HL7 EHR-System Meaningful Use Functional Profile, Edition 2015 - US Realm

Based on HL7 EHR System Functional Model and Standard, Release 2.01
Based on US Office of National Coordinator (ONC) EHR Incentive Program Certification Criteria, Edition 2015, and related Test Procedures

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Table of Contents

Notes to Balloters

Criteria that have high digit numbers (numbered in the range 80-99) are newly added for the purposes of the Meaningful Use Functional Profile and do not exist in base EHR-System functional Model release 2.

Functional Profile Components

The Function List includes the following components:

Function ID # (Normative)	This is the unique identifier of a function in the Function List (e.g. CP.1.1) and should be used to uniquely identify the function when referencing functions. The Function ID also serves to identify the section within which the function exists (CP = Care Provision Section) and the hierarchy or relationship between functions (CP.1.1 is a sibling to CP.1.2, parent of CP.1.1.1 and child of CP.1). In many cases the parent is fully expressed by the children.
Function Type (Reference)	Indication of the line item as being a header (H) or function (F) or conformance criteria.
Header/Function Name (Normative)	This is the name of the Function and whilst expected to be unique within the Function List; it is not recommended to be used to identify the function without being accompanied by the Function ID. Example: Manage Medication List
Function Statement (Normative)	This is a brief statement of the purpose of this function. Whist not restricted to the use of structured language that is used in the Conformance Criteria (see below); the Statement should clearly identify the purpose and scope of the function. Example: Create and maintain patient-specific medication lists.
Description (Reference)	This is a more detailed description of the function, including examples if needed. Example: Medication lists are managed over time, whether over the course of a visit or stay, or the lifetime of a patient. All pertinent dates, including medication start, modification, and end dates are stored. The entire medication history for any medication, including alternative supplements and herbal medications, is viewable. Medication lists are not limited to medication orders recorded by providers, but may include, for example, pharmacy dispense/supply records, patient-reported medications and additional information such as age specific dosage.
Conformance Criteria (Normative)	Each function in the Function List includes one or more Conformance Criteria. A Conformance Criteria, which exists as normative language in this standard, defines the requirements for conforming to the function. The language used to express a conformance criterion is highly structured with standardized components with set meanings. The structured language used to define conformance clauses in the Function List are defined in the Glossary (Chapter 4).
Reference (Reference)	Reference to the Functional Model or Functional Profile the current Functional Profile was developed against.
Change Indicator	The change indicator shows the change from previous versions. This will be valued as follows: C - Changed D - Deleted N - New NC - No Change DEP - Deprecated
Priority	The priority for the implementation of the item. This will be valued as follows: EN - Essential Now EF - Essential Future O - Optional

1. Care Provision Section

Section Overview

The Care Provision Section contains those functions and supporting Conformance Criteria that are required to provide direct care to a specific patient and enable hands-on delivery of healthcare. The functions are general and are not limited to a specific care setting and may be applied as part of an Electronic Health Record supporting healthcare offices, clinics, hospitals and specialty care centers. The functions in this section are organized in general flow of an encounter; however, it is recognized that encounter flow varies considerably in different care settings and scopes of practice. All functions within the Care Provision Section have an identifier starting with “CP”.

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
CP.1 Header	Manage Clinical History	CP.1	NC	EN
	Statement: Manage the patient's clinical history lists used to present summary or detailed information on patient health history. **Description:** Patient Clinical History lists are used to present succinct "snapshots" of critical health information including patient history; allergy, intolerance and adverse reactions; medications; problems; strengths; immunizations; medical equipment/devices; and patient and family preferences.			
CP.1.1 Function	Manage Patient History	CP.1.1	C	EN
	Statement: Manage medical, procedural/surgical, mental health, substance use, social and family history. This includes pertinent positive and negative histories, patient-reported or externally available patient clinical history. **Description:** The history of the current illness and patient historical data related to previous medical diagnoses, surgeries and other procedures performed on the patient, clinicians involved in procedures or in past consultations, and relevant health conditions of family members is captured through such methods as patient reporting (e.g., interview, medical alert band) or electronic or non-electronic historical data. This data may take the form of a pertinent positive such as "The patient/family member has had..." or a pertinent negative such as "The patient/family member has not had...". When first seen by a health care provider, patients typically bring with them clinical information from past encounters. This and similar information may supplement locally captured documentation and notes wherever appropriate. Information regarding the patient's living situations may be an important means for a provider to uniquely identify a patient or to identify illnesses that may occur within a given proximity. Information regarding past or present living situations or environmental factors related to the patient or the fetal death may include a description of the father's type of occupation and occupational demographic information (such as the name and location of the employment). For example, it may be important for the clinician to know that the patient works in an occupation where lead exposure is common. It may also be important for the clinician to know that the patient lives in a household where asbestos routinely appears on clothing.			
	1. The system SHALL provide the ability to manage current patient history including pertinent positive and negative elements (e.g., diagnosis or ruled out diagnosis), and information on clinicians involved.	CP.1.1	NC	EN
	5. The system SHALL provide the ability to capture family history.	CP.1.1	NC	EN
	6. The system SHALL provide the ability to capture social history.	CP.1.1	NC	EN
	94. The system SHALL provide the ability to manage an indication of the patient's smoking status based on the SNOMED CT smoking categories (e.g., current every day smoker; current some day smoker; former smoker; never smoker; smoker, current status unknown; unknown if ever smoked; heavy tobacco smoker, light tobacco smoker).		N	EN
	96. The system SHALL provide the ability to manage family health history as structured data according to named standards.		N	EN
CP.1.2 Function	Manage Allergy, Intolerance and Adverse Reaction List	CP.1.2	C	EN
	Statement: Manage patient-specific allergy, intolerance and adverse reaction lists. **Description:** Allergens to substances, (including immunizations), are identified and the list of allergies is captured and maintained over time. Information regarding allergies may be coded or free text; coded information is preferred (where possible). In this function the term "allergy" is used to refer to allergies, intolerances, adverse reactions and sensitivities. All pertinent dates, including patient-reported events, are stored and the description of the patient allergy and adverse reaction is modifiable over time. The entire allergy history, including reaction, for any allergen is viewable. The list(s) includes all reactions including those that are classifiable as a true allergy, intolerance, side effect or other adverse reaction to drug, food or environmental triggers. Notations indicating whether item is patient reported, and/or provider verified are maintained. The term 'true allergy' is defined by the US National Library of Medicine as: an allergy that is caused by a series of chemical steps in the body that produce the allergic reaction. The allergy information that should be captured may vary according to scope of practice, organizational policy, and/or jurisdictional law. For example, the documentation requirements regarding an allergic reaction to a substance that is reportable may require a higher level of data capture.			
	1. The system SHALL provide the ability to manage allergy to drug, products as unique, discrete entries and when applicable, using coded values from terminology standards (SNOMED-CT, RxNorm etc.).	CP.1.2	C	EN
	3. The system SHALL provide the ability to manage the reaction type as discrete data.	CP.1.2	NC	EN
	5. The system SHALL provide the ability to manage the severity of an allergic or adverse reaction as discrete data.	CP.1.2	NC	EN

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
6.	The system SHALL provide the ability to manage a report of No Known Allergies (NKA) for the patient.	CP.1.2	NC	EN
7.	The system SHALL provide the ability to manage a report of No Known Food Allergies (NKFA) for the patient.	CP.1.2	NC	EN
12.	The system SHOULD provide the ability to render the list of allergies, intolerances and adverse reactions in a user-defined sort order.	CP.1.2	NC	EN
15.	The system SHALL provide the ability to capture and render the date on which allergy information was entered.	CP.1.2	NC	EN
24.	The system SHALL provide the ability to render historical allergy information.	CP.1.2	C	EN
26.	The system SHOULD conform to function CPS.4.2.1 (Support for Medication Interaction and Allergy Checking) to render any potential interactions when capturing or maintaining allergies, intolerances or adverse reactions.	CP.1.2	NC	EN
99.	The system SHALL provide the ability to determine and render clinical decision support outcomes applicable to medication allergy list updates.		N	EN
CP.1.3 Function	Manage Medication List	CP.1.3	C	EN
	Statement: Create and maintain patient-specific medication lists. **Description:** Medication lists are managed over time, whether over the course of a visit or stay, or the lifetime of a patient. The entire medication history for any medication including, over-the-counter products, alternative supplements and herbal medications, is viewable. Medication lists are not limited to provider orders/prescriptions but may also include, for example, pharmacy dispensed medications without prescription, over the counter medications and patient-reported medications, etc. All pertinent dates, including medication start, modification, and end dates are stored. Medication Lists may also include additional information such as age-specific dosage.			
1.	The system SHALL provide the ability to manage a patient-specific medication list based on current medication orders or prescriptions.	CP.1.3	NC	EN
2.	The system SHALL provide the ability to manage as discrete data the details of the medication information including name of the medication ordered, medication identifier (e.g., RxNORM), prescriber, ordering date, SIG (e.g., dose amount and quantity, timing, duration and route, and/ or site of administration), quantity, formulation and ancillary instructions according to scope of practice, organizational policy, and/or jurisdictional law.	CP.1.3	NC	EN
5.	The system SHALL provide the ability to capture and maintain current and historical patient-specific medications in the Medication List.	CP.1.3	NC	EN
7.	The system SHALL provide the ability to render the medication history associated with a patient.	CP.1.3	NC	EN
15.	The system SHALL provide the ability to receive current medications and a medication history from an external source (e.g., a plan, payer or pharmacy).	CP.1.3	C	EN
17.	The system SHALL provide the ability to capture a description of the medication and a reason for the medication when the medication name is unknown (e.g., if patient has received medication from external source and does not have the name, and/or the name is not in the system formulary).	CP.1.3	NC	EN
22.	The system SHALL conform to function CPS.4.2.1 (Support for Medication Interaction and Allergy Checking) to render any potential interactions when capturing or maintaining medications.	CP.1.3	NC	EN
23.	The system SHALL provide the ability to capture free text medications and render them in a manner that distinguishes them from coded medication entries.	CP.1.3	NC	EN
28.	The system SHALL provide the ability to render active medications as defined by user requirements and according to scope of practice, organizational policy, and/or jurisdictional law (e.g., including medications that may still have a physiologic effect long after last administration).	CP.1.3	NC	EN
31.	The system SHALL capture, maintain and present pre-admission medications according to scope of practice, and/or organizational policy.	CP.1.3	NC	EN
32.	The system SHALL present pre-admission medications at the time of discharge according to scope of practice, and/or organizational policy.	CP.1.3	NC	EN
99.	The system SHALL provide the ability to determine and render clinical decision support outcomes applicable to medication list updates.		N	EN
CP.1.4 Function	Manage Problem List	CP.1.4	C	EN
	Statement: Create and maintain patient-specific problem lists. **Description:** A problem list may include, but is not limited to chronic conditions, diagnoses, or symptoms, injury/poisoning (both intentional and unintentional), adverse effects of medical care (e.g., drugs, surgical), functional limitations, visit or stay-specific conditions, diagnoses, or symptoms. Problem lists are managed over time, whether over the course of a visit or stay or the life of a patient, allowing documentation of historical information and tracking the changing character of problem(s) and their priority. The source (e.g., the provider, the system id, or the patient) of the updates should be documented. All pertinent dates are stored, including date noted or diagnosed, dates of any changes in problem specification or prioritization, and date of resolution. This might include time stamps, where useful and appropriate. The entire problem history for any problem in the list is viewable.			
1.	The system SHALL provide the ability to manage, as discrete data, all active problems associated with a patient using the SNOMED CT Terminology Standard.	CP.1.4	C	EN
2.	The system SHALL capture, maintain and render a history of all problems associated with a patient.	CP.1.4	NC	EN

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
3.	The system SHALL provide the ability to manage the status of each problem (e.g., active, inactive, resolved).	CP.1.4	NC	EN
4.	The system SHALL provide the ability to manage relevant dates including the onset date and date(s) of problem status change (e.g., inactivation or resolution date).	CP.1.4	NC	EN
5.	The system SHALL provide the ability to manage information about the chronicity duration (e.g., chronic, acute/self-limiting) of a problem.	CP.1.4	NC	EN
10.	The system SHALL provide the ability to render only active problems.	CP.1.4	NC	EN
17.	The system SHALL provide the ability to link orders, medical equipment, prosthetic/orthotic devices, and medications to one or more codified problems.	CP.1.4	NC	EN
18.	The system SHALL provide the ability to capture free text problems and render them in a manner that distinguishes them from coded problem entries.	CP.1.4	NC	EN
20.	The system SHALL provide the ability to capture a problem into the problem list using standardized coding schemas (e.g., ICD or SNOMED).	CP.1.4	NC	EN
21.	The system SHALL provide the ability to manage free text comments associated with the problem.	CP.1.4	NC	EN
98.	The system SHALL provide the ability to update the problem list by merging and/or removing duplicate entries and thus produce the consolidated form of a single reconciled problem list.		N	EN
99.	The system SHALL provide the ability to determine and render clinical decision support outcomes applicable to problem list updates.		N	EN
CP.1.5 Function	Manage Health-Related Factors List	CP.1.5	C	EN
	Statement: Manage patient-specific health-related factors. **Description:** A patient's strengths (positive factors) or weaknesses (negative factors) may impact a patient's care or recovery and may be recorded as part of the EHR to support the development of care plans and treatment options. Examples of health factors include family support, financial support, health insurance levels, overall health, personal health behaviors (e.g., tobacco, physical activity, sleep), body mass index, employment status/type, access to care, or education level. Note that heath factors may be included in the Problem list (CP.1.4) which may include problems or strengths (e.g., ambulatory status or addictions). An example of an active patient-specific strength is an elderly parent receiving care from an adult child during the adult child's summer break from college. A patient's care may be affected by certain positive or negative factors. For example, coverage by insurance (a positive health factor) versus unemployment (a negative health factor).			
1.	The system SHALL provide the ability to manage, as discrete data, patient-specific Health-Related Factors.	CP.1.5	NC	EN
2.	The system SHALL provide the ability to manage the source of information regarding patient-specific Health-Related Factors.	CP.1.5	NC	EN
3.	The system SHALL conform to function RI.1.1.17 (Deprecate/Retract Record Entries) to enable the inactivation or deprecation of a patient-specific Health-Related Factor.	CP.1.5	NC	EN
88.	IF the system supports patient exposure to violence data, THEN the system SHALL provide the ability to capture, maintain and render patient exposure to violence (intimate partner violence) or whether patient declines to specify this information.		N	EN
89.	IF the system supports patient social connection and isolation status, THEN the system SHALL provide the ability to capture, maintain and render patient social connection and isolation status or whether patient declines to specify this information.		N	EN
90.	IF the system supports patient alcohol use data, THEN the system SHALL provide the ability to capture, maintain and render patient alcohol use or whether patient declines to specify this information.		N	EN
91.	IF the system supports patient physical activity level, THEN the system SHALL provide the ability to capture, maintain and render patient physical activity level or whether patient declines to specify this information.		N	EN
92.	IF the system supports patient depression status, THEN the system SHALL provide the ability to capture, maintain and render patient depression status or whether patient declines to specify this information.		N	EN
93.	IF the system supports patient stress status THEN the system SHALL provide the ability to capture, maintain and render patient stress status or whether patient declines to specify this information.		N	EN
94.	IF the system supports patient education level, THEN the system SHALL provide the ability to capture, maintain and render patient education level or whether patient declines to specify this information.		N	EN
95.	IF the system supports patient financial resource strain, THEN the system SHALL provide the ability to capture, maintain and render patient financial resource strain or whether patient declines to specify this information.		N	EN
96.	The system SHALL provide the ability to capture, maintain and render patient exposure to violence (intimate partner violence) or whether patient declines to specify this information.		N	EN
97.	The system SHALL provide the ability to capture, maintain and render patient social connection and isolation status or whether patient declines to specify this information.		N	EN
98.	The system SHALL provide the ability to capture, maintain and render patient alcohol use or whether patient declines to specify this information.		N	EN

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
99.	The system SHALL provide the ability to capture, maintain and render patient physical activity level or whether patient declines to specify this information.		N	EN
CP.1.6 Function	Manage Immunization List	CP.1.6	C	EN
	Statement: Create and maintain patient-specific immunization lists. **Description:** Immunization lists are managed over time, whether over the course of a visit or stay, or the lifetime of a patient. Details of immunizations administered are captured as discrete data elements including date, type, manufacturer and lot number. The entire immunization history is viewable.			
2.	The system SHOULD provide the ability to maintain immunization details, as discrete data, including: - the immunization name/type, sequence number in the series & series identifier, strength and dose; - the date and time of administration; - manufacturer, lot number, expiration date, - route and site of administration; - administering provider; - observations, reactions and complications; - reason immunization not given, and/or immunization related activity not performed; according to scope of practice, organizational policy, and/or jurisdictional law.	CP.1.6	C	EN
CP.1.7 Function	Manage Medical Equipment, Prosthetic/Orthotic, Device List	CP.1.7	C	EN
	Statement: Create and maintain a patient-specific list of medical equipment, medical prosthetic, orthotic, and/or implantable devices. **Description:** Details of medical equipment, orthotic/prosthetic, and/or devices are captured as discrete data elements including information such as device type, date issued, date implanted or manufactured, device model number, device serial/lot number, manufacturer, supplier, involved extremity, anatomical location, date of battery change, and other data elements which may be required to correctly identify and track the equipment/device. The list may link to external sources, such as the US Food and Drug Administration (FDA), so that the provider may be alerted if the medical device is recalled. The entire equipment, prosthetic, orthotic, and/or implantable device list is able to be rendered.			
1.	The system SHALL provide the ability to manage, as discrete data, a patient-specific list of implantable devices.	CP.1.7	C	EN
2.	The system SHALL provide the ability to capture, maintain and render, as discrete data, the description of each instance of use of specialized medical equipment, prosthetic, orthotic, and/or implantable device.	CP.1.7	NC	EN
3.	The system SHALL provide the ability to capture, maintain and render the reason for each instance of use of specialized medical equipment, prosthetic, orthotic, and/or implantable device.	CP.1.7	C	EN
4.	The system SHALL provide the ability to capture, maintain and render the specific type of specialized medical equipment, prosthetic, orthotic, and/or implantable device.	CP.1.7	NC	EN
6.	The system SHALL provide the ability to capture, maintain and render, as discrete data, information necessary to identify and track the equipment/device including, at a minimum: (A) Device Identifier; (B) The following identifiers that compose the Production Identifier: (1) The lot or batch within which a device was manufactured; (2) The serial number of a specific device; (3) The expiration date of a specific device; (4) The date a specific device was manufactured; and (5) For an HCT/P regulated as a device, the distinct identification code C) A description of the implantable device referenced by a standard vocabulary such as one of the following: (1) The “GMDN PT Name” attribute associated with the Device Identifier in the Global Unique Device Identification Database. (2) The “SNOMED CT Description” mapped to the attribute (D) The following attributes preferably form a maintained and validated source such as Global Unique Device Identification Database attributes: (1) “Brand Name”; (2) “Version or Model”; (3) “Company Name”	CP.1.7	C	EN
CP.1.8 Function	Manage Patient and Family Preferences	CP.1.8	C	EN
	Statement: Capture and maintain patient and family preferences. **Description:** This function is focused on the capture and maintenance of facts on patient/family preferences. Patient and family preferences regarding issues such as language, religion, spiritual practices and culture may be important to the delivery of care. It is important to capture these so that they will be available to the provider at the point of care. Patient/Family preferences differ from social history and Advance Directives as follows: Social history refers primarily to elements of a patient's background that may impact on the patient's health (e.g., smoking, drinking, occupation, abuse, etc.). Advance Directives refers to requests regarding care when the patient is unable to competently make decisions about their own care (e.g., Do Not Resuscitate orders, living wills).			
1.	The system SHALL provide the ability to manage patient preferences (e.g., language(s), sexual orientation, gender identity).	CP.1.8	C	EN
2.	The system SHALL provide the ability to manage family preferences (e.g., language(s), sexual orientation, gender identity).	CP.1.8	C	EN
CP.1.9 Function	Manage Adverse Events	CP.1.9	C	EN
	Statement: Capture and maintain adverse events. **Description:** This function is focused on the capture and maintenance of adverse events that have occurred to the patient. The system should capture discrete information about the adverse event to enable the rendering Serious Adverse Event (SAE) reports according to organizational policy, and or jurisdictional law. Reporting may conform to the HL7 Individual Case Safety Reporting (ICSR).			
1.	The system SHALL provide the ability to manage adverse events associated with a patient.	CP.1.9	NC	EN

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
2. The system SHALL capture and maintain as discrete data for an adverse event.a) Patient identification; b) Event date/time; c) Event description; d) Event severity; e) Event category (e.g., medication error, fall); f) Care providers associated with the event, according to scope of practice, organizational policy, and/or jurisdictional law.		CP.1.9	C	EN
CP.2 Function	Render externally-sourced Information	CP.2	NC	EN
Statement: Render documentation and data that has been captured from multiple external sources. **Description:** Documentation and data relevant to the patient record can be captured from many external sources and should be rendered appropriately alongside other information in the patient record. External sources are those outside the EHR system, including clinical, administrative, and financial information systems, other EHR systems, Personal Health Record (PHR) systems, and data received through health information exchange networks.				
CP.2.5 Function	Manage Patient-Originated Data	CP.2.5	C	EN
Statement: Capture and explicitly label patient-originated data, link the data source with the data, and support provider authentication for inclusion in patient health record as well as subsequent rendering of the information as part of the health record. **Description:** It is critically important to be able to distinguish clinically authored and authenticated data from patient-originated data that is either provided by the patient for inclusion in the EHR or entered directly into the EHR by the patient from clinically authenticated data. Patients may provide data for entry into the health record or be given a mechanism for entering this data directly. Patient-originated data intended for use by providers will be available for their use. Data about the patient may be appropriately provided by: - the patient; - a surrogate (parent, spouse, guardian) or - an informant (teacher, lawyer, case worker) - devices (e.g., blood pressure/glucose monitors). An electronic health record may provide the ability for direct data entry by any of these. Patient-originated data may also be captured by devices and transmitted for inclusion into the electronic health record. Data entered by any of these must be stored with source information. A provider must authenticate patient-originated data included in the patient's legal health record. A provider must be able to indicate they have verified the accuracy of patient-originated data (when appropriate and when a verification source is available) for inclusion in the patient record. Such verification does not have to occur at each individual data field and can be at a higher level of the data.			
1. The system SHALL provide the ability to capture patient- originated data and tag that data as such.		CP.2.5	NC	EN
2. IF the system provides the ability for the patient to capture data directly, THEN the system SHALL tag the data as patient captured.		CP.2.5	NC	EN
3. The system SHALL provide the ability to render patient-originated data.		CP.2.5	NC	EN
4. The system SHOULD provide the ability for an authorized user to annotate, but not alter, patient-originated data.		CP.2.5	NC	EN
5. The system SHOULD provide the ability to capture patient-originated annotations on provider-sourced data, and tag the annotations as patient-sourced.		CP.2.5	NC	EN
CP.3 Header	Manage Clinical Documentation	CP.3	NC	EN
Statement: Clinical Documentation must be managed including the capture of the documentation during an encounter, maintenance and appropriate rendering. **Description:** Clinical documentation includes all documentation that the clinician may capture during the course of an encounter with the patient or relevant to the patient. This includes assessments, clinical measurements, clinical documents and notes, patient-specific care and treatment plans. Management of clinical documentation also includes the acknowledgement and amendments of documentation provided by other providers.				
CP.3.1 Function	Conduct Assessments	CP.3.1	C	EN
Statement: Create and maintain assessment information. **Description:** During an encounter with a patient, the provider will conduct an assessment that is germane to the age, gender, developmental or functional state, medical and behavioral condition of the patient, such as growth charts, developmental profiles, and disease specific assessments. Wherever possible, this assessment should follow industry standard protocols although, for example, an assessment for an infant will have different content than one for an elderly patient. When a specific assessment template does not exist, a new, locally-defined assessment can be created, using the format and data elements of similar assessments whenever possible. (NOTE: A new assessment may not necessarily be unique, since a facility may copy an assessment from another facility.)			
1. The system SHALL provide the ability to manage assessment information captured (e.g., age, gender, developmental state, and health condition) according to scope of practice, organizational policy, and/or jurisdictional law.		CP.3.1	C	EN
3. The system SHALL provide the ability to manage additional assessment information as the patient's medical condition changes.		CP.3.1	C	EN

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
CP.3.2 Function	Manage Patient Clinical Measurements	CP.3.2	C	EN
	Statement: Capture and manage patient clinical measures, such as vital signs, as discrete patient data. **Description:** Within the context of an episode of care, patient measures such as vital signs are captured and managed as discrete data to facilitate reporting and provision of care. Other clinical measures (such as expiratory flow rate, size of lesion, etc.) are captured and managed, and may be discrete data.			
	1. The system SHALL provide the ability to capture patient vital signs (e.g., blood pressure, temperature, heart rate, respiratory rate, and pain scale) as discrete elements of structured or unstructured data.	CP.3.2	NC	EN
	2. The system SHOULD provide the ability to capture other clinical measures (e.g., peak expiratory flow rate, size of lesions, oxygen saturation, height, weight, length, body mass index and severity of pain) as discrete elements of either structured or unstructured data.	CP.3.2	NC	EN
	3. The system SHOULD provide the ability to determine additional values within an assessment based on discrete or atomic elements (e.g., Body Mass Index based on height and weight).	CP.3.2	NC	EN
	5. The system SHALL provide the ability to capture mood, behavior and daily functioning as structured or unstructured data.	CP.3.2	NC	EN
	12. The system SHOULD provide the ability to render growth charts that include growth data (weight, length or height and head circumference) on a graph that includes normative data plotted against population-based normative curves by age ranges, gender and ethnicity of the respective normative data (e.g., females 0-36 months).	CP.3.2	NC	EN
	95. The system SHALL provide the ability to capture certain data elements (items, fields) constrained by data type (e.g., numeric, valid date/time) according to scope of practice, organizational policy or jurisdictional law.		N	EN
	96. The system SHALL determine (calculate) and render body mass index.		N	EN
	98. The system SHALL provide the ability to determine and render clinical decision support outcomes based on clinical decision support rules applicable to vital sign updates.		N	EN
	99. The system SHALL capture height/length, weight and blood pressure as numeric values only.		N	EN
CP.3.3 Function	Manage Clinical Documents and Notes	CP.3.3	C	EN
	Statement: Create, addend, amend, correct, authenticate, maintain, present and close, as needed, transcribed or directly-entered clinical documentation and notes. **Description:** Clinical documents and notes may be unstructured and created in a narrative form, which may be based on a template, graphic, audio, etc. The documents may also be structured documents that result from the capture of coded data. Each of these forms of clinical documentation is important and appropriate for different users and situations. To facilitate the management and documentation on how providers are responding to incoming data on orders and results, there may also be some free text or formal record on the providers' responsibility, and/or standard choices for disposition, such as Reviewed and Filed, Recall Patient, or Future Follow Up. The system may also provide support for documenting the clinician's differential diagnosis process.			
	1. The system SHALL provide the ability to capture and render clinical documentation as 'structured', and/or 'unstructured' data.	CP.3.3	NC	EN
	7. The system SHALL provide the ability to update documentation prior to finalizing it.	CP.3.3	NC	EN
	15. The system SHALL provide the ability to capture, maintain and render transition-of-care related information according to scope of practice, organizational policy, and/or jurisdictional law.	CP.3.3	C	EN
CP.3.4 Function	Manage Patient-Specific Care and Treatment Plans	CP.3.4	C	EN
	Statement: Provide templates and forms for clinicians to use for care plans, guidelines and protocols during provision of care and care planning. **Description:** During the provision of care, the clinician reviews and uses templates and forms to ensure consistent quality patient care. Care plans, guidelines or protocols may contain goals or targets for the patient, specific guidance to the providers, suggested orders, and nursing interventions, among other items, including alerts. Information such as Order sets for care plans may arrive from an external institution and need to be approved locally before being inserted into the care plan. Tracking of implementation or approval dates, modifications and relevancy to specific domains or context is provided. Transfer of treatment and care plans may be implemented electronically using, for example, templates, or by printing plans to paper.			
	1. The system SHALL provide the ability to manage patient-specific plans of care and treatment.	CP.3.4	NC	EN
	2. The system SHALL conform to function CP.7.1 (Present Guidelines and Protocols for Planning Care) and provide the ability to render locally or non-locally developed templates, guidelines, and protocols for the creation of patient-specific plans of care and treatment.	CP.3.4	NC	EN
	3. The system SHOULD provide the ability to capture metadata regarding a patient's plan of care or treatment (e.g., authors, creation date, version history, references, local sources and non-local sources) according to scope of practice, organizational policy, and/or jurisdictional law.	CP.3.4	NC	EN
	4. The system SHOULD provide the ability to link order sets with care plans.	CP.3.4	NC	EN
	5. The system SHOULD provide the ability to link the care plan with condition(s) in problem lists.	CP.3.4	NC	EN
	8. The system SHOULD provide the ability to transmit care plans and treatment plans to other care providers.	CP.3.4	NC	EN

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
17. The system SHALL provide the ability to capture care processes across the continuum of care.		CP.3.4	NC	EN
19. The system SHALL provide the ability to render internal care plans, guidelines, and protocols according to scope of practice.		CP.3.4	NC	EN
97. The system SHALL capture, maintain and render care plan goals, health concerns, health status evaluations and outcomes, and interventions.			N	EN
98. The system SHALL provide the ability to render care and treatment plans conformant to the HL7 C-CDA Clinical Notes R2.1 Care Plan standards-based data object.			N	EN
99. The system SHALL provide the ability to capture and maintain order details as discrete data.			N	EN
CP.4 Function	Manage Orders	CP.4	C	EN
Statement: Provide the ability to manage clinical orders and results including medication, non-medication, diagnostic tests, blood products, other biologics and referrals, using order sets as appropriate. **Description:** The provision of clinical care includes the need to order from a variety of treatments using order sets as appropriate as well as reviewing the results of treatment. Orders for treatments may include medications, non-medication therapies (e.g., physical therapy, special diet, immunizations, non-allopathic regimens); diagnostic care (e.g., laboratory , radiology); blood products and other biologics (e.g., blood transfusions, human growth hormones). Patients are often referred to other health care providers for more specialized diagnostic workup, and/or treatment. An effective EHR-S must include support and management of these processes and associated documentation.			
1. The system SHALL provide the ability to manage role-based, context-based, and/or user-based order entry.		CP.4	NC	EN
2. The system SHALL provide the ability to manage the creation and modification of orders.		CP.4	C	EN
7. The system MAY provide the ability to capture and render problem/diagnosis as an element of an order.		CP.4	C	EN
8. The system MAY provide the ability to capture, maintain and render, as discrete data, a diagnosis/ problem code, and/or description associated with an order of any type (including prescriptions and medications ordered for administration).		CP.4	NC	EN
9. The system MAY provide the ability to link an order of any type (including medication order) with a related clinical problem(s), and/or diagnosis code(s) and description.		CP.4	NC	EN
10. The system SHALL provide the ability to annotate and render comments and instructions with an order.		CP.4	NC	EN
11. The system SHOULD provide the ability to annotate and render free text comments and instructions with an order (e.g., "Short draw, do CBC first").		CP.4	NC	EN
16. The system SHALL provide the ability to capture and render the urgency status (e.g., As-Soon-As-Possible or STAT) associated with an order.		CP.4	NC	EN
18. The system SHOULD provide the ability to tag and render a field as required for a complete order by order type (e.g., pediatric order for antibiotic that requires the patient's weight).		CP.4	NC	EN
19. The system SHOULD provide the ability to tag orders to be activated at a future date and time including admission orders, discharge orders, and post-operative orders.		CP.4	NC	EN
20. The system MAY provide the ability to manage conditional orders that can be activated when certain criteria and conditions are met.		CP.4	NC	EN
CP.4.1 Function	Use Order Sets	CP.4.1	C	EN
Statement: Use Order Set templates to facilitate order entry by rendering the appropriate orders based on provider request, input or system configuration. **Description:** Predefined order set templates may include medication and non-medication orders (e.g., diet, activities, nursing care, prescriptions and requests for investigations). They allow a care provider to choose common orders for a particular circumstance or disease state according to standards or other criteria such as provider preference. Recommended order set templates may be presented based on patient data or other contexts. Order Set templates may also allow the provider to modify (add/remove/change) orders during order entry for a particular patient.			
1. The system SHALL provide the ability to capture a set of actions, and/or items to be ordered for a patient using a predefined order set template.		CP.4.1	NC	EN

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
CP.4.2 Function	Manage Medication Orders	CP.4.2	C	EN
	Statement: Create prescriptions or other medication orders with detail adequate for correct filling and administration. Provide information regarding compliance of medication orders with formularies. Provide drug utilization review functionality including alerts regarding drug interactions and allergies. **Description:** Medications include prescribed and over the counter (OTC) drugs, allergy shots, oxygen, anesthetics, chemotherapy, and dietary supplements that were ordered, supplied, administered, or continued. Different medication orders, including new, discontinue, refill/continue, and renew require different levels and kinds of detail, as do medication orders placed in different situations. Administration or patient instructions are available for selection by the ordering clinician, or the ordering clinician is facilitated in creating such instructions. The system may allow for the creation of common content for prescription details. Appropriate time stamps for all medication related activity are generated. This includes series of orders that are part of a therapeutic regimen, e.g., Renal Dialysis, Oncology. When it comes to capturing the medication rationale, it is not mandatory that the provider always provide this information. In addition, the system should present the clinician with clinical decision support functionality (such as the presentation of allergies, drug-drug interactions) during the medication ordering process. When a clinician places an order for a medication, that order may or may not comply with a formulary specific to the patient's location or insurance coverage, if applicable. Whether the order complies with the formulary should be communicated to the ordering clinician at an appropriate point to allow the ordering clinician to decide whether to continue with the order. Formulary-compliant alternatives to the medication being ordered may also be presented.			
2.	The system SHALL conform to function CP.4.2.2 (Patient-Specific Medication Dosing & Warnings).	CP.4.2	NC	EN
5.	The system SHALL provide the ability to capture medication order details as discrete data for correct filling, dispensing and administration of drug (e.g., dose, route, physical form, duration, SIG).	CP.4.2	NC	EN
10.	The system SHALL determine and render a notification to the provider that information required to compute a dose is missing or invalid.	CP.4.2	NC	EN
12.	The system SHALL provide the ability to manage prescriptions using fractional units of medications (e.g., 0.25 mL, 1/2 tablet).	CP.4.2	C	EN
14.	The system SHOULD provide the ability to capture the administrative or clinical reasons/ indications/rationale for the medication(s) selected during order entry.	CP.4.2	NC	EN
15.	The system SHALL provide the ability to determine and render the status of a medication order (e.g., for outpatient medication ordering: captured, verified, filled, or dispensed to patient; for inpatient: captured, verified, filled, or medication administered).	CP.4.2	NC	EN
17.	The system SHALL conform to function CP.1.3 (Manage Medication List) and update the appropriate medication list with the prescribed medications (in case of multiple medication lists).	CP.4.2	NC	EN
18.	The system SHALL provide the ability to enter and maintain medication information supplied by the patient.	CP.4.2	NC	EN
32.	The system SHOULD conform to function AS.9.2 (Support Financial Eligibility Verification) to capture and render the results of electronic prescription eligibility and health plan/payer formulary verification of prescription coverage.	CP.4.2	NC	EN
33.	The system SHOULD conform to function AS.9.2 (Support Financial Eligibility Verification) to capture and render patient-specific health plan/payer formulary and benefit coverage.	CP.4.2	NC	EN
43.	The system SHALL provide the ability to present information received through health plan/payer formulary checking (e.g., formulary alternatives, formulary status, co-pay and coverage types, prior authorization requirements, step therapy requirements, age limits, gender limits, quantity limits, age, gender, summary resource links and drug-specific resource links).	CP.4.2	C	EN
96.	The system SHALL provide the ability to manage medication administration order details as discrete data.		N	EN
97.	If the system provides the ability to manage prescriptions using the metric standard for fractional units of medications, then the system SHALL populate a leading zero before amounts less than one (e.g. 0.5 mL no .5 mL) and not populate trailing zeros (e.g., 0.5 mL).		N	EN
98.	The system SHALL provide the ability to manage prescriptions for oral liquid medications using only metric unit of measure mL.		N	EN
99.	The system SHALL provide the ability to cancel previously ordered medication.		N	EN
CP.4.2.1 Function	Medication Interaction and Allergy Checking	CP.4.2.1	C	EN
	Statement: Provide alerts for potential medication interactions and medication allergy reactions. **Description:** Check and provide alerts at the time of medication order based upon coded, active and non-active medications for possible interactions, allergies, sensitivities, intolerances, and other adverse reactions.			
1.	The system SHALL conform to function CPS.4.2.1 (Support for Medication Interaction and Allergy Checking) to determine allergic reactions, drug-drug interactions, and other potential adverse reactions, and render alerts or notifications when new medications are ordered.	CP.4.2.1	NC	EN
2.	The system SHALL conform to function CP.1.2 (Manage Allergy, Intolerance and Adverse Reaction List) to provide the ability to manage interaction and allergy checking and render alerts and notifications when new medications are ordered.	CP.4.2.1	NC	EN

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
5. The system SHALL provide the ability to render and tag as inactive recently inactivated medications for inclusion in current medication screening according to scope of practice, organizational policy, and/or jurisdictional law.		CP.4.2.1	NC	EN
CP.4.2.3 Function	Medication Order Efficiencies	CP.4.2.3	C	EN
Statement: Provide the tooling necessary to increase the efficiency of medication ordering. **Description:** Make medication ordering workflows more efficient by allowing medications to be sorted and reviewed by key attributes (e.g., generic or trade names). Also support editing medication orders across multiple instances of an order and capturing medication orders in order sets.				
1. The system SHOULD provide the ability to present a list of medications based on an attribute of the medication (e.g., partial medication name, therapeutic class, or formulary).		CP.4.2.3	NC	EN
99. The system SHALL provide the ability to manage the medication formulary or preferred drug list.			N	EN
CP.4.3 Function	Manage Non-Medication Patient Care Orders	CP.4.3	C	EN
Statement: Enable the origination, documentation, capture, transmission, tracking and maintenance of non-medication patient care orders. **Description:** Non-medication orders that request actions or items can be captured and tracked including new, renewal and discontinue orders. Examples include orders to transfer a patient between units, to ambulate a patient, for medical supplies, wound care, durable medical equipment, home IV, and diet or therapy orders. Additionally, psychotherapy and other mental health counseling, behavioral counseling (e.g., smoking cessation, alcohol treatment) other surgical and non-surgical procedures, and complementary alternative medicine are included in non-medication treatments. Each item ordered includes the appropriate detail, such as order identification and instructions. Orders should be communicated to the correct service provider for completion.			
1. The system SHALL provide the ability to manage non-medication patient care orders for an action or item.		CP.4.3	NC	EN
2. The system SHALL provide the ability to capture and render order detail for correct order fulfillment.		CP.4.3	NC	EN
3. The system SHALL provide the ability to manage the status (e.g., active, discontinued, requisitioned, completed) of the ordered action or item.		CP.4.3	NC	EN
4. The system SHOULD provide the ability to capture a future date for an ordered action or item.		CP.4.3	NC	EN
5. The system SHOULD provide the ability to capture and render a set of patient instructions that will be provided to the patient for correct order fulfillment.		CP.4.3	NC	EN
CP.4.4 Function	Manage Orders for Diagnostic/Screening Tests	CP.4.4	C	EN
Statement: Enable the origination, documentation, transmission, tracking and maintenance of orders for diagnostic tests. **Description:** Orders for diagnostic tests (e.g., diagnostic radiology, laboratory) are captured and tracked including new, renewal and discontinue orders. Each order includes appropriate detail, such as order identification, instructions and clinical information necessary to perform the test. Orders and supporting detailed documentation shall be communicated to the service provider for completion of the diagnostic test(s).Some systems may contain instructions, but in some settings, instructions may be provided from external sources (e.g., handouts).				
1. The system SHALL provide the ability to manage orders for diagnostic tests.		CP.4.4	NC	EN
2. The system SHALL provide the ability to capture and render standard order detail for diagnostic test order fulfillment.		CP.4.4	NC	EN
3. The system SHOULD provide the ability to capture and maintain user-created instructions, and/or prompts when ordering diagnostic tests or procedures.		CP.4.4	NC	EN
4. The system SHALL provide the ability to manage the status (e.g., requisitioned, completed, in process) of diagnostic test(s).		CP.4.4	NC	EN
5. The system SHOULD provide the ability to capture and render patient instructions relevant to the diagnostic test ordered.		CP.4.4	NC	EN
11. The system SHOULD capture and render complete patient demographic information for diagnostic orders according to scope of practice, organizational policy, and/or jurisdictional law.		CP.4.4	NC	EN
12. The system MAY provide the ability to capture, maintain, and render justification-related information regarding a test order (e.g., clinical rationale, reason, or a link to the Problem list).		CP.4.4	NC	EN
99. The system SHALL provide the ability to manage orders for referrals.			N	EN

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
CP.4.6 Function	Manage Orders for Referral	CP.4.6	C	EN
	Statement: Enable the origination, documentation and tracking of referrals between care providers or healthcare organizations, including clinical and administrative details of the referral, and consents and authorizations for disclosures as required. **Description:** Documentation and tracking of a referral from one care provider to another is supported, whether the referred to or referring providers are internal or external to the healthcare organization. Guidelines for whether a particular referral for a particular patient is appropriate in a clinical context and with regard to administrative factors such as insurance may be provided to the care provider at the time the referral is created. The EHR-S provides the ability to receive and act upon referral responses from providers. The EHR-S may provide the ability to capture completion of the referral appointment. Referrals may be received electronically (i.e. e-Referrals); or may be received non-electronically. If non-electronic, the system needs to allow the user to capture the referral information and manage referral request. If the system supports e-Referrals, then the system will also need to support additional functionality to manage the receipt of the referral request.			
	3. The system SHALL provide the ability to link (e.g., link to image stored in PACS) clinical details as necessary for the referral according to scope of practice of the referral recipient.	CP.4.6	NC	EN
CP.5 Function	Manage Results	CP.5	C	EN
	Statement: Present, annotate, and route current and historical test results to appropriate providers for review. Provide the ability to filter and compare results. **Description:** Results of tests are presented in an easily accessible manner to the appropriate providers. For example, flow sheets, graphs, or other tools allow care providers to view or uncover trends in test data over time. The provider may desire to annotate, filter, and/or compare results. In addition to making results viewable, it is often necessary to send results to appropriate providers using electronic messaging systems, pagers, or other mechanisms. In addition, the system may have the ability to redirect or copy specific test results to a specified individual. Documentation of notification is accommodated. Results may also be routed to patients electronically or non-electronically (e.g., by hard copy). Note: “Results” are understood as applying to any type of test, whether biological or psychological. Management of the results may also require the provider's communication of the results to the patient (see function CPS.8.4 (Support for Communications between Provider and the Patient, and/or the Patient's Representative)). There may also be a need to notify public health agencies based on the result. See function POP.2 (Support Population-based Epidemiological Investigation).			
	1. The system SHALL provide the ability to manage test results according to scope of practice, organizational policy, and/or jurisdictional law.	CP.5	NC	EN
	2. The system SHALL provide the ability to render numerical and non-numerical current and historical test results.	CP.5	NC	EN
	3. The system SHALL provide the ability to render results for an identified patient or group of patients.	CP.5	NC	EN
	20. The system SHALL provide the ability to import and receive preliminary and final result reports from ancillary systems according to scope of practice, organizational policy, and/or jurisdictional law.	CP.5	NC	EN
CP.5.1 Function	Manage Results of Diagnostic Tests	CP.5.1	C	EN
	Statement: Enable the receipt and display of results for diagnostics tests. **Description:**			
	1. The system SHALL provide the ability to capture, maintain and render diagnostic results, including preliminary as well as final results.	CP.5.1	C	EN
	5. The system SHALL provide the ability to capture, maintain and render discrete diagnostic results received through an electronic interface.	CP.5.1	NC	EN
CP.6 Header	Manage Medication, Immunization and Treatment Administration	CP.6	NC	EN
	Statement: Provide the functionality required to support the management of medication and immunization administration. **Description:** Provide the functionality required to support the safe administration of medications or immunizations to a patient based on medical requirement and orders within the system. This includes presenting providers with the list of medications or immunizations that are to be administered to a patient, necessary administration information, and capture all required and relevant administration details.			

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
CP.6.1 Function	Manage Medication Administration	CP.6.1	C	EN
	Statement: Present providers with the list of medications that are to be administered to a patient, necessary administration information, and capture administration details. **Description:** In a setting in which medication orders are to be administered by a provider rather than the patient, the necessary information is presented including: the list of medication orders that are to be administered; administration instructions, times or other conditions of administration; dose and route, etc. The system shall securely relate medications to be administered to the unique identity of the patient (see CPS.1.1). Additionally, the provider can record what actually was or was not administered, whether or not these facts conform to the order. Appropriate time stamps for all medication related activity are generated. For some settings that administer complete sets of medications from a variety of providers' orders, it may be useful to provide an additional check for possible drug-drug or other interactions. The EHR system shall support the five “rights” - Right Patient, Right Drug, Right Dose, Right Route, Right Time. The system should report medication administration, where appropriate, to public health or disease management authorities (e.g., oncology related medication orders should be communicated or transmitted to a cancer registry).			
11.	The system SHALL provide the ability to capture, maintain, and render medication administration details as discrete data, including: - the medication name, strength and dose; - date and time of administration; - route and site; - administering provider; - observations, reactions and complications; - reason medication not given and/or medication related activity not performed; according to scope of practice, organizational policy, and/or jurisdictional law.	CP.6.1	NC	EN
CP.6.2 Function	Manage Immunization Administration	CP.6.2	C	EN
	Statement: Capture and maintain discrete data concerning immunizations given to a patient including date administered, type, manufacturer, lot number, and any allergic or adverse reactions. Facilitate the interaction with an immunization registry to allow maintenance of a patient's immunization history. **Description:** During an encounter, recommendations based on accepted immunization schedules are presented to the provider. Allergen and adverse reaction histories are checked prior to giving the immunization. If an immunization is administered, discrete data elements associated with the immunization including date, type, immunization expiration date, manufacturer and lot number are recorded. Any new adverse or allergic reactions are noted. If required, a report is made to the public health immunization registry or other organization (e.g., military unit commander, refugee program leadership). This function should include the ability to use GTIN barcode scanners to capture vaccine information (NDC, lot number, expiration date).			
1.	The system SHALL provide the ability to capture immunization administration details as discrete data, including:(1) the immunization name/type, series, strength and dose;(2) date and time of administration;(3) manufacturer, lot number, expiration date,(4) route and site of administration; (5) administering provider;(6) observations, reactions and complications;(7) reason immunization not given, and/or immunization related activity not performed;according to scope of practice, organizational policy, and/or jurisdictional law.	CP.6.2	NC	EN
10.	The system SHALL transmit required immunization administration information to a public health immunization registry according to scope of practice, organizational policy, and/or jurisdictional law.	CP.6.2	C	EN
19.	The system SHALL provide the ability to capture that patient educational information (e.g., VIS) was provided at the time of immunization administration.	CP.6.2	NC	EN
90.	The system SHALL transmit the immunization event message according to HL7 v2.5.1 Z22 VXU message profile of the §170.205(e)(4) HL7 2.5.1 Implementation Guide for Immunization Messaging, Release 1.5, October 2014; and HL7 Version 2.5.1 Implementation Guide for Immunization Messaging (Release 1.5)—Addendum, July 2015.		N	EN
91.	The system SHALL provide the ability to render the vaccine in administered vaccine records using the National Drug Code Directory - Vaccine Codes when transmitting the HL7 v2.5.1 Z22 VXU immunization information message.		N	EN
92.	The system SHALL capture, maintain and render an immunization query response indicating that to many matches were found (e.g., based on configured limits).		N	EN
93.	The system SHALL capture, maintain and render an immunization query response indicating that no matching record were found for the query subject (person).		N	EN
94.	The system SHALL transmit the immunization query according to HL7 v2.5.1 Z44 QBP Query for Evaluated History and Forecast message profile of the §170.205(e)(4) HL7 2.5.1 Implementation Guide for Immunization Messaging, Release 1.5, October 2014; and HL7 Version 2.5.1 Implementation Guide for Immunization Messaging (Release 1.5)—Addendum, July 2015.		N	EN
95.	The system SHALL capture, maintain and render a patient's immunization forecast from an immunization registry.		N	EN
96.	The system SHALL capture, maintain and render a patient's evaluated immunization history from an immunization registry.		N	EN
97.	The system SHALL provide the ability to render administered vaccine records using the National Drug Code Directory - Vaccine Codes.		N	EN
98.	The system SHALL provide the ability to render historical vaccine record using CVX format.		N	EN

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
99. The system SHALL export the immunization information message using HL7 v2.5.1 Implementation Guide for Immunization Messaging and the HL7 Standard Code Set CVX - Vaccines Administered Vocabulary Standard.			N	EN
CP.6.3 Function	Manage Treatment Administration	CP.6.3	C	EN
Statement: Provide the functionality required to support the management of treatment administration and documentation. (Treatment defined as the administration or application of remedies to a patient for a disease or injury; medicinal or surgical management; therapy.) **Description:** Provide the functionality required to support the documentation of non-medication treatments (e.g., wound dressing change that includes use of a topical cream or sterile wash during that process) to a patient based on clinical needs and requirements and provider orders within the system. This includes presenting end users with the list of clinical treatments that are to be administered to a patient, necessary administration information, and capture all required and relevant documentation details.			
1. The system SHALL provide the ability to render the list of treatments that are to be administered within a specified time frame and including all administration directions/instructions.		CP.6.3	NC	EN
5. The system SHALL provide the ability to render the information necessary to adminster the treatment (e.g., body site, time and frequency).		CP.6.3	NC	EN
8. The system SHALL provide the ability to capture, maintain and render details associated with the treatment as discrete data, including: treatment; date and time of treatment; site; administering provider; observations, reactions and complications; and reason treatment not given, and/ or related activity not performed;according to scope of practice, organizational policy, and/or jurisdictional law.		CP.6.3	NC	EN
CP.7 Header	Manage Future Care	CP.7	NC	EN
Statement: Provide the functionality to manage treatment and care planning through presentation of guidelines and protocols as well as managing recommendations for future care. **Description:** The presentation of appropriate guidelines and protocols for future care and the capture and management of recommendations for future care are required to ensure lifetime care of the patient. This includes the management of recommendations for post-encounter care and linkage of recommendations to other components in the health record such as the problem lists and other source documentation.				
CP.7.2 Function	Manage Recommendations for Future Care	CP.7.2	C	EN
Statement: Document and support the management of the disposition process for a patient by managing recommendations for future care. **Description:** Patient encounters or treatments can end in many different states and support for these requires that the EHR support the ability to capture and maintain recommendations for the further future care of the patient. The EHR should accommodate, at a minimum, the following possible recommendations for future care (or dispositions) along with other supporting information for the recommendations: - discharge, - admission, - transfer, - death, - left without being seen (LWBS), - left without treatment (LWOT), - elopements (i.e. leaving without notifying the facility or wandering), - left against medical advice (AMA), - patients triaged to other clinics, and - administrative errors.			
1. The system SHALL provide the ability to capture recommendations for future care as discrete data elements including the recommending provider and an alert date for the recommendation to take effect.		CP.7.2	NC	EN
2. The system SHALL provide the ability to maintain recommendations and associated recommendation meta-data (e.g., date of alert).		CP.7.2	NC	EN
4. The system SHALL provide the ability to capture recommendations for future care or post-encounter disposition from encounter and diagnostic studies imported in structured documents.		CP.7.2	NC	EN
CP.8 Header	Manage Patient Education & Communication	CP.8	NC	EN
Statement: Provide the functionality to effectively communicate with the patient regarding their care and document the communication as part of the patient's medical record. **Description:** During an encounter with a patient or when any medical decision is made that affects the patient and requires action from the patient it is necessary to communicate effectively with the patient (or their representative) to ensure that they can participate appropriately in their care. This includes providing instructions pertaining to preparation for a procedure, self-administration of medications and self care.				

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
CP.8.1 Function	Generate, Record and Distribute Patient-Specific Instructions	CP.8.1	C	EN
	Statement: Generate and record patient-specific instructions related to pre- and post-procedural and post-treatment/discharge requirements. **Description:** When a patient is scheduled for a test, procedure, or discharge, specific instructions about diet, clothing, transportation assistance, convalescence, follow-up with physician, etc., may be generated and recorded, including the timing relative to the scheduled event. In an outpatient scenario, similar instructions for post-diagnosis, and/or post-treatment needs may also be generated and recorded (e.g., exercise instructions for low back pain, wound or burn care).			
1.	The system SHALL provide the ability to determine and render standardized instruction sets pertinent to the patient condition, for procedures, or scheduled events.	CP.8.1	NC	EN
6.	The system SHALL provide the ability to capture the actual instructions given to the patient or a reference to the document(s) containing those instructions.	CP.8.1	NC	EN
9.	The system SHALL provide the ability to manage patient instructions in multiple languages.	CP.8.1	C	EN
98.	The system SHALL provide the ability to render a patient educational information regarding patient problem list, medication list and laboratory tests/results.		N	EN
99.	The system SHALL provide the ability to render patient-specific educational materials based on HL7 Context-Aware Knowledge Retrieval Standard.		N	EN
CP.9 Header	Manage Care Coordination & Reporting	CP.9	NC	EN
	Statement: Provide the functionality required to coordinate care with other providers and report care provided. **Description:** During care provision it is necessary to coordinate care with other providers, internal or external to the organization, as well as to communicate the care provided.			
CP.9.1 Function	Produce a Summary Record of Care	CP.9.1	C	EN
	Statement: Render a summarized review of a patient's episodic, and/or comprehensive EHR, subject to jurisdictional laws and organizational policies related to privacy and confidentiality. **Description:** Create summary views and reports at the conclusion of an episode of care. Create service reports at the completion of an episode of care such as, but not limited to, discharge summaries, specialist or consultation reports and public health reports, using information captured in the EHR and without additional input from clinicians.			
1.	The system SHALL provide the ability to render summaries of the patient's comprehensive EHR that include at a minimum: problem list, medication list, allergy and adverse reaction list, and procedures.	CP.9.1	NC	EN
88.	The system SHALL provide the ability to render a patient summary, including: a) Common Clinical Data Set (which should be in their English representation b) Provider's name and office contact information (ambulatory setting only) c) Admission and discharge dates and locations; discharge instructions; and reason(s) for hospitalization (inpatient setting only) d) Laboratory test report(s) e) Diagnostic image report(s)		N	EN
89.	The system SHALL provide the ability to render a summary for the inpatient setting, including: a) Patient name b) Admit and discharge date and location. c) Reason for hospitalization d) Care team including the attending of record as well as other providers of care e) Procedures performed during admission f) Current and past problem list g) Current medication list and medication history h) Current medication allergy list and medication allergy history i) Vital signs at discharge j) Laboratory test results (available at time of discharge). k) Summary of care record for transitions of care or referrals to another provider l) Care plan field(s), including goals and instructions. m) Dischargeinstructionsforpatient n) Demographics maintained by hospital (sex, race, ethnicity, date of birth, preferred language) o) Smoking status		N	EN
90.	The system SHALL provide the ability to render a summary for the ambulatory setting, including: a) Patient name b) Provider's name and office contact information c) Current and past problem list d) Procedures e) Laboratory test results f) Current medication list and medication history g) Current medication allergy list and medication allergy history h) Vital signs (height, weight, blood pressure, BMI, growth charts) i) Smoking status j) Demographic information (preferred language, sex, race, ethnicity, date of birth) k) Care plan field(s), including goals and instructions l) Any known care team members including the primary care provider (PCP) of record		N	EN
91.	The system SHALL provide the ability to display the Common MU Data Set data used in the transition of care/referral summary in their English representation if they associate with a vocabulary/code set.		N	EN
92.	The system SHALL render laboratory reports that include the following US Clinical Laboratory Improvement Amendments reporting: (1) either the patient's name and identification number or a unique patient identifier and identification number. (2)The name and address of the laboratory location where the test was performed. (3) The test report date. (4) The test performed. (5) Specimen source, when appropriate. (6) The test result and, if applicable, the units of measurement or interpretation, or both. (7) Information regarding the condition and disposition of specimens that do not meet the laboratory's criteria for acceptability. • Pertinent "reference intervals" or "normal" values, as determined by the laboratory performing the tests, must be available to the authorized person who ordered the tests and, if applicable, the individual responsible for using the test results		N	EN

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
	as specified in 42 CFR 493.1291(d); and • The information for corrected reports as specified in 42 CFR 493.1291(k)(2).			
98.	The system SHALL render patient summaries that include the following US Meaningful Use Common Data Set Elements: 1) Patient name 2) Sex 3) Date of birth 4) Race 5) Ethnicity 6) Preferred language 7) Smoking status 8) Problems 9) Medications 10) Medication Allergies 11) Laboratory test(s) 12) Laboratory value(s)/result(s) 13) Vital signs – height, weight, blood pressure, BMI 14) Care plan field(s), including goals and instructions 15) Procedures 16) Care team member(s) 17) Provider's name 18) Provider's office contact information 19) Admission and discharge dates and locations 20) Discharge Instructions 21) Reason(s) for hospitalization 22) Encounter diagnoses 23) Immunizations 24) Cognitive status 25) Functional status 26) Reason for referral 27) Referring provider's name 28) Referring provider's contact information) Care team member(s)		N	EN
CP.9.2 Function	Capture Health Service Report Information	CP.9.2	C	EN
	Statement: Support the creation of health service reports to authorized health entities that a provider may be required to generate (e.g., the creation of an oncologist's report that must be submitted to a national cancer registry). **Description:** Providers are prompted to collect sufficient information in the course of care to avoid duplicate, retrospective or other additional data entry as part of supporting health management programs and reporting, for example public health, such as notifiable condition reports, immunization, cancer registry and discharge data.			
2.	The system SHOULD provide the ability to render service reports at the completion of an episode of care (e.g., discharge summaries or public health reports) using data collected during the encounter.	CP.9.2	NC	EN
3.	IF the patient is tagged as deceased, THEN the system MAY provide the ability to capture (i.e., trigger) and render the collection of death certificate data.	CP.9.2	NC	EN
98.	The system SHALL render patient summaries that include the following US Meaningful Use Common Data Set Elements: 1) Patient name 2) Sex 3) Date of birth 4) Race 5) Ethnicity 6) Preferred language 7) Smoking status 8) Problems 9) Medications 10) Medication Allergies 11) Laboratory test(s) 12) Laboratory value(s)/result(s) 13) Vital signs – height, weight, blood pressure, BMI 14) Care plan field(s), including goals and instructions 15) Procedures 16) Care team member(s) 17) Provider's name 18) Provider's office contact information 19) Admission and discharge dates and locations 20) Discharge Instructions 21) Reason(s) for hospitalization 22) Encounter diagnoses 23) Immunizations 24) Cognitive status 25) Functional status 26) Reason for referral 27) Referring provider's name 28) Referring provider's contact information) Care team member(s) 29) Diagnostic imaging report		N	EN

2. Care Provision Support Section

Section Overview

The Care Provision Support Section focusses on functions required to support the provision of care to a specific patient to enable hands-on delivery of healthcare. This section is organized generally in alignment with Care Provision Section. For example, CP.4 (Manage Orders) is supported directly by CPS.4 (Support Orders). This alignment is designed to assist in finding related support functions related to care provision functions but is not expected to be 100% matched as some Care Provision Functions do not require matching Support functions or vice-versa. All functions within the Care Provision Support Section have an identifier starting with “CPS”.

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
CPS.1 Header	Record Management	CPS.1	NC	EN
	Statement: Manage the patient record including all patient demographics, identifiers and other information to support the provision of care. **Description:** Management of the patient record includes creation through quick registration or through a captured referral request as well as managing the patient encounter information linked to the appropriate patient record. It is also critical to manage the patient's relationships through genealogy, insurance, living situation or other means. This section also includes support for the management of patient and family preferences including patient advance directives, consents and authorizations linked to the unique patient record. For those functions related to data capture, data should be captured using standardized code sets or nomenclature, depending on the nature of the data, or captured as unstructured data. Care-setting dependent data are entered by a variety of caregivers. Data may also be captured from devices or other tele-health applications.			
CPS.1.1 Function	Manage a Patient Record	CPS.1.1	C	EN
	Statement: Manage a single logical record for each patient. **Description:** A single record is needed for legal purposes, as well as to organize it unambiguously for the provider. Health information is captured and linked to the patient record. Static data elements as well as data elements that will change over time are maintained. The patient is uniquely identified, after which the record is tied to that patient. Combining information on the same patient, or separating information where it was inadvertently captured for the wrong patient, helps maintain health information for a single patient. In the process of creating a patient record, it is at times advantageous to replicate identical information across multiple records, so that such data does not have to be re-entered. For example, when a parent registers children as new patients, the address, guarantor, and insurance data may be propagated in the children's records without having to re-enter them.			
1.	The system SHALL manage a single logical record for each patient.	CPS.1.1	NC	EN
2.	The system SHALL provide the ability to determine the unique identity of a patient and link the record to a single patient.	CPS.1.1	NC	EN
5.	The system SHALL provide the ability to manage more than one patient identifier for each patient record.	CPS.1.1	NC	EN
12.	The system SHALL provide the ability to render parts of a single patient's record using a primary identifier (e.g., Unique patient identifier, encounter number), secondary identifiers (e.g., Social Security Number), or other information, or combination of information, which are not identifiers, but could be used to help identify the patient (e.g., name or Date of Birth).	CPS.1.1	NC	EN
95.	The system SHALL provide the ability to capture a request, given a patient ID or other token, from another software component/service and respond to that request with the full set of data for that patient and for all data categories in the Common Clinical Data Set. NOTE that the data must be formatted using the specified standards defined in the CCDA Reference Document in a computable format.		N	EN
96.	The system SHALL provide the ability to capture a request, given a) a patient ID or other token and b) a CCDS data category and c) a specific date or date range, from another software component/ service and respond to that request with the full set of data for that date/date range and for the specified data category from the Common Clinical Data Set. NOTE that the data must be formatted using the specified standards defined in the CCDA Reference Document in a computable format.		N	EN
97.	The system SHALL provide the ability to capture a request, given a) a patient ID or other token and b) a CCDS data category, from another software component/service and respond to that request with the full set of data for that patient and for the specified data category from the Common Clinical Data Set. NOTE that the data must be formatted using the specified standards defined in the CCDS Reference Document in a computable format.		N	EN
98.	The system SHALL provide the ability to capture a request, including patient identifying information, from another software component/service and respond to that request with a specific patient ID or other token.		N	EN
99.	The system SHALL capture patient growth parameters: including weight, height or length, head circumference; and vital signs including (but not limited to): blood pressure, temperature, heart rate, respiratory rate, oxygen saturation, and severity of pain as discrete elements of structured data.		N	EN

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
CPS.1.2 Function	Manage Patient Demographics	CPS.1.2	C	EN
	Statement: Manage patient demographic information. **Description:** Demographic information (including names, addresses, phone numbers, email addresses, date of birth, gender, race, and ethnicity) must be managed to support unique patient identification, reporting, care provision requirements. Patient Demographic information may also include information about the patient's contacts, methods of contact (e.g., email or telephone), and modes of contact (e.g., call secretary during the day, send text message on the weekend). Patient demographic data are captured and maintained as discrete fields and may be enumerated, numeric, or codified according to scope of practice, organizational policy, and/or jurisdictional law. Key patient identifiers (i.e., name and primary patient record identifier) often appear on patient information output (e.g., rendering of a patient's record). Patients may have multiple, and/or compound names, sometimes employing accent marks or special characters. To help parse patient names, discete fields are often used.			
1.	The system SHALL provide the ability to capture demographic information as discrete data as part of the patient record.	CPS.1.2	NC	EN
2.	The system SHALL provide the ability to maintain demographic information as discrete data as part of the patient record.	CPS.1.2	NC	EN
3.	The system SHALL provide the ability to render demographic information as discrete data as part of the patient record.	CPS.1.2	NC	EN
4.	The system SHALL provide the ability to manage historic information for demographic data including prior names, addresses, phone numbers and email addresses.	CPS.1.2	NC	EN
9.	The system SHALL provide the ability to capture the patient's gender used for administrative purposes (as distinct from the clinical gender).	CPS.1.2	NC	EN
13.	The system SHALL provide the ability to manage the date/time of birth, down to the minute, according to scope of practice, organizational policy, and/or jurisdictional law.	CPS.1.2	NC	EN
92.	The system MAY provide the ability to manage the date/time of birth, including hours, minutes and/or seconds and time zone offset according to scope of practice, organizational policy and/or jurisdictional law.		N	EN
93.	The system SHALL provide the ability to manage patient matching data including name (first name, last name, previous name, middle name, middle initial, suffix), date of birth (year, month, day), address, phone, birth sex (M for male, F for female, UNK for unknown).		N	EN
94.	The system shall provide the ability to capture a preliminary cause of death.		N	EN
95.	The system should provide the ability to capture the fact that a patient declined to specify their ethnicity.		N	EN
96.	The system should provide the ability to capture the fact that a patient declined to specify their race.		N	EN
97.	The system SHALL provide the ability to capture the fact that a patient declined to specify their preferred language.		N	EN
98.	The system SHALL provide the ability to capture more than one race for a patient.		N	EN
99.	The system SHALL provide the ability to determine and render clinical decision support outcomes based on clinical decision support rules applicable to demographic updates.		N	EN
CPS.1.5 Function	Manage Patient Encounter	CPS.1.5	C	EN
	Statement: Manage patient encounter information, including tele-health encounters, and support follow-up encounters. **Description:** Each encounter of the patient with the healthcare setting needs to be recorded and the information relevant to the distinct encounter managed. This information includes date and time of the encounter, providers involved, location(s), and the reason for the encounter etc. Additionally, follow-up encounters may require prior administrative and clinical information to be determined or captured, maintained and rendered. Tele-health encounters have unique requirements that may also be supported by the system.			
1.	The system SHALL provide the ability to manage information regarding a patient encounter, including a minimum of the following data: the date/time, providers, location, and reason for the encounter.	CPS.1.5	NC	EN
7.	The system SHALL provide the ability to capture one or more complaints, presenting problems, or other reasons for the visit or encounter (e.g., chest pain, gunshot wound, and drug overdose during a single encounter).	CPS.1.5	NC	EN
CPS.1.7 Function	Preferences, Directives, Consents and Authorizations	CPS.1.7	NC	EN
	Statement: Capture and manage patient preferences, advance directives, consents and authorizations. **Description:** In the Preferences, Directives, Consents and Authorizations functions there are times when actions/activities related to “patients” are also applicable to the patient representative. Therefore, in this section, the term “patient” could refer to the patient, and/or the patient's personal representative (i.e. guardian, surrogate, proxy, health care agent).			

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
CPS.1.7.1 Function	Support for Patient and Family Preferences	CPS.1.7.1	C	EN
	Statement: Support the integration of patient and family preferences into clinical decision support. **Description:** Decision support functions should permit consideration of patient/family preferences and concerns, such as with language, religion, culture, medication choice, invasive testing, and advance directives. Such preferences should be captured in a manner that allows for their integration with the health record and easy retrieval from the health record. Preferences may be specified across all treatment plans or specifically to individual or set of treatment plans. Preferences may also be used to adjust patient information including labeling and medication instructions (e.g., for language and print size).			
1.	The system SHALL provide the ability to capture, maintain and render patient and family preferences as they pertain to current treatment plans.	CPS.1.7.1	NC	EN
CPS.1.7.3 Function	Manage Consents and Authorizations	CPS.1.7.3	C	EN
	Statement: Create, maintain, and verify patient decisions (such as informed consent for treatment or disclosure). **Description:**			
1.	The system SHALL provide the ability to capture and render an indication that a patient has completed a consent and authorization (e.g., the patient completes an eye surgery -related consent before receiving eye surgery).	CPS.1.7.3	NC	EN
CPS.2 Function	Support externally-sourced Information	CPS.2	NC	EN
	Statement: Capture and maintain a variety of information from multiple external sources. **Description:** External sources are those outside the EHR system, including clinical, administrative, and financial information systems, other EHR systems, Personal Health Record (PHR) systems, and data received through health information exchange networks.			
CPS.2.1 Function	Support externally-sourced Clinical Documents	CPS.2.1	C	EN
	Statement: Incorporate clinical documentation (computable and scanned) from external (to the system) sources. **Description:** Mechanisms for incorporating external clinical documentation (including identification of source) are available. External is considered anything that is external to the system - i.e. documents from the organization; but created in another system would be considered 'external' for the purposes of this function. Documentation incorporated through these mechanisms is presented alongside locally captured documentation and notes wherever appropriate. This covers all types of documents received by the provider that would typically be incorporated into a medical record, including but not limited to faxes, referral authorizations, consultant reports, and patient/resident correspondence of a clinical nature. Intrinsic to the concept of electronic health records is the ability to exchange health information with other providers of health care services. Health information from these external sources needs to be received, stored in the patient record, and displayed upon request. External data and documents addressed in the function include: - Laboratory results received through an electronic interface - This information is to be received and stored in the resident record as discrete data, which means that each separate element of the data needs to be stored in its own field. Therefore, if laboratory results are received through an electronic interface, the results are received in the EHR and the laboratory test name, result (value), and unit of measure are correctly displayed as discrete data (vs. report format). - Scanned documents received and stored as images (e.g., power of attorney forms, Living wills) - These scanned documents are indexed and can be retrieved based on the document type, date of the original document, and the date of scanning. - Text-based outside reports (e.g., x-ray reports, hospital discharge summaries, history & physicals) - Any mechanism for capturing these reports is addendable: OCR, PDF, image file of report, etc. - Clinical images from an external source (e.g., radiographic images, digital images from a diagnostic scan or graphical images) – These images may be stored within the system or be provided through direct linkage to an external source such as a hospital PACS system. - Other forms of clinical results, such as wave files of EKG tracings. - Medication detail (e.g., a medication history) from an external source such as a pharmacy, the patient, payer, or another provider - While the medication detail includes the medication name, strength, and SIG, this does not imply that the data will populate the medication module. - Structured, text-based reports (e.g., medical summary text in a structured format). - Standards-based structured, codified data (e.g., a Continuity of Care Document (CCD) with SNOMED CT). Data incorporated through these mechanisms is presented alongside locally captured documentation and notes wherever appropriate.			
1.	The system SHALL provide the ability to capture, store and render external documents.	CPS.2.1	NC	EN
3.	The system SHALL provide the ability to capture, store and render computable documents (e.g., CDA, C-CDA, HITSP/C32, ASTM CCR, ISO 13606, laboratory results or medication lists).	CPS.2.1	C	EN
87.	The system SHALL provide the ability to Capture and maintain HL7 C-CDA Clinical Notes Care Plan R2.1 standards-based Care Plans from external sources.		N	EN
88.	The system SHALL capture, maintain and render attachments and make them available for fetching using POP.		N	EN

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
89.	The system SHALL capture, maintain and render attachments and make them available for fetching using IMAP.		N	EN
90.	The system SHALL capture, maintain and render health information received using SOAP Protocols with XDR Validation using NHIN SAML and TLS.		N	EN
91.	The system SHALL capture, maintain and render health information received using SOAP Protocols with XDR Validation with full XDS metadata.		N	EN
92.	The system SHALL capture, maintain and render health information received using SOAP Protocols with XDR Validation with limited XDS metadata.		N	EN
93.	The system SHALL provide the ability to render the C-CDA with any document template for C-CDA Release 1.1; and CCD, Referral Note, and Discharge Summary (inpatient only) document templates for C-CDA Release 2.1.		N	EN
94.	The system SHALL provide the ability to render separately the current patient record and a transition of care summary/referral summary C-CDA document.		N	EN
95.	The system SHALL provide the ability to render the current patient record and a transition of care summary/referral summary C-CDA Release 1.1 and Release 2.1 document.		N	EN
96.	The system SHALL render C-CDA documents as individual or selected sections, along with document and section headers, and in specified order where applicable.		N	EN
97.	The system SHALL capture, maintain and render multiple attachment types using C-CDA.		N	EN
98.	The system SHALL provide the ability to display header(s) and individual sections of a conformant standards-based document (e.g., CCD, C-CDA) in human readable form.		N	EN
99.	The system SHALL provide the ability to view incoming messages or documents from external sources.		N	EN
CPS.2.2 Function	Support externally-sourced Clinical Data	CPS.2.2	C	EN
	Statement: Incorporate discrete clinical data from external sources and support communication/presentation of data captured from medical and non-medical devices and entities. **Description:**			
1.	The system SHALL provide the ability to capture and store computable data (e.g., laboratory results, telemetry, or medication details).	CPS.2.2	NC	EN
3.	The system SHALL provide the ability to capture and store externally-sourced computable data (e.g., laboratory results, telemetry, medication details).	CPS.2.2	NC	EN
4.	The system SHALL provide the ability to capture and store externally-sourced standards-based structured, codified data.	CPS.2.2	NC	EN
CPS.2.7 Function	Support Patient Data Derived from Eligibility, Formulary and Benefit Documentation for Electronic Prescribing	CPS.2.7	C	EN
	Statement: Capture and explicitly label patient data derived from eligibility, formulary and benefit information; and link the data source with that data. **Description:** Sources of eligibility, formulary and benefit may provide data for entry into the electronic prescribing or be given a mechanism for entering this data directly. The data must be explicitly labeled as derived from eligibility, formulary and benefit information. Patient data that is derived from eligibility, formulary and benefit data may be provided by: - a provider - a payer, or - entities that transmit or process eligibility, formulary and benefit data.			
1.	The system SHALL provide the ability to manage patient data derived from eligibility, formulary and benefit information.	CPS.2.7	NC	EN
CPS.3 Header	Support Clinical Documentation	CPS.3	NC	EN
	Statement: Standard assessments, guidelines and prompts are provided to facilitate decision support for the optimization of patient care based on specific medical conditions. **Description:** Provider support is offered for the consideration of issues that would help assure optimal patient management. These may include standard assessments, care plans and treatment protocols, with triggers and prompts to assist during the patient encounter. Recommendation for patient testing and follow-up is also included along with decision support for patient self-management of a condition between patient-provider encounters.			

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
CPS.3.1 Function	Support for Standard Assessments	CPS.3.1	C	EN
	Statement: Support the establishment, updates and use of assessment forms that will assist in the development of and adherence to care plans, guidelines, and protocols at the point of information capture. **Description:** As part of managing assessment definitions, the system will support the ability to create a set of assessment forms and, optionally, associated logic (e.g., workflow, business and clinical rules). This assessment definition process may include the ability to define, revise and manage the tools, files and processing for the conduct of a patient assessment. Furthermore, the assessment definition may also include template development, prompts for additional information, related notification alerts and workflow processes. When a clinician fills out an assessment, data entered triggers the system to prompt the assessor to consider issues that would help assure a complete/accurate assessment. A simple demographic value or presenting problem (or combination) could provide a template for data gathering that represents best practice in this situation, e.g., Type 2 (Adult Onset) Diabetes diabetic review, fall and 70+, and rectal bleeding. Support for standard assessment may include the ability to record and store the value for the answers to specific questions in standardized assessment tools or questionnaires. When a specific recognized-standard assessment does not exist, the system will support the creation of unique new, locally-defined assessment. The system may enable, and/or encourage the use of the format and data elements of similar assessments in the systems whenever possible. (NOTE: A new assessment may not necessarily be unique, since a facility may copy an assessment from another facility.)			
	1. The system SHALL provide the ability to capture, maintain, and render recognized-standard assessment information in the patient record.	CPS.3.1	NC	EN
CPS.3.4 Function	Support for Context-Sensitive Care Plans, Guidelines, Protocols	CPS.3.4	C	EN
	Statement: Identify and present the appropriate care plans, guidelines, protocols, and/or clinical pathways for the management of patient-specific conditions that are identified in a patient clinical encounter. **Description:** At the time of the clinical encounter (problem identification), recommendations for tests, treatments, medications, immunizations, referrals and evaluations are presented based on evaluation of patient-specific data such as age, gender, developmental stage, their health profile, and any site-specific considerations. These may be modified on the basis of new clinical data at subsequent encounters.			
	1. The system SHALL provide the ability to render care and treatment plans that are sensitive to the context of patient data and assessments.	CPS.3.4	NC	EN
	6. The system SHALL conform to function CPS.3.3 (Support for Standard Care Plans, Guidelines, Protocols).	CPS.3.4	NC	EN
CPS.3.9 Function	Clinical Decision Support System Guidelines Updates	CPS.3.9	C	EN
	Statement: Capture and maintain updates of clinical decision support system guidelines and associated reference material. **Description:** System content such as discharge instructions, clinical guidelines, formularies, and other knowledge bases should be capable of being maintained and updated, independent of a particular encounter. Clinical decision support rules may be applied to the system using a manual process. As standards are developed to represent these rules, an automated update will be recommended. Any process to update decision support rules should include the verification of the appropriateness of the rules to the system. This may include but not be limited to authenticity of the source, the currency of the version, and any necessary approvals before updates can take place.			
	1. The system SHALL provide the ability to maintain the clinical content or rules utilized to generate clinical decision support reminders and alerts (e.g., HL7 INFOBUTTON Standard).	CPS.3.9	C	EN
	94. The system SHALL provide the ability to manage clinical decision support rules using data singly, or in combination, from the patient problem list, medication list, medication allergy list, demographics, diagnostic tests and results/values and vital signs.		N	EN
	96. The system SHALL provide the ability to manage attributes associated with each clinical decision support intervention, including bibliographic citation of the intervention (clinical research/guideline), the developer of the intervention (translation from clinical research/guideline), the funding source of the intervention development technical implementation, and the release (and, if applicable, revision date(s)) of the intervention.		N	EN
	97. The system SHALL provide the ability to manage the effective time frame (from/to dates/times) for each clinical decision support rule.		N	EN
	98. The system SHALL provide the ability to manage clinical and therapeutic reference information for clinical decision support rules (e.g., using HL7 Context-Aware Knowledge Retrieval (Infobutton) Standard).		N	EN
	99. The system SHALL provide the ability to manage reference data categories for clinical decision support rules, singly or in combination, to include: problem list, medication list, medication allergy list, demographics, diagnostic test results and values and vital signs.		N	EN
CPS.4 Header	Support Orders	CPS.4	C	EN
	Statement: Support for Orders is required to ensure that appropriate decision support and safety checks are conducted by the system at the time of ordering as well as at the time of dispensing medications or immunizations. **Description:**			

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
CPS.4.2 Function	Support for Medication and Immunization Ordering	CPS.4.2	C	EN
	Statement: Provide functionality to alert providers to potential medication and immunization ordering errors (such as wrong patient, wrong drug, wrong dose, wrong route and wrong time). **Description:**			
1.	The system SHALL provide the ability to maintain a discrete list of orderable medications and immunizations (i.e., formulary).	CPS.4.2	NC	EN
4.	The system SHOULD provide the ability to render an alert or notification that a non-formulary medication or immunization was ordered according to scope of practice, organizational policy, and/or jurisdictional law.	CPS.4.2	NC	EN
8.	The system SHALL provide the ability to maintain directly or by reference a list (i.e. formulary) of medications and immunizations which includes a unique identifier for each medication / immunization.	CPS.4.2	NC	EN
10.	The system SHOULD provide the ability to capture and maintain the severity level at which warnings are displayed.	CPS.4.2	NC	EN
CPS.4.2.1 Function	Support for Medication Interaction and Allergy Checking	CPS.4.2.1	C	EN
	Statement: Identify medication interaction warnings at the time of medication or immunization ordering, or prescribing, as well as at the time of dispensing. **Description:**			
1.	The system SHALL determine and present the presence of interactions between medications ordered and medications already on the current medication list.	CPS.4.2.1	NC	EN
5.	The system MAY determine and render the presence of interactions between medications ordered, medications on the current medication list as well as previous medications according to organization policy, and/or jurisdictional law.	CPS.4.2.1	NC	EN
CPS.4.2.3 Function	Support for Medication Ordering Efficiencies	CPS.4.2.3	C	EN
	Statement: Provide the tooling necessary to support efficient medication ordering. **Description:** Support efficient medication ordering workflows by allowing medications to be sorted and reviewed by key attributes, e.g., generic or trade names. Also support editing medication orders across multiple instances of an order and capturing medication orders in order sets.			
1.	The system SHOULD present a medication compendia or formulary content (e.g., drug, dose, route and SIG) to facilitate the selection of the medication to be ordered.	CPS.4.2.3	NC	EN
99.	The system SHALL provide the ability to manage the medication formulary or preferred drug list.		N	EN
CPS.4.2.5 Function	Support for Medication Reconciliation	CPS.4.2.5	C	EN
	Statement: Review a patient's medication information (from more than one source) and reconcile conflicts. **Description:** Medication reconciliation is the process of comparing a patient's medication information (from all sources) to the medications that the patient is actually has been taking. Medication reconciliation is done to avoid medication errors such as omissions, duplications, dosing errors, or drug interactions. Medication Reconciliation should be done at every episode or transition of care in which new medications are ordered or administered, existing orders are rewritten or where medications may influence the care given. Transitions in care include changes in setting, service, practitioner, or level of care. The Medication Reconciliation process includes several steps: (1) develop a list of current medication list of medications that the patient is taking, (2) develop a list of medications to be prescribed or recommended (3) compare the medication information from all sources; (4) make shared and informed clinical decisions based on the comparison and provide the ability to document the interaction; and (5) communicate the updated medication information to the healthcare teams, the patient and appropriate caregivers. For example: If a patient's pain, anticoagulation hyperglycemia or other high risk therapy is being managed by a specialist, the healthcare team must be aware to avoid prescribing an additional equivalent of this medication. (6) Verify the patient's/caregiver's understanding and agreement to the patient's medication treatment plan. (7) Standardization of shared medication information (name, dose, instructions, indications, prescriber, etc).			
96.	The system SHALL provide the ability to update the medication allergy list by merging and/or removing duplicate entries and thus produce the consolidated form of a single reconciled medication allergy list.		N	EN
97.	The system SHALL provide the ability to update the medication list by merging and/or removing duplicate entries and thus produce the consolidated form of a single reconciled medication list.		N	EN
98.	The system SHALL provide the ability to display both the source and last modification date for each medication, medication allergy or problem entry in a single reconciliation view (i.e., last date the entry was documented, ordered, prescribed, refilled, dispensed or edited).		N	EN

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
99. The system SHALL provide the ability to display data from multiple sources simultaneously in a single reconciliation view for medications, medication allergies and problems.			N	EN
CPS.5 Function	Support for Results	CPS.5	C	EN
Statement: Evaluate results and notify provider and patient of results within the context of the patient's healthcare data. **Description:** The system suggests result interpretations and notifications including those for, abnormal results, trending of results (such as discrete laboratory values over time), evaluation of pertinent results at the time of provider order entry (such as evaluation of laboratory results at the time of ordering a radiology exam), evaluation of incoming results against active medication orders.				
9. The system SHOULD provide the ability to determine and render decision support algorithms based upon results.		CPS.5	NC	EN
CPS.8 Header	Support Patient Education & Communication	CPS.8	NC	EN
Statement: Support for appropriate communication with the patient or the patient representatives. **Description:** Support for patient education and communication is critical to ensure that the patient can appropriately participate in his care. This includes providing access to relevant patient educational materials and reminders from internal, and/or external sources.				
CPS.8.4 Function	Support for Communications Between Provider and Patient, and/or the Patient Representative	CPS.8.4	C	EN
Statement: Facilitate communications between providers and patients, and/or the patient representatives. **Description:** Providers are able to communicate with patients and others, capturing as specified by the business rules the nature and content of electronic communication, or the time and details of other communication. Examples: - When test results arrive, the clinician may wish to email the patient that test result was normal (details of this communication are captured). - A patient may wish to request a refill of medication by emailing the physician. - Patients with asthma may wish to communicate their peak flow logs/diaries to their provider. - Hospital may wish to communicate with selected patients about a new smoking cessation program. - Automated notification regarding annual flu shots.			
1. The system SHALL provide the ability to capture and store documentation of communications between providers and patients and/ or the patient representatives.		CPS.8.4	NC	EN
3. The system SHALL provide the ability to receive and transmit information between providers and patients or their representative using a secure internet connection.		CPS.8.4	C	EN
98. The System SHALL control access by allowing patients and their designated representatives to receive and transmit messages to providers.			N	EN
99. The System SHALL control access to patient health information by their authorized representatives.			N	EN
CPS.9 Header	Support Care Coordination & Reporting	CPS.9	NC	EN
Statement: Support exchange and reporting of information between participants in patient-centered care. **Description:** Provide the support necessary to ensure that appropriate communication between providers is possible to coordinate the patient's care including, clinical communication between providers, standard and ad-hoc reporting and information views of the patient record.				
CPS.9.2 Function	Support for Inter-Provider Communication	CPS.9.2	C	EN
Statement: Support exchange of information between providers as part of the patient care process, and the appropriate documentation of such exchanges. Support secure communication to protect the privacy of information as required by jurisdictional law. **Description:** Communication among providers involved in the care process can range from real time communication (for example, communication between a therapist and nurse), to asynchronous communication (e.g., consult reports between physicians). Some forms of inter-practitioner communication will be paper based and the EHR-S must be able to produce appropriate documents. The system should provide for both verbal and written communication. These exchanges would include but not be limited to consults, and referrals as well as possible exchanges within the office as part of the provision and administration of patient care (e.g., the communication of new information obtained within the office environment during the process of administration of a tetanus shot while the patient is in the exam room).The system should support the creation and acceptance of paper artifacts where appropriate.			
2. The system SHALL provide the ability to integrate scanned documents from providers into the patient record.		CPS.9.2	NC	EN
3. The system SHALL provide the ability to receive and transmit messages or information in real time.		CPS.9.2	C	EN

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
CPS.9.2.3 Function	Support for Provider -Pharmacy Communication	CPS.9.2.3	C	EN
	Statement: Provide features to enable secure bi-directional communication of information electronically between practitioners and pharmacies or between practitioner and intended recipient of pharmacy orders. **Description:** When a medication is prescribed, the order is routed to the pharmacy or other intended recipient of pharmacy orders. This information is used to avoid transcription errors and facilitate detection of potential adverse reactions. If there is a question from the pharmacy, that communication can be presented to the provider with their other tasks. In certain environments, medication order creation is a collaborative process involving the prescriber and facility staff. Accordingly, this function applies to communication process between the prescriber, facility and the pharmacy or other intended recipient of pharmacy orders. The transmission of prescription data between systems should conform to realm acceptable messaging standards. Informative examples: - HL7 Clinical Document Architecture Release 2 - ISO/EN 13606 Electronic Health Record Communication - CEN ENV 13607:2000. Health informatics. Messages for the exchange of information on medicine prescriptions - X12N healthcare transactions - US realm: National Council for Prescription Drug Programs (NCPDP) - Canadian realm: National Electronic Claims Standard (NeCST).			
2.	The system SHALL provide the ability for a prescriber/provider to transmit orders, prescriptions, eligibility inquiries, acknowledgements and renewal responses electronically to a pharmacy to initiate, change, cancel, or renew a medication order.	CPS.9.2.3	NC	EN
3.	The system SHALL provide the ability to receive any acknowledgements, prior authorizations, renewals, inquiries and fill notifications provided by the pharmacy or other participants in the electronic prescription process.	CPS.9.2.3	NC	EN
CPS.9.3 Function	Health Record Output	CPS.9.3	C	EN
	Statement: Support the definition of the formal health record, a partial record for referral purposes, or sets of records for other necessary disclosure purposes. **Description:** Provide hardcopy and electronic output that fully chronicles the healthcare process, supports selection of specific sections of the health record, and allows healthcare organizations to define the report, and/or documents that will comprise the formal health record for disclosure purposes. A mechanism should be provided for both chronological and specified record element output. This may include defined reporting groups (i.e. print sets). For example Print Set A = Patient Demographics, History & Physical, Consultation Reports, and Discharge Summaries. Print Set B = all information created by one caregiver. Print Set C = all information from a specified encounter. An auditable record of these requests and associated exports may be maintained by the system. This record could be implemented in any way that would allow the who, what, why and when of a request and export to be recoverable for review. The system has the capability of providing a report or accounting of disclosures by patient that meets in accordance with scope of practice, organizational policy, and jurisdictional law.			
1.	The system SHALL provide the ability to render reports consisting of all or part of an individual patient's record according to scope of practice, organizational policy, and/or jurisdictional law.	CPS.9.3	C	EN
3.	The system SHOULD provide the ability to render reports in both chronological and specified record elements order.	CPS.9.3	NC	EN
7.	The system SHALL provide the ability to update reports to match mandated formats.	CPS.9.3	C	EN
13.	The system MAY provide the ability to maintain a record of disclosure/release that includes the recipient and outbound content.	CPS.9.3	NC	EN
CPS.9.4 Function	Standard Report Generation	CPS.9.4	C	EN
	Statement: Provide report generation features using tools internal or external to the system, for the generation of standard reports. **Description:** Providers and administrators need access to data in the EHR-S for clinical, administrative, financial decision-making, audit trail and metadata reporting, as well as to create reports for patients. Many systems may use internal or external reporting tools to accomplish this. Reports may be based on structured data, and/or unstructured text from the patient's health record. Users need to be able to sort, and/or filter reports. For example: -the user may wish to view only the diabetic patients on a report listing patients and diagnoses-the user may wish to view only male patients over 35 with a complaint of chest pain.			
1.	The system SHALL provide the ability to render reports of structured clinical and administrative data using either internal or external reporting tools.	CPS.9.4	C	EN
2.	The system SHALL provide the ability to extract unstructured clinical and administrative data for inclusion in the report generation process, using internal or external tools.	CPS.9.4	C	EN
3.	The system SHALL provide the ability to extract and transmit reports generated.	CPS.9.4	C	EN
4.	The system SHOULD provide the ability to capture and maintain report parameters, based on patient demographic, and/or clinical data, which would allow sorting, and/or filtering of the data.	CPS.9.4	NC	EN
5.	The system MAY provide the ability to save report parameters for generating subsequent reports either as integrated component of the system, or an external application, using data from the system.	CPS.9.4	NC	EN

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
7.	The system SHALL provide the ability to render automated reports as required by industry and regulatory bodies.	CPS.9.4	C	EN
99.	The system SHALL provide the ability to generate cancer case reports using HL7 CDA R2, CDA Implementation Guide for Ambulatory Healthcare Provider Reporting to Central Cancer Registries, Release 1.1, April 2015.		N	EN
CPS.9.5 Function	Ad Hoc Query and Rendering	CPS.9.5	C	EN

Statement: Provide support for ad hoc query and report generation using tools internal or external to the system. Present customized views and summarized information from a patient's comprehensive EHR subject to jurisdictional laws and organizational policies related to privacy and confidentiality. The view may be arranged chronologically, by problem, or other parameters, and may be filtered or sorted.

Description: Providers and administrators need to respond quickly to new requirements for data measurement and analysis. This need may result from new regulatory requirements or internal requirements. This need also requires that users be able to define and retain their own query parameters. The data being queried may be in either structured or unstructured data formats.

Providers and administrators also need to query for the absence of specific clinical or administrative data. For example, the Quality Control department may desire to determine the level of adherence to the Diabetes Mellitus management protocol. If the protocol calls for the capture of fasting blood sugars information every 3 months at minimum, the investigator might need to perform a multi-patient query that identifies diabetic patients who do not show a Fasting Blood Sugar result within the last 3 months. Key time-related Emergency Department benchmarking reports include: arrival time; entrance-to-treatment-area time, doctor-to-patient contact time; decision-to-admit time, discharge or transfer time; and departure (from the Emergency Department) time. Important time intervals include, but are not limited to, the "door-to-doctor time", "doctor-to-dictation time", "admission to bed availability or departure", and overall length of stay.

A key feature of an electronic health record is its ability to support the delivery of care by enabling prior information to be found and meaningfully displayed. EHR systems should facilitate search, filtering (e.g., filtering by key word, tagged data, or diagnosis), summarization, and presentation of available data needed for patient care. Systems should enable views to be customized (e.g., specific data may be organized chronologically, by clinical category, or by consultant). The views may be arranged chronologically, by problem, or by other parameters, and may be filtered or sorted. Jurisdictional laws and organizational policies that prohibit certain users from accessing certain patient information must be supported.

9.	The system SHALL provide the ability to present and transmit customized views of summarized information based on sort and filter controls for date or date range, problem, or other clinical parameters.	CPS.9.5	C	EN

3. Population Health Support Section

Section Overview

The Population Health Support Section focuses on those functions required of the EHR to support the prevention and control of disease among a group of people (as opposed to the direct care of a single patient), usually with something(s) in common, e.g., reside in the U.S., have diabetes, are under the age of 5, are treated by the same care provider, have pneumonia and are in a long-term care facility, etc. This section includes functions to support input to systems that perform medical research, promote public health, & improve the quality of care at a multi-patient level. Population health data must be managed carefully to avoid inadvertently breaching patient privacy and confidentiality. Individual patients may be identifiable within a population or aggregate based on information other than patient identifiers, e.g., age plus location, and/or based on a combination of public and population-based information. This section specifically addresses requirements related to patient privacy and consent for use of patient information for secondary uses, and/or reporting. All functions within the Population Health Support Section have an identifier starting with “POP”.

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
POP.6 Header	Measurement, Analysis, Research and Reports	POP.6	NC	EN
	Statement: Support the capture and subsequent export or retrieval of data necessary for the measurement, analysis, research and reporting. **Description:** Information from the EHR-S may be used to support measurement, analysis, research and reporting to improve the provision of care. Reporting may include: - reporting on patient outcome of care by population, facility, provider or community; - providing quality, performance, and accountability measurements for which providers, facilities, delivery systems, and communities are held accountable; - support process improvement measures and related initiatives; and- support health care organizational performance monitoring and improvement.			
POP.6.2 Function	Quality, Performance and Accountability Measures	POP.6.2	C	EN
	Statement: Support the capture and subsequent export or retrieval of patient, and/or population data necessary to provide quality, performance, and accountability measurements for which providers, facilities, delivery systems, and communities are held accountable. **Description:** Many regions require regular reporting on the healthcare provided to individuals and populations. This reporting may include measures related to or addressing processes, outcomes, costs of care, quality of care, adherence to best practice guidelines, and credentialing and privileging monitoring. The system needs to provide the report-generating capability to easily create these reports or provide for the export of data to external report-generating software.			
1.	The system SHOULD provide the ability to render patient, and/or population data required to assess health quality, performance and accountability measures to appropriate organizations.	POP.6.2	NC	EN
2.	The system SHOULD provide the ability to capture and maintain multiple data sets required for health care quality, performance and accountability measurements (e.g., the number of flu shots given, or the number of pregnant women counseled to take folic acid).	POP.6.2	NC	EN
3.	The system SHOULD render patient, and/or population health care quality, performance and accountability measures data in a report format that can be displayed, transmitted electronically, or printed.	POP.6.2	NC	EN
96.	The system SHALL render population health care quality, performance and accountability measures data including the numerator, denominator, and resulting percentage for each measure according to scope of practice, organizational policy, and/or jurisdictional law.		N	EN
97.	The system SHALL manage numerator and denominator for each discrete measure (of quality, performance and accountability) according to scope of practice, organizational policy, and/or jurisdictional law.		N	EN
98.	The system SHALL render and export an aggregate report in the QRDA Category III format of the clinical quality measures.		N	EN

4. Administration Support Section

Section Overview

The Administrative Support Section focusses on functions required in the EHR-S to support the management of the clinical practice and to assist with the administrative and financial operations. This includes management of resources, workflow and communication with patients and providers as well as the management of non-clinical administrative information on patients and providers. All functions within the Administrative Support Section have an identifier starting with “AS”.

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
AS.1 Header	Manage Provider Information	AS.1	NC	EN
	Statement: Maintain, or provide access to, current provider information. **Description:** Manage the information regarding providers within and external to an organization that is required to support care provision. This information includes a registry of providers (internal to the EHR-S or external), the provider's location, on-call information, and office information. Information regarding teams or groups of providers as well as individual patient relationships with providers is necessary to support care coordination and access to patient information.			
AS.1.1 Function	Manage Provider Registry or Directory	AS.1.1	C	EN
	Statement: Provide a current registry or directory of practitioners that contains data needed to determine levels of access required by the system. **Description:** Provider information may include any credentials, certifications, or any other information that may be used to verify that a practitioner is permitted to use or access authorized data.			
	2. The system SHOULD provide the ability to capture and maintain realm-specific legal identifiers required for care delivery (e.g., the provider's license number or national provider identifier).	AS.1.1	NC	EN
	4. The system SHOULD link provider information in the registry or directory with the security function to determine or identify authorized levels of access.	AS.1.1	NC	EN
	6. The system SHOULD provide the ability to update the provider's access to the requested patient's information when a patient-provider relationship is established in the system (e.g., when patient is cared for in Emergency, system enables emergency attending provider to access patient's information); according to scope of practice, organizational policy, and/or jurisdictional law.	AS.1.1	NC	EN
	7. IF TI.3 (Registry and Directory Services) is implemented, THEN the system SHALL conform to function TI.3 and provide the ability to use registries or directories to uniquely identify providers for the provision of care.	AS.1.1	NC	EN

5. Record Infrastructure Section

Section Overview

The Record Infrastructure Section consists of functions common to EHR System record management, particularly those functions foundational to managing record lifecycle (origination, attestation, amendment, access/use, translation, transmittal/ disclosure, receipt, de-identification, archive…) and record lifespan (persistence, indelibility, continuity, audit, encryption). RI functions are core and foundational to all other functions of the Model (CP, CPS, POP, AS). Note extensive reference to RI functions in Overarching Criteria. RI functions may be implemented within the architecture of a single system or across a tightly coupled suite of systems (applications).All functions within the Record Infrastructure Section have an identifier starting with “RI”.

Section/Id#: Type:	**Header/Function Name** **Conformance Criteria**	Reference	Chg Ind	Priority
RI.1 Header	Record Lifecycle and Lifespan	RI.1	NC	EN

Statement: Manage Record Lifecycle and Lifespan

Description: Actions are taken to support patient health. Actions are taken in provision of healthcare to individuals. Actions are taken as the result of rules-based EHR System algorithms. Actors (i.e., patients, providers, users, systems) take Actions. (Actions broadly encompass tasks, acts, procedures or services performed or provided.) The EHR System captures Actions taken and creates corresponding Record Entries. Record Entries provide persistent evidence of Action occurrence, context, disposition, facts, findings and observations. From the point of Record Entry origination to the end of its lifespan, the EHR System manages each Entry consistent with and according to scope of practice, organizational policy, and jurisdictional law. In support of individual health and in provision of healthcare to individuals, Actors perform Actions and Actions have corresponding Entries in the EHR Record, (i.e., Action instances are documented by Record Entry instances). Record Entries may be captured during the course of the Action or sometime thereafter. The Actor (author/source) of the Record Entry may be the same as an Actor performing the Action or not. The EHRS Functional Model does not specify a particular relationship of Actions and corresponding Record Entries. It may be one to one, many to one or even one to many. Actions have associated metadata (e.g., who, what, when, where, why, how, under what conditions, in what context). The corresponding Record Entry captures this metadata along with other Action and Record Entry related information.

Each Record Entry also includes its own provenance metadata such as who (authoring Actor) and when (documented). Record Entries may be encapsulated to bind Actor (individual, organization, and/or system) signatures to data and metadata content and data/time of occurrence. Actions and related Record Entries capture a chronology of patient health and healthcare and also a chronology of operations and services provided in/by a healthcare enterprise. Record Entries reflect changes in health information from the time it was created, to the time it was amended, sent, received, etc. In this manner, each Record Entry serves as persistent evidence of an Action taken, enabling providers to maintain comprehensive information that may be needed for legal, business, and disclosure purposes. To satisfy these purposes, Record Entries must also be retained and persisted without alteration. Record Entries have both a lifecycle and a lifespan. Lifecycle Events include originate, retain, amend, verify, attest, access/view, de-identify, transmit/receive, and more. Lifecycle Events occur at various points in a Record Entry lifespan, always starting with a point of origination and retention (i.e., when the Entry is first created and stored). A Record Entry may have a pre and post Event state if content is modified. In this case, the original Record Entry is preserved (with signature binding) and a new Entry is created (with new signature binding). A Record Entry contains data and metadata, in multiple formats, following various conventions and standards. Included data may be tagged, and/or delimited, structured (concise, encoded, computable), or unstructured (free form, non-computable). Data may be encoded as text, document, images, audio, waveforms, in ASCII, binary or other encoding. Structured data may be characterized as being concise, encoded, computable, and may be divided into discrete fields.

Examples of structured health information include:

- patient residence (non-codified, but discrete field)

- diastolic blood pressure (numeric)

- coded laboratory result or observation

- coded diagnosis

- patient risk assessment questionnaire with multiple-choice answers.

Unstructured data may be characterized as being free form, and/or non-computable. Unstructured health record information is information that is not divided into discrete fields AND not represented as numeric, enumerated or codified data.

Examples of unstructured health record information include:

- text (text message to physician) - word processing document (a letter from a family member) - image (photograph of a patient or a scanned image of insurance card) - multimedia (dictated report or a voice recording).

Context may determine whether data are structured or unstructured. For example, a progress note might be standardized and structured in some systems (e.g., Subjective/Objective/Assessment/Plan) but unstructured in other systems. The EHR System manages Record Lifecycle Events for each Record Entry, including pre and post Event record states, continuity, persistence and related Record Audit Logs.

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
RI.1.1 Function	Record Lifecycle	RI.1.1	NC	EN
	Statement: Manage Record Lifecycle **Description:** As aboveReferences: - ISO 21089: Health Informatics – Trusted End-to-End Information Flows- HL7 EHR Interoperability Model DSTU- HL7 Electronic Health Record Lifecycle Model DSTU			
RI.1.1.1 Function	Originate and Retain Record Entry	RI.1.1.1	C	EN
	Statement: Originate and Retain a Record Entry (1 instance) **Description:** Occurs when Record Entry is originated typically during the course of an Action itself, to document the Action and context. Record Entry is persistent evidence of Action occurrence and includes an identified Author or Source is responsible for Record Entry content. Record Entry contains Metadata about the Action and its circumstances, e.g., who, what, when, where, facts, findings, observations, etc. An Audit Trigger is initiated to track Record Entry origination and retention. Reference: ISO 21089, Section 12.2.2.			
1. The system SHALL provide the ability to capture (originate) a Record Entry instance corresponding to an Action instance and context.		RI.1.1.1	NC	EN
2. The system SHALL capture a unique instance identifier for each Record Entry.		RI.1.1.1	NC	EN
3. The system SHALL capture the signature event (e.g., digital signature) of the origination entry Author, binding signature to Record Entry content.		RI.1.1.1	NC	EN
4. The system SHALL provide the ability to capture both structured and unstructured content in Record Entries.		RI.1.1.1	NC	EN
5. The system SHALL provide the ability to capture Record Entries from information recorded during system downtime.		RI.1.1.1	NC	EN
6. The system SHOULD provide the ability to integrate Record Entries from Information recorded during system downtime.		RI.1.1.1	NC	EN
7. The system SHALL provide the ability to capture the date/time an Action was taken or data was collected if different than date/time of the Record Entry.		RI.1.1.1	NC	EN
8. The system SHOULD capture metadata that identifies the source of non-originated Record Entry (e.g., templated, copied, duplicated, or boilerplate information).		RI.1.1.1	NC	EN
9. The system MAY provide the ability to tag unstructured Record Entry content to organize it according to need, for example, in a time-related fashion or by application-specific groups (such as photographs, handwritten notes, or auditory sounds), or by order of relative importance.		RI.1.1.1	NC	EN
10. The system MAY capture and maintain a Record Entry encoded as a standards-based data object (e.g., HL7 Continuity of Care, other HL7 CDA R2 Document, ISO 13606 artifact).		RI.1.1.1	NC	EN
11. The system MAY capture and maintain a standards-based data object to mirror (be duplicate and synchronous with) internal Record Entry representation.		RI.1.1.1	NC	EN
RI.1.1.1.1 Function	Evidence of Record Entry Originate/Retain Event	RI.1.1.1.1	C	EN
	Statement: Maintain Evidence of Record Entry Originate/Retain Event **Description:** Evidence of Record Entry Originate/Retain Event includes key metadata, ensures health record integrity (and trust) and enables record audit.			
1. The system SHALL audit each occurrence when a Record Entry is originated and retained.		RI.1.1.1.1	NC	EN
2. The system SHALL capture identity of the organization where Record Entry content is originated.		RI.1.1.1.1	NC	EN
3. The system SHALL capture identity of the patient who is subject of Record Entry content.		RI.1.1.1.1	NC	EN
4. The system SHALL capture identity of the individual(s) who performed the Action documented in Record Entry content.		RI.1.1.1.1	NC	EN
5. The system SHALL capture identity of the user who entered/authored Record Entry content.		RI.1.1.1.1	NC	EN
6. The system SHALL capture identity of the system application which originated Record Entry content.		RI.1.1.1.1	NC	EN
7. IF the source of Record Entry content is a device, THEN the system SHALL capture identity of the device.		RI.1.1.1.1	NC	EN
8. The system SHALL capture the Action as evidenced by Record Entry content.		RI.1.1.1.1	NC	EN
9. The system SHALL capture the type of Record Event trigger (i.e., originate/retain).		RI.1.1.1.1	NC	EN
10. The system SHALL capture the date and time of Action occurrence as evidenced by Record Entry content.		RI.1.1.1.1	NC	EN
11. The system SHALL capture the date and time Record Entry content is originated.		RI.1.1.1.1	NC	EN
12. The system MAY capture the duration of the Action evidenced by Record Entry content.		RI.1.1.1.1	NC	EN
13. The system MAY capture the physical location of the Action evidenced by Record Entry content.		RI.1.1.1.1	NC	EN
14. The system SHOULD capture identity of the location (i.e., network address) where Record Entry content is originated.		RI.1.1.1.1	NC	EN
15. The system MAY capture the rationale for the Action evidenced by Record Entry content.		RI.1.1.1.1	NC	EN

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
16.	The system MAY capture the rationale for originating Record Entry content.	RI.1.1.1.1	NC	EN
17.	IF Record Entry content includes templates (boilerplate information) or copied (duplicated) information, THEN the system SHOULD capture the source of such content.	RI.1.1.1.1	NC	EN
RI.1.1.2 Function	Amend Record Entry Content	RI.1.1.2	C	EN
	Statement: Amend content of a Record Entry (1 instance) **Description:** Occurs when Record Entry content is modified (from its original or previously retained state) – typically upon conclusion of an Action, to correct, update or complete content. - Amended Record Entry content is the responsibility of authorized amendment Author(s). - The amendment becomes part of the Act Record revision history, where the original content and any previous amendments are retained without alteration. - After amendment, the System is responsible for retention of the Record Entry and its revision history. - An Audit Trigger is initiated to track Record Entry amendment. Reference: ISO 21089, Section 12.3.2			
1.	The system SHALL provide the ability to update (amend) Record Entry content.	RI.1.1.2	NC	EN
2.	The system SHALL maintain the original and all previously amended versions of the Record Entry, retaining each version instance without alteration.	RI.1.1.2	NC	EN
3.	The system SHALL capture a new uniquely identifiable version of the Record Entry, incorporating amended content.	RI.1.1.2	NC	EN
4.	The system SHALL capture the signature event (e.g., digital signature) of the amendment Author, binding signature to Record Entry content.	RI.1.1.2	NC	EN
RI.1.1.2.1 Function	Evidence of Record Entry Amendment Event	RI.1.1.2.1	C	EN
	Statement: Maintain Evidence of Record Entry Amendment Event **Description:** Evidence of Record Entry Amendment Event includes key metadata, ensures health record integrity (and trust) and enables record audit.			
1.	The system SHALL audit each occurrence when a Record Entry is amended.	RI.1.1.2.1	NC	EN
2.	The system SHALL capture identity of the organization where Record Entry content is amended.	RI.1.1.2.1	NC	EN
3.	The system SHALL capture identity of the patient who is subject of amended Record Entry content.	RI.1.1.2.1	NC	EN
4.	The system SHALL capture identity of the user who entered/authored Record Entry content amendment.	RI.1.1.2.1	NC	EN
5.	The system SHALL capture identity of the system application which amended Record Entry content.	RI.1.1.2.1	NC	EN
6.	The system SHALL capture the type of Record Event trigger (i.e., amendment).	RI.1.1.2.1	NC	EN
7.	The system SHALL capture the date and time Record Entry content is amended.	RI.1.1.2.1	NC	EN
8.	The system SHOULD capture identity of the location (i.e., network address) where Record Entry content is amended.	RI.1.1.2.1	NC	EN
9.	The system SHALL provide the ability to capture the rationale for amending Record Entry content.	RI.1.1.2.1	C	EN
10.	The system SHALL capture a sequence identifier for amended Record Entry content.	RI.1.1.2.1	NC	EN
11.	The system SHOULD capture a reference (e.g., link, pointer) to pre-amendment data for each amended Record Entry.	RI.1.1.2.1	NC	EN
99.	The system SHALL provide the ability to UPDATE data by associating one piece of data with another piece of data. For example, the system may LINK a patient's encounter note with the patient's lab results. Another example is that a system may LINK attestable changes to a patient's record to the author's identifying information.		N	EN
RI.1.1.3 Function	Translate Record Entry Content	RI.1.1.3	C	EN
	Statement: Translate content of Record Entries (1 or more instances) **Description:**			
1.	The system SHALL provide the ability to render coded Record Entry content translated from one coding/classification system to another.	RI.1.1.3	NC	EN
2.	The system SHALL provide the ability to render coded Record Entry content translated from one value set to another.	RI.1.1.3	NC	EN
3.	The system SHALL provide the ability to render Record Entry content translated from one human language to another.	RI.1.1.3	C	EN

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
RI.1.1.5 Function	View/Access Record Entry Content	RI.1.1.5	C	EN
	Statement: View/Access content of Record Entries (1 or more instances) **Description:** Occurs when Record Entry content is viewed or accessed. - Viewed Record Entry content is the responsibility of authorized User(s). - An Audit Trigger is initiated to track Record Entry views and access. Reference: ISO 21089, Section 12.5.			
1.	The system MAY mask Record Entry content to access by authorized entities.	RI.1.1.5	NC	EN
2.	The system SHALL provide the ability to render Record Entry content.	RI.1.1.5	C	EN
3.	The system SHALL provide the ability to render Record Entry content down to the discrete element or item, including encoded fields.	RI.1.1.5	NC	EN
RI.1.1.5.1 Function	Evidence of Record Entry View/Access Event	RI.1.1.5.1	C	EN
	Statement: Maintain Evidence of Record Entry View/Access Event **Description:** Evidence of Record Entry View/Access Event includes key metadata, ensures health record integrity (and trust) and enables record audit.			
1.	The system SHALL audit each occurrence when Record Entry content is viewed/accessed.	RI.1.1.5.1	NC	EN
2.	The system SHALL capture identity of the organization where Record Entry content is viewed/accessed.	RI.1.1.5.1	NC	EN
3.	The system SHALL capture identity of the patient who is subject of the viewed/accessed Record Entry content.	RI.1.1.5.1	NC	EN
4.	The system SHALL capture identity of the user who viewed/accessed Record Entry content.	RI.1.1.5.1	NC	EN
5.	The system SHALL capture identity of the system application in which Record Entry content is viewed/accessed.	RI.1.1.5.1	NC	EN
6.	The system SHALL capture the type of Record Event trigger (i.e., view/access).	RI.1.1.5.1	NC	EN
7.	The system SHALL capture the date and time Record Entry content is viewed/accessed.	RI.1.1.5.1	NC	EN
8.	The system SHOULD capture identity of the location (i.e., network address) where Record Entry content is viewed/accessed.	RI.1.1.5.1	NC	EN
9.	The system MAY capture the rationale for viewing/accessing Record Entry content (e.g., emergency access).	RI.1.1.5.1	NC	EN
10.	The system SHALL capture the data, document or other identifier for the viewed/accessed Record Entry content.	RI.1.1.5.1	NC	EN
11.	The system MAY capture whether the data/document viewed/accessed is a primary source record (e.g., patient's record) or an aggregated report (e.g., summary report including multiple patients).	RI.1.1.5.1	NC	EN
12.	The system SHALL capture when a Record Entry content view/access occurrence is known to be a disclosure, according to scope of practice, organizational policy, and/or jurisdictional law.	RI.1.1.5.1	NC	EN
13.	The system SHOULD capture known and applicable permissions regarding Record Entry content viewed/accessed including confidentiality codes, patient consent authorizations, privacy policy pointers.	RI.1.1.5.1	NC	EN
RI.1.1.6 Function	Output/Report Record Entry Content	RI.1.1.6	C	EN
	Statement: Output/Report content of Record Entries (1 or more instances) **Description:** Occurs when Record Entry content is output or reported. - Output/reported Record Entry content is the responsibility of authorized User(s). - An Audit Trigger is initiated to track Record Entry content outputs and reports. Reference: ISO 21089, Section 12.5.			
1.	The system SHOULD provide the ability to render Record Entry content (e.g., as a report) retaining original, unaltered content and signature bindings, Action and Record Entry provenance and metadata.	RI.1.1.6	NC	EN
2.	The system SHALL provide the ability to render Record Entry extracts, including content, context, provenance and metadata.	RI.1.1.6	NC	EN
3.	The system SHALL provide the ability to capture the identity of the patient or the individual subject who is the target of Record Entry content that is presented/reported.	RI.1.1.6	NC	EN
4.	IF the identity of a specific recipient has been stored, THEN the system SHOULD render protected Record Entry content based on established permissions and according to scope of practice, organizational policy, and/or jurisdictional law.	RI.1.1.6	NC	EN
5.	IF known and explicit as to Record Entry content being output/reported, THEN the system SHOULD transmit corresponding authorizations and patient consent permissions.	RI.1.1.6	NC	EN
6.	The system SHALL conform to function TI.1.6 (Secure Data Exchange).	RI.1.1.6	NC	EN

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
7.	The system SHALL provide the ability to extract Record Entry content prior to output/report, conforming to function RI.1.1.13 (Extract Record Entry Content).	RI.1.1.6	NC	EN
8.	The system SHALL provide the ability to de-identify Record Entry content prior to output/report, conforming to function RI.1.1.10 (De-Identify Record Entries).	RI.1.1.6	NC	EN
9.	The system SHALL provide the ability to render updates (new versions) of Record Entry Content to known recipients of prior versions of that Record Entry Content according to scope of practice, organizational policy, and/or jurisdictional law.	RI.1.1.6	NC	EN
99.	The system SHALL provide the ability to render output record entry content as a HL7 C-CDA Clinical Notes Care Plan R2.1 Consolidated CDA Templates for Clinical Notes, Draft Standard for Trial Use, Release 2.1 standards-based data object.		N	EN
RI.1.1.6.1 Function	Evidence of Record Entry Output/Report Event	RI.1.1.6.1	C	EN
	Statement: Maintain Evidence of Record Entry Output/Report Event **Description:** Evidence of Record Entry Output/Report Event includes key metadata, ensures health record integrity (and trust) and enables record audit.			
1.	The system SHALL audit each occurrence when an output (e.g., report, screen shot) is generated from Record Entry content.	RI.1.1.6.1	NC	EN
2.	The system SHALL capture identity of the organization where output/report is generated from Record Entry content.	RI.1.1.6.1	NC	EN
3.	The system SHALL capture identity of the patient who is subject of the Record Entry(ies) populating the output/report generated.	RI.1.1.6.1	NC	EN
4.	The system SHALL capture identity of the user who generated the output/report of Record Entry content.	RI.1.1.6.1	NC	EN
5.	The system SHALL capture identity of the system application from which the output/report is generated.	RI.1.1.6.1	NC	EN
6.	The system SHALL capture the type of Record Event trigger (i.e., output/report).	RI.1.1.6.1	NC	EN
7.	The system SHALL capture the date and time the output/report is generated.	RI.1.1.6.1	NC	EN
8.	The system SHOULD capture identity of the location (i.e., network address) where the output/report is generated.	RI.1.1.6.1	NC	EN
9.	The system MAY capture the rationale for generating the output/report.	RI.1.1.6.1	NC	EN
10.	The system MAY capture the data, document, or other identifier for the output/report generated.	RI.1.1.6.1	NC	EN
11.	The system SHALL capture when a Record Entry content output/report occurrence is known to be a disclosure, according to scope of practice, organizational policy, and/or jurisdictional law.	RI.1.1.6.1	NC	EN
12.	The system SHOULD capture known and applicable permissions regarding Record Entry content output/reported including confidentiality codes, patient consent authorizations, privacy policy pointers.	RI.1.1.6.1	NC	EN
RI.1.1.7 Function	Disclose Record Entry Content	RI.1.1.7	C	EN
	Statement: Disclose content of Record Entries **Description:** Occurs when Record Entry content is disclosed according to scope of practice, organizational policy or jurisdictional law. - Disclosed Record Entry content is the responsibility of authorized User(s). - An Audit Trigger is initiated to track Record Entry content disclosures. Reference: ISO 21089, Section 12.5.			
1.	The system SHALL provide the ability to capture the identity of the patient or individual subject to whom Record Entry content was transmitted/disclosed.	RI.1.1.7	NC	EN
2.	The system SHALL capture a log entry for disclosure of protected Record Entry content, according to scope of practice, organizational policy, and/or jurisdictional law.	RI.1.1.7	NC	EN
3.	IF the identity of a specific recipient has been stored, THEN the system SHOULD render protected Record Entry content based on established permissions and according to scope of practice, organizational policy, and/or jurisdictional law.	RI.1.1.7	NC	EN
4.	IF known and explicit as to Record Entry content being transmitted, THEN the system SHOULD transmit corresponding authorizations and patient consent permissions.	RI.1.1.7	NC	EN
RI.1.1.7.1 Function	Evidence of Record Entry Disclosure Event	RI.1.1.7.1	C	EN
	Statement: Maintain Evidence of Record Entry Disclosure Event **Description:** Evidence of Record Entry Disclosure Event includes key metadata, ensures health record integrity (and trust) and enables record audit.			
1.	The system SHALL audit each occurrence when Record Entry content is disclosed according to scope of practice, organizational policy, and/or jurisdictional law.	RI.1.1.7.1	NC	EN
2.	The system SHALL capture identity of the organization from which Record Entry content is disclosed.	RI.1.1.7.1	NC	EN

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
3. The system SHALL capture identity of the patient who is subject of Record Entry content disclosed.		RI.1.1.7.1	NC	EN
4. The system SHALL capture identity of the user initiating disclosure of Record Entry content.		RI.1.1.7.1	NC	EN
7. The system SHALL capture the date and time Record Entry content is disclosed.		RI.1.1.7.1	NC	EN
9. The system SHOULD capture the rationale for disclosing Record Entry content.		RI.1.1.7.1	NC	EN
RI.1.1.8 Function	Transmit Record Entry Content	RI.1.1.8	C	EN
Statement: Transmit content of Record Entries (1 or more instances) **Description:** Occurs when Record Entry content is transmitted – typically to an external entity or system. - Transmittal may include original Record Entry content with subsequent amendment(s), if any. - Transmittal of Record Entries is the responsibility of the System – which invokes relevant rules. - An Audit Trigger is initiated to track Record Entry transmittal. Reference: ISO 21089, Section 12.8.1.				
1. The system SHOULD provide the ability to transmit Record Entry content to external systems, retaining original, unaltered content and signature bindings, Action and Record Entry provenance and metadata.		RI.1.1.8	NC	EN
2. The system SHALL provide the ability to transmit Record Entry extracts to external systems, including content, context, provenance and metadata.		RI.1.1.8	NC	EN
3. The system SHALL provide the ability to capture the identity of the patient or individual subject to whom Record Entry content was transmitted.		RI.1.1.8	NC	EN
4. IF a specific recipient is known, THEN the system SHOULD transmit protected Record Entry content based on established permissions and according to scope of practice, organizational policy, and/or jurisdictional law.		RI.1.1.8	NC	EN
5. IF known and explicit as to Record Entry content being transmitted, THEN the system SHOULD transmit corresponding authorizations and patient consent permissions.		RI.1.1.8	NC	EN
6. The system SHALL conform to function TI.1.6 (Secure Data Exchange).		RI.1.1.8	NC	EN
7. The system SHALL provide the ability to extract Record Entry content prior to transmittal, conforming to function RI.1.1.13 (Extract Record Entry Content).		RI.1.1.8	NC	EN
8. The system SHALL provide the ability to de-identify Record Entry content prior to transmittal, conforming to function RI.1.1.10 (De-Identify Record Entries).		RI.1.1.8	NC	EN
9. The system SHALL provide the ability to transmit updates (new versions) of Record Entry Content to known recipients of prior versions according to scope of practice, organizational policy, and/or jurisdictional law.		RI.1.1.8	NC	EN
10. The system SHALL provide the ability to transmit with each exchange the most recent or all versions of Record Entry Content according to scope of practice, organizational policy, and/or jurisdictional law.		RI.1.1.8	NC	EN
RI.1.1.8.1 Function	Evidence of Record Entry Transmit Event	RI.1.1.8.1	C	EN
Statement: Maintain Evidence of Record Entry Transmit Event **Description:** Evidence of Record Entry Transmit Event includes key metadata, ensures health record integrity (and trust) and enables record audit.				
1. The system SHALL audit each occurrence when Record Entry content is transmitted.		RI.1.1.8.1	NC	EN
2. The system SHALL capture identity of the organization from which Record Entry content is transmitted.		RI.1.1.8.1	NC	EN
3. The system SHALL capture identity of the patient who is subject of Record Entry content transmitted.		RI.1.1.8.1	NC	EN
4. The system SHALL capture identity of the user initiating transmission of Record Entry content.		RI.1.1.8.1	NC	EN
5. The system SHALL capture identity of the system application which transmitted Record Entry content.		RI.1.1.8.1	NC	EN
6. The system SHALL capture identity of the system application which received Record Entry content.		RI.1.1.8.1	NC	EN
7. The system SHALL capture the type of Record Event trigger (i.e., transmit).		RI.1.1.8.1	NC	EN
8. The system SHALL capture the date and time Record Entry content is transmitted.		RI.1.1.8.1	NC	EN
9. The system SHOULD capture identity of the location (i.e., network address) from which the Record Entry is transmitted/disclosed.		RI.1.1.8.1	NC	EN
10. The system SHALL capture the location (network address) to which the Record Entry is transmitted/disclosed.		RI.1.1.8.1	NC	EN
11. The system MAY capture the rationale for transmitting Record Entry content.		RI.1.1.8.1	NC	EN
12. The system SHALL capture the type of Record Entry content transmitted/disclosed (e.g., original, amended, updated data).		RI.1.1.8.1	NC	EN
13. The system MAY capture the data, document or other identifier for transmitted/disclosed Record Entry.		RI.1.1.8.1	NC	EN

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
14.	The system MAY capture data elements for transmitted/disclosed Record Entry.	RI.1.1.8.1	NC	EN
15.	The system SHALL capture when a Record Entry transmit occurrence is known to be a disclosure, according to scope of practice, organizational policy, and/or jurisdictional law.	RI.1.1.8.1	NC	EN
16.	The system SHOULD capture known and applicable permissions regarding Record Entry content transmitted including confidentiality codes, patient consent authorizations, privacy policy pointers.	RI.1.1.8.1	NC	EN
RI.1.1.9 Function	Receive and Retain Record Entries	RI.1.1.9	C	EN
	Statement: Receive and retain/persist content of Record Entries (1 or more instances) **Description:** Occurs when Record Entry content is received – typically from an external system. - Receipt of Record Entries is the responsibility of the System – which invokes relevant rules. - An Audit Trigger is initiated to track Record Entry receipt and retention. Reference: ISO 21089, Section 12.8.1.			
1.	The system SHOULD provide the ability to capture and maintain Record Entry content from external systems, retaining and persisting original unaltered content and signature bindings, Action and Record Entry provenance and metadata.	RI.1.1.9	NC	EN
2.	The system SHALL provide the ability to capture and maintain Record Entry extracts from external systems, retaining and persisting source, identity, record content, corresponding provenance and metadata.	RI.1.1.9	NC	EN
4.	IF received with Record Entry content, THEN the system SHALL control subsequent data access to that permitted by corresponding authorizations and patient consents.	RI.1.1.9	C	EN
96.	If the system provides the ability to capture HL7 C-CDA Clinical Notes Care Plan R2.1 standards-based Care Plan content, then the system SHALL determine the content complies to the standard Care Plan templates.		N	EN
97.	If the system provides the ability to capture HL7 C-CDA Clinical Notes Care Plan R2.1 standards-based Care Plan content, then the system SHALL determine the presence of the required sections • Patient Name; • Goals; • Health Concerns; • Health Status Evaluations and Outcomes; and • Interventions.		N	EN
98.	The system SHALL provide the ability to capture and maintain HL7 C-CDA Clinical Notes Care Plan R2.1 standards-based Care Plan content retaining and persisting original unaltered content and signature bindings, Action and Record Entry provenance and metadata.		N	EN
99.	The system SHALL audit (create an audit log entry) on receipt of an invalid C-CDA document, invalid reference to a style sheet, invalid style sheet, invalid XHTML or invalid XDM package.		N	EN
RI.1.1.13 Function	Extract Record Entry Content	RI.1.1.13	C	EN
	Statement: Extract Record Entry content to produce subsets, derivations, summaries or aggregations (Multiple instances) **Description:** Occurs when Record Entry content is extracted to render subsets, derivations, summaries or aggregations. - Extraction of Record Entry content may be initiated by User command, and/or rules-based algorithm. - Extraction of Record Entry content is the responsibility of the System – which invokes relevant rules. - An Audit Trigger is initiated to track Record Entry content extraction. Reference: ISO 21089, Section 12.7. An EHR-S enables an authorized user, such as a clinician, to access and aggregate the distributed information, which corresponds to the health record or records that are needed for viewing, reporting, disclosure, etc. An EHR-S must support data extraction operations across the complete data set that constitutes the health record of an individual and provide an output that fully chronicles the healthcare process. Data extractions are used as input to patient care coordination between facilities, organizations and settings. In addition, data extractions can be used for administrative, financial, research, quality analysis, public health purposes, and to enable re-creation of copies for importing into different EHR applications and enable the archiving of patients' data. Data may be extracted in order to meet analysis and reporting requirements. The extracted data may require use of more than one application and it may be pre-processed (for example, by being de-identified) before transmission. Data extractions may be used to exchange data and provide reports for primary and ancillary purposes.			
1.	The system SHALL provide the ability to extract Record Entry content to produce subsets, derivations, summaries or aggregations according to scope of practice, organizational policy, and/or jurisdictional law.	RI.1.1.13	NC	EN
2.	The system SHALL provide the ability to de-identify Record Entries during extraction in accordance with function RI.1.1.10 (De-Identify Record Entries).	RI.1.1.13	NC	EN
3.	The system SHALL provide the ability to extract Record Entry content based on queries with selection criteria, for example, date/time range.	RI.1.1.13	C	EN
4.	The system SHALL provide the ability to extract metadata associated with Record Entry content.	RI.1.1.13	NC	EN
5.	The system SHOULD provide the ability to extract, with parameterized selection criteria, across the complete data set that constitutes all Record Entries for a patient.	RI.1.1.13	NC	EN
6.	The system SHOULD provide the ability to extract and present a full chronicle of the healthcare process from assembled Record Entries.	RI.1.1.13	NC	EN
7.	The system SHOULD provide the ability to extract and present a full chronicle of healthcare delivered to a patient from assembled Record Entries.	RI.1.1.13	NC	EN

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
8. The system SHALL provide the ability to extract Record Entry content for various purposes, including administrative, financial, research, quality analysis and public health.		RI.1.1.13	NC	EN
9. The system SHOULD provide the ability to extract Record Entries for system migration.		RI.1.1.13	NC	EN
10. The system SHOULD provide the ability to manage a set of over-riding parameters to exclude sensitive or privileged Record Entry content from extraction.		RI.1.1.13	NC	EN
11. The system MAY provide the ability to extract unstructured Record Entry content and convert it into structured data.		RI.1.1.13	NC	EN
RI.1.1.13.1 Function	Evidence of Record Entry Extraction Event	RI.1.1.13.1	C	EN
Statement: Maintain Evidence of Record Entry Extraction Event **Description:** Evidence of Record Entry Extraction Events includes key metadata, ensures health record integrity (and trust) and enables record audit.				
1. The system SHALL audit each occurrence when Record Entry content is extracted.		RI.1.1.13.1	NC	EN
2. The system SHALL capture identity of the organization where Record Entry content is extracted.		RI.1.1.13.1	NC	EN
3. The system SHALL capture identity of the patient who is subject of extracted Record Entry content.		RI.1.1.13.1	NC	EN
4. The system SHALL capture identity of the user extracting Record Entry content.		RI.1.1.13.1	NC	EN
5. The system SHALL capture identity of the system application which extracted Record Entry content.		RI.1.1.13.1	NC	EN
6. The system SHALL capture the type of Record Event trigger (i.e., extract).		RI.1.1.13.1	NC	EN
7. The system SHALL capture the date and time Record Entry content is extracted.		RI.1.1.13.1	NC	EN
8. The system SHOULD capture identity of the location (i.e., network address) where Record Entry content is extracted.		RI.1.1.13.1	NC	EN
9. The system MAY capture the rationale for extracting Record Entry content.		RI.1.1.13.1	NC	EN
RI.1.1.16 Function	Destroy or Identify Record Entries as Missing	RI.1.1.16	C	EN
Statement: Destroy or Identify Record Entries as Missing (1 or more instances) **Description:** Occurs when Record Entries are destroyed or identified as missing. - Destruction typically occurs after conclusion of the legal retention period. - Destruction of Record Entries may be initiated by User command. - Destruction of Record Entries is the responsibility of the System – which invokes relevant rules. - An Audit Trigger is initiated to track Record Entry Destruction or Notation as Missing. Reference: ISO 21089, Section 12.11.				
1. The system MAY provide the ability to delete (destroy) Record Entries (e.g., those exceeding their legal retention period) according to scope of practice, organizational policy, and/or jurisdictional law.		RI.1.1.16	C	EN
2. The system SHALL provide the ability to tag Record Entries as missing.		RI.1.1.16	NC	EN
RI.1.1.16.1 Function	Evidence of Record Entry Destruction Event	RI.1.1.16.1	C	EN
Statement: Maintain Evidence of Record Entry Destruction Event **Description:** Evidence of Record Entry Destruction Event includes key metadata, ensures health record integrity (and trust) and enables record audit.				
1. The system SHALL audit each occurrence when Record Entry content is destroyed according to scope of practice, organizational policy, and/or jurisdictional law.		RI.1.1.16.1	NC	EN
2. The system SHALL capture identity of the organization where Record Entry content is destroyed.		RI.1.1.16.1	NC	EN
3. The system SHALL capture identity of the patient who is subject of destroyed Record Entry content.		RI.1.1.16.1	NC	EN
4. The system SHALL capture a destruction identifier for destroyed Record Entry content (e.g., nursing home inpatient stay from 3/15/2000 thru 6/10/2000).		RI.1.1.16.1	NC	EN
5. IF the system allows deletion of Record Entry content, THEN the system SHALL capture identity of the user destroying Record Entry content.		RI.1.1.16.1	C	EN
6. IF the system allows deletion of Record Entry content, THEN the system SHALL capture identity of the system application which destroyed Record Entry content.		RI.1.1.16.1	C	EN
7. IF the system allows deletion of Record Entry content, THEN the system SHALL capture the type of Record Event trigger (i.e., destroy).		RI.1.1.16.1	C	EN
8. IF the system allows deletion of Record Entry content, THEN the system SHALL capture the date and time Record Entry content is destroyed.		RI.1.1.16.1	C	EN
9. IF the system allows deletion of Record Entry content, THEN the system SHOULD capture identity of the location (i.e., network address) where Record Entry content is destroyed.		RI.1.1.16.1	C	EN
10. The system MAY capture the rationale for destroying Record Entry content.		RI.1.1.16.1	NC	EN
11. The system MAY capture the data, document or other identifier for destroyed Record Entry content.		RI.1.1.16.1	NC	EN

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
12. The system MAY capture data elements for Record Entry content de-identified.		RI.1.1.16.1	NC	EN
RI.1.3 Header	Record States	RI.1.3	NC	EN

Statement: Manage Record States

Description: Record Entries may reside in various states that must be managed. An important underlying principle for managing record states is the need to retain Record Entries that have been viewed for patient care purposes even if the Entry has not been completed or attested. This principle has important legal impact because it provides an account of what the provider viewed and relied on for clinical decision-making. For example, if Record Entry content was available in pending state and a clinician used the information to make decisions, it is important to retain the pending version even after the final version was available. Determining if Record Entry content was used for patient care may be challenging. Access logs could provide a mechanism to determine if the information was used.

RI.1.3.2 Function	Manage Record Entry Amended, Corrected and Augmented State	RI.1.3.2	C	EN
1. The system SHALL provide the ability to update a Record Entry for purposes of amendment, correction or augmentation, conforming to function RI.1.1.2 (Amend Record Entry Content).		RI.1.3.2	NC	EN
3. The system SHALL capture, maintain and render the corresponding date, time, and user specifying when and by whom a Record Entry was amended, corrected, or augmented, conforming to function RI.1.1.2.1 (Evidence of Record Entry Amendment Event).		RI.1.3.2	NC	EN
4. The system SHALL present the current version and provide a link or clear direction for accessing previous version(s) of the Record Entry.		RI.1.3.2	NC	EN

Statement: Manage Record Entries amended, corrected or augmented after finalization (or signature/attestation).

Description: Clinicians need the ability to correct, amend or augment Record Entries once they have been completed. When an amendment, correction or augmentation has been made, principles for documentation practices require that the original documentation must be accessible, readable, and unobliterated. A user must have a clear indication that modifications have been made to an Record Entry. There is optionality in how a system may identify a Record Entry that has been corrected or amended – a flag or indicator could be displayed, the text could be in a different font, etc. The original Record Entry is not required to be displayed, but can be linked or traced back. The original Record Entry and each successive amendment, correction or augmentation should be retained for the legally prescribed timeframe as defined by scope of practice, organizational policy, and/or jurisdictional law.

RI.1.3.3 Function	Manage Record Entry Succession and Version Control	RI.1.3.3	C	EN
2. The system SHALL provide the ability to update a Record Entry and save it as a new version.		RI.1.3.3	NC	EN
3. The system SHALL capture, maintain and render the date, time and user for the original and each updated version of the Record Entry.		RI.1.3.3	NC	EN

Statement: Manage successive Record Entry versions over time.

Description: The system must have a mechanism to handle versions and succession of Record Entries (such as a preliminary and final laboratory reports, amended or corrected documents). Versioning and succession management is based on Record Entry content, and/or status change over time.

A version may be one of:1) A completed and attested Record Entry; 2) A Record Entry completed and attested which has been modified one or more times3) A Record Entry that has been viewed for clinical decision-making purposes by an individual other than the author4) A Record Entry that has been captured in an incomplete state per organization business rules and updated over time (i.e., a preliminary laboratory test). 5) A Record Entry that electively, according to the author, must be preserved in the current state at a given point in time (i.e., History and Physical). Certain types of Record Entries are typically handled in versions, for example: laboratory results (preliminary and final)- Dictated reports- Work ups (over course of days)The prior version of Record Entries should be retained for the legally prescribed timeframe as defined by scope of practice, organizational policy, and jurisdictional law.

RI.2 Function	Record Synchronization	RI.2	C	EN
5. The system SHALL provide the ability to manage date and time-related information between applications, components, services, systems, and devices.		RI.2	NC	EN

Statement: Manage Record Synchronization

Description: An EHR-S may consist of a set of components or applications; each application manages a subset of the health information. Therefore it is important that, through various interoperability mechanisms, an EHR-S maintains all the relevant information regarding the health record in synchrony. For example, if a physician orders an MRI, a set of diagnostic images and a radiology report will be created. As a result, the patient demographic information, the order for MRI, the diagnostic images associated with the order, and the report associated with the study must all be synchronized in order for the clinicians to receive a synchronized view the complete record (with respect to time and geographic location).Date and time need to be consistent across the applications that are part of the EHR system.

Synchronization demonstrates a sequence and chain of events for reconstruction and is relevant during a legal proceeding. Maintenance of synchronization activities could be relevant during a legal proceeding.

Note: Standards exist for Consistent Date and Time.

6. Trust Infrastructure Section

Section Overview

The Trust Infrastructure (TI) Section consists of functions common to an EHR System infrastructure, particularly those functions foundational to system operations, security, efficiency and data integrity assurance, safeguards for privacy and confidentiality, and interoperability with other systems. TI functions are core and foundational to all other functions of the Model (Care Provision, Care Provision Support, Population Health, Administrative Support and Record Infrastructure). Note extensive reference to TI functions in Overarching Criteria. TI functions may be implemented within the architecture of a single system or across a tightly coupled suite of systems (applications).All functions within the Trust Infrastructure Section have an identifier starting with "TI".

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
TI.1 Header	Security	TI.1	NC	EN
	Statement: Manage EHR-S security. **Description:** EHR-S security consists of entity authentication, entity authorization, entity access control, patient access management, secure data exchange, attestation, patient privacy and confidentiality. EHR audit functions are described in TI.2 .			
TI.1.1 Function	Entity Authentication	TI.1.1	C	EN
	Statement: Authenticate EHR-S users, and/or entities before allowing access. **Description:** All entities accessing the EHR-S are subject to authentication. Examples of entity authentication, with varying levels of authentication rigor, include: - username/password; - digital certificate; - secure token; - biometrics.			
	1. The system SHALL authenticate entities (e.g., users, organizations, applications, components, objects, and/or devices) accessing EHR-S protected resources (e.g., functions and data) according to scope of practice, organizational policy, and/or jurisdictional law, using an authentication mechanism such as an accredited Standards Development Organization-approved authentication standard (e.g., SAML, WS-Trust, Kerberos), username/password, digital certificate, secure token, biometric, or hardware-specific addressing mechanism. (See also ISO 22600.)	TI.1.1	NC	EN
	2. The system SHALL manage authentication data/information securely (e.g., passwords or biometric data).	TI.1.1	NC	EN
	93. The system SHALL control access to a IMAP session but decide to reject authentication requests due to invalid username/password.		N	EN
	94. The system SHALL control access to a IMAP session but decide to reject authentication requests due to bad DIGEST-MD5 values.		N	EN
	95. The system SHALL control access using DIGEST-MD5 SASL authentication.		N	EN
	96. The system SHALL control access using PLAIN SASL authentication.		N	EN
	97. The system SHALL manage (remove, delete) a unique identifier for each system user.		N	EN
	98. The system SHALL manage (create) a unique identifier for each system user.		N	EN
	99. The system SHALL manage (prevent re-assignment of) a unique identifier for each system user.		N	EN
TI.1.2 Function	Entity Authorization	TI.1.2	C	EN
	Statement: Manage set(s) of EHR-S access control permissions. **Description:** Entities are authorized to use components of an EHR-S in accordance with their scope of practice within local policy or legal jurisdiction. Authorization rules provide a proper framework for establishing access permissions and privileges for the use of an EHR system, based on user, role or context. A combination of these authorization categories may be applied to control access to EHR-S resources (i.e., functions or data), including at the operating system level. - User based authorization refers to the permissions granted to access EHR-S resources based on the identity of an entity (e.g., user or software component). - Role based authorization refers to the permissions granted to access EHR-S resources based on the role of an entity. Examples of roles include: an application or device (tele-monitor or robotic); or a nurse, dietician, administrator, legal guardian, and auditor. - Context-based Authorization refers to the permissions granted to access EHR-S resources within a context, such as when a request occurs, explicit time, location, route of access, quality of authentication, work assignment, patient consents and authorization. See ISO 10181-3 Technical Framework for Access Control Standard. For example, an EHR-S might only allow supervising providers' context authorization to attest to entries proposed by residents under their supervision.			

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
1.	The system SHALL provide the ability to manage sets of access-control permissions granted to an entity (e.g., user, application, device) based on identity, role, and/or context according to scope of practice, organizational policy, and/or jurisdictional law.	TI.1.2	NC	EN
3.	The system SHALL provide the ability to manage roles (e.g., clinician versus administrator) and contexts (e.g., legal requirements versus emergency situations) for authorization according to scope of practice, organizational policy, and/or jurisdictional law.	TI.1.2	NC	EN
4.	The system SHALL maintain a revision history of all entity record modifications.	TI.1.2	NC	EN
97.	The system SHALL render a Contact Email address for purposes of testing (e.g., the ETT validation report).		N	EN
98.	The system SHALL provide the ability to transmit a request to register a DIRECT email address.		N	EN
99.	The system SHALL capture, maintain and render a list of DIRECT recipients using the Direct Certificate Discovery Tool.		N	EN
TI.1.3 Function	Entity Access Control	TI.1.3	C	EN
	Statement: Manage access to EHR-S resources. **Description:** To ensure access is controlled, an EHR-S must authenticate and check authorization of entities for appropriate operations.			
3.	The system SHALL provide the ability to manage system and data access rules for all EHR-S resources according to scope of practice, organizational policy, and/or jurisdictional law.	TI.1.3	NC	EN
4.	The system SHALL manage the enforcement of authorizations to access EHR-S resources.	TI.1.3	NC	EN
5.	The system SHALL control access to EHR-S resources after a configurable period of inactivity by terminating the session, or by initiating a session lock that remains in effect until the entity re-establishes access using appropriate identification and authentication procedures, according to organizational policy, and/or jurisdictional law.	TI.1.3	NC	EN
6.	The system SHOULD provide the ability to control-access to data, and/or functionality according to scope of practice, organizational policy, and/or jurisdictional law.	TI.1.3	NC	EN
7.	The system SHALL control-access to data, and/or functionality by using authentication mechanisms that comply with regulatory and policy guidelines by requiring at least two factor authentication (e.g.,by using a combination of Username and Password, Digital Certificates, Secure Tokens, and/or Biometrics).	TI.1.3	C	EN
8.	The system MAY provide the ability to determine the identity of public health agencies for healthcare purposes through the use of internal, and/or external registry services or directories.	TI.1.3	NC	EN
9.	The system MAY provide the ability to determine the identity of healthcare resources (e.g., Meal Delivery services for home-based patients) and devices (e.g., wheelchairs) for resource management purposes through the use of internal, and/or external registry services or directories.	TI.1.3	NC	EN
85.	The system SHALL control access to a POP session but reject authentication requests due to invalid username/password.		N	EN
86.	The system SHALL capture POP commands, reject commands with the appropriate response and terminate connection.		N	EN
87.	The system SHALL capture POP commands including: • POP3 CAPA • NOOP • QUIT • POP3 STAT • STARTTLS • RETR • LIST • RSET		N	EN
88.	The system SHALL manage connection requests using STARTTLS and TLS_DHE_DSS_WITH_3DES_EDE_CBC_SHA cipher suite.		N	EN
89.	The system SHALL manage connection requests using STARTTLS and TLS_RSA_WITH_RC4_128_MD5 cipher suite.		N	EN
90.	The system SHALL capture IMAP4 commands, reject commands with the appropriate response and terminate connection.		N	EN
91.	The system SHALL capture IMAP4 commands including: - IMAP4 CAPABILITY NOOP - LOGOUT AUTHENTICATE STARTTLS - LOGIN - SELECT - FETCH		N	EN
92.	The system SHALL manage an POP3 session including initiation and termination.		N	EN
93.	The system SHALL manage an IMAP4 session including initiation and termination.		N	EN
94.	The system SHALL capture, maintain and render message tracking, including failure messages for invalid recipients.		N	EN
95.	The system SHALL capture a DIRECT + XDM message and render an XDR message with full metadata.		N	EN
98.	The system SHALL control access to a TLS session but decide to reject the connection due to an invalid certificate or incorrect syntax.		N	EN
99.	The system SHALL manage a TLS session including initiation and termination.		N	EN

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
TI.1.3.1 Function	Emergency Access Control	TI.1.3.1	C	EN
	Statement: Manage emergency access to EHR-S resources. **Description:** The intent of Emergency Access Control is to mitigate the potential for impeding the provision of care in an emergency situation in accordance with organizational policy. For example, emergency access may include: - Single record entry (e.g., single laboratory results, single document, single view); - Single patient; - Single login session, multiple patients; - Site mode allowing simultaneous emergency access to all users. Logging of a user's activities should occur in the audit record/metadata. Reports of emergency access use for follow up are critical for compliance and monitoring.			
1.	The system SHALL provide the ability to capture emergency access (permission) rules according to scope of practice, organizational policy, and/or jurisdictional law.	TI.1.3.1	NC	EN
2.	The system MAY provide the ability to capture categories of emergency access criteria (e.g., 1) Single record entry such as single laboratory results, single document, single view; 2) Single patient; 3) Single login session, multiple patients; 4) Site mode allowing simultaneous emergency access to all users) according to scope of practice, organizational policy, and/or jurisdictional law.	TI.1.3.1	NC	EN
3.	The system SHALL manage emergency access by individual users based on criteria (e.g., defined rules and categories) according to organizational policy, and/or jurisdictional law.	TI.1.3.1	NC	EN
4.	The system SHALL provide the ability to maintain emergency access time limits according to scope of practice, organizational policy, and/or jurisdictional law.	TI.1.3.1	NC	EN
5.	The system MAY present periodic reminders to a system administrator to review user's emergency access privileges.	TI.1.3.1	NC	EN
6.	The system SHALL provide the ability to capture a reason for emergency access.	TI.1.3.1	NC	EN
7.	The system SHALL provide the ability to render an after action report for follow up of emergency access.	TI.1.3.1	NC	EN
TI.1.6 Function	Secure Data Exchange	TI.1.6	C	EN
	Statement: Secure all modes of EHR data exchange. **Description:** Whenever an exchange of EHR information occurs, it requires appropriate security and privacy considerations, including data obfuscation as well as both destination and source authentication when necessary. For example, it may be necessary to encrypt data sent to remote or external destinations.			
1.	The system SHALL secure all modes of EHR data exchange.	TI.1.6	NC	EN
4.	The system SHALL encrypt and decrypt EHR data that is exchanged over a non-secure link.	TI.1.6	NC	EN
5.	IF encryption is used, THEN the system SHALL exchange data using recognized standards-based encryption mechanisms according to organizational policy, and/or jurisdictional law.	TI.1.6	NC	EN
6.	IF the EHR-S is the recipient of a secure data exchange, THEN the system SHOULD provide the ability to transmit an acknowledgment of the receipt of the data.	TI.1.6	NC	EN
7.	The system SHALL provide the ability to determine static or dynamic addresses for known and authorized sources and destinations.	TI.1.6	NC	EN
23.	The system SHALL render unique message identifiers for each message.		N	EN
24.	The system SHALL provide the ability to capture, maintain and render a Message Disposition Notification (MDN) upon receipt of health information from an external source.		N	EN
25.	The system SHALL provide the ability to reject invalid messages when sent with: • Invalid DATA command; • Invalid SMTP commands; or • Invalid size limits of SMTP commands.		N	EN
26.	The system SHALL provide the ability to reject invalid messages when sent with: • Invalid SOAP envelope details; • Invalid SOAP body details; • Missing metadata elements; • Missing associations between ebRIM constructs; or • Missing Direct Address block.		N	EN
29.	The System SHALL transmit a Delivery Status Notification (DSN) to reject a DIRECT message with an invalid address.		N	EN
30.	The System SHALL manage a DIRECT message with a valid or invalid address.		N	EN
31.	The system SHALL provide the ability to manage the creation of export summaries as an administrative function.		N	EN
32.	The system SHALL provide the ability to manage the set of identified users who can create export summaries.		N	EN
33.	The system SHALL provide the ability to manage timeframe and location configuration settings for data export.		N	EN
34.	The system SHALL provide the ability to capture and maintain C-CDA documents, by parsing and identifying errors including: “document –templates”, “section-templates”, “entry-templates”, invalid vocabulary standards and invalid codes.		N	EN

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
35.	The system SHALL capture an XDM package with a MIME type of 'application/xml'.		N	EN
36.	The system SHALL capture an XDM package with a MIME type of 'application/octet-stream'>		N	EN
37.	The system SHALL capture an XDM package using XHTML.		N	EN
38.	The system SHALL capture a C-CDA document with valid reference to a valid style sheet or otherwise decide to reject the document.		N	EN
39.	The system SHALL capture, maintain and render multiple attachment types via SMTP Messages using C-CDA, PDF, XDM or text.		N	EN
40.	The system SHALL capture SMTP Messages within the time constraints as specified in RFC 2821.		N	EN
41.	The system SHALL render a Direct Address Block header including the Disposition Notifications header.		N	EN
42.	The system SHALL capture, maintain and render attachments and make them available for fetching using POP.		N	EN
43.	The system SHALL control access to a POP session but decide to reject authentication requests due to invalid username/password.		N	EN
44.	The system SHALL capture POP commands and decide to reject commands with the appropriate response and terminate connection.		N	EN
45.	The system SHALL capture POP commands including: • POP3 CAPA • NOOP • QUIT • POP3 STAT • STARTTLS • RETR • LIST • RSET		N	EN
46.	The system SHALL capture, maintain and render attachments and make them available for fetching using IMAP.		N	EN
47.	The system SHALL control access to a IMAP session but reject authentication requests due to invalid username/password.		N	EN
48.	The system SHALL control access to a IMAP session but reject authentication requests due to bad DIGEST-MD5 values.		N	EN
49.	The system SHALL manage connection requests using STARTTLS and TLS_DHE_DSS_WITH_3DES_EDE_CBC_SHA cipher suite.		N	EN
50.	The system SHALL manage message tracking by sending error messages in the following cases: • Bad Address • Untrusted Destination HISP • Unpublished Certificate for Destination HISP • Delivery Failure Timeout		N	EN
51.	The system SHALL render delivery notification handling per the ONC Implementation Guide for Delivery Notification in Direct v1.0.		N	EN
52.	The system SHALL capture SMTP Messages using ONC Implementation Guide for Direct Edge Protocols v1.1.		N	EN
53.	The System SHALL manage a DIRECT message with a valid or invalid Disposition-Notifications-Options-Header.		N	EN
54.	The System SHALL transmit the Disposition-Notifications-Options-Header.		N	EN
55.	The system SHALL render and transmit a message using the SMTP Edge Protocol with STARTTLS and PLAIN SASL Authentication.		N	EN
56.	The system SHALL render unique message identifiers for each XDR message.		N	EN
57.	The system SHALL capture IMAP4 commands including: • IMAP4 CAPABILITY NOOP • LOGOUT AUTHENTICATE STARTTLS • LOGIN • SELECT • FETCH		N	EN
58.	The system SHALL capture IMAP4 commands and decide to reject commands with the appropriate response and terminate connection.		N	EN
59.	The system SHALL manage connection requests using STARTTLS and TLS_RSA_WITH_RC4_128_MD5 cipher suite.		N	EN
61.	The system SHALL capture, maintain and render message tracking, including failure messages for invalid recipients.		N	EN
62.	The system SHALL capture a DIRECT + XDM message and render an XDR message with full metadata.		N	EN
67.	The system SHALL capture, maintain and render XDR/XDS Message with full metadata to comply with regulatory and policy guidelines.		N	EN
68.	The system SHALL capture, maintain and render XDR/XDS Message with limited metadata to comply with regulatory and policy guidelines.		N	EN
69.	The system SHALL render an XDM/XDR package using RFC-5751 "wrapped" messages.		N	EN
70.	The system SHALL capture, maintain and render payloads (e.g., messages, documents, resources) using public and private keys.		N	EN
71.	The system SHALL render a Contact Email address for purposes of testing (e.g., the ETT validation report).		N	EN
72.	The system SHALL provide the ability to transmit a request to register a DIRECT email address.		N	EN
73.	The system SHALL capture, maintain and render a list of DIRECT recipients using the Direct Certificate Discovery Tool.		N	EN
74.	The System SHALL transmit a Message Disposition Notification (MDN) to reject a DIRECT message with an invalid message digest.		N	EN

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
75.	The System SHALL transmit a Message Disposition Notification (MDN) to reject a DIRECT message without an Authority Information Access (AIA) extension.		N	EN
76.	The System SHALL transmit a Message Disposition Notification (MDN) to reject a DIRECT message with an invalid Trust Relationship.		N	EN
77.	The System SHALL transmit a Message Disposition Notification (MDN) to reject a DIRECT message with an expired certificate.		N	EN
78.	The System SHALL transmit a Message Disposition Notification (MDN) to reject a DIRECT message with an invalid Trust Anchor and invalid certificate.		N	EN
79.	The System SHALL transmit a Message Disposition Notification (MDN) to reject a DIRECT message with an invalid Trust Anchor.		N	EN
80.	The system SHALL provide the ability to capture and render message acknowledgement messages (e.g. Z23 message)		N	EN
81.	The system SHALL provide the ability to exchange data based on a hashing algorithm with a security strength equal to or greater than SHA-2 as specified by NIST in FIPS Publication 180-4 (August 2015)		N	EN
82.	The system SHALL provide the ability to exchange data in compliance with Annex A of the Federal Information Processing Standards (FIPS) Publication 140-2, October 8, 2014		N	EN
83.	The system SHALL manage the list of DIRECT recipients.		N	EN
84.	The system SHALL provide the ability to view incoming messages or documents from external sources.		N	EN
89.	The system SHALL provide the ability to manage message digests of health information sets exchanged.		N	EN
90.	The system SHALL provide the ability to manage hash values based on, and ensuring point-to-point integrity of, health information sets to be exchanged.		N	EN
91.	The system SHALL capture a DIRECT + XDM message and render an XDR message with limited metadata.		N	EN
93.	The system SHALL provide the ability to manage address-bound or domain-bound certificates in either DNS CERT records or LDAP servers that are discoverable by other parties.		N	EN
94.	The system SHALL maintain certificates from other parties in DNS CERT records or LDAP servers.		N	EN
95.	The system SHALL render and export health information using the DIRECT transport standard, as specified by the US Office of the National Coordinator.		N	EN
96.	The system SHALL conform to the DIRECT transport standard for wrapped and unwrapped messages (according to RFC-5751).		N	EN
97.	The system SHALL capture a DIRECT message and render an XDR message.		N	EN
98.	The system SHALL provide the ability to control access for a DIRECT message, but decide to reject the connection due one or more of the following conditions: - without a corresponding MDN; - without a valid Trust Anchor; - with an invalid or expired certificate; - with an invalid Trust Relationship; - with an invalid or missing Authority Information Access (AIA) estension; - with an invalid or missing message digest.		N	EN
99.	The system SHALL provide the ability to transmit a Message Disposition Notification (MDN) upon receipt of health information from an external source.		N	EN
TI.1.7 Function	Secure Data Routing	TI.1.7	C	EN

Statement: Route electronically exchanged EHR data only to/from known and authenticated destinations/sources (according to applicable healthcare-specific rules and relevant standards).

Description: An EHR-S needs to ensure that it is exchanging EHR information with the entities (applications, institutions, directories) it expects. This function depends on entity authorization and authentication to be available in the system. For example, a physician practice management application in an EHR-S might send claim attachment information to an external entity. To accomplish this, the application must use a secure routing method, which ensures that both the sender and receiving sides are authorized to engage in the information exchange. Known sources and destinations can be established in a static setup or they can be dynamically determined. Examples of a static setup are recordings of IP (Internet Protocol) addresses or recordings of DNS (Domain Name System) names. For dynamic determination of known sources and destinations, systems can use authentication mechanisms as described in TI.1. For example, the sending of a laboratory order from the EHR-S to a laboratory system within the same organization usually uses a simple static setup for routing. In contrast, sending a laboratory order to a reference laboratory outside of the organization will involve some kind of authentication process. Provision of a secure network infrastructure is beyond the scope of an EHR-S.

1.	The system SHALL conform to function TI.1.1 (Entity Authentication) to exchange EHR data only to and from known, authenticated sources and destinations.	TI.1.7	NC	EN
2.	The system SHALL conform to function TI.2 (Audit) to capture audit information about changes to the status of sources and destinations.	TI.1.7	NC	EN

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
TI.1.8 Function	Patient Privacy and Confidentiality	TI.1.8	C	EN
	Statement: Enable the enforcement of the applicable jurisdictional and organizational patient privacy rules as they apply to various parts of an EHR-S through the implementation of security mechanisms. **Description:** Patients' privacy and the confidentiality of EHRs are violated if access to EHRs occurs without authorization. Violations or potential violations can impose tangible economic or social losses on affected patients, as well as less tangible feelings of vulnerability and pain. Fear of potential violations discourages patients from revealing sensitive personal information that may be relevant to diagnostic and treatment services. Rules for the protection of privacy and confidentiality may vary depending upon the vulnerability of patients and the sensitivity of records. Strongest protections should apply to the records of minors and the records of patients with stigmatized conditions. Authorization to access the most sensitive parts of an EHR is most definitive if made by the explicit and specific consent of the patient. Please see the definition of masking in the glossary. Organizational practices related to privacy and security jurisdictional laws could be called into question during a legal proceeding. Adherence to applicable laws supports the credibility and trustworthiness of the organization.			
	10. The system SHALL provide the ability to unmask (override a mask) in emergency or other specific situations in accordance with users' role, and according to scope of practice, organizational policy, and/or jurisdictional law.	TI.1.8	NC	EN
TI.2 Function	Audit	TI.2	C	EN
	Statement: Audit Key Record, Security, System and Clinical Events **Description:** EHR Systems have built in audit triggers to capture key events in real-time, including events related to record management, security, system operations or performance or clinical situations. Event details, including key metadata (who, what, when, where), are captured in an Audit Log. Audit Review functions allow various methods of critical event notification as well as routine log review. Audit functions implement requirements according to scope of practice, organizational policy, and jurisdictional law.			
	1. The system SHALL conform to function TI.1.3 (Entity Access Control) to limit access to, or modification of, audit record information to appropriate entities according to scope of practice, organizational policy, and/or jurisdictional law.	TI.2	NC	EN
	2. The system SHALL conform to function TI.1.3 (Entity Access Control) to limit access to audit record information for purposes of deletion according to scope of practice, organizational policy, and/or jurisdictional law (e.g., limit access to only allow a specific system administrator to delete audit record information).	TI.2	NC	EN
TI.2.1 Function	Audit Triggers	TI.2.1	C	EN
	Statement: Manage Audit Triggers **Description:** EHR Systems have built in audit triggers to capture key events in real-time. Audit triggers signal key: - Record management and lifecycle events; - Security events related to system and data safeguards, both routine and exceptional; - System events related to performance and operations, both routine and exceptional. - Clinical events with special log requirements.			
	1. The system SHALL audit key events, as specified in function TI.2.1 (Audit Triggers) and child functions, according to scope of practice, organizational policy, and/or jurisdictional law.	TI.2.1	NC	EN
	2. The system SHALL capture key Audit Metadata at each Audit Trigger, as specified in TI.2.1 (Audit Triggers) and child functions, according to scope of practice, organizational policy, and/or jurisdictional law.	TI.2.1	NC	EN
	3. The system SHALL capture an Audit Log Entry at each Audit Trigger as specified in TI.2.1 (Audit Triggers) according to scope of practice, organizational policy, and/or jurisdictional law.	TI.2.1	NC	EN
	4. The system SHALL capture the current master clock time to establish valid record date and time metadata.	TI.2.1	NC	EN
TI.2.1.2 Function	Security Audit Triggers	TI.2.1.2	NC	EN
	Statement: Manage Security Audit Triggers **Description:** Security Audit Triggers are designed to capture security related events, both routine and exceptional, including key metadata (who, what, when, where, why).			
TI.2.1.2.6 Function	User Access (Successful) Security Audit Trigger	TI.2.1.2.6	C	EN
	Statement: Manage Audit Trigger initiated to track user access (successful). **Description:**			
	1. The system SHALL audit each occurrence when user access is successful.	TI.2.1.2.6	NC	EN

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
TI.2.1.2.9 Function	User Permissions (Authorization) Security Audit Trigger	TI.2.1.2.9	C	EN
	Statement: Manage Audit Trigger initiated to track user permissions (authorization). **Description:**			
1.	The system SHALL audit each occurrence when user permissions (authorizations) are granted, removed or updated.	TI.2.1.2.9	NC	EN
2.	The system SHALL capture identity of the organization.	TI.2.1.2.9	NC	EN
3.	IF known, THEN the system SHALL capture identity of the user.	TI.2.1.2.9	NC	EN
4.	The system SHALL capture identity of the system.	TI.2.1.2.9	NC	EN
5.	The system SHALL capture the event initiating audit trigger.	TI.2.1.2.9	NC	EN
6.	The system SHALL capture the date and time of the event initiating audit trigger.	TI.2.1.2.9	NC	EN
7.	The system SHALL capture identity of the location (i.e., network address).	TI.2.1.2.9	NC	EN
8.	The system SHOULD capture the rationale for granting, removing or updating user permissions.	TI.2.1.2.9	NC	EN
9.	The system SHALL capture identity of user to whom permissions apply.	TI.2.1.2.9	NC	EN
10.	The system SHALL capture the new set of applicable user permissions (authorizations).	TI.2.1.2.9	NC	EN
TI.2.2 Function	Audit Log Management	TI.2.2	C	EN
	Statement: Manage Audit Log **Description:** Audit Triggers create Audit Log entries. Audit Log entries are typically managed as persistent evidence of events occurring over time, including events pertaining to record management, security, system operations and performance, key clinical situations. Audit log entries capture event details, including key metadata (who, what, when, where).Audit log functions fulfill log maintenance and persistence requirements according to scope of practice, organizational policy, and jurisdictional law.			
85.	The system SHALL provide the ability to render an audit log report detailing changes for user privileges.		N	EN
86.	The system SHALL provide the ability to render an audit log report detailing patient data accessed.		N	EN
87.	The system SHALL provide the ability to render an audit log report detailing any deletions (with a pointer to the deleted data).		N	EN
88.	The system SHALL provide the ability to render an audit log report detailing any changes made (with pointer to the original data state).		N	EN
89.	The system SHALL provide the ability to render an audit log report sorted by date and time of audit event, patient identification, user identification, type of audit action.		N	EN
91.	The system SHALL capture the date and time encryption is disabled.		N	EN
92.	The system SHALL capture identity of the user who disabled encryption.		N	EN
93.	The system SHALL capture the date and time the audit log is disabled.		N	EN
94.	The system SHALL capture identity of the user who disabled the audit log.		N	EN
95.	The system SHOULD provide the ability to encrypt data at rest.		N	EN
96.	The system SHALL audit changes to encryption status.		N	EN
97.	The system SHALL manage encryption status, including enable, disable and setting default status.		N	EN
98.	The system SHALL audit changes to audit log status.		N	EN
99.	The system SHALL manage audit log status, including enable, disable and setting default status.		N	EN
TI.2.2.1 Function	Audit Log Indelibility	TI.2.2.1	C	EN
	Statement: Manage Audit Log Indelibility **Description:** Audit logs must be maintained in a persistent and indelible form according to scope of practice, organizational policy, and jurisdictional law.			
1.	The system SHALL manage each Audit Log entry as a persistent, indelible (unalterable) data object including all metadata.	TI.2.2.1	NC	EN
TI.2.3 Function	Audit Notification and Review	TI.2.3	C	EN
	Statement: Notify of Audit Events, Review Audit Log **Description:** EHR system functions allow various methods of critical event notification (from audit triggers) as well as routine log review. Audit log notification and review functions implement requirements according to scope of practice, organizational policy, and jurisdictional law.			
2.	The system SHALL provide the ability to render reports based on ranges of system date and time that audit log entries were captured.	TI.2.3	NC	EN

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
TI.4 Function	Standard Terminology and Terminology Services	TI.4	NC	EN

Statement: Support semantic interoperability through the use of standard terminologies, standard terminology models and standard terminology services.

Description: The purpose of supporting terminology standards and services is to enable semantic interoperability. Interoperability is demonstrated by the consistency of human and machine interpretation of shared data and reports. It includes the capture and support of consistent data for templates and decision support logic.

Terminology standards pertain to concepts, representations, synonyms, relationships and computable (machine-readable) definitions. Terminology services provide a common way for managing and retrieving these items, including historically correct version interpretation. Terminology services need to support legal requirements for retrospective health record information and system data.

TI.4.1 Function	Standard Terminology and Terminology Models	TI.4.1	C	EN

Statement: Employ approved standard terminologies to ensure data correctness and to enable semantic interoperability (both within an enterprise and externally).Support a formal standard terminology model.

Description: Semantic interoperability requires standard terminologies combined with a formal standard information model. An example of an information model is the HL7 Reference Information Model. Another example is the ISO/EN 13606 Electronic Health Record Communication.

A terminology provides semantic and computable identity to its concepts. Examples of terminologies that an EHR-S may support include: LOINC, SNOMED, ICD-9, ICD-10, and CPT-4.Terminologies are use-case dependent and may or may not be realm dependent. The key is that the standard be approved by all stakeholders. For example, terminologies for public health interoperability may differ from those for healthcare quality, administrative reporting, research, etc.

Formal standard terminology models enable common semantic representations by describing relationships that exist between concepts within a terminology or in different terminologies, such as exemplified in the model descriptions contained in the HL7 Common Terminology Services specification.

The clinical use of standard terminologies is greatly enhanced with the ability to perform hierarchical inference searches across coded concepts. Hierarchical Inference enables searches to be conducted across sets of coded concepts stored in an EHR-S. Relationships between concepts in the terminology are used in the search to recognize child concepts of a common parent. For example, there may be a parent concept, "penicillin containing preparations" which has numerous child concepts, each of which represents a preparation containing a specific form of penicillin (Penicillin V, Penicillin G, etc.). Therefore, a search may be conducted to find all patients taking any form of penicillin preparation.

Clinical and other terminologies may be provided through a terminology service internal or external to an EHR-S.

1.	The system SHALL provide the ability to exchange data with other systems(internal or external to the EHR-S) using approved standard terminologies.	TI.4.1	NC	EN
10.	The system SHALL provide the ability to present standard terminology terms in a language which is appropriate for the user.	TI.4.1	C	EN

TI.4.3 Function	Terminology Mapping	TI.4.3	C	EN

Statement: Map or translate one terminology to another as needed by local, regional, national, or international interoperability requirements.

Description: The ability to map or translate one terminology to another is fundamental to an organization in an environment where several terminologies are in play to meet different purposes. It is a common occurrence that data is captured using one terminology, but is shared using another terminology.

Example: Within a healthcare organization there may be a need to map terminology concepts with the same semantic meaning to meet different purposes (e.g., between an EHRS and an external laboratory system, or between an EHRS and a billing system). Standard terminologies are evolving and maps will need to be adjusted to support this evolution and more sophisticated use of standard terminologies and maps over time.

Realm specific (including local, regional, national or international) interoperability requirements can also determine the need for terminology mapping, and in many cases terminology mapping services (internal or external) can be used to satisfy these requirements.

The interaction and mapping of terminologies may be called into question in a legal proceeding, when clinical decisions were documented or when semantic meaning could be misinterpreted. It is important to seek guidance, document and retain all mapping decisions for all types of terminology mapping, and to recognize when mapping may not be possible from one concept to another. The quality of mapping is dependent upon the skills and interpretation of standard terminologies and clinical information by mapping experts.

3.	The system SHOULD provide the ability to render data quality and technical quality reports for a user to determine the validity of terminology mappings using approved mapping techniques.	TI.4.3	NC	EN

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
TI.5 Header	Standards-Based Interoperability	TI.5	NC	EN

Statement: Provide automated health care delivery processes and seamless exchange of clinical, administrative, and financial information through standards-based solutions.

Description: Interoperability standards enable certain applications to be shared among EHR systems, resulting in a unified (logical) view of a given EHR system where several disparate systems may actually be participating transparently. Interoperability standards also enable certain information to be shared among EHR systems (including information that resides in regional, national, or international information exchanges). Interoperability standards also promote timely and efficient information capture, use, and re-use, often reducing the cumulative workload of the broad set of stakeholders.

When health-related information is exchanged -- or when external applications are used to extend an EHR system -- the interoperability methods and underlying standards that were used in the process may need to be disclosed during a legal proceeding (especially when the resulting information becomes part of the patient's medical record).

TI.5.1 Header	Application, Structured-Message, and Structured-Document Interchange Standards	TI.5.1	NC	EN

Statement: Support an EHR system's ability to operate seamlessly with systems that adhere to recognized application interchange standards. These systems include other EHR systems, subcomponents of an EHR system, or other (authorized, non-EHR) systems.

Description: Since a health care organization typically has various external and internal interoperability requirements, it must use a set of corresponding interoperability or interchange standards that will meet its connectivity and information structure, format, and semantic requirements. Information should be exchanged -- and applications should provide functionality -- in a manner that appears to be seamless to the user. To be specific, if data is received from an external source that requires a user to manually copy-and-paste that data into multiple parts of the system, the exchange is not considered to be "seamless".

Examples of standards-based EHR information content and exchange methods include: standards-based data extracts, standards-based messages, standards-based documents (e.g., HL7 Clinical Document Architecture (CDA) documents), standards-based healthcare transactions, and standards-based images (e.g., Digital Imaging and Communication in Medicine (DICOM) documents).

Support for multiple interaction modes is needed to respond to differing levels of immediacy and types of exchange. For example, messaging is effective for many near-real time, asynchronous data exchange scenarios but may not be appropriate if the end-user is requesting an immediate response from a remote application.

A variety of interaction modes are typically supported such as:

- Unsolicited Notifications (e.g., Adam Everyman has arrived at the clinic for his scheduled appointment);
- Query/Response (e.g., Query: Is Adam Everyman known to the system? Response: Yes, Adam's medical record number is 12345678);
- Service Request and Response (e.g., Request: Laboratory Order for “Fasting Blood Sugar”. Response: the results of the test);
- Information Interchange between organizations (e.g., in a regional health exchange or in a national health system);
- Structured/discrete clinical documents (e.g., a structured clinical note);
- Unstructured clinical document (e.g., dictated surgical note).

Standard terminology is a fundamental part of interoperability and is described in function TI.4 . Using a formal explicit information model further optimizes interoperability. An example of an information model is the HL7 Reference Information Model (RIM). Organizations typically need to deal with more than one information model and may need to develop a mapping between information models, a meta-model (that helps to explain and organize the various information models), or both.

TI.5.1.1 Function	Application Interchange Standards	TI.5.1.1	C	EN

Statement: Support the ability to operate seamlessly with other systems by using applications, and/or structured messages and documents that adhere to interchange standards.

Description: Placeholder - Not Defined at this time.

1.	The system SHALL provide the ability to receive and transmit information using interchange standards as required by realm / local -specific profiles, and/or by recognized jurisdictional authorities.	TI.5.1.1	NC	EN
3.	The system SHALL conform to function TI.4 (Standard Terminology and Terminology Services) including all child-functions, to support terminology standards according to scope of practice, organizational policy, and/or jurisdictional law.	TI.5.1.1	NC	EN
7.	The system SHOULD provide the ability to export data using an explicit and formal information model in accordance with industry and governmental-mandated standards.	TI.5.1.1	NC	EN
8.	The system SHOULD provide the ability to import data using an explicit and formal information model in accordance with industry and governmental-mandated standards.	TI.5.1.1	NC	EN
88.	IF the system is required to calculate a percentage-based measure (e.g., for the US EHR Incentive Program), THEN the system SHALL render a report or file including the patients and actions that would make the patient or action eligible to be included in the measure's numerator.		N	EN
89.	The system SHALL transmit reportable laboratory tests and values/results to public health agencies using the named §170.207(a)(3) SNOMED CT® standard and the named §170.207(c)(2) LOINC® standard.		N	EN
90.	IF the system is required to calculate a percentage-based measure (e.g., for the US EHR Incentive Program), THEN the system SHALL render a report or file including the patients and actions that		N	EN

Section/Id#: Type:	Header/Function Name Conformance Criteria	Reference	Chg Ind	Priority
	would make the patient or action eligible to be included in the measure's denominator, noting that information in the report or file created must be of sufficient detail such that it enables a user to match those patients or actions to meet the measure's denominator limitations when necessary to generate an accurate percentage.			
91.	The system SHALL provide the ability to generate antimicrobial use and resistance reports conforming to §170.205(s)(1) HL7 Implementation Guide for CDA Release 2: National Health Care Surveys (NHCS), Release 1 – US Realm, Draft Standard for Trial Use.		N	EN
92.	The system SHALL provide the ability to generate antimicrobial use and resistance reports conforming to §170.205(r)(1) HL7 Implementation Guide for CDA® Release 2 – Level 3: Healthcare Associated Infection Reports, Release 1, U.S. Realm.		N	EN
93.	The system SHALL transmit reportable laboratory tests and values/results to public health agencies using the named §170.207(a)(4) SNOMED CT® standard and the named §170.207(c)(3) LOINC® standard.		N	EN
94.	The system SHALL provide the ability to generate cancer case reports conforming to the HL7 Implementation Guide for CDA© Release 2: Reporting to Public Health Cancer Registries from Ambulatory Healthcare Providers, Release 1.1, April 2015.		N	EN
95.	The system SHALL transmit reportable laboratory tests and values/results to public health agencies in conformance with the §170.205(g) Electronic Laboratory Reporting (ELR) Messaging Guide, Associated HL7 v2.5.1 Errata and Clarifications, and the ELR v2.5.1 Clarification Document.		N	EN
96.	The system SHALL transmit reportable syndromic surveillance data to public health agencies in conformance with the HL7 v2.5.1 ADT message type in the §170.205(d)(4) HL7 v2.5.1 PHIN Messaging Guide and associated Erratum.		N	EN
97.	The system SHALL conform to HL7 v2.5.1 Messaging Standard for exchange of Electronic Laboratory Reporting to Public Health information.		N	EN
99.	The system SHALL manage prescription information messages using NCPDP SCRIPT, the RxNorm medication vocabulary standard, SNOMED-CT, NCItSub-set and FMT terminologies.		N	EN
TI.5.1.2 Function	Structured-Document Interchange Standards	TI.5.1.2	C	EN
	Statement: Support the management of structured documents. **Description:** Structured documents are an important method of facilitating the exchange of information to support care. Documents are often considered to be more permanent in nature; messages are often considered to be more transitory in nature. Examples of structured documents include: a referral from a primary care physician to a specialist; a medical summary; a discharge instruction for the patient.			
1.	The system SHALL provide the ability to exchange structured documents according to scope of practice, organizational policy, and/or jurisdictional law.	TI.5.1.2	NC	EN