorized users to access electronic health information. [75 FR 44617]</p>	
		<p style="text-align: right;">§170.302(p)</p> <p>Emergency access. Permit authorized users (who are authorized for emergency situations) to access electronic health information during an emergency. [75 FR 44617]</p>	
		<p style="text-align: right;">§170.302(q)</p> <p>Automatic log-off. Terminate an electronic session after a predetermined time of inactivity. [75 FR 44617-18]</p>	
		<p style="text-align: right;">§170.302(r)</p> <p>Audit log (1) Record actions. Record actions related to electronic health information in accordance with the standard specified in §170.210(b). (2) Generate audit log. Enable a user to generate an audit log for a specific time period and to sort entries in the audit log according to any of the elements specified in the standard at §170.210(b). [75 FR 44618-20]</p>	<p>Record actions related to electronic health information. §170.210(b) - The date, time, patient identification, and user identification must be recorded when electronic health information is created, modified, accessed, or deleted; and an indication of which actions(s) occurred and by whom must also be recorded.</p>
		<p style="text-align: right;">§170.302(s)</p> <p>Integrity. (1) Create a message digest in accordance with the standard specified in §170.210(c). (2) Verify in accordance with the standard specified in §170.210(c) upon receipt of electronically exchanged health information that such information has not been altered. (3) Detection. Detect the alteration of audit logs. [75 FR 44620-21]</p>	<p>Verification that electronic health information has not been altered in transit. §170.210(c) - A hashing algorithm with a security strength equal to or greater than SHA-1 (Secure Hash Algorithm (SHA-1) as specified by the National Institute of Standards and Technology (NIST) in FIPS PUB 180-3 (October, 2008) must be used to verify that electronic health information has not been altered.</p>
		<p style="text-align: right;">§170.302(t)</p> <p>Authentication. Verify that a person or entity seeking access to electronic health information is the one claimed and is authorized to access such information. [75 FR 44621]</p>	
		<p style="text-align: right;">§170.302(u)</p> <p>General encryption. Encrypt and decrypt electronic health information in accordance with the standard specified in §170.210(a) (1), unless the Secretary determines that the use of such algorithm would pose a significant security risk for Certified EHR Technology. [75 FR 44621-23]</p>	<p>Encryption and decryption of electronic health information. §170.210(a)(1) - Any encryption algorithm identified by the National Institute of Standards and Technology (NIST) as an approved security function in Annex A of the Federal Information Processing Standards (FIPS) Publication 140-2 (incorporated by reference in §170.299).</p>
<p>**Unofficial Recitations of Portions of 42 CFR Part 495 and 45 CFR Part 170** Note: MU measures may be subject to paragraph (c) of 495.6 and exclusions to measures may be subject to either paragraph (a) (eligible professionals) or paragraph (b) (eligible hospitals and CAHs) of section 495.6. Adapted from Meaningful Use Grids: Quick Reference to Navigation, available at http://healthit.hhs.gov/media/MU/n508/MU_SCC_CombinedGrid.pdf</p>			

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MEANINGFUL USE 42 CFR 495.6(d)-(g) Stage 1 Objective Stage 1 Measure		CERTIFICATION CRITERIA 45 CFR 170.302, 170.304, & 170.306	STANDARD(S) 45 CFR 170.205, 170.207, & 170.210	
EPs / EHs & CAHs		Ambulatory Setting / Inpatient Setting		
CORE SET	<p>§495.6(d)(15)(i) / §495.6(f)(14)(i) [Repeat] §495.6(d)(15)(i) - Protect electronic health information created or maintained by the certified EHR technology through the implementation of appropriate technical capabilities. <i>[75 FR 44368-69]</i></p>	<p>§495.6(d)(15)(ii) / §495.6(f)(14)(ii) §495.6(d)(15)(ii) - Conduct or review a security risk analysis in accordance with the requirements under 45 CFR 164.308(a)(1) and implement security updates as necessary and correct identified security deficiencies as part of its risk management process.</p>	<p>§170.302(v) Encryption when exchanging electronic health information. Encrypt and decrypt electronic health information when exchanged in accordance with the standard specified in §170.210(a)(2). <i>[75 FR 44621-23]</i></p> <hr/> <p>§170.302(w) Optional. Accounting of disclosures. Record disclosures made for treatment, payment, and health care operations in accordance with the standard specified in §170.210(d). <i>[75 FR 44623-24]</i></p>	<p>Encryption and decryption of electronic health information. §170.210(a)(2) - Any encrypted and integrity protected link.</p> <p>Record treatment, payment, and health care operations disclosures. §170.210(d) - The date, time, patient identification, user identification, and a description of the disclosure must be recorded for disclosures for treatment, payment, and health care operations, as these terms are defined at 45 CFR 164.501.</p>
	<p>§495.6(e)(1)(i) / §495.6(g)(1)(i) Implement drug-formulary checks. <i>[75 FR 44334-36]</i></p>	<p>§495.6(e)(1)(ii) / §495.6(g)(1)(ii) The EP/eligible hospital/CAH has enabled this functionality and has access to at least one internal or external drug formulary for the entire EHR reporting period. §495.6(e)(1)(iii) - Exclusion: Any EP who writes fewer than 100 prescriptions during the EHR reporting period.</p>	<p>§ 170.302(b) Drug-formulary checks. Enable a user to electronically check if drugs are in a formulary or preferred drug list. <i>[75 FR 44600-03]</i></p>	
	<p>§495.6(g)(2)(i) Record advance directives for patient 65 years old or older. <i>[75 FR 44345-46]</i></p>	<p>§495.6(g)(2)(ii) Subject to paragraph (c) of this section, more than 50% of all unique patients 65 years old or older admitted to the eligible hospital's or CAH's inpatient (POS 21) have an indication of an advance directive status recorded as structured data. §495.6(e)(2)(iii) - Exclusion: An eligible hospital or CAH that admits no patients age 65 years old or older during the EHR reporting period.</p>	<p>§170.306(h) Advance directives. Enable a user to electronically record whether a patient has an advance directive. <i>[75 FR 44641]</i></p>	
MENU SET	<p>§495.6(e)(2)(i) / §495.6(g)(3)(i) Incorporate clinical lab-test results into EHR as structured data. <i>[75 FR 44346-47]</i></p>	<p>§495.6(e)(2)(ii) / §495.6(g)(3)(ii) More than 40% of all clinical lab tests results ordered by the EP or by an authorized provider of the eligible hospital or CAH for patients admitted to its inpatient or emergency department (POS 21 or 23) during the EHR reporting period whose results are either in a positive/ negative or numerical format are incorporated in certified EHR technology as structured data. §495.6(e)(2)(iii) - Exclusion: Any EP who orders no lab tests whose results are either in a positive/ negative or numeric format during the EHR reporting period.</p>	<p>§170.302(h) Incorporate laboratory test results. (1) Receive results. Electronically receive clinical laboratory test results in a structured format and display such results in human readable format. . (2) Display test report information. Electronically display all the information for a test report specified at 42 CFR 493.1291(c)(1) through (7). (3) Incorporate results. Electronically attribute, associate, or link a laboratory test result to a laboratory order or patient record. <i>[75 FR 44607-09]</i></p>	
	<p>**Unofficial Recitations of Portions of 42 CFR Part 495 and 45 CFR Part 170** Note: MU measures may be subject to paragraph (c) of 495.6 and exclusions to measures may be subject to either paragraph (a) (eligible professionals) or paragraph (b) (eligible hospitals and CAHs) of section 495.6. Adapted from Meaningful Use Grids: Quick Reference to Navigation, available at http://healthit.hhs.gov/media/MU/n508/MU_SCC_CombinedGrid.pdf</p>			

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MEANINGFUL USE 42 CFR 495.6(d)-(g) Stage 1 Objective Stage 1 Measure		CERTIFICATION CRITERIA 45 CFR 170.302, 170.304, & 170.306	STANDARD(S) 45 CFR 170.205, 170.207, & 170.210
EPs / EHs & CAHs		Ambulatory Setting / Inpatient Setting	
<p>§495.6(e)(3)(i) / §495.6(g)(4)(i) Generate lists of patients by specific conditions to use for quality improvement, reduction of disparities, research, or outreach. <i>[75 FR 44347-48]</i></p>	<p>§495.6(e)(3)(ii) / §495.6(g)(4)(ii) Generate at least one report listing patients of the EP, eligible hospital or CAH with a specific condition.</p>	<p>§170.302(i) Generate patient lists Enable a user to electronically select, sort, retrieve, and generate lists of patients according to, at a minimum, the data elements included in: (1) Problem list; (2) Medication list; (3) Demographics; and (4) Laboratory test results. <i>[75 FR 44609-10]</i></p>	
<p>§495.6(e)(4)(i) Send reminders to patients per patient preference for preventive/follow-up care. <i>[75 FR 44348-49]</i></p>	<p>§495.6(e)(4)(ii) More than 20% of all unique patients 65 years or older or 5 years old or younger were sent an appropriate reminder during the EHR reporting period. §495.6(e)(4)(iii) – Exclusion: An EP who has no patients 65 years old or older or 5 years old or younger with records maintained using certified EHR technology.</p>	<p>§170.304(d) Patient reminders Enable a user to electronically generate a patient reminder list for preventive or follow-up care according to patient preferences based on, at a minimum, the data elements included in: (1) Problem list; (2) Medication list; (3) Medication allergy list; (4) Demographics; and (5) Laboratory test results. <i>[75 FR 44627-28]</i></p>	
<p>§495.6(e)(5)(i) Provide patients with timely electronic access to their health information (including lab results, problem list, medication lists, medication allergies) within four business days of the information being available to the EP. <i>[75 FR 44356-58]</i></p>	<p>§495.6(e)(5)(ii) At least 10% of all unique patients seen by the EP are provided timely (available to the patient within four business days of being updated in the certified EHR technology) electronic access to their health information subject to the EP’s discretion to withhold certain information. §495.6(e)(5)(iii) - Exclusion: Any EP that neither orders nor creates any of the information listed at 45 CFR 170.304(g) during the EHR reporting period.</p>	<p>§170.304(g) Timely access. Enable a user to provide patients with online access to their clinical information, including, at a minimum, lab test results, problem list, medication list, and medication allergy list. <i>[75 FR 44630-31]</i></p>	
<p>§495.6(e)(6)(i) / §495.6(g)(5)(i) Use certified EHR technology to identify patient-specific education resources and provide those resources to the patient if appropriate. <i>[75 FR 44359-60]</i></p>	<p>§495.6(e)(6)(ii) / §495.6(g)(5)(ii) More than 10% of all unique patients seen by the EP or admitted to the eligible hospital’s or CAH’s inpatient or emergency department (POS 21 or 23) are provided patient-specific education resources.</p>	<p>§170.302(m) Patient-specific education resources. Enable a user to electronically identify and provide patient-specific education resources according to, at a minimum, the data elements included in the patient’s: problem list; medication list; and laboratory test results; as well as provide such resources to the patient. <i>[75 FR 44642]</i></p>	
<p>**Unofficial Recitations of Portions of 42 CFR Part 495 and 45 CFR Part 170** Note: MU measures may be subject to paragraph (c) of 495.6 and exclusions to measures may be subject to either paragraph (a) (eligible professionals) or paragraph (b) (eligible hospitals and CAHs) of section 495.6. Adapted from Meaningful Use Grids: Quick Reference to Navigation, available at http://healthit.hhs.gov/media/MU/n508/MU_SCC_CombinedGrid.pdf</p>			

Table 3: Reference Grids to Navigating the Meaningful Use and Standards and Certification Criteria Final Rules

MEANINGFUL USE 42 CFR 495.6(d)-(g) Stage 1 Objective Stage 1 Measure		CERTIFICATION CRITERIA 45 CFR 170.302, 170.304, & 170.306	STANDARD(S) 45 CFR 170.205, 170.207, & 170.210
EPs / EHs & CAHs		Ambulatory Setting / Inpatient Setting	
<p>§495.6(e)(7)(i) / §495.6(g)(6)(i) The EP, eligible hospital or CAH who receives a patient from another setting of care or provider of care or believes an encounter is relevant should perform medication reconciliation. [75 FR 44362-63]</p>	<p>§495.6(e)(7)(ii) / §495.6(g)(6)(ii) The EP, eligible hospital or CAH performs medication reconciliation for more than 50% of transitions of care in which the patient is transitioned into the care of the EP or admitted to the eligible hospital's or CAH's inpatient or emergency department (POS 21 or 23). §495.6(e)(7)(iii) - Exclusion: An EP who was not the recipient of any transitions of care during the EHR reporting period.</p>	<p style="text-align: right;">§170.302(j) Medication reconciliation. Enable a user to electronically compare two or more medication lists. [75 FR 44613-14]</p>	
<p>§495.6(e)(8)(i) / §495.6(g)(7)(i) The EP, eligible hospital or CAH who transitions their patient to another setting of care or provider of care or refers their patient to another provider of care should provide summary of care record for each transition of care or referral. [75 FR 44363-64]</p>	<p>§495.6(e)(8)(ii) / §495.6(g)(7)(ii) The EP, eligible hospital or CAH who transitions or refers their patient to another setting of care or provider of care provides a summary of care record for more than 50% of transitions of care and referrals. §495.6(e)(8)(iii) - Exclusion: An EP who neither transfers a patient to another setting nor refers a patient to another provider during the EHR reporting period.</p>	<p style="text-align: right;">§170.304(i) / §170.306(f) Exchange clinical information and patient summary record. (1) Electronically receive and display. Electronically receive and display a patient's summary record, from other providers and organizations including, at a minimum, diagnostic tests results, problem list, medication list, medication allergy list, and procedures in accordance with the standard (and applicable implementation specifications) specified in §170.205(a)(1) or §170.205(a)(2). Upon receipt of a patient summary record formatted according to the alternative standard, display it in human readable format. . (2) Electronically transmit. Enable a user to electronically transmit a patient summary record to other providers and organizations including, at a minimum, diagnostic test results, problem list, medication list, medication allergy list, and procedures in accordance with: (i) The standard (and applicable implementation specifications) specified in §170.205(a)(1) or §170.205(a)(2); and (ii) For the following data elements the applicable standard must be used: (A) Problems. The standard specified in §170.207(a)(1) or, at a minimum, the version of the standard specified in §170.207(a)(2); (B) Procedures: The standard specified in §170.207(b)(1) or §170.207(b)(2); (B)(C) Laboratory test results. At a minimum, the version of the standard specified in §170.207(c); and (C)(D) Medications. The standard specified in §170.207(d). [75 FR 44632-35] [75 FR 44639-40]</p>	<p>Patient summary record. §170.205(a)(1) - HL7 CDA Release 2, CCD. Implementation specifications: HITSP Summary Documents Using HL7 CCD Component HITSP/C32. §170.205(a)(2) - ASTM E2369 Standard Specification for Continuity of Care Record and Adjunct to ASTM E2369. Problems. §170.207(a)(1) - The code set specified at 45 CFR 162.1002(a)(1) for the indicated conditions. §170.207(a)(2) - IHTSDO SNOMED CT,® July 2009 version. Procedure. §170.207(b)(1) - The code set specified at 45 CFR 162.1002(a)(2). §170.207(b)(2) - The code set specified at 45 CFR 162.1002 (a)(5). Laboratory test results. §170.207(c) - LOINC® version 2.27, when such codes were received within an electronic transaction from a laboratory. Medication. §170.207(d) - Any source vocabulary that is included in RxNorm, a standardized nomenclature for clinical drugs produced by the United States National Library of Medicine</p>

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****Unofficial Recitations of Portions of 42 CFR Part 495 and 45 CFR Part 170**** Note: MU measures may be subject to paragraph (c) of 495.6 and exclusions to measures may be subject to either paragraph (a) (eligible professionals) or paragraph (b) (eligible hospitals and CAHs) of section 495.6. Adapted from Meaningful Use Grids: Quick Reference to Navigation, available at http://healthit.hhs.gov/media/MU/n508/MU_SCC_CombinedGrid.pdf

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EPs / EHs & CAHs		Ambulatory Setting / Inpatient Setting	
<p style="text-align: right;">§495.6(e)(9)(i) / §495.6(g)(8)(i)</p> <p>Capability to submit electronic data to immunization registries or immunization information systems and actual submission according to applicable law and practice.</p> <p style="text-align: right;"><i>[75 FR 44364-66]</i></p>	<p style="text-align: right;">§495.6(e)(9)(ii) / §495.6(g)(8)(ii)</p> <p>Performed at least one test of certified EHR technology's capacity to submit electronic data to immunization registries and follow up submission if the test is successful (unless none of the immunization registries to which the EP, eligible hospital or CAH submits such information have the capacity to receive the information electronically).</p> <p><i>§495.6(e)(9)(iii) – Exclusion: An EP who administers no immunizations during the EHR reporting period or where no immunization registry has the capacity to receive the information electronically.</i></p> <p><i>§495.6(g)(8)(iii) – Exclusion: An eligible hospital or CAH that administers no immunizations during the EHR reporting period or where no immunization registry has the capacity to receive the information electronically.</i></p>	<p style="text-align: right;">§170.302(k)</p> <p>Submission to immunization registries Electronically record, modify, retrieve, and submit immunization information in accordance with: (1) The standard (and applicable implementation specifications) specified in §170.205(e)(1) or §170.205(e)(2); and (2) At a minimum, the version of the standard specified in §170.207(e).</p> <p style="text-align: right;"><i>[75 FR 44614-15]</i></p>	<p>Electronic submission to immunization registries. §170.205(e)(1) - HL7 2.3.1. Implementation specifications: Implementation Guide for Immunization Data Transactions using Version 2.3.1 of the HL7 Standard Protocol Implementation Guide Version 2.2. §170.205(e)(2) - HL7 2.5.1. Implementation specifications: HL7 2.5.1 Implementation Guide for Immunization Messaging Release 1.0.</p> <p>Immunizations. §170.207(e) - HL7 Standard Code Set CVX—Vaccines Administered, July 30, 2009 version.</p>
<p style="text-align: right;">§495.6(g)(9)(i)</p> <p>Capability to submit electronic data on reportable (as required by State or local law) lab results to public health agencies and actual submission according to applicable law and practice.</p> <p style="text-align: right;"><i>[75 FR 44366-67]</i></p>	<p style="text-align: right;">§495.6(g)(9)(ii)</p> <p>Performed at least one test of certified EHR technology's capacity to provide electronic submission of reportable lab results to public health agencies and follow-up submission if the test is successful (unless none of the public health agencies to which an eligible hospital or CAH submits such information has the capacity to receive the information electronically).</p> <p><i>§495.6(g)(9)(iii) – Exclusion: No public health agency to which the eligible hospital or CAH submits such information has the capacity to receive the information electronically.</i></p>	<p style="text-align: right;">§170.306(g)</p> <p>Reportable lab results. Electronically record, modify, retrieve, and submit reportable clinical lab results in accordance with the standard (and applicable implementation specifications) specified in §170.205(c) and, at a minimum, the version of the standard specified in §170.207(c).</p> <p style="text-align: right;"><i>[75 FR 44640-41]</i></p>	<p>Electronic submission of lab results to public health agencies. §170.205(c) - HL7 2.5.1. Implementation specifications: HL7 Version 2.5.1. Implementation Guide: Electronic Laboratory Reporting to Public Health, Release 1 (US Realm). §170.207(c) - LOINC® version 2.27, when such codes were received within an electronic transaction from a laboratory.</p>
<p>**Unofficial Recitations of Portions of 42 CFR Part 495 and 45 CFR Part 170** Note: MU measures may be subject to paragraph (c) of 495.6 and exclusions to measures may be subject to either paragraph (a) (eligible professionals) or paragraph (b) (eligible hospitals and CAHs) of section 495.6. Adapted from Meaningful Use Grids: Quick Reference to Navigation, available at http://healthit.hhs.gov/media/MU/n508/MU_SCC_CombinedGrid.pdf</p>			

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MEANINGFUL USE 42 CFR 495.6(d)-(g) Stage 1 Objective Stage 1 Measure		CERTIFICATION CRITERIA 45 CFR 170.302, 170.304, & 170.306	STANDARD(S) 45 CFR 170.205, 170.207, & 170.210	
EPs / EHs & CAHs		Ambulatory Setting / Inpatient Setting		
MENU SET	<p>§495.6(e)(10)(i) / §495.6(g)(10)(i) Capability to submit electronic syndromic surveillance data to public health agencies and actual submission according to applicable law and practice. <i>[75 FR 44367-68]</i></p>	<p>§495.6(e)(10)(ii) / §495.6(g)(10)(ii) Performed at least one test of certified EHR technology's capacity to provide electronic syndromic surveillance data to public health agencies and follow-up submission if the test is successful (unless none of the public health agencies to which an EP, eligible hospital or CAH submits such information have the capacity to receive the information electronically). <i>§495.6(e)(10)(iii) - Exclusion: An EP who does not collect any reportable syndromic information on their patients during the EHR reporting period or does not submit such information to any public health agency that has the capacity to receive the information electronically.</i> <i>§495.6(g)(10)(iii) - Exclusion: No public health agency to which the eligible hospital or CAH submits information has the capacity to receive the information electronically.</i></p>	<p>§170.302(l) Public health surveillance. Electronically record, modify, retrieve, and submit syndrome-based public health surveillance information in accordance with the standard specified in §170.205(d)(1) or §170.205(d)(2). <i>[75 FR 44615-16 and 62687-88]</i></p>	<p>Electronic submission to public health agencies for surveillance or reporting. §170.205(d)(1) - HL7 2.3.1. §170.205(d)(2) - HL7 2.5.1.</p>
	N/A	N/A	<p>§170.302(n) Automated measure calculation. For each meaningful use objective with a percentage-based measure, electronically record the numerator and denominator and generate a report including the numerator, denominator, and resulting percentage associated with each applicable meaningful use measure. <i>[75 FR 44642-43]</i></p>	

****Unofficial Recitations of Portions of 42 CFR Part 495 and 45 CFR Part 170**** Note: MU measures may be subject to paragraph (c) of 495.6 and exclusions to measures may be subject to either paragraph (a) (eligible professionals) or paragraph (b) (eligible hospitals and CAHs) of section 495.6. Adapted from Meaningful Use Grids: Quick Reference to Navigation, available at http://healthit.hhs.gov/media/MU/n508/MU_SCC_CombinedGrid.pdf

Key actions for achieving and advancing electronic health information exchange

Actions Providers Can Take Now

- Make sure your EHR system is certified and meets the requirements set forth by the Office of the National Coordinator.
- Conduct a systematic assessment to identify areas of your practice that would benefit most from data exchange. Chances are it's the same areas for which national standards are established.
- Participate in opportunities with key partners to develop and adopt best practices/standard protocols (process interoperability) for select priority transactions (e.g., electronic prescribing).
- Set your priority transactions for data exchange based on:
 - What improves care
 - What would qualify for financial incentives under "meaningful use" as part of federal stimulus legislation
 - What will provide the greatest operational improvement in your practice
- Work with others in your community/service area to coordinate and identify priorities for health information exchange based on population health or other needs. Greater value will accrue to all partners if this is done in a coordinated way across the community.
- Work with your vendor individually, or join their EHR product user group, to create plans for system upgrades based on national recommendations for standards and data exchange.
- Consider upgrades to EHR software, as the new functionality and increased utility often eases workflow and exchange capabilities and may increase the value on investment. Although upgrades can be expensive, vendors will often incorporate standards and new functionality as they are mandated nationally. Remember also that you don't have to purchase an upgrade simply because it's available. As with any software, you can wait for a larger upgrade to be released in the future. Make sure that the new software release is backwards compatible. Note that keeping your EHR system upgraded is not a one-time occurrence; it is an evolutionary process that must be part of your business plan.
- Create a committee/task force with appropriate internal representation that focuses on organizational readiness for exchange, sets priorities, and tests system capabilities and readiness for exchange.

- Utilize resources available through HITECH programs such as regional extension centers for subsidized technical assistance, state designated entities for exchange, workforce training opportunities offered through university and community colleges and incorporate best practices and lessons learned from Beacon community programs
- Participate in community, state, professional association or other workgroups related to interoperability and standards:
 - To be informed of current developments on standards-setting activities, national priorities for health information exchange
 - To actively engage in development of the standards, and needed implementation guides to address business needs
- Ensure you understand and incorporate relevant provisions of Minnesota's privacy law related to information exchange. Visit www.health.state.mn.us/ehealth for an overview.
- Update your privacy policies and security technology. Have your system audited for best practices in privacy and security.

Actions Others Can Take Now

- The Minnesota Department of Health, collaborating with others through the Minnesota e-Health Initiative, should continue in identifying appropriate standards based on national recommendations.
- Trade and/or professional associations working together with Regional Extension Centers (REC) can create resources on EHR products, current functionality and use of standards related to their area of interest. Such a systematic approach would enable their members to monitor the maturity of EHR applications for their area.
- Trade and/or professional associations for medical and other health specialties should create ongoing or ad hoc work groups to develop or identify functional and other requirements for their specialty areas that will help advance the development of appropriate standards and EHR functionality for such areas. Their participation in the standards development organizations like HL7 (www.hl7.org) or NCPDP (www.ncdp.org) and in Standards and Interoperability Framework (S&I) Initiative can assist in the development of new or revised standards or in harmonization of existing standards and implementation guides that meet their stakeholder's needs.

Annotated List of Resources

MINNESOTA

For current activities on standards, visit

<http://www.health.state.mn.us/e-health> and check standards sections.

NATIONAL

Latest updates on federal standards activities can be obtained at

<http://healthit.hhs.gov>

AAFP (American Academy of Family Physicians) Center for Health IT

Offers consultative, educational and outreach activities to facilitate the adoption and optimal use of health information technology. The online tools are designed to help in the move towards implementing an electronic health record (available at <http://www.centerforhit.org/online/chit/home/tools.html>).

AHRQ National Resource Center for Health Information Technology

Develops and disseminates tools to help health care organizations plan for, implement and evaluate health information technology (HIT). These tools describe and recommend strategies for addressing some of the common challenges organizations encounter when working with health IT systems (tools freely available at <http://healthit.ahrq.gov/>).

Accredited Standards Committee (ASC) X12

Develops, maintains, interprets, publishes and promotes the proper use of American National and UN/EDIFACT International Electronic Data Interchange Standards. Its main objective is to develop standards to facilitate electronic interchange relating to such business transactions as order placement and processing, shipping and receiving information, invoicing, and payment and cash application data. <http://www.x12.org/>

CDC (CDC Meaningful Use Page)

Provides resources on meaningful use, implications for public health and opportunities for collaboration and training. <http://www.cdc.gov/EHR/meaningfuluse/index.html>

Centers for Medicare and Medicaid EHR Incentive Program

Provides information about the CMS EHR incentive program, including eligibility, registration, program timelines, and more. www.cms.gov/EHRIncentivePrograms

Certified HIT Product List (CHPL)

Provides the authoritative, comprehensive listing of Complete EHRs and EHR Modules that have been tested and certified under the Temporary Certification Program maintained by the Office of the National Coordinator for Health IT (ONC). Each Complete EHR and EHR Module listed below has been certified by an ONC-Authorized Testing and Certification Body (ONC-ATCB) and reported to ONC. Only the product versions that are included on the CHPL are certified under the ONC Temporary Certification Program. Check the list of meaningful use-certified products at <http://onc-chpl.force.com/ehrcert>.

Certification Commission for Health information Technology (CCHIT)

Certifies EHR products based on a demonstrated ability to meet criteria for functional, interoperability and security criteria. For a list of nationally certified EHR products, see <http://www.cchit.org>.

eHealth Initiative (eHI)

Focuses on helping to define and then implement specific actions that will address the quality, safety and efficiency challenges of our healthcare system through the use of interoperable information technology.
<http://www.ehealthinitiative.org>

Federal Health Information Technology Activities

Office of the National Coordinator (ONC)

HIT Policy Committee

HIT Standards Committee

Includes information related to ARRA and HITECH Act and web site of ONC. A variety of coordinated federal programs are currently underway to implement strategies to address the goals and objectives comprising the nation's Health IT agenda. (Stay informed by subscribing to listserv at <http://healthit.hhs.gov>)

HIT Policy Committee

Makes recommendations to the National Coordinator for Health IT on a policy framework for the development and adoption of a nationwide health information infrastructure, including standards for the exchange of patient medical information. Details on the meetings, the workgroups and related information can be accessed from <http://healthit.hhs.gov/policycommittee>

HIT Standards Committee

Makes recommendations to the National Coordinator for Health IT on standards, implementation specifications, and certification criteria for the electronic exchange and use of health information. Details on the meetings, the workgroups and related information can be accessed from <http://healthit.hhs.gov/standardscommittee>

Health Information Technology Standards Panel (HITSP)

Served as a cooperative partnership between the public and private sectors for the purpose of achieving a widely accepted and useful set of standards specifically to enable and support widespread interoperability among health care software applications, as they will interact in a local, regional and national health information network for the United States (<http://www.hitsp.org>). *[Please note: HITSP is not functional as of 04/30/10. Web site holds good information and hence included here as reference]*

Health Level Seven (HL7)

Develops specifications, the most widely used being a messaging standard that enables disparate healthcare applications to exchange key sets of clinical and administrative data. HL7 provides standards for interoperability that improve care delivery, optimize workflow, reduce ambiguity and enhance knowledge transfer among all of our stakeholders (see <http://www.hl7.org>)

Key Health Alliance: Regional Extension Assistance Center for HIT in Minnesota and North Dakota

Offers assistance to health care providers for adopting and using EHR technology. www.khareach.org

Minnesota e-Health Initiative Web Page on Meaningful Use

Provides information on public health requirements for meeting meaningful use

- Overview of stage 1 meaningful use requirements specific to public health including immunization reporting, laboratory reporting and syndromic surveillance is available at <http://www.health.state.mn.us/e-health/phreportmu.pdf>
- Meaningful use and reporting of immunization data to the Minnesota Immunization Information Connection (MIIC) available at <http://www.health.state.mn.us/divs/idepc/immunize/registry/hp/mu.pdf>

Minnesota e-Health Initiative Web Page on Standards

Provides information on both the Minnesota mandates and recommendations around standards, as well as background information on health data standards generally, including EHR certification (<http://www.health.state.mn.us/e-health/standards/index.html>).

Minnesota Department of Health Web Site on HIT provisions of the Federal Stimulus

Presents details on the HITECH (Health Information Technology for Economic and Clinical Health) Act, Minnesota resources, select national resources and Minnesota approach to evaluating opportunities to promote the adoption, implementation and effective use of health information technology in Minnesota (<http://health.state.mn.us/e-health/hitech.html>). This site will also present details and opportunities for health information exchange.

National eHealth Collaborative (NeHC)

Drives the development of a secure, interoperable, nationwide health information system. This was formerly AHIC Successor, Inc. and was founded in 2008 to build on the accomplishments of the American Health Information Community (AHIC), a federal advisory committee. <http://www.nationalehealth.org/>

National Council for Prescription Drug Programs (NCPDP)

Creates and promotes the transfer of data related to medications, supplies, and services within the healthcare system through the development of standards and industry guidance. NCPDP also offers its members resources, including educational opportunities and database services, to better manage their businesses. <http://www.ncdp.org>

National Institute of Standards and Technology (NIST)

Develops the functional and conformance testing requirements, test cases, and test tools to support the proposed Health IT Certification Programs. These conformance test methods (test procedures, test data, and test tools) will help ensure compliance with the meaningful use technical requirements and standards. http://healthcare.nist.gov/use_testing/index.html

Nationwide Health Information Network (NwHIN)

Provides a foundation for the exchange of health IT across diverse entities, within communities and across the country, helping to achieve the goals of the HITECH Act. NwHIN is a set of standards, services and policies that enable secure health information exchange over the Internet. For additional details, visit <http://healthit.hhs.gov/NHIN>

NwHIN Direct Project

Part of a broad national strategy to connect healthcare providers through a Nationwide Health Information Network. The Direct Project was created to focus on a subset of the scenarios handled by the Nationwide Health Information Network, and to find a way to make them simpler and more achievable by all healthcare providers. That means that the Direct Project is complementary to other approaches. For more information about the NwHIN Direct Project, please visit <http://nhindirect.org>

NwHIN Exchange

Demonstrates live health information exchange through participating organizations. Current participants include group of federal agencies, local, regional and state-level Health Information Exchange Organizations (HIOs) and integrated delivery networks, formerly known as the NwHIN Cooperative. This consortium has been helping to develop the NwHIN standards, services and policies. For more information, <http://healthit.hhs.gov/NHIN> and click NwHIN Exchange

Office of the National Coordinator (ONC)

Supports the adoption of health information technology and the promotion of nationwide health information exchange to improve health care and is at the forefront of the administration's health IT efforts and is a resource to the entire health system. ONC is organizationally located within the Office of the Secretary for the U.S. Department of Health and Human Services (HHS). <http://healthit.hhs.gov>

Public Health Data Standards Consortium (PHDSC)

Educates the public health community about health information technology standards and the health information technology community about public health. Participates in national and international efforts on the standardization of health-related information. <http://phdsc.org/standards/health-information-tech-standards.asp>

Regional Extension Center for HIT for Minnesota and North Dakota (REACH)

Provides technical assistance services and support to priority primary care physicians, other providers and critical access hospitals in Minnesota and North Dakota over the next four years. In addition to primary care practices, REACH services will be available to providers of all types across the continuum of care. REACH is a program of Key Health Alliance (Stratis Health, National Rural Health Resource Center and the College of St. Scholastica). Additional details available at <http://www.khareach.org>

Standards and Interoperability (S&I) Framework

Creates a robust, repeatable process based on federal best practices that will enable ONC to execute on initiatives that will help improve interoperability and adoption of standards and health information technology. It includes processes and tools that will streamline and coordinate the execution of the initiatives to support the goals of the ONC and the HITECH Act. An S&I Framework initiative is designed to focus on a specific interoperability challenge identified through a formal prioritization process.

<http://wiki.siframework.org>

Stratis Health

Leads collaboration and innovation in health care quality and safety. EHR selector tools can be found on its Health IT (Information Technology) site (see <http://www.stratishealth.org>). Find setting-specific tools and resources in the Stratis Health toolkits for adult primary care clinics, critical access hospitals, nursing homes and home health by clicking on "Health Information Technology Services" under quick links on the Stratis Health home page.

Minnesota e-Health Initiative Advisory Committee Members

(2010-2011)

Thank you to the Minnesota e-Health Initiative Advisory Committee Members and Workgroup Co-Chairs from 2010-2011 for their leadership and many contributions to the Minnesota e-Health Initiative.

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Co-Chairs:

Walter Cooney, MA, JD

Executive Director,
Neighborhood Health Care Network

Marty Witrak, PhD, RN

Professor, Dean, School of Nursing,
College of St. Scholastica

Committee Members:

Alan Abramson, PhD

Senior Vice President, IS&T and CIO,
HealthPartners

Tina Armstrong

Director, Health Care Policy,
Minnesota Dept. of Commerce

Margaret Artz, PhD, RPh

Senior Primary Research Consultant,
Clinical Infomaticx, Ingenix

Thomas Baden, Jr.

Director, Office of Enterprise Architecture,
MN Dept. of Human Services

Barry Bershaw, MD

Vice President, Quality,
Fairview Health Services

Laurie Beyer-Kropuenske, JD

Director, Information Policy Analysis Division
Dept of Administration

Angie Franks

President and CEO, Healthland

Raymond Gensinger, Jr., MD

Chief Medical Information Officer,
Fairview Health Services

Maureen Ideker, MBA, RN

SISU Medical Systems

Julie Jacko, PhD

Director, The Institute for Health Informatics,
University of Minnesota

Paul Kleeberg, MD

Regional Extension Assistance Center
for HIT, Clinical Director for
Minnesota and North Dakota

Martin LaVenture, PhD, MPH

Director, Center for Health Informatics,
Minnesota Dept of Health

Jennifer Lundblad, PhD, MBA

President and CEO, Stratis Health

Bobbie McAdam

Director, Business Integration and
Portfolio Management, Medica

Walter Menning

Vice Chair, Information Services, Mayo Clinic

Charlie Montreuil

VP, Enterprise Rewards and Corporate Human
Resources, Best Buy

David Osborne

Director of Health Information Technology/
Privacy Officer
Volunteers of America

Cheryl M. Stephens, MBA, PhD
Executive Director,
Community Health Information Collaborative

Joanne Sunquist
Chief Information Officer,
Hennepin County Medical Center

Michael Ubl
Executive Director,
Minnesota Health Information Exchange

Bonnie Westra, PhD, RN
Assistant Professor,
University of Minnesota, School of Nursing

John Whisney
Director of Ridgeview Clinics,
Ridgeview Medical Center

Ken Zaiken
Consumer Advocate

Karen Zeleznak, MPH
Public Health Administrator,
Bloomington Public Health

2009-2010 Minnesota e-Health Initiative Workgroups

Health Information Exchange Workgroup
Alan Abramson, PhD, Sr. VP IS&T, CIO,
HealthPartners

Joanne Sunquist, Chief Information Officer,
Hennepin County Medical Center

Adoption and Meaningful Use Workgroup
Paul Kleeberg, MD, FAAFP, FHIMSS, REACH
Clinical Director for Minnesota and North
Dakota

Bonnie Westra, PhD, RN, Associate Professor,
School of Nursing, University of Minnesota

Privacy, Legal and Policy Workgroup
Laurie Beyer-Kropuenske, JD,
Director, Information Policy Analysis,
Minnesota Department of Administration

LaVonne Wieland, RHIA, CHP,
Director of Information Privacy,
HealthEast Care System

Standards & Interoperability Workgroup
Bobbie McAdam, Director,
Business Integration and Portfolio
Management, Medica

Barbara J. Billing, Consulting Manager -
Healthcare IT Advisory Services,
RSM McGladrey, Inc.

Communications and Outreach Workgroup
Becky Schierman, Quality Improvement
Manager, Minnesota Medical Association

Mark Sonneborn, VP, Information Services,
Minnesota Hospital Association

Minnesota Department of Health (MDH) Staff

Elizabeth Cinqueonce, Jennifer Fritz,
Kari Guida, Rebecca Johnson,
Robert Johnson, Martin LaVenture,
Sripriya Rajamani, Mayumi Reuvers,
Anne Schloegel, Donna Watz, Karen Welle,
Barb Wills

Standards Workgroup Participants (as of May 2011)

Alan Ainsworth	Bobbie McAdam
Jerome Alholm	Lois Mccarron
Mark Backlund	Frank McKinney
Barb Billing	Rina McManus
Jeff Blade	Gwen Mielke
Teri Byrne	David Nelsen
Deb Castellanos	David Osborne
Phil Denucci	Kevin Peterson
Kathy Dillon	Steve Pine
Emily Emerson	Carla Pogliano
John Feikema	Jason Proulx
Dan Fitzgerald	Priya Rajamani
Brenda Gabriel	Rob Ramer
Lisa Gall	Sharon Ratliff-Crain
Jazmine Garcia	Aarron Reinert
Lael Gatewood	Steve Ring
Debra Green	David Rosebaugh
Sue Green	Brian Salzman
Lance Guth	Larry Sampson
Jeramie Harris	Mark Sandvick
Steve Heimel	Wendy Scharber
Jerri Hiniker	Asa Schmit
Chris Hirsch,	Elizabeth Schultz
Dan Jensen	Peter Schuna
Carolyn Jones	Chris Secrest
Tim Kanaley	Patrick Sexton
Seonho Kim	Steve Smerz
Patrice Kuppe	Mark Sonneborn
Pat Kuruchittham	Stuart Speedie
Dawn Kuzma	Susan Sperl
Lachelle	Matt Stellmacher
Kevin Larsen	Cheryl Stephens
Kathy Latour	Elisabeth Tan
Martin LaVenture	Andrew Tessier
Kris Lester	Roberta Testor
John Lillie	Diane Thorson
Laurie Littlecreek	Laura Topor
Trish Lugtu	Al Tsai,
Sharad Manaktala	Michael Ubl
Julie Marquardt	Bonnie Westra
Justin Martin	Tamara Winden
Angie Mccollum	Jeff Yaw

Electronic Prescription Drug Program: Statutory Definitions

Minnesota Statutes 2008, section 62J.497 [2009]

Subd.1. Definitions.

For the purposes of this section, the following terms have the meanings given.

- (a) "Backward compatible" means that the newer version of a data transmission standard would retain, at a minimum, the full functionality of the versions previously adopted, and would permit the successful completion of the applicable transactions with entities that continue to use the older versions.
- (b) "Dispense" or "dispensing" has the meaning given in section 151.01, subdivision 30. Dispensing does not include the direct administering of a controlled substance to a patient by a licensed health care professional.
- (c) "Dispenser" means a person authorized by law to dispense a controlled substance, pursuant to a valid prescription.
- (d) "Electronic media" has the meaning given under Code of Federal Regulations, title 45, part 160.103.
- (e) "E-prescribing" means the transmission using electronic media of prescription or prescription-related information between a prescriber, dispenser, pharmacy benefit manager, or group purchaser, either directly or through an intermediary, including an e-prescribing network. E-prescribing includes, but is not limited to, two-way transmissions between the point of care and the dispenser and two-way transmissions related to eligibility, formulary, and medication history information.
- (f) "Electronic prescription drug program" means a program that provides for e-prescribing.
- (g) "Group purchaser" has the meaning given in section 62J.03, subdivision 6.
- (h) "HL7 messages" means a standard approved by the standards development organization known as Health Level Seven.
- (i) "National Provider Identifier" or "NPI" means the identifier described under Code of Federal Regulations, title 45, part 162.406.
- (j) "NCPDP" means the National Council for Prescription Drug Programs, Inc.
- (k) "NCPDP Formulary and Benefits Standard" means the National Council for Prescription Drug Programs Formulary and Benefits Standard, Implementation Guide, Version 1, Release 0, October 2005.
- (l) "NCPDP SCRIPT Standard" means the National Council for Prescription Drug Programs Prescriber/Pharmacist Interface SCRIPT Standard, Implementation Guide Version 8, Release 1 (Version 8.1), October 2005, or the most recent standard adopted by the Centers for Medicare and Medicaid Services for e-prescribing under Medicare Part D as required by section 1860D-4(e)(4)(D) of the Social Security Act, and regulations adopted under it. The standards shall be implemented in accordance with the Centers for Medicare and Medicaid Services schedule for compliance. Subsequently released versions of the NCPDP SCRIPT Standard may be used, provided that the new version of the standard is backward compatible to the current version adopted by Centers for Medicare and Medicaid Services.
- (m) "Pharmacy" has the meaning given in section 151.01, subdivision 2.
- (n) "Prescriber" means a licensed health care practitioner, other than a veterinarian, as defined in section 151.01, subdivision 23.
- (o) "Prescription-related information" means information regarding eligibility for drug benefits, medication history, or related health or drug information.
- (p) "Provider" or "health care provider" has the meaning given in section 62J.03, subdivision 8.



For More Information:



Minnesota Department of Health
Minnesota e-Health Initiative/
Office of Health Information Technology
P.O. Box 64882
85 East Seventh Place, Suite 220
St. Paul, MN 55164-0882
651-201-5979
www.health.state.mn.us/e-health/