HL7 EHR System Functional Model

(A Reference Document to the HL7 EHR-S DSTU)

Sample Profiles

Prepared in conjunction with the **EHR Collaborative**

EHR-S Functional Model

Profile or Constraint Examples

Notice for HL7 EHR-S DSTU Readers:

The attached document is reference material from the original EHR-S model ballot. This material was developed to test approaches to profiling but was never subject to an external review process. As reference material, it was not voted on as part of the EHR-S DSTU ballot. Additionally, it has not been updated to reflect the final published DSTU list of EHR-S functions. Our goal with this document is just to provide examples in a care setting for which you may be familiar. As these example have not been though a formal consensus process and are based on the balloted, not the final approved, model they are presented as illustrative examples only and are not intended for use. Also please note the following:

The EHR-S Functional Outline is a superset of EHR-S functions, here we are showing how the list of EHR-S functions can be constrained by the use of a "profile" for a given, sample, care-setting.

Rather than rework the existing profiles, the EHR TC is developing a profile-development toolkit that will greatly enhance the reader's ability to quickly create, copy, and/or tailor profiles.

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EHR-S Functional Profile Examples

A Functional Profile is a specification which uses the EHR-S Functional Model to indicate which functions are required or implemented for certain EHR-S implementations or Healthcare Delivery Settings.

Functional Profiles apply the standardized functions in the EHR-S Functional Model either to Healthcare Delivery Settings or to specific EHR-S implementations.

To help readers understand how the EHR-S Functional Model will be relevant for them, we have included sample "profiles" for acute care, ambulatory care, long-term care, and care in the community for the U.S. realm. For each of these four broad categories of settings, there is a brief **definition document**, a **practical scenario** illustrating one specific setting, and a sample of the **EHR-S Functional Model** with each function prioritized "essential now," "essential future," "optional," or "not applicable" for the specific example setting. These care setting examples were prepared by small work groups of industry professionals working in the particular care setting. Readers may find it helpful to review the most relevant sample profile before voting on the ballot. Please note that the profile examples presented are purely illustrative; the prioritizations of the functions shown in the examples are not intended to be definitive.

Readers may also wish to focus on the specific section of the EHR-S Functional Model that is more relevant for their every day work. For example, a clinician might read the Direct Care and Supportive sections very closely, while Health Information Management professionals might focus on the Information Infrastructure section. Within an organization, it might be helpful to delegate responsibility for scrutinizing the different sections among staff with different responsibilities and expertise.

These profiles may be used to describe an existing EHR- or the requirements of an organization;

1) **Functional Profiles for Requirements**: The EHR-S Functional Model may be used to describe the requirements of a consortium, provider, or public health organization. Each consortium, provider, or public health organization will indicate the functions out of the EHRS Functional Model that are "Essential now", "Essential in the future", Optional, or "Not Applicable". If an application or set of applications implement all the functions "Essential Now" then the application/set of applications is said to be conformant to the profile.

2) **Functional Profiles for Implementations**: The Functional Outline may be used to describe the capabilities of an EHR Application using the EHR-S Functional Model. The vendor may use the Model to indicate which functions are "Implemented Now", "Implemented in the Future", or "Not supported". In this case the product already exists and the vendor is simply trying to describe it in standard terms. The vendor will document which functions the application is actually implementing. If an application is not implementing pre-requisite functions then the providers will be able to discuss these

issues with the vendors and vendor will provide some type of interoperability solution in this case part of pre-sale negotiations.

Examples of each profile type have been included within this document, however, the EHR-S Functional Model may serve as the basis for several other categories of profiling. Such uses may include, but are not limited to:

Type of Profile	**Profiling Organization**	**Per EHR-S Function**
Care Setting Profile IOM Four: Acute Inpatient Ambulatory, Outpatient Long-term Care, Nursing Home Care in the Community, Personal Health	HL7 EHR SIG Care Setting Group, for US Realm: Care Setting Definitions Care Setting Profiles	**[Function priority is:]** Essential/Now Essential/Future Optional Not Applicable
Provider EHR-S Implementation Profile Profiling functions of their EHR-S implementation	Provider Organizations, including: Davies Award Winners VHA	**[Function is currently:]** Implemented Planned
Vendor EHR-S Product Profile Profiling functions of their EHR-S products	Willing Vendors	**[Function is currently:]** Implemented, live Ready for Implementation Planned
Accreditation Profile Profiling EHR-S functions supporting JCAHO Accreditation Requirements	JCAHO	**[Function:]** Enables JCAHO [clause citation]

Type of Profile	Profiling Organization	Per EHR-S Function
Measures and Reporting Profile Profiling EHR-S functions supporting measures and reporting, including Quality indicators Accountability and Performance Measures Outcome Measures	CMS JCAHO (ORYX) NCQA (HEDIS)	**[Function:]** Ensures data integrity (accuracy, consistency, completeness), authentication, auditability. Enables capture, derivation, retention, processing and interchange essential for key measures and indicators.
Public Health Profile Profiling EHR-S functions supporting public health surveillance and reporting Immunization Registries Disease Registries Epidemiological Surveillance	CDC and Others	**[Function:]** Ensures data integrity (accuracy, consistency, completeness), authentication, auditability. Enables data capture, retention, processing and interchange essential to public health objectives.
Leapfrog Profile Profiling EHR-S functions supporting Leapfrog Objectives	The Leapfrog Group	**[Function:]** Enables Leapfrog objective [citation]
Payer Profile Profiling EHR-S functions supporting HIPAA Transactions, including: 837 Claim for Payment 270/271 Eligibility, Enrollment 278 Referral/Authorization 275 Claims Attachment	BCBSA	**[Function:]** Ensures data integrity (accuracy, consistency, completeness), authentication, audit-ability. Enables data capture, retention, processing and interchange essential for HIPAA transactions.

EHR Functional Outline and Standard
Care Category and Select Care Setting Definitions

Care Settings, Profiles, and Outreach Work Group

Tier 1: Care Category

Care Category:	Long Term Care (LTC)
Version:	1.8
Date:	February 13, 2004
Care Category Definition	
LTC is a community network of health and supportive services that help individuals and their caregivers manage health needs, personal needs and activities of daily living in a variety of settings. Typically long-term care is provided over an extended duration of time coordinating care and disciplines across multiple episodes. It includes post-acute and chronic nursing and rehabilitation services in addition to end of life and palliative care. The focus of long-term care is on maintaining independence and sustaining function for as long as possible. The various components in the LTC spectrum include nursing homes, skilled nursing facilities, housing with supportive services, assisted living, adult day care, intermediate care facilities for the mentally retarded and developmentally disabled.	

Tier 2: Care Settings within the Care Category

Examples of Care Settings INCLUDED in This Care Category and Rationale-

Settings Included:

- housing with supportive services,
- assisted living,
- adult day care,
- intermediate care facilities for the mentally retarded and developmentally disabled
- board and care, board and lodging, rest residential homes/units

Why Examples Conform to Care Category Definition:

The examples above meet the definition of LTC providing a network of health and supportive services that helps chronically impaired individuals and their caregivers manage health needs, personal needs and activities of daily living in the least restrictive setting.

Examples of Care Settings NOT INCLUDED in This Care Category and Rationale	
Settings Not Included: Hospitals including Rehab units/facilities/hospitals (certified as an acute care hospital and reimbursed under Rehab PPS) and Long Term Acute Care Hospitals (certified as an acute care hospital and reimbursed under LTAC Hospital PPS). ***Why Examples Do Not Conform to Care Category Definition:*** Typically provide services in an acute care setting and are certified and licensed in ways that are similar to other hospitals rather than LTC providers.	
Care Setting within This Category Scoped for the DSTU Ballot [See scenario and prioritized list of DSTU functions]	
Care Setting:	Nursing Home (US Realm)
Version:	2.7
Date:	February 13, 2004
Care Setting Definition:	
For the purpose of the EHR functional model, a nursing home is defined as a facility or unit that is licensed and/or certified as a nursing facility or nursing home. Nursing home facilities/units may be hospital-based or freestanding. A nursing home provides nursing care and rehabilitation services to people with illnesses, injuries or functional disabilities. Nursing homes have a distinct set of federal and state regulations governing multiple areas of operation from staffing levels and expertise to documentation and reporting. There is a distinct oversight process with unique forms and data collection needs for survey and monitoring. Nursing homes provide an array of services from postacute nursing and rehab to chronic care in a residential setting.	

BASIC SCENARIO – NURSING HOME (V 1.3)

A. PATIENT BACKGROUND

1.
John Doe is a 67 year-old white male with a history of COPD, diabetes, and hypertension. Mr. Doe was hospitalized 20 days ago at High Plains Hospital [See Acute Care scenario] for pneumonia resulting from influenza, and was admitted again 2 days ago to University Hospital in Helena for acute exacerbation of his COPD. The discharge planner has approached Mrs. Doe about the need for nursing home placement for Mr. Doe following this hospitalization.

2.
University Hospital has electronically queried the skilled nursing facility (SNF) at the High Plains Medical Complex and received a response indicating the facility currently has no available skilled beds, and does not anticipate any within the next 72 hours. [DC.1.4.4, DC.3.2.1] The system continues to query bed availability at SNFs within a 50-mile radius of the Doe's home and returns 3 prospective facilities. The system retrieves information from the federal Nursing Home compare web site and reports staffing levels, survey results, and performance measures for the prospective facilities. [S.2.1.2] The hospital discharge planner shares this information with Mrs. Doe, who identifies a clear preference for two of the three facilities. [S.2.2] The SNF at the Big Sky Village continuing care retirement community is one of the preferred facilities.

B. FACILITY AND SYSTEMS BACKGROUND

3.
Big Sky Village is a continuing care retirement community featuring 40 independent living "cottage" units, a 50 bed assisted living facility, and a 50 bed SNF. The community has implemented an EHRs for all residents of the community (SNF, assisted living, independent).

C. PRE-ADMISSION PROCESS

4.
Once Mrs. Doe identifies Big Sky Village as a preferred SNF, the discharge planner at University Hospital transmits Mr. Doe's continuum of care profile to the SNF. [DC.1.1.6, DC.3.2.1] The SNF's EHRs populates a pre-admission module [DC.1.1.2] and electronically notifies Adam the Admissions Coordinator, Deb the Director of Nursing, and Bonnie the Business Office Manager, of the admission prospect. [DC.3.1.2] Deb reviews the diagnoses, medication orders, treatment orders, and nursing evaluation provided by the hospital to determine if the clinical needs of Mr. Doe can be met by the SNF, and identify any daily skilled nursing or rehab services that would qualify Mr. Doe for Medicare Part A SNF benefits. Deb needed additional clinical information so, based on security permissions from the hospital system, she queried the hospital EHR to review diagnostic testing and nursing assessments of cognition, ADL's, behaviors and other care related issues. [DC.3.2.1, I.1.1, I.1.2] The SNF's EHRs then used the hospital information provided and queried to estimate staffing acuity levels, cost per day, and the Medicare reimbursement rate used to populate revenue forecast models for the Community. [S.3.1.3, S.3.6] Based on the composite of information on Mr. Doe, Deb approves the clinical appropriateness of Mr. Doe's admission. The system notifies Adam that Mr. Doe is clinically appropriate for admission. [DC.3.1.2]

5.
The SNF's EHRs, upon receipt of the continuum of care profile from the hospital, launched queries which captured dates of inpatient service at the hospital, available days for SNF benefit

from the Medicare Common Working File, and eligibility under Mr. Doe's secondary private health insurance. [S.3.3.2] This information was reviewed by Bonnie in the business office who, based on the results of these queries, updates the EHRs to indicate that Mr. Doe is an appropriate admission.

6.
Mrs. Doe visits the SNF at Big Sky Village the day prior to Mr. Doe's planned discharge from the hospital. Adam takes Mrs. Doe on a tour of the facility, showing her a bed the EHRs identified on the Sagebrush unit for her husband. [S.1.4.4] Adam and Mrs. Doe then sit down to complete the admission process. They validate the correctness of demographic and contact information; identify providers to be used by Mr. Doe in the SNF (pharmacy, podiatrist, etc.) [DC.1.1.2]; review admission documents, and secure her electronic signature as the health care proxy on the admission agreement, receipt of Notice of Privacy Practices, Consent to Treat, etc. [DC.1.5.1, DC.1.5.2, I.1.7} With Mrs. Doe's signature in place on the admission agreement, the SNF's EHRs automatically queries supply and food inventories, verifying the availability of an oxygen concentrator and food items for Mr. Doe's diabetic diet. The Sagebrush unit, along with clinical, support and administrative departments, are notified of the admission planned for the next day. Nurse staffing allocations are automatically adjusted to reflect the planned admission. [DC.3.1.1, DC.3.1.2, DC.3.1.3, DC.3.2.1]

7.
University Hospital has successfully stabilized Mr. Doe's COPD and complicating clinical conditions. The continuum of care transfer is populated, and ambulance transport automatically scheduled and sent to the ambulance service, upon Dr. Tell's entry of a Discharge Order. [DC.1.1.6, DC.3.2.1] Dr. Tell reviews, modifies, and appends the orders, vitals, diagnoses, etc. that are populating the transfer and the SNFs admission order set. [DC.1.2.3, DC.1.4.3] He authenticates the information. [I.1.7] The hospital system transmits the continuum of care transfer information along with SNF admission order set, H&P, medication administration record (MAR), treatment record, lab reports, x-ray reports, preadmission screening (PASAAR) and Advance Directives to the SNF. [DC.3.2.1] The ambulance system sends notification to the SNF of the resident's scheduled time of arrival. [DC.3.2.1]

8.
The hospital continuum of care transfer information, admission orders, and ambulance service notice are received at the SNF, triggering the EHRs to notify clinical and support departments of Mr. Doe's scheduled arrival [DC.3.2.1, DC.1.4.2]; adjust staffing assignments to assure appropriate nursing personnel are available for the admission [S.1.6, S.3.6]; and transmit the order set to the pharmacy [DC.1.3.1, DC.1.4.1, DC.3.2.2].

D. INITIAL CARE

9.
The ambulance arrives with Mr. and Mrs. Doe at the appointed time, and the couple is shown to his room. The EHRs is updated to show Mr. Doe's admission. [S.1.4, S.1.4.2] Assessments are initiated by nursing, including prompted completion and documentation in the EHR of the nursing admission assessment and focused assessments of skin status, falls potential, etc. [DC.1.1.6, DC.2.1.1, DC.2.1.2] An initial care plan and nursing assistant task list is developed based on disease and functional protocols triggered by assessment findings. [DC.1.2.1, DC.2.1.3, DC. 2.2.1.1, DC.2.2.1.2, DC.3.1.1] Descriptive entries related to resident status are recorded in the EHR as necessary. [DC.1.1.6] Ordered medications are administered based on automated verification of right medication-right patient, and documented in the EHR. [DC.1.3.3, DC.2.3.2] Nursing assistants electronically chart their delivery of care in accordance with the

task lists compiled from the disease and functional protocols and individualized to Mr. Doe's needs.[DC.1.1.7, DC.3.1.1, DC.3.1.3, DC. 3.1.3.1]

E. ONGOING CARE AND ADMINISTRATION

10.
Further development of Mr. Doe's EHR takes place as assessments are completed by the Dietitian, Social Worker, and Activities personnel. [DC.1.1.6, DC.1.1.7, DC.2.1.1, DC. 2.1.2] Interdisciplinary assessment information drives enhancement of the resident care plan and task lists, and populates the federally required minimum data set (MDS). [DC.1.2.1, DC.2.1.3, DC.2.2.1.1, DC.2.2.1.2, DC.3.1] Diagnosis codes assigned by the EHRs are reviewed and validated by the Health Information Management Coordinator. [S.3.2.1] Scheduled MDS assessments are compiled from EHR data, reviewed, revised, and authenticated as appropriate, and transmitted as required by state and federal regulations. [DC.1.1.6, DC.2.1.1, DC.2.1.2, DC.2.1.3, DC.3.1, S.2.1, S.2.1.2, I.1.7]

11.
On day 8 of Mr. Doe's stay a lab was ordered. [DC.1.4.2, DC.2.4.1] The EHRs automatically updated the lab schedule and communicated with the lab to have the specimen drawn. [DC.3.1, DC.3.2.1, S.1.6] Nursing staff reviewed the lab schedule list and selected the applicable diagnosis to justify the lab from the EHRs listing of active diagnoses for Mr. Doe. [DC.3.2.1, S.2.2.0] Applicable demographic, financial, and diagnostic information was transmitted to the lab for their information and billing system. [DC.3.2.1, DC. 2.4.3.1] The lab technician arrived at the SNF to gather the specimen as scheduled.

12.
The next day the lab report was transmitted automatically to the SNF and the attending physician's office/clinic. [DC.1.4.5, I.1.5, I.1.6] Nursing staff at the SNF reviewed the lab report and noted abnormal results. An e-mail was sent to the Dr. Tell informing him of the abnormal results, reporting information about Mr. Doe's condition as suggested by EHRs nursing prompts, and asking if action was necessary. [DC.2.4.2, DC.3.2.1] Dr. Tell reviews the lab result, information from the nurse and then accessed the SNF EHRs. [I.1.1] The EHRs authenticates Dr. Tell as an approved user of the system. [I.1.2] He has specific access rights to clinical information in the EHRs for his residents.[I.1.3]

13.
Dr. Tell reviews clinical flowsheet data in the EHRs regarding Mr. Doe's respiratory status along with recent nursing notes, electronic MAR's, and treatment records to understand the resident's current condition. [DC.1.1.5, DC.1.1.6] Based on the information, Dr. Tell enters a new physician order directly into the EHRS and authenticates the order. [DC.1.3.1, DC.1.3.2, I.1.7] Dr. Tell would also like additional clinical monitoring on respiratory status every 4 hours for the next 48 hours. He selects the charting guidelines and schedules the frequency. [DC.2.1.2, DC.2.3.1] The system updates the charting work list for the nursing staff to conduct respiratory assessments every 4 hours. [DC.3.1] He continues to monitor the patient each day reviewing the clinical monitoring documentation for Mr. Doe to be assured that his status is stable. [I.1.1, I.1.2, I.1.3]

14
Days later Mr. Doe was walking with his wife in the courtyard when he became dizzy, blacked out and fell. Nursing staff were called to Mr. Doe to assess his clinical status and evaluate for possible injury. The nurse documents in the EHRs the results of the assessment and initiates the incident report and falls protocol. [DC.1.1.6, DC.1.2.1, DC.2.2.1.1] The quality indicator and quality measure statistics are immediately updated. [S.2.1.2] The system prompts the nurse to

assess certain criteria and consider certain guidelines to evaluate the reason for the fall and implement appropriate follow up documentation, monitoring and testing. The documentation related to the incident automatically is sent to Dr. Tell's office for his review. [DC.3.2.1] Dr. Tell reviews the information and accesses the SNF's EHRs to review additional charting. Dr. Tell contacts Mr. Doe's nurse manager to further discuss the resident's status. Dr. Tell documents a progress note directly into the SNF's EHRS of his assessment of Mr. Doe's condition and a plan to have further tests run. [DC.1.1.6] He enters a physician order for an x-ray and an MRI directly in the EHRS. [DC.1.4.2]

15
The Sagebrush Unit Coordinator receives a list of diagnostic tests to be scheduled at the local hospital through the EHRs. [DC.3.1.1, I.1.6.0] She enters the hospital outpatient scheduling system and schedules the x-ray and MRI. [I.1.1, I.1.2, I.1.3] She electronically sends applicable demographic and financial information for the tests. [DC.2.4.3.1, I.1.5] Since Mr. Doe is a Medicare recipient, the system recognizes that the x-ray is to be billed to the nursing home under consolidated billing rules, but the MRI is billed by the hospital directly to Medicare. The hospital billing system is updated to bill the appropriate party. [S.3.3] Once the tests are scheduled, the Unit Coordinator sends an e-mail to the transportation vendor (not an ambulance provider) and schedules transportation. [DC.3.2.1] On the day of the test, Mr. Doe's nurse manager completes the clinical referral documentation on the EHRS and transmits it to the hospital. [DC.1.1.6, DC.1.4.4, DC.2.4.3.1]

F. TRANSFER IN CONTINUUM OF LONG TERM CARE

16
Once Mr. Doe's condition stabilized, discharge planning was initiated. The couple felt that they could no longer live in their own home due to John's chronic conditions and his wife's continued frailty. After looking at the options available at Big Sky Village, the couple decided to move into one of the assisted living unit with home care services. The social service coordinator queried the CCRC's information system for availability of an assisted living unit. A unit was found, a discharge date was identified and the move scheduled into the assisted living unit. Discharge planning has been initiated by the care plan team; in anticipation of a doctors' order. Preliminary results of the planning have been sent electronically to Nursing, Rehab for home safety evaluation, to Dietary for consult on diabetic management, and to social services. [DC.3.1.2, DC.3.2.1, DC.3.1.1, DC.1.1.6]

17
Nursing assesses John and his wife for assisted living (mini-mental, ADL status), and this info is sent to the Assisted Living coordinator. The Assisted Living coordinator reviews the updated assessment and approves the move-in, pending the physician's discharge order. [DC.1.1.6]

18
After reviewing the patient's electronic chart, Dr. Tell gives instructions for John Doe to be discharged. John's wife signs the discharge instructions, and the chart/records are transmitted to Assisted Living. [DC.1.4.1, DC.1.2.3, DC.3.2.1] Census entries are generated for the health center bed (discharge) and Assisted Living (admission). [S.1.4.2] A bill is prepared for John Doe's health center stay and submitted to insurance. [S.3.3]

19
Discharge prescriptions include an order for Oxygen in the home, home health care visits, and all meds. The discharge order is sent to the health center, pharmacy, home health agency, and medical supplier, with a cc to the community administrator. [DC.3.2.1, see also Home Health scenario]

EHR-S Functional Model: Long Term Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.1	**Care Management**									
DC.1.1	Health information capture, management, and review		For those functions related to data capture, data is captured using standardized code sets or nomenclature, depending on the nature of the data. Data may also be captured from devices.		X					
DC.1.1.1	Identify and locate a patient record	Maintain and identify a single patient record for each patient.	Key identifying information is stored and linked to the patient record. A lookup function uses this information to uniquely identify the patient.		X					
DC.1.1.2	Manage patient demographics	Capture and maintain demographic information that is reportable and, where appropriate, trackable over time.	Contact information including addresses and phone numbers, as well as key demographic information such as date of birth, sex, and other information is stored and maintained for reporting purposes and for the provision of care.	S.1.4.0; S.1.4.1; S.1.4.2; I.1.4.4; I.1.4.5	X					
DC.1.1.3	Manage summary lists	Create and maintain patient-specific summary lists.	Patient summary lists can be created and maintained when appropriate for the patient or a particular care setting.	S.1.4.0; S.1.4.1; S.1.4.2; I.1.4.4; I.1.4.5	X					
DC.1.1.3.1	Manage problem list	Create and maintain patient-specific problem lists.	A problem list may include, but is not limited to: Chronic conditions, diagnoses, or symptoms, 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 history information and tracking the changing character of the problem and its priority. All pertinent dates, including date noted, dates of any changes in problem specification or prioritization, and date of resolution are stored. The entire problem history for any problem in the list is viewable.		X					

Long Term Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.1.1.3.2	Manage medication list	Create and maintain patient-specific medication lists.	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 is viewable. Medication lists are not limited to medication orders recorded by providers, but may include patient-reported medications.		X					
DC.1.1.3.3	Manage allergy and adverse reaction list	Create and maintain patient-specific allergies and reactions.	Allergens and substances are identified and coded (whenever possible) and the list is managed over time. All pertinent dates, including patient-reported events, are stored and the description of the patient allergy and reaction is modifiable over time. The entire allergy history, including reaction, for any allergen is viewable.		X					
DC.1.1.4	Manage Patient History	Capture, review, and manage medical, procedural, social, and family history including the capture of pertinent negative histories, patient-reported or externally available patient clinical history.	Patient historical data related to previous medical diagnoses, surgeries and other procedures performed on the patient, and relevant health conditions of family members is captured through such methods as patient reporting (for example interview, medical alert band) or electronic or non-electronic historical data. This data may take the form of a positive or a negative such as: "The patient/family member has had..." or "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 is captured and presented alongside locally captured documentation and notes wherever appropriate.		X					
DC.1.1.5	Summarize health record	Present a chronological, filterable, comprehensive review of the patient's entire clinical history, subject to confidentiality constraints.	A key feature of an electronic health record is its ability to present, summarize, filter, and facilitate searching through the large amounts of data collected during the provision of patient care. Much of this data is date or date-range specific and should be		X					

Long Term Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			presented chronologically. Local confidentiality rules that prohibit certain users from accessing certain patient information must be supported.							
DC.1.1.6	Manage clinical documents and notes	Create, addend, and authenticate transcribed or directly-entered clinical documentation and notes.	Clinical documents and notes may be created in a narrative form, which may be based on a template. The documents may also be structured documents that result in the capture of coded data. Each of these forms of clinical documentation are important and appropriate for different users and situations.		X					
DC.1.1.7	Capture key health data	Capture, manage, and review key health data by a variety of users.	Care-setting dependent data is entered by a variety of caregivers. Details of who entered data and when was captured should be tracked.	DC.3.2.5; S.3.1.4	X					
DC.1.1.7.1	Capture external clinical documents	Incorporate clinical documents and notes from external sources.	Mechanisms for incorporating external clinical documentation, such as image documents, and other clinically relevant data are available. Data incorporated through these mechanisms is presented alongside locally captured documentation and notes wherever appropriate.			X				
DC.1.1.7.2	Capture patient-originated data	Capture patient-provided and patient-entered clinical data.	Patients may provide data for entry into the health record or be given a mechanism for entering this data directly. Patient-entered data intended for use by care providers will be available for their use.		X					
DC.1.2	Care plans, guidelines, and protocols									
DC.1.2.1	Present care plans, guidelines, and protocols	Present organizational guidelines for patient care as appropriate to support order entry and clinical documentation.	Care plans, guidelines, and protocols may be site specific or industry-wide standards. They may need to be managed across one or more providers. Tracking of implementation or approval dates, modifications and relevancy to specific domains or context is provided.		X					
DC.1.2.2	Manage patient-specific care plans, guidelines,	Provide administrative tools for organizations to build guidelines and	Guidelines or protocols may contain goals or targets for the patient, specific guidance to	DC.1.2.1	X					

Long Term Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
	and protocols.	protocols for use during patient care.	the providers, suggested orders, and nursing interventions, among other items.							
DC.1.2.3	Manage patient-specific instructions	Generate and record patient-specific instructions related to pre- and post-procedural and post-discharge requirements.	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.		X					
DC.1.3	Medication ordering and management									
DC.1.3.1	Order medication	Create prescriptions or other medication orders with detail adequate for correct filling and administration by pharmacy and clinical staff.	Different medication orders require different levels and kinds of detail, as do medication orders placed in different situations. The correct details are recorded for each situation. Administration or patient instructions are available for selection by the ordering clinicians, or the ordering clinician is facilitated in creating such instructions. Appropriate time stamps for all medication related activity is generated.	DC.3.2.3	X					
DC.1.3.2	Manage medication formularies	Provide information regarding compliance of medication orders with formularies.	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. 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.			X				
DC.1.3.3	Manage medication administration	Present to appropriate clinicians the medications that are to be administered to a patient, under what circumstances, and capture administration details.	In a setting in which medication orders are to be administered by a clinician rather than the patient him or herself, the necessary information is presented including: the list of medication orders that are to be administered; administration instructions,		X					

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			times or other conditions of administration; dose and route, etc. Additionally, the clinician is able to 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.							
DC.1.4	Orders, referrals, and results management									
DC.1.4.1	Place generic orders	Capture and track orders based on input from specific care providers.	Orders that request actions or items can be captured and tracked. Examples include orders to transfer a patient between units, to ambulate a patient, for medical supplies, durable medical equipment, home IV, and diet or therapy orders. For each orderable item, the appropriate detail, including order identification and instructions, can be captured. Orders should be communicated to the correct recipient for completion if appropriate.	DC.1.3.1	X					
DC.1.4.2	Order diagnostic tests	Submit diagnostic test orders based on input from specific care providers.	For each orderable item, the appropriate detail and instructions must be available for the ordering care provider to complete. Orders for diagnostic tests should be transmitted to the correct destination for completion or generate appropriate requisitions for communication to the relevant resulting agencies.		X					
DC.1.4.3	Manage order sets	Provide order sets based on provider input or system prompt.	Order sets allow a care provider to choose common orders for a particular circumstance or disease state according to best practice or other criteria. Recommend order sets may be presented based on patient data or other contexts.		X					
DC.1.4.4	Manage referrals	Enable the origination, documentation and tracking of referrals between care providers or care settings, including clinical and administrative details of the referral.	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			X				

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			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.							
DC.1.4.5	Manage results	Route, manage and present current and historical test results to appropriate clinical personnel for review, filtering and comparison.	Results of tests are presented in an easily accessible manner and to the appropriate care providers. Flow sheets, graphs, or other tools allow care providers to view or uncover trends in test data over time. In addition to making results viewable, it is often necessary to send results to appropriate care providers using an electronic messaging systems, pagers, or other mechanism. Results may also be routed to patients electronically or in the form of a letter.		X					
DC.1.4.6	Order blood products and other biologics	Communicate with appropriate sources or registries to order blood products or other biologics.	Interact with a blood bank system or other source to manage orders for blood products or other biologics. Use of such products in the provision of care is captured. Blood bank or other functionality that may come under federal or other regulation (such as by the FDA in the United States) is not required; functional communication with such a system is.	S.1.1.0				X		
DC.1.5	Consents and authorizations									
DC.1.5.1	Manage consents and authorizations	Create, maintain, and verify patient treatment decisions in the form of consents and authorizations when required during the ordering process.	Treatment decisions are documented and include the extent of information, verification levels and exposition of treatment options. This documentation helps ensure that decisions made at the discretion of the patient, family, or other responsible party govern the actual care that is delivered or withheld.		X					
DC.1.5.2	Manage patient advanced directives	Capture, maintain and provide access to patient advanced directives	Patient advanced directives can be captured as well as the date and circumstances under which the directives were received, and the location of any paper records of advanced		X					

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			directives as appropriate.							
DC.2	**Clinical Decision Support**									
DC.2.1	Health information capture and review			D.C. 1.1						
DC.2.1.1	Support for standard assessments	Offer knowledge-based prompts to support the adherence to care plans, guidelines, and protocols at the point of information capture.	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 II diabetic review, fall and 70+, rectal bleeding etc. As another example, to appropriately manage the use of restraints, an online alert is presented defining the requirements for a behavioral health restraint when it is selected.		X					
DC.2.1.2	Support for Patient Context-enabled Assessments	Offer knowledge-based prompts based on patient-specific data at the point of information capture.	When a clinician fills out an assessment, data entered is matched against data already in the system to identify potential linkages. For example, the system could scan the medication list and the knowledge base to see if any of the symptoms are side effects of medication already prescribed. Important but rare diagnoses could be brought to the doctor's attention – for instance ectopic pregnancy in a woman of child bearing age who has abdominal pain.		X					
DC.2.1.3	Support for identification of potential problems and trends	Identify specific problems or trends that may lead to significant problems, which may be based on patient data, providing prompts for consideration at the point of information capture.	When personal health information is collected directly during a patient visit input by the patient, or acquired from an external source (lab results), it is important to be able to identify potential problems and trends that may be patient-specific, given the individual's personal health profile, or		X					

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			changes warranting further assessment. For example: significant trends (lab results, weight); a decrease in creatinine clearance for a patient on metformin, or an abnormal increase in INR for a patient on warfarin.							
DC.2.1.4	Patient and family preferences	Capture patient and family preferences at the time of information intake and integrate them into clinical - decision support at all appropriate opportunities.	Decision support functions should permit consideration of patient/family preferences and concerns, such as with language, medication choice, invasive testing, and advanced directives.		X					
DC.2.2	Care plans, guidelines and protocols			DC 1.2						
DC.2.2.1	Support for condition based care plans, guidelines, protocols				X					
DC.2.2.1.1	Present standard care plans, guidelines, protocols	Identify the appropriate care plans, guidelines and/or protocols for the management of specific conditions.	At the time of the clinical encounter, standard care protocols are presented. These may include site-specific considerations.		X					
DC.2.2.1.2	Present context sensitive care plans, guidelines, protocols	Identify the appropriate care plans, guidelines and/or protocols for the management of specific conditions that are adjusted to the patient specific profile.	At the time of the clinical encounter, recommendations for tests, treatments, medications, immunizations, referrals and evaluations are presented based on evaluation of patient specific data, their health profile and any site-specific considerations. These may be modified on the basis of new clinical data at subsequent encounters.		X					
DC.2.2.1.3	Capture variances from standard care plans, guidelines, protocols	Identify variances from standard care plans, guidelines, and protocols.	Variances from care plans, guidelines, or protocols are identified and tracked, with alerts, notifications and reports as clinically appropriate.			X				
DC.2.2.1.4	Support management of patient groups or populations	Provide support for the management of populations of patients that share diagnoses, problems, demographic characteristics, etc.	Populations or groups of patients that share diagnoses (such as diabetes or hypertension), problems, demographic characteristics, medication orders are identified. The clinician may be notified of eligibility for a			X				

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			particular test, therapy, or follow-up; or results from audits of compliance of these populations with disease management protocols.							
DC.2.2.1.5	Support research protocols	Provide support for the identification of patients for potential enrolment in research protocols and management of patients enrolled in research protocols.	Potential candidates for participation in a research study are identified and the clinician notified of patient eligibility. The clinician is presented with protocol-based care to patients enrolled in research studies.		X					
DC.2.2.1.6	Support self-care	Provide the patient with decision support for self-management of a condition between patient-provider encounters.	Patients with specific conditions need to follow self-management plans that may include schedules for home monitoring, lab tests, and clinical check ups; recommendations about nutrition, physical activity, tobacco use, etc.; and guidance or reminders about medications.	DC.1.1.7.2; DC.3.2.4	X					
DC.2.3	Medications and medication management			DC 1.3						
DC.2.3.1	Support for medication ordering				X					
DC.2.3.1.1	Drug, food, allergy interaction checking	Identify drug-drug, drug-allergy and drug-food interaction warnings at the point of medication ordering.	The clinician is alerted to drug-drug, drug-allergy, and drug-food interactions at levels appropriate to the health care entity. These alerts may be customized to suit the user or group.		X					
DC.2.3.1.2	Patient specific dosing and warnings	Identify drug-condition warnings and present weight/age appropriate dose recommendations	The clinician is alerted to drug-condition interactions and patient specific contraindications and warnings e.g. elite athlete, pregnancy, breast-feeding or occupational risks. The preferences of the patient may also be presented e.g. reluctance to use an antibiotic.		X					
DC.2.3.1.3	Medication recommendations	Recommend best practice treatment and monitoring on the basis of cost, local formularies or therapeutic guidelines and protocols	Offer alternative treatments on the basis of best practice (e.g. cost or adherence to guidelines), a generic brand, a different dosage, a different drug, or no drug		X					

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			(“watchful waiting”). Suggest lab order monitoring as appropriate.							
DC.2.3.2	Support for medication administration.	Alert providers in real-time to potential administration errors such as wrong patient, wrong drug, wrong dose, wrong route and wrong time in support of medication administration management and workflow.	To reduce medication errors at the time of administration of a medication, the patient is positively identified; checks on the drug, the dose, the route and the time are facilitated. Documentation is a by-product of this checking; administration details and additional patient information, such as injection site, vital signs, and pain assessments, are captured. In addition, access to online drug monograph information allows providers to check details about a drug and enhances patient education.		X					
DC.2.4	Orders, referrals, results and care management									
DC.2.4.1	Support for non-medication ordering	Identify necessary order entry components for non-medication orders that make the order pertinent, relevant and resource conservative at the time of provider order entry; and flag any inappropriate orders based on patient profile. -	Possible order entry components include, but are not limited to: missing results required for the order, suggested corollary orders, notification of duplicate orders, institution-specific order guidelines, guideline-based orders/order sets, order sets, order reference text, patient diagnosis specific recommendations pertaining to the order. Also, warnings for orders that may be inappropriate or contraindicated for specific patients (e.g. X-rays for pregnant women) are presented.		X					
DC.2.4.2	Support for result interpretation	Evaluate results and notify provider of results within the context of the patient’s clinical data.	Possible result interpretations include, but are not limited to: abnormal result evaluation/notification, trending of results (such as discrete lab values), evaluation of pertinent results at the time of provider order entry (such as evaluation of lab results at the time of ordering a radiology exam), evaluation of incoming results against active medication orders.		X					

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.2.4.3	Support for referrals			DC 1.4						
DC.2.4.3.1	Support for referrals	Evaluate referrals within the context of a patient's clinical data.	When a healthcare referral is made, pertinent health information, including pertinent results, demographic and insurance data elements (or lack thereof) are presented to the provider. Protocols for appropriate workup prior to referral may be presented.		X					
DC.2.4.3.2	Support for referral recommendations	Evaluate patient data and suggest appropriate referrals.	Entry of specific patient conditions may lead to recommendations for referral e.g. for smoking cessation counseling if the patient is prescribed a medication to support cessation.			X				
DC.2.4.4	Support for Care Delivery									
DC.2.4.4.1	Support for safe blood administration	Alert providers in real-time to potential blood administration errors such as wrong blood, wrong cross match, wrong source, wrong date and time, and wrong patient.	To reduce blood administration errors at the time of administration of blood products, the patient is positively identified and checks on the blood product, the amount, the route and the time are facilitated. Documentation is a by-product of this checking.					X		
DC.2.4.4.2	Support for accurate specimen collection	Alert providers in real-time to potential specimen collection errors, such as wrong patient, wrong specimen type, wrong collection means, and wrong date and time.	To ensure the accuracy of specimen collection, when a provider obtains specimens from a patient, the clinician can match each specimen collection identifier and the patient's ID bracelet. The provider is notified in real-time of potential collection errors such as wrong patient, wrong specimen type, wrong means of collection, wrong site, and wrong date and time. Documentation of the collection is a by-product of this checking.				X			
DC.2.5	Support for Health Maintenance: Preventive Care and Wellness									
DC.2.5.1	Alerts preventive services and wellness	Identify patient specific suggestions/reminders, screening	At the time of an encounter, the provider or patient is presented with due or overdue				X			

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
		tests/exams, and other preventive services in support of routine preventive and wellness patient care standards.	activities based on protocols for preventive care and wellness. Examples include but are not limited to, routine immunizations (adult and well baby care), age and sex appropriate screening exams (such as PAP smears).							
DC.2.5.2	Notifications for preventive services and wellness	Notify the patient and/or appropriate provider of those preventive services, tests, behavioral actions that are due or overdue between patient-provider encounters.	The provider can generate notifications to patients regarding activities that are due or overdue and these communications can be captured. Examples include but are not limited to time sensitive patient and provider notification of: follow-up appointments, laboratory tests, immunizations or examinations. The notifications can be customized in terms of timing, repetitions and administration reports. E.g. a Pap test reminder might be sent to the patient a 2 months prior to the test being due, repeated at 3 month intervals, and then reported to the administrator or clinician when 9 months overdue.				X			
DC.2.6	Support for population health									
DC.2.6.1	Support for clinical health state monitoring within a population.	Support clinical health state monitoring of aggregate patient data for use in identifying health risks from the environment and/or population.	Standardized surveillance performance measures that are based on known patterns of disease presentation can be identified by aggregating data from multiple input mechanisms. For example, elements include, but are not limited to patient demographics, resource utilization, presenting symptoms, acute treatment regimens, laboratory and imaging study orders and results and genomic and proteomic data elements. Identification of known patterns of existing diseases involves aggregation and analysis of these data elements by existing relationships. However, the identification of new patterns of disease requires more sophisticated pattern recognition analysis. Early recognition of new patterns requires data			X				

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			points available early in the disease presentation. Demographics, ordering patterns and resource use (e.g., ventilator or intensive care utilization pattern changes) are often available earlier in the presentation of non-predictable diseases. Consumer-generated information is also valuable with respect to surveillance efforts.							
DC.2.6.2	Support for notification and response	Upon notification by an external, authoritative source of a health risk within the cared for population, alert relevant providers regarding specific potentially at-risk patients with the appropriate level of notification.	Upon receipt of notice of a health risk within a cared-for population from public health authorities or other external authoritative sources, identify and notify individual care providers or care managers that a risk has been identified and requires attention including suggestions on the appropriate course of action. This process gives a care provider the ability to influence how patients are notified, if necessary.			X				
DC.2.6.3	Support for monitoring and appropriate notifications regarding an individual patient's health	In the event of a health risk alert and subsequent notification related to a specific patient, monitor if expected actions have been taken, and execute follow-up notification if they have not.	Identifies that expected follow-up for a specific patient event (e.g., follow up to error alerts or absence of an expected lab result) has not occurred and communicate the omission to appropriate care providers in the chain of authority. Of great importance to the notification process is the ability to match a care provider's clinical privileges with the clinical requirements of the notification.	S.3.4.1	X					
DC.2.7	Support for knowledge access									
DC.2.7.1	Access clinical guidance	Provide relevant evidence-based information and knowledge to the point of care for use in clinical decisions and care planning	Examples include but are not limited to: evidence on treatment of conditions and wellness, as well as context-specific links to other knowledge resources. For example, when a condition is diagnosed provider is directed to relevant online evidence for management.				X			

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.2.7.2	Patient knowledge access	Enable the accessibility of reliable information about wellness, disease management, treatments, and related information that is relevant for a specific patient.	An individual will be able to find reliable information to answer a health question, follow up from a clinical visit, identify treatment options, or other health information needs. The information may be linked directly from entries in the health record, or may be accessed through other means such as key word searching.	DC.3.2.4; S.3.7.2			X			
DC.3	**Operations Management and Communication**									
DC.3.1	Clinical workflow tasking	Schedule and manage clinical tasks with appropriate timeliness.	Since the electronic health record will replace the paper chart, tasks that were based on the paper artifact must be effectively managed in the electronic environment. Functions must exist in the EHRS that support electronically any workflow that previously depended on the existence of a physical artifact (such as the paper chart, a phone message slip) in a paper based system. Tasks differ from other more generic communication among participants in the care process because they are a call to action and target completion of a specific workflow in the context of a patient's health record (including a specific component of the record). Tasks also require disposition (final resolution). The initiator may optionally require a response. For example, in a paper based system, physically placing charts in piles for review creates a physical queue of tasks related to those charts. This queue of tasks (for example, a set of patient phone calls to be returned) must be supported electronically so that the list (of patients to be called) is visible to the appropriate user or role for disposition. Tasks are time-limited (or finite). The state transition (e.g. created, performed and resolved) may be managed by		X					

Long Term Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			the user explicitly or automatically based on rules. For example, if a user has a task to signoff on a test result, that task should automatically be marked complete by the EHR when the test result linked to the task is signed in the system. Patients will become more involved in the care process by receiving tasks related to their care. Examples of patient related tasks include acknowledgement of receipt of a test result forwarded from the provider, or a request to schedule an appointment for a pap smear (based on age and frequency criteria) generated automatically by the EHRS on behalf of the provider.							
DC.3.1.1	Clinical task assignment and routing	Assignment, delegation and/or transmission of tasks to the appropriate parties.	Tasks are at all times assigned to at least one user or role for disposition. Whether the task is assignable and to whom the task can be assigned will be determined by the specific needs of practitioners in a care setting. Task-assignment lists help users prioritize and complete assigned tasks. For example, after receiving a phone call from a patient, the triage nurse routes or assigns a task to return the patient's call to the physician who is on call. Task creation and assignment may be automated, where appropriate. An example of a system-triggered task is when lab results are received electronically; a task to review the result is automatically generated and assigned to a clinician. Task assignment ensures that all tasks are disposed of by the appropriate person or role and allows efficient interaction of entities in the care process.		X					
DC.3.1.2	Clinical task linking	Linkage of tasks to patients and/or a relevant part of the electronic health record.	Clinical tasks are linked to a patient or to a component of a patient's medical record. An example of a well defined task is "Dr. Jones must review Mr. Smith's blood work results."		X					

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			Efficient workflow is facilitated by navigating to the appropriate area of the record to ensure that the appropriate test result for the correct patient is reviewed. Other examples of tasks might involve fulfillment of orders or responding to patient phone calls.							
DC.3.1.3	Clinical task tracking	Track tasks to guarantee that each task is carried out and completed appropriately.	In order to reduce the risk of errors during the care process due to missed tasks, the provider is able to view and track un-disposed tasks, current work lists, the status of each task, unassigned tasks or other tasks where a risk of omission exists. For example, a provider is able to create a report to show test results that have not been reviewed by the ordering provider based on an interval appropriate to the care setting.		X					
DC.3.1.3.1	Clinical task timeliness tracking	Track and/or report on timeliness of task completion.	Capability to track and review reports on the timeliness of certain tasks in accordance with relevant law and accreditation standards.		X					
DC.3.2	Clinical communication		Healthcare requires secure communications among various participants: patients, doctors, nurses, chronic disease care managers, pharmacies, laboratories, payers, consultants, etc. An effective EHRS supports communication across all relevant participants, reduces the overhead and costs of healthcare-related communications, and provides automatic tracking and reporting. The list of communication participants is determined by the care setting and may change over time. Because of concerns about scalability of the specification over time, communication participants for all care settings or across care settings are not enumerated here because it would limit the possibilities available to each care setting and implementation. However, communication between providers and		X					

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			between patients and providers will be supported in all appropriate care settings and across care settings. Implementation of the EHRS enables new and more effective channels of communication, significantly improving efficiency and patient care. The communication functions of the EHRS will eventually change the way participants collaborate and distribute the work of patient care.							
DC.3.2.1	Inter-provider communication	Support secure electronic communication (inbound and outbound) between providers to trigger or respond to pertinent actions in the care process, document non-electronic communication (such as phone calls, correspondence or other encounters) and generate paper message artifacts where appropriate.	Communication among providers involved in the care process can range from real time communication (for example, fulfillment of an injection while the patient is in the exam room), to asynchronous communication (for example, consult reports between physicians). Some forms of inter-practitioner communication will be paper based and the EHRS must be able to produce appropriate documents.		X					
DC.3.2.2	Pharmacy communication	Provide features to enable secure bidirectional communication of information electronically between practitioners and pharmacies.	When a medication is prescribed, the prescription is routed electronically to the pharmacy. This information is used to avoid transcription errors and facilitate detection of potential adverse reactions. Upon filling the prescription, information is sent back to the practitioner to indicate that the patient received the medication. If there is a question from the pharmacy, that communication can be presented to the provider with their other tasks.		X					
DC.3.2.3	Provider and patient or family communication	Trigger or respond to electronic communication (inbound and outbound) between providers and patients or patient representatives with pertinent actions in the care process.	The clinician is able to communicate with patients and others, capturing the nature and content of electronic communication, or the time and details of other communication. For example: 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		X					

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			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; or a hospital may wish to communicate with selected patients about a new smoking cessation program.							
DC.3.2.4	Patient, family and care giver education	Identify and make available electronically or in print any educational or support resources for patients, families, and caregivers that are most pertinent for a given health concern, condition, or diagnosis and which are appropriate for the person (s).	The provider or patient is presented with a library of educational materials and where appropriate, given the opportunity to document patient/caregiver comprehension. The materials can be printed or electronically communicated to the patient.		X					
DC.3.2.5	Communication with medical devices	Support communication and presentation of data captured from medical devices.	Communication with medical devices is supported as appropriate to the care setting. Examples include: vital signs/pulse-oximeter, anesthesia machines, home diagnostic devices for chronic disease management, laboratory machines, bar coded artifacts (medicine, immunizations, demographics, history, and identification).		X					
S.1	**Clinical Support**									
S.1.1	Notifiable Registries	Enable the automated transfer of formatted demographic and clinical information to and from local disease specific registries (and other notifiable registries) for patient monitoring and subsequent epidemiological analysis.	The user can export personal health information to disease specific registries, other notifiable registries, and add new registries through the addition of standard data transfer protocols or messages.	I.2.4 I.4.7	X					
S.1.2	Donor management support	Provide capability to capture or receive, and share needed information on potential organ and blood donors and recipients.	The user is able to capture or receive information on potential organ and blood donors and recipients. The user can make this information available to internal and external donor matching agencies.	I.2.4; I.4.7			X			

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.1.3	Provider directory	Provide a current directory of provider information in accordance with relevant laws, regulations, and conventions.	Maintain or access current directory of provider information in accordance with relevant laws, regulations, and conventions, including full name, address or physical location, and a 24x7 telecommunications address (e.g. phone or pager access number) for the purposes of the following functions	I.1.3; I.4	X					
S.1.3.1	Provider demographics	Provide a current directory of practitioners that, in addition to demographic information, contains data needed to determine levels of access required by the EHR security system.			X					
S.1.3.2	Provider's location within facility	Provide provider location or contact information on a facility's premises.			X					
S.1.3.3	Provider's on call location	Provide provider location or contact information when on call.			X					
S.1.3.4	Provider's general location	Provide locations or contact information at which the provider practices, in order to direct patients or queries.			X					
S.1.4	Patient directory	Provide a current directory of patient information in accordance with relevant privacy and other applicable laws, regulations, and conventions.	Provide a current directory of patient information in accordance with relevant privacy and other applicable laws, regulations, and conventions, including, when available, full name, address or physical location, alternate contact person, primary phone number, and relevant health status information for the purposes of the following functions.	DC.1.1.1; I.1.4	X					
S.1.4.1	Patient demographics	Maintain, archive and update demographic information in accordance with realm-specific recordkeeping requirements.	The minimum demographic data set must include the data required by realm-specific laws governing health care transactions and reporting. This may also include data input of death status information.	S.1.4; I.1.5.1; S.3.7.3	X					

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.1.4.2	Patient's location within a facility	Provide the patient's location information within a facility's premises.	Example: The patient census in a hospital setting		X					
S.1.4.3	Patient's residence related to the provision and administration of services	Provide the patient's residence information solely for purposes related to the provision and administration of services to the patient, patient transport, and as required for public health reporting.			X					
S.1.4.4	Optimize patient bed assignment	Enable interaction with a bed management system to ensure that the patient's bed assignments within the facility optimize care and minimize risks e.g. of exposure to contagious patients.		S.1.7	X					
S.1.5	De-identified data request management	Provide patient data in a manner that meets local requirements for de-identification.	When an internal or external party requests patient data and that party requests de-identified data (or is not entitled to identify patient information, either by law or custom), the user can export the data in a fashion that meets local requirements for de-identification. An audit trail of these requests and exports is maintained. For internal clinical audit, a re-identification key may be added to the data.	I.1.8; I.3; I.6.1	X					
S.1.6	Scheduling	Provide the necessary data to a scheduling system for optimal efficiency in the scheduling of patient care, for either the patient or a resource/device.	The system user can schedule events as required. Relevant clinical or demographic information can be linked to the task.	DC.3.1; DC.3.2.1; I.2.3; I.4.1; I.7	X					
S.1.7	Healthcare resource availability	Support the distribution of local healthcare resource information in times of local or national emergencies.	In times of identified local or national emergencies and upon request from authorized bodies, provide current status of healthcare resources including, but not limited to, available beds, providers, support personal, ancillary care areas and devices, operating theaters, medical supplies,	S.1.4.4; I.1.6; I.5.1		X				

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			vaccines, and pharmaceuticals. The intent is for the authorized body to distribute either resources or patient load to maximize efficient healthcare delivery.							
S.2	**Measurement, Analysis, Research and Reports**									
S.2.1	Measurement, monitoring, and analysis	Support measurement and monitoring of care for relevant purposes.		DC.2.6.1; I.2.4	X					
S.2.1.1	Outcome Measures	Support the capture and reporting of information for the analysis of outcomes of care provided to populations, in facilities, by providers, and in communities.		S.3.6.2	X					
S.2.1.2	Performance and accountability measures	Support the capture and reporting of quality, performance, and accountability measures to which providers/facilities/delivery systems/communities are held accountable including measures related to process, outcomes, and/or costs of care – may be used in 'pay for performance' monitoring and adherence to best practice guidelines.		DC.2.6.3; DC.2.6.2; S.3.6	X					
S.2.2	Report generation	Provide report generation features for the generation of standard and ad hoc reports.	A user can create standard and ad hoc reports for clinical, administrative, and financial decision-making, and for patient use - including structured data and/or unstructured text from the patient's health record. Reports may be linked with financial and other external data sources (i.e. data external to the entity).; Such reports may include patient-level reports, provider/facility/delivery system-level reports, population-level reports, and reports to public health agencies. Examples of patient-level reports include:	DC.2.6.3; S.3.6	X					

Long Term Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			administratively required patient assessment forms, admission/transfer/discharge reports, operative and procedure reports, consultation reports, and drug profiles. Examples of population-level reports include: reports on the effectiveness of clinical pathways and other evidence-based practices, tracking completeness of clinical documentation, etcetera. Examples of reports to public health agencies include: vital statistics, reportable diseases, discharge summaries, immunization data including adverse outcomes, cancer data, and other such data necessary to maintain the publics' health (including suspicion of newly emerging infectious disease and non-natural events).							
S.2.2.1	Health record output	Enable system user to define the records and/or reports that are considered the formal health record for disclosure purposes, and provide a mechanism for both chronological and specified record element output.	Provide hardcopy and electronic output that can 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.	I.2.4; DC.1.15	X					
S.3	**Administrative and Financial**									
S.3.1	Encounter/Episode of care management	Manage and document the health care needed and delivered during an episode of care.	Using data standards and technologies that support interoperability, encounter management promotes patient-centered/oriented care and enables real time, immediate point of service, point of care by facilitating efficient work flow and operations performance to ensure the integrity of		X					

Long Term Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			(1) the health record, (2) public health, financial and administrative reporting, and (3) the healthcare delivery process.; This support is necessary for direct care functionality that relies on providing user interaction and workflows, which are configured according to clinical protocols and business rules based on encounter specific values such as care setting, encounter type (inpatient, outpatient, home health, etc), provider type, patient's EHR, health status, demographics, and the initial purpose of the encounter.							
S.3.1.1	Specialized views	Present specialized views based on the encounter-specific values, clinical protocols and business rules	The system user is presented with a presentation view and system interaction appropriate to the context with capture of encounter-specific values, clinical protocols and business rules. This “user view” may be configurable by the user or system technicians. As an example, a mobile home health care worker using wireless laptop at the patient's home would be presented with a home health care specific workflow synchronized to the current patient's care plan and tailored to support the interventions appropriate for this patient, including chronic disease management protocols.	DC.2.2.1.2;	X					
S.3.1.2	Encounter specific functionality	Provide assistance in assembling appropriate data, supporting data collection and processing output from the encounter.	Workflows, based on the encounter management settings, will assist in determining the appropriate data collection, import, export, extraction, linkages and transformation. As an example, a pediatrician is presented with diagnostic and procedure codes specific to pediatrics. Business rules enable automatic collection of necessary data from the patient's health record and patient registry. As the provider enters data, workflow processes are triggered		X					

Long Term Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			to populate appropriate transactions and documents. For example, data entry might populate an eligibility verification transaction or query the immunization registry.							
S.3.1.3	Automatic generation of administrative and financial data from clinical record	Derive administrative or financial data from the patient's clinical data and include this in administrative and financial reports.	A user can generate a bill based on health record data. Maximizing the extent to which administrative and financial data can be derived or developed from clinical data will lessen provider reporting burdens and the time it takes to complete administrative and financial processes such as claim reimbursement. This may be implemented by mapping of clinical terminologies in use to administrative and financial terminologies.	S.3.2.2	X					
S.3.1.4	Support remote healthcare services	Support remote health care services such as telehealth and remote device monitoring by integrating records and data collected by these means into the patient's EHR for care management, billing and public health reporting purposes.	Enables remote treatment of patients using monitoring devices, and two way communications between provider and patient or provider and provider. - Promotes patient empowerment, self-determination and ability to maintain health status in the community. Promotes personal health, wellness and preventive care. For example, a diabetic pregnant Mom can self-monitor her condition from her home and use web TV to report to her provider. The same TV-internet connectivity allows her to get dietary and other health promoting information to assist her with managing her high-risk pregnancy.	DC.3.2.1; DC.3.2.3; DC.3.2.5; DC.1.1.7.2		X				
S.3.2	Information access for supplemental use	Support extraction, transformation and linkage of information from structured data and unstructured text in the patient's health record for care management, financial, administrative, and public health purposes.	Using data standards and technologies that support interoperability, information access functionalities serve primary and secondary record use and reporting with continuous record availability and access that ensure the integrity of (1) the health record, (2) public health, financial and administrative reporting, and (3) the healthcare delivery process.		X					

Long Term Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.3.2.1	Rules-driven clinical coding assistance	Make available all pertinent patient information needed to support coding of diagnoses, procedures and outcomes.	The user is assisted in coding information for clinical reporting reasons. For example, a professional coder may have to code the principle diagnosis in the current, applicable ICD as a basis for hospital funding. All diagnoses during the episode may be presented to the coder, as well as the applicable ICD hierarchy containing these codes.	I.7	X					
S.3.2.2	Rules-driven financial and administrative coding assistance	Provide financial and administrative coding assistance based on the structured data and unstructured text available in the encounter documentation.	The user is assisted in coding information for billing or administrative reasons. For example, the HIPAA 837 Professional claim requires the date of the last menstrual cycle for claims involving pregnancy. To support the generation of this transaction, the clinician would need to be prompted to enter this date when the patient is first determined to be pregnant, then making this information available for the billing process.	I.7; S.3.1.3	X					
S.3.2.3	Integrate cost/financial information	Enable the use of cost management information required to guide users and workflows.	The provider is alerted or presented with the most cost-effective services, referrals, devices etc. to recommend to the patient. This may be tailored to the patient's health insurance/plan coverage rules. Medications may be presented in order of cost, or the cost of specific investigations may be presented at the time of ordering.			X				
S.3.3	Administrative transaction processing	Support the creation (including using external data sources, if necessary), electronic interchange, and processing of transactions listed below that may be necessary for encounter management during an episode of care	Support the creation (including using external data sources, if necessary), electronic interchange, and processing of transactions listed below that may be necessary for encounter management during an episode of care. - - The EHR system shall capture the patient health-related information needed for administrative and financial purposes including reimbursement. - - Captures the episode and encounter information to pass to administrative or financial processes (e.g. triggers	DC.1.3	X					

Long Term Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			transmissions of charge transactions as by-product of on-line interaction including order entry, order statusing, result entry, documentation entry, medication administration charting.) - - Automatically retrieves information needed to verify coverage and medical necessity. - As a byproduct of care delivery and documentation, captures and presents all patient information needed to support coding. Ideally performs coding based on documentation. - - Clinically automated revenue cycle - examples of reduced denials and error rates in claims. - - Clinical information needed for billing is available on the date of service. - - Physician and clinical teams do not perform additional data entry / tasks exclusively to support administrative or financial processes.							
S.3.3.1	Enrollment of patients	Support interactions with other systems, applications, and modules to enable enrollment of uninsured patients into subsidized and unsubsidized health plans, and enrollment of patients who are eligible on the basis of health and/of financial status in social service and other programs, including clinical trials;	Expedites determination of health insurance coverage, thereby increasing patient access to care. The provider may be alerted that uninsured patients may be eligible for subsidized health insurance or other health programs because they meet eligibility criteria based on demographics and/or health status. For example: a provider is notified that the uninsured parents of a child enrolled in S-CHIP may now be eligible for a new subsidized health insurance program; a provider of a pregnant patient who has recently immigrated is presented with information about eligibility for subsidy. Links may be provided to online enrollment forms. When enrollment is determined, the health coverage information needed for processing administrative and financial documentation, reports or transactions is captured.			X				

Long Term Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.3.3.2	Eligibility verification and determination of coverage	Support eligibility verification for health insurance and special programs, including verification of benefits and pre-determination of coverage;	Automatically retrieves information needed to support verification of coverage at the appropriate juncture in the encounter workflow. Improves patient access to covered care and reduces claim denials. When eligibility is verified, the EHRS would capture eligibility information needed for processing administrative and financial documentation, reports or transactions - updating or flagging any inconsistent data. In addition to health insurance eligibility, this function would support verification of registration in programs and registries, such as chronic care case management and immunization registries. An EHRS would likely verify health insurance eligibility prior to the encounter, but would verify registration in case management or immunization registries during the encounter.		X					
S.3.3.3	Service authorizations	Support the creation of requests, responses and appeals related to service authorization, including prior authorizations, referrals, and pre-certification;	Automatically retrieves information needed to support verification of medical necessity and prior authorization of services at the appropriate juncture in the encounter workflow. Improves timeliness of patient care and reduces claim denials.			X				
S.3.3.4	Support of service requests and claims	Creation of health care attachments for submitting additional clinical information in support of service requests and claims;	Automatically retrieves structured data, including lab, imaging and device monitoring data, and unstructured text based on rules or requests for additional clinical information in support of service requests or claims at the appropriate juncture in the encounter workflow			X				
S.3.3.5	Claims and encounter reports for reimbursement	Support the creation of claims and encounter reports for reimbursement	Automatically retrieves information needed to support claims and encounter reporting at the appropriate juncture in the encounter workflow.			X				
S.3.3.6	Health service reports at	Support the creation of health service	Effective use of this function means that	S.2.2		X				

Long Term Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
	the conclusion of an episode of care.	reports at the conclusion of an episode of care. Support the creation of health service reports to authorized health entities, for example public health, such as notifiable condition reports, immunization, cancer registry and discharge data that a provider may be required to generate at the conclusion of an episode of care.	clinicians do not perform additional data entry to support health management programs and reporting.							
S.3.4	Manage Practitioner/Patient relationships	Identify relationships among providers treating a single patient, and provide the ability to manage patient lists assigned to a particular provider.	This function addresses the ability to access and update current information about the relationships between caregivers and the subjects of care. This information should be able to flow seamlessly between the different components of the EHRS, and between the EHRS and other systems. Business rules may be reflected in the presentation of, and the access to this information. The relationship among providers treating a single patient will include any necessary chain of authority/responsibility. Example: In a care setting with multiple providers, where the patient can only see certain kinds of providers (or an individual provider), allow the selection of only the appropriate providers. Example: The user is presented with a list of people assigned to a given practitioner and may alter the assignment as required - to a group, to another individual or by sharing the assignment.	DC.2.6.3 ; S.2.2	X					
S.3.5	Subject to Subject relationship	Capture relationships between patients and others and facilitate access on this basis (e.g. parent of a child) if appropriate.	A user may assign the relationship of parent to a person who is their offspring. This relationship may facilitate access to their health record as parent of a young child.	S.1.4.1; I.1.3; I.1.5; I.2.2	X					
S.3.5.1	Related by genealogy	Provide information of Related by genealogy (blood relatives)			X					
S.3.5.2	Related by insurance	Provide information of Related by			X					

Long Term Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
		insurance (domestic partner, spouse, guarantor)								
S.3.5.3	Related by living situation	Provide information of Related by living situation (in same household)			X					
S.3.5.4	Related by other means	Provide information of Related by other means (e.g. epidemiologic exposure or other person authorized to see records – Living Will cases)			X					
S.3.6	Acuity and Severity	Provide the data necessary for the capability to support and manage patient acuity/severity of illness/risk adjustment		S.2.1.2	X					
S.3.7	Maintenance of supportive functions	Update EHR supportive content on an automated basis.			X					
S.3.7.1	Clinical decision support system guidelines updates	Receive and validate formatted inbound communications to facilitate updating of clinical decision support system guidelines and associated reference material		DC.1.2.1; DC.2.6.3; DC.2.7.1		X				
S.3.7.2	Patient education material updates	Receive and validate formatted inbound communications to facilitate updating of patient education material		DC.3.2.4		X				
S.3.7.3	Patient reminder information updates	Receive and validate formatted inbound communications to facilitate updating of patient reminder information from external sources such as Cancer or Immunization Registries		I.5.2; S.1.4.1			X			
S.3.7.4	Public health related updates	Receive and validate formatted inbound communications to facilitate updating of public health reporting guidelines		I.5.2		X				

Long Term Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.1	**Security**	Secure the access to the EHR-S and EHR information. Prevent unauthorized use of data, data loss, tampering and destruction.	To enforce security, all EHR-S applications must adhere to the rules established to control access and protect the privacy of EHR information. Security measures assist in preventing unauthorized use of data and protect against loss, tampering and destruction.		X					
I.1.1	Entity Authentication	Authenticate EHR-S users and/or entities before allowing access to an EHR-S. Manage the sets of access-control permissions granted within an EHR-S	Both users and application are subject to authentication. The EHR-S must provide mechanisms for users and applications to be authenticated. Users will have to be authenticated when they attempt to use the application, the applications must authenticate themselves before accessing EHR information managed by other applications or remote EHR-S'. In order for authentication to be established a Chain of Trust agreement is assumed to be in place. Examples of entity authentication include: • Username/ password; • Digital certificate; • Secure token; • Biometrics		X					
I.1.2	Entity Authorization.	Manage the sets of access-control permissions granted to EHR-S users. An EHR-S grants authorizations to users, for roles, and within contexts. A combination of the authorization levels may be applied to control access to EHR-S functions or data.	EHR-S Users are authorized according to identity, role, work-assignment, present condition and/or location. • User based authorization refers to the permissions granted or denied based on the identity of an individual. An example of User based authorization is patient defined denial of access to all or part of a record to a particular party for reasons such as privacy. • Role based authorization refers to the responsibility or function performed in a particular operation or process. Example roles include: nurse, dietician, administrator, legal guardian, and auditor. • Context-based Authorization is defined by ISO as security-relevant properties of the		X					

Long Term Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			context in which an access request occurs, explicitly time, location, route of access, and quality of authentication. In addition to the standard, context authorization for EHR-S is extended to satisfy special circumstances such as, assignment, consents, or other healthcare-related factors. A context-based example might be a right granted for a limited period to view those—and only those—EHR records connected to a specific topic of investigation.							
I.1.3	Entity Access Control	Verify and enforce access control to EHR information and functions for end-users, applications, sites, etc., to prevent unauthorized use of a resource, including the prevention or use of a resource in an unauthorized manner.	This is a fundamental function of EHR-S applications. To ensure access is controlled, the EHR-S applications will perform an identity lookup of users or application for any operations that require it (authentication, authorization, secure routing, querying, etc.) and enforce the system and information access rules that have been defined.		X					
I.1.3.1	Patient Access Management	Enable a healthcare professional to manage a patient's access to the patient's personal health information. Patient access-management includes allowing access to patient/subject-of-care information and restricting access to information that is potentially harmful to the patient/subject.	A healthcare professional will be able to manage a patient's ability to view his/her EHR. Typically, a patient has the right to view much of his/her EHR. However, a healthcare provider may sometimes need to prevent a patient (or guardian) from viewing parts of the record. For example, a patient receiving psychiatric care might harm himself (or others) if he reads the doctor's evaluation of his condition. Furthermore, reading the doctor's therapy-plan might actually cause the plan to fail.			X				
I.1.4	Non-repudiation	Limit an EHR-S user's ability to deny (repudiate) an electronic data-exchange originated or authorized by that user.	Non-repudiation ensures that a transferred message has been sent and received by the parties claiming to have sent and received the message. Non-repudiation is a way to guarantee that the sender of a message cannot later deny having sent the message and that the recipient cannot deny having received the message. Non-repudiation can		X					

Long Term Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			be achieved through the use of a: • Digital signature -- which serves as a unique identifier for an individual (much like a written signature). • Confirmation service -- which utilizes a message transfer agent to create a digital receipt (providing confirmation that a message was sent and/or received). • Timestamp -- which proves that a document existed at a certain date and time.							
I.1.5	Secure Data Exchange	Send and receive EHR data securely.	Exchange of EHR information requires appropriate security and privacy considerations, including data obfuscation and both destination and source authentication when necessary. For example, it might be necessary to encrypt data sent to remote destinations. This function requires that there is an overall coordination regarding what information is exchanged between EHR-S entities and how that exchange is expected to occur. The policies applied at different locations must be consistent or compatible with each other in order to ensure that the information is protected when it crosses entity boundaries within the EHR-S or external to the EHR-S.		X					
I.1.6	Secure Data Routing	Route electronically-exchanged EHR data only to/from known, registered, and authenticated destinations/sources (according to applicable healthcare-specific rules and relevant standards).	EHR-S applications need to ensure that they are exchanging EHR information with the entities (applications, institutions, directories) they expect. This function depends on entity authorization, and authentication to be available in the system. For example, a physician practice management application in the EHR-S, might send claim attachment information to an external entity. For this, the application must use a secure routing method which ensures that both the sender and receiving sides are authorized to engage in the	I.1.1; I.1.2	X					

Long Term Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			information exchange.							
I.1.7	Document Attestation	Manage electronic attestation of documents including the retention of the signature of attestation (or certificate of authenticity) associated with an incoming or outgoing document.	The purpose of attestation is to show authorship and assign responsibility for an act, event, condition, opinion, or diagnosis. Every entry in the health record must be identified with the author and should not be made or signed by someone other than the author. (Note: A transcriptionist may transcribe an author's notes and a senior clinician may attest to the accuracy of another's statement of events.) Attestation is required for (paper or electronic) entries such as narrative/progress notes, assessments, flow sheets, and orders. Digital signatures may be used to implement document attestation. For an incoming document, if included, the record of attestation is retained. Attestation functionality must meet applicable legal, regulatory and other applicable standards or requirements.		X					
I .1.8	Enforcement of Confidentiality	Enforce patient privacy rules as they apply to various parts of the EHR-S through the implementation of privacy mechanisms.	A patient's privacy may be adversely affected when EHRs are not held in confidence. Privacy rule enforcement decreases unauthorized access and promotes the level of EHR confidentiality.	I.6.1	X					
I.2	**Health record information and management**	Manage EHR information across EHR-S applications by • Ensuring that clinical information is valid according to clinical rules; • Ensuring that clinical information is accurate and complete according to clinical rules; and • Tracking amendments to clinical documents.	Since EHR information will typically be available on a variety of EHR-S applications, the EHR-S must provide the ability to access, manage and verify accuracy and completeness of EHR information, and provide the ability to audit the use of (and access to) EHR information.		**X**					
I.2.1	Data Retention and Availability	Retain, ensure availability, and destroy health record information according to organizational standards.	Discrete and structured EHR data, records and reports must be: • Made available to users in a timely	I.1.7	X					

Long Term Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
		This includes: • Retaining all clinical documents for the time period designated by policy or legal requirement; • Retaining inbound documents as originally received (unaltered); • Ensuring availability of information for the legally proscribed period of time; • Providing the ability to destroy EHR data/records in a systematic way according to policy and after the legally proscribed retention period.	fashion; • Stored and retrieved in a semantically intelligent and useful manner (for example, chronologically, retrospectively per a given disease or event, or in accordance with business requirements, local policies, or legal requirements); • Retained for a legally-proscribed period of time; • Destroyed in a systematic manner in relation to the applicable retention period. The system must also allow an organization to identify data/records to be destroyed, and to review and approve destruction before it occurs.							
I.2.2	Audit trail	Provide audit trail capabilities for resource access and usage indicating the author, the modification (where pertinent), and the date/time at which a record was created, modified, viewed, extracted, or deleted. Audit trails extend to information exchange. Audit functionality includes the ability to generate audit reports and to interactively view change history for individual health records or for the EHR-S.	Audit functionality extends to security audits, data audits, audits of data exchange, and the ability to generate audit reports. Audit trail settings should be configurable to meet the needs of local policies. Examples of audited areas include: • Security audit - logs access attempts and resource usage including user login, file access, other various activities, and whether any actual or attempted security violations occurred. • Data audit - records who, when, and by which system an EHR record was created, updated, translated , viewed, extracted, or (if local policy permits) deleted. Audit-data may refer to system setup data or to clinical and patient management data. • Information exchange audit – record data exchanged between EHR-S applications (for example, sending application; the nature, history, and content of the information exchanged; and information about data transformations (for example, vocabulary translations), reception event details, etc.). • Audit reports – should be flexible and		X						

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			address various users' needs. For example, a legal authority might want to know how many patients a given healthcare provider treated while the provider's license was suspended. Similarly, in some cases a report detailing all those who modified or viewed a certain patient record might be needed. Security audit trails and data audit trail are used to verify enforcement of business, data integrity, security, and access-control rules.							
I.2.3	Synchronization	Maintain synchronization involving: • Interaction with entity directories; • Linkage of received data with existing entity records; • Location of each health record component; • Communication of changes between key systems.	The 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, the EHR-S maintains all the relevant information regarding the health record in synchrony. For example, if an MRI is ordered by a physician, a set of diagnostic images and a radiology report will be created. The patient demographics, the order for MRI, the diagnostic images associated with the order, and the report associated with the study must all be in synch in order for the clinicians to view the complete record.		X					
I.2.4	Extraction of health record information	Manage data extraction in accordance with 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 can be used to exchange data and provide reports for primary and ancillary purposes.	The EHR-S enables an authorized user (such as a clinician) to access and aggregate the distributed information that corresponds to the health record or records which are needed for viewing, reporting, disclosure, etc. The EHR-S must be able to 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 continuity of care records. In addition, data extractions can be used for administrative, financial, research, quality analysis and public health		X					

Long Term Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			purposes.							
I.3	**Unique identity, registry, and directory services**	Enable secure use of registry services and directories to uniquely identify, link and retrieve records and identify the location of subjects of care and providers for health care purposes; payers, health plans, sponsors, employers and public health agencies for administrative and financial purposes; health care resources and devices for resource management purposes.	Unique identity, registry, and directory service functions are critical to successfully managing the security, interoperability, and the consistency of the health record data across the EHR-S.		X					
I.3.1	Distributed registry access	Enable system communication with registry services through standardized interfaces and extend to services provided externally to the EHR-S.	The EHR-S will rely on a set of infrastructure services, directories, and registries (organized hierarchically) that support communication between EHR-Systems. For example, a patient treated by a primary care physician for a chronic condition may become ill while out of town. The new provider's EHR-S will interrogate a local, regional, or national registry to find the patient's previous records. From the primary care record, the remote EHR-S will retrieve relevant information (in conformance with applicable patient privacy and confidentiality rules). An example of local registry usage is an EHR-S application sending a query message to the Hospital Information System to retrieve a patient's demographic data.			X				
I.4	**Health Informatics and Terminology Standards**	Ensure consistent terminologies, data correctness and interoperability by complying with standards for health care transactions, vocabularies, code sets, and artifacts such as templates, interface, decision support algorithms, and clinical document architecture.	Examples that EHR-S applications need to support are a consistent set of terminologies such as: LOINC, SNOMED, ICD-10 and messaging standards such as HL7. Vocabularies may be provided through a terminology service internal or external to the EHR-S.		X					
I.4.1	Maintenance and versioning of health	Enable version control according to customized policies to ensure	Version control allows for multiple sets/versions of the same terminology to		X					

Long Term Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
	informatics and terminology standards.	maintenance of utilized standards.	exist and be distinctly recognized over time. Terminology versioning supports retrospective analysis and research, as well as interoperability with systems that comply with different releases of the standard. Similar functionality exists for messaging and other informatics based standards. It should be possible to retire deprecated versions when applicable business cycles are completed while maintaining obsolescent code sets for possible claims adjustment throughout the claim's lifecycle.							
I.4.2	Mapping local terminology, codes, and formats	Map or translate local terminology, codes and/or formats to standard terminology, codes, and/or formats to comply with health informatics standards.	An EHR-S application which uses local terminology, must be capable of mapping and/or converting the local terminology into a standard terminology. For example, a local term or code for "Ionized Calcium" must be mapped to an equivalent, standardized (LOINC) term or code when archiving or exchanging artifacts.		X					
I.5	**Interoperability Standards**	Provide automate health delivery processes and seamless exchange of key clinical and administrative information.	Interoperability standards enable an EHR-S to operate as a set of applications.		**X**					
I.5.1	Interchange Standards	Support the ability to operate seamlessly with complementary systems by adherence to key interoperability standards. Systems may refer to EHR systems, applications within an EHR-S, or other authorized entities that interact with an EHR-S.	Interoperable EHR-S applications require infrastructure components that adhere to standards for connectivity, information structures, and semantics ("interoperability standards"). Standard EHR Infrastructure components, which may exist locally or remotely, must support seamless operations between complementary systems. Standard infrastructure components include: • HL7 Messages, Clinical Document Architecture (CDA), X12N healthcare transactions, Digital Imaging and Communication in Medicine (DICOM). • Common semantic representation to support information exchange. EHR-	I.4.2	X					

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			Systems may use different standardized or local vocabularies. In order to reconcile the semantic differences across vocabularies, the EHR-S must be able to adhere to standard vocabulary or leverage vocabulary lookup and mapping capabilities that are included in the Health Informatics and Terminology Standards. • Support of multiple interaction modes 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. In addition, even in the case where store-and-forward, message-oriented interoperability is used, the applications may need to support the appropriate interaction mode. For example: Unsolicited Event Notifications, Query/Response, Query for display, Unsolicited summary, structured/discrete, and unstructured clinical documents.							
I.5.2	Application Integration Standards	Provide integration with complementary applications and infrastructure services (directory, vocabulary, etc.) using standard-based application programming interfaces (for example, CCOW).	Similar to standard-based messaging, standard-based application integration requires that the EHR-S application use standardized programming interfaces, where applicable. For example, CCOW may be used for visual integration and WfMC for workflow integration.		X					
I.5.3	Interchange Agreements	Support interaction with entity directories to determine the recipients' address profile and data exchange requirements and use these rules of interaction when exchanging information with partners.	An EHR-S will use the entity registries to determine the security, addressing, and reliability requirements between partners and use this information to define how data will be exchanged between the sender and the receiver.	I.3	X					

Long Term Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.6	**Business Rules Management**	Manage the ability to create, update, delete (or disable) and version business rules including institutional preferences. Apply business rules from necessary points within the EHR-S to control system behavior. Audit changes made to business rules, and audit compliance to and overrides of applied business rules.	Business Rule implementation functions include: decision support, diagnostic support, workflow control, access privileges, and system and user defaults and preferences. The EHR-S should support the ability for providers and institutions to customize decision support components such as triggers, rules or algorithms, and the wording of alerts and advice, to meet local requirements and preferences. Examples of applied business rules include: • Suggesting diagnosis based on the combination of symptoms (flu-like symptoms combined with widened mediastinum suggesting anthrax • Classifying a pregnant patient as high risk due to factors such as age, health status, and prior pregnancy outcomes. • Sending an update to an immunization registry when a vaccination is administered • Limiting access to mental health information to a patient's psychiatrist/psychologist • Establishing system level defaults such as for vocabulary data sets to be implemented. • Establishing user level preferences such as allowing the use of health information for research purposes.		X					
I.7	**Workflow**	Workflow management functions include both the management and set up of work queues, personnel, and system interfaces as well as the implementation functions that use workflow-related business rules to direct the flow of work	Workflow management functions include: • Distribution of information to and from internal and external parties; • Support for task-management as well as parallel and serial task distribution;		X					

Long Term Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
		assignments.	• Support for notification and task routing based on system triggers; and • Support for task assignments, escalations and redirection in accordance with business rules. Workflow definitions and management may be implemented by a designated application or distributed across EHR-S applications.							

EHR Functional Outline and Standard
Care Category and Select Care Setting Definitions

Care Settings, Profiles, and Outreach Work Group

Tier 1: Care Category

Care Category:	Care in the Community
Version:	1.3
Date:	January 27, 2004
Care Category Definition	
Any setting whose primary function is not designed/defined for health care and is not licensed as a health care facility. Care may be related to acute or chronic diseases, disabilities, or injuries, or may be related to prevention and wellness. Care may be provided as a follow up to an acute episode (as with home health); it may be offered as a community service (as with faith-based or social services organizations hosting screenings or immunizations); it may be offered on-site by non-healthcare entities (e.g. workplace and school health clinics); or it may be in the form of self-health management for prevention or chronic disease. Care may be provided by a licensed healthcare provider, by a non-healthcare provider, or by individuals or family caregivers. A significant feature of care in the community is that the collection, and/or storage, and/or transmission of personal health information is not necessarily linked to a single healthcare provider or payer organization. Care in the community often entails the collection and sharing of personal health information across place and time	

Tier 2: Care Settings within the Care Category

Examples of Care Settings INCLUDED in This Care Category and Rationale-
Settings Included: Home, workplace, support groups, Internet, schools, faith-based organizations, social services. ***Why Examples Conform to Care Category Definition:*** These are places where personal health information may be collected, stored, or transmitted from or to, but whose primary function is not designed/defined for health care and which are not licensed as a health care facility.
Examples of Care Settings NOT INCLUDED in This Care Category and Rationale
Settings Not Included: Hospitals, nursing homes, doctor's offices, pharmacies, licensed community clinics ***Why Examples Do Not Conform to Care Category Definition:*** The primary function of these settings is designed/defined for health care and/or they are licensed as a health care facility.

Care Setting within This Category Scoped for the DSTU Ballot [See scenario and prioritized list of DSTU functions]	
Care Setting:	Skilled Home Health
Version:	1.4
Date:	January 27, 2004
Care Setting Definition:	
To illustrate the EHR functional model within Care in the Community within the DSTU period, skilled home health is defined as care provided in the home by licensed providers in support of continuity of care for a specific episode of illness or injury.	

Basic Scenario –Home Health

1
John Doe is a 67 year old white male with a history of asthma, diabetes and hypertension. With his wife's help, he has managed his conditions at home for many years. A year ago, through a rural telehealth grant from a national health agency, John and his doctor have remote chronic disease management support tools. [C.2.2.1.7] A home monitoring device tracks his blood pressure and blood glucose levels. The monitoring device also records John's answers to question prompts regarding daily diet and exercise. These data are sent directly to his EHR in his doctor's office [C.1.1.12; C.2.2.3; S.3.1.4 *]. John also regularly uses a Peak Flow Meter and emails his levels to the doctor. [C.1.1.11] The EHR-S periodically sends John reminders about his medications, diet, and home allergen control. [C.2.2.3] . John's doctor tracks all his data through the EHR-S and calls him when he sees a need to adjust John's medications. John and his wife sometimes read online patient information about his conditions. [C.2.6.5; C.3.2.4.]

2
Suddenly, John develops a fever, chest congestion, and a dry non-productive cough. He is diagnosed with pneumonia resulting from influenza and admitted to the hospital. [See Acute Care scenario]. Following his discharge from the hospital, John is transferred to a skilled nursing facility and ultimately changes his primary residence to an assisted living facility within the community. [See Nursing Home scenario.]

3
Everywhere Home Care received a referral request, via the web, and pager alert, from the assisted living facility using a product with a secure information link between the acute and post acute providers. [C.3.2.1.] Everywhere Home Care confirms acceptance of the referral from the assisted living facility and patient data is transmitted. [C.1.1.7, I.1.6.0.].

4
Physician orders are for Skilled Nursing services to provide education regarding chronic obstructive pulmonary disease management, safety instructions, instructions on his oxygen equipment and utilization, respiratory assessments, including monitoring his oxygen saturation levels, and for physical therapy evaluation for his reconditioning home exercise plan and fall prevention plan. [C.1.4.2.]

5
As part of the intake process, the agency staff checks the HIQH (Health Insurance Query for Home Health agencies) to avoid billing conflicts with overlapping home health episodes and verify insurance coverage. [S.3.3.2] HIQH is an on-line inquiry transaction citing information pertinent to determining primary home health agency status. They ensure that a referral was made to a durable medical equipment vendor (DME) for oxygen delivery and if not initiate a referral to the patients preferred DME vendor.

6

On admission to the agency, advance directives, the statement of patient rights, a privacy notice, an agency specific service agreement, and consents are reviewed, signed, and noted in John's EHR. [C.1.5.1.] A comprehensive assessment, including the patient's medical history (provided by the patient and/or caregiver), physical assessment, and completion of the outcome and assessment form required by the national health insurance agency for all patients like John) is performed by the skilled nurse, and the data are entered into the EHR. [C.1.2.2.] The EHR synthesizes the data collected to develop a Plan of Treatment (which includes a listing of the patient's diagnosis, medication profile, safety measures, physical limitations, activities permitted, allergies, mental status, prognosis, treatment orders for all disciplines involved in the episode of care, goals, rehab potential, and discharge plans), patient specific disease based pathway (standardized disease based pathways incorporate industry and agency specific best practices guidelines). [C.1.2.2.] The resulting plan will be available to the Physical Therapist to import via modem to a handheld, notebook, or laptop computer, at the time of her initial evaluation visit.[S.3.1.1]

7
The outcome and assessment form is encoded and transmitted to the health insurance agency. [S.3.2.1, I.1.6.0.] The values are used to establish a Case-mix adjustment and then converted to a medical care payment code, which is transmitted to the intermediary for payment purposes. [S.3.2.2., S.3.3.5., I.6.0]

8
The patient's past medical history of insulin-dependant Diabetes Mellitus and the initial assessment indicated an elevated blood glucose level and inconsistency in patient's compliance with administering his insulin at appropriate times. Due to this assessment John's telehealth monitor was upgraded to include an audible alarm each day to remind him to monitor his blood glucose, take his insulin, and reinforce the education regarding disease process, medication, and/or procedures for administering his medication. This data will be transmitted to both John's primary care provider and the home health agency's server and will become an integrated part of the shared patient's record [C.1.1.0, C.1.1.12, I.1.6.0.]

9
Ongoing assessments/interventions continue throughout the care with coordination of services for laboratory draws, delivery of medications, obtaining home equipment, community resource referrals for support groups, and financial assistance. [C.1.4.1.; C.1.4.2.] All data collected on the patient becomes an integrated record showing ongoing changes in the level of care and performance. All entries show "who" made the entry, when, and "how" (for example, skilled nurse entry with unique ID, transcribing secretary, interface entry from other database, telehealth entry). [C.1.1.12, I.1.2.6.]

10
As goals are met, plans are made to discharge John from home health. [C.1.2.3] A pulse oxymeter device is added to his home monitoring device and he will continue on the previous installed telehealth monitoring devices. [C.1.4.2] John's doctor recommends additional online educational resources for John and his wife, including a reputable online support group of diabetes patients. [C.2.6.5.]

EHR-S Functional Model: Care in The Community

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.1	**Care Management**									
DC.1.1	Health information capture, management, and review		For those functions related to data capture, data is captured using standardized code sets or nomenclature, depending on the nature of the data. Data may also be captured from devices.							
DC.1.1.1	Identify and locate a patient record	Maintain and identify a single patient record for each patient.	Key identifying information is stored and linked to the patient record. A lookup function uses this information to uniquely identify the patient.		X				1,3	
DC.1.1.2	Manage patient demographics	Capture and maintain demographic information that is reportable and, where appropriate, trackable over time.	Contact information including addresses and phone numbers, as well as key demographic information such as date of birth, sex, and other information is stored and maintained for reporting purposes and for the provision of care.	S.1.4.0; S.1.4.1; S.1.4.2; I.1.4.4; I.1.4.5	X				1,3	
DC.1.1.3	Manage summary lists	Create and maintain patient-specific summary lists.	Patient summary lists can be created and maintained when appropriate for the patient or a particular care setting.	S.1.4.0; S.1.4.1; S.1.4.2; I.1.4.4; I.1.4.5	X					

Care in the Community, Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.1.1.3.1	Manage problem list	Create and maintain patient-specific problem lists.	A problem list may include, but is not limited to: Chronic conditions, diagnoses, or symptoms, 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 history information and tracking the changing character of the problem and its priority. All pertinent dates, including date noted, dates of any changes in problem specification or prioritization, and date of resolution are stored. The entire problem history for any problem in the list is viewable.		1				1,3,6	
DC.1.1.3.2	Manage medication list	Create and maintain patient-specific medication lists.	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 is viewable. Medication lists are not limited to medication orders recorded by providers, but may include patient-reported medications.		1				6	
DC.1.1.3.3	Manage allergy and adverse reaction list	Create and maintain patient-specific allergies and reactions.	Allergens and substances are identified and coded (whenever possible) and the list is managed over time. All pertinent dates, including patient-reported events, are stored and the description of the patient allergy and reaction is modifiable over time. The entire allergy history, including reaction, for any allergen is viewable.		1				6	

Care in the Community, Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.1.1.4	Manage Patient History	Capture, review, and manage medical, procedural, social, and family history including the capture of pertinent negative histories, patient-reported or externally available patient clinical history.	Patient historical data related to previous medical diagnoses, surgeries and other procedures performed on the patient, and relevant health conditions of family members is captured through such methods as patient reporting (for example interview, medical alert band) or electronic or non-electronic historical data. This data may take the form of a positive or a negative such as: "The patient/family member has had..." or "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 is captured and presented alongside locally captured documentation and notes wherever appropriate.		X				3,6	
DC.1.1.5	Summarize health record	Present a chronological, filterable, comprehensive review of the patient's entire clinical history, subject to confidentiality constraints.	A key feature of an electronic health record is its ability to present, summarize, filter, and facilitate searching through the large amounts of data collected during the provision of patient care. Much of this data is date or date-range specific and should be presented chronologically. Local confidentiality rules that prohibit certain users from accessing certain patient information must be supported.			X				
DC.1.1.6	Manage clinical documents and notes	Create, addend, and authenticate transcribed or directly-entered clinical documentation and notes.	Clinical documents and notes may be created in a narrative form, which may be based on a template. The documents may also be structured documents that result in the capture of coded data. Each of these forms of clinical documentation are important and appropriate for different users and situations.		X				6,7,8,9	
DC.1.1.7	Capture key health data	Capture, manage, and review key health data by a variety of users.	Care-setting dependent data is entered by a variety of caregivers. Details of who entered data and when was captured should be tracked.	DC.3.2.5; S.3.1.4					3,6,9	

Care in the Community, Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.1.1.7.1	Capture external clinical documents	Incorporate clinical documents and notes from external sources.	Mechanisms for incorporating external clinical documentation, such as image documents, and other clinically relevant data are available. Data incorporated through these mechanisms is presented alongside locally captured documentation and notes wherever appropriate.		X				1,3,8,10	
DC.1.1.7.2	Capture patient-originated data	Capture patient-provided and patient-entered clinical data.	Patients may provide data for entry into the health record or be given a mechanism for entering this data directly. Patient-entered data intended for use by care providers will be available for their use.		X				1,8,10	
DC.1.2	Care plans, guidelines, and protocols									
DC.1.2.1	Present care plans, guidelines, and protocols	Present organizational guidelines for patient care as appropriate to support order entry and clinical documentation.	Care plans, guidelines, and protocols may be site specific or industry-wide standards. They may need to be managed across one or more providers. Tracking of implementation or approval dates, modifications and relevancy to specific domains or context is provided.		X				6,8,10	
DC.1.2.2	Manage patient-specific care plans, guidelines, and protocols.	Provide administrative tools for organizations to build guidelines and protocols for use during patient care.	Guidelines or protocols may contain goals or targets for the patient, specific guidance to the providers, suggested orders, and nursing interventions, among other items.	DC.1.2.1	X				6,8,10	

Care in the Community, Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.1.2.3	Manage patient-specific instructions	Generate and record patient-specific instructions related to pre- and post-procedural and post-discharge requirements.	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.		X				10	
DC.1.3	Medication ordering and management									
DC.1.3.1	Order medication	Create prescriptions or other medication orders with detail adequate for correct filling and administration by pharmacy and clinical staff.	Different medication orders require different levels and kinds of detail, as do medication orders placed in different situations. The correct details are recorded for each situation. Administration or patient instructions are available for selection by the ordering clinicians, or the ordering clinician is facilitated in creating such instructions. Appropriate time stamps for all medication related activity is generated.	DC.3.2.3	X				6	
DC.1.3.2	Manage medication formularies	Provide information regarding compliance of medication orders with formularies.	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. 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.				X			

Care in the Community, Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.1.3.3	Manage medication administration	Present to appropriate clinicians the medications that are to be administered to a patient, under what circumstances, and capture administration details.	In a setting in which medication orders are to be administered by a clinician rather than the patient him or herself, 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. Additionally, the clinician is able to 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.		X				6,9	
DC.1.4	Orders, referrals, and results management									
DC.1.4.1	Place generic orders	Capture and track orders based on input from specific care providers.	Orders that request actions or items can be captured and tracked. Examples include orders to transfer a patient between units, to ambulate a patient, for medical supplies, durable medical equipment, home IV, and diet or therapy orders. For each orderable item, the appropriate detail, including order identification and instructions, can be captured. Orders should be communicated to the correct recipient for completion if appropriate.	DC.1.3.1	X				4,5,6,9,	
DC.1.4.2	Order diagnostic tests	Submit diagnostic test orders based on input from specific care providers.	For each orderable item, the appropriate detail and instructions must be available for the ordering care provider to complete. Orders for diagnostic tests should be transmitted to the correct destination for completion or generate appropriate requisitions for communication to the relevant resulting agencies.		X				9	

Care in the Community, Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.1.4.3	Manage order sets	Provide order sets based on provider input or system prompt.	Order sets allow a care provider to choose common orders for a particular circumstance or disease state according to best practice or other criteria. Recommend order sets may be presented based on patient data or other contexts.				X			
DC.1.4.4	Manage referrals	Enable the origination, documentation and tracking of referrals between care providers or care settings, including clinical and administrative details of the referral.	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.		X				3,4,5,6,9,	
DC.1.4.5	Manage results	Route, manage and present current and historical test results to appropriate clinical personnel for review, filtering and comparison.	Results of tests are presented in an easily accessible manner and to the appropriate care providers. Flow sheets, graphs, or other tools allow care providers to view or uncover trends in test data over time. In addition to making results viewable, it is often necessary to send results to appropriate care providers using an electronic messaging systems, pagers, or other mechanism. Results may also be routed to patients electronically or in the form of a letter.			X				
DC.1.4.6	Order blood products and other biologics	Communicate with appropriate sources or registries to order blood products or other biologics.	Interact with a blood bank system or other source to manage orders for blood products or other biologics. Use of such products in the provision of care is captured. Blood bank or other functionality that may come under federal or other regulation (such as by the FDA in the United States) is not required; functional communication with such a system is.	S.1.1.0				X		

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.1.5	Consents and authorizations									
DC.1.5.1	Manage consents and authorizations	Create, maintain, and verify patient treatment decisions in the form of consents and authorizations when required during the ordering process.	Treatment decisions are documented and include the extent of information, verification levels and exposition of treatment options. This documentation helps ensure that decisions made at the discretion of the patient, family, or other responsible party govern the actual care that is delivered or withheld.		X				6	
DC.1.5.2	Manage patient advanced directives	Capture, maintain and provide access to patient advanced directives	Patient advanced directives can be captured as well as the date and circumstances under which the directives were received, and the location of any paper records of advanced directives as appropriate.		X				6	
DC.2	**Clinical Decision Support**									
DC.2.1	Health information capture and review			D.C. 1.1						
DC.2.1.1	Support for standard assessments	Offer knowledge-based prompts to support the adherence to care plans, guidelines, and protocols at the point of information capture.	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 II diabetic review, fall and 70+, rectal bleeding etc. As another example, to appropriately manage the use of restraints, an online alert is presented defining the requirements for a behavioral health restraint when it is selected.		X				6	

Care in the Community, Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.2.1.2	Support for Patient Context-enabled Assessments	Offer knowledge-based prompts based on patient-specific data at the point of information capture.	When a clinician fills out an assessment, data entered is matched against data already in the system to identify potential linkages. For example, the system could scan the medication list and the knowledge base to see if any of the symptoms are side effects of medication already prescribed. Important but rare diagnoses could be brought to the doctor's attention – for instance ectopic pregnancy in a woman of child bearing age who has abdominal pain.			X			6	
DC.2.1.3	Support for identification of potential problems and trends	Identify specific problems or trends that may lead to significant problems, which may be based on patient data, providing prompts for consideration at the point of information capture.	When personal health information is collected directly during a patient visit input by the patient, or acquired from an external source (lab results), it is important to be able to identify potential problems and trends that may be patient-specific, given the individual's personal health profile, or changes warranting further assessment. For example: significant trends (lab results, weight); a decrease in creatinine clearance for a patient on metformin, or an abnormal increase in INR for a patient on warfarin.		X				8	
DC.2.1.4	Patient and family preferences	Capture patient and family preferences at the time of information intake and integrate them into clinical - decision support at all appropriate opportunities.	Decision support functions should permit consideration of patient/family preferences and concerns, such as with language, medication choice, invasive testing, and advanced directives.		X				6	
DC.2.2	Care plans, guidelines and protocols			DC 1.2						
DC.2.2.1	Support for condition based care plans, guidelines, protocols									

Care in the Community, Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.2.2.1.1	Present standard care plans, guidelines, protocols	Identify the appropriate care plans, guidelines and/or protocols for the management of specific conditions.	At the time of the clinical encounter, standard care protocols are presented. These may include site-specific considerations.		X				6,8	
DC.2.2.1.2	Present context sensitive care plans, guidelines, protocols	Identify the appropriate care plans, guidelines and/or protocols for the management of specific conditions that are adjusted to the patient specific profile.	At the time of the clinical encounter, recommendations for tests, treatments, medications, immunizations, referrals and evaluations are presented based on evaluation of patient specific data, their health profile and any site-specific considerations. These may be modified on the basis of new clinical data at subsequent encounters.			X			6,8,10	
DC.2.2.1.3	Capture variances from standard care plans, guidelines, protocols	Identify variances from standard care plans, guidelines, and protocols.	Variances from care plans, guidelines, or protocols are identified and tracked, with alerts, notifications and reports as clinically appropriate.			X				
DC.2.2.1.4	Support management of patient groups or populations	Provide support for the management of populations of patients that share diagnoses, problems, demographic characteristics, etc.	Populations or groups of patients that share diagnoses (such as diabetes or hypertension), problems, demographic characteristics, medication orders are identified. The clinician may be notified of eligibility for a particular test, therapy, or follow-up; or results from audits of compliance of these populations with disease management protocols.				X			
DC.2.2.1.5	Support research protocols	Provide support for the identification of patients for potential enrolment in research protocols and management of patients enrolled in research protocols.	Potential candidates for participation in a research study are identified and the clinician notified of patient eligibility. The clinician is presented with protocol-based care to patients enrolled in research studies.					X		

Care in the Community, Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.2.2.1.6	Support self-care	Provide the patient with decision support for self-management of a condition between patient-provider encounters.	Patients with specific conditions need to follow self-management plans that may include schedules for home monitoring, lab tests, and clinical check ups; recommendations about nutrition, physical activity, tobacco use, etc.; and guidance or reminders about medications.	DC.1.1.7.2; DC.3.2.4	X				1,8,10	
DC.2.3	Medications and medication management			DC 1.3						
DC.2.3.1	Support for medication ordering									
DC.2.3.1.1	Drug, food, allergy interaction checking	Identify drug-drug, drug-allergy and drug-food interaction warnings at the point of medication ordering.	The clinician is alerted to drug-drug, drug-allergy, and drug-food interactions at levels appropriate to the health care entity. These alerts may be customized to suit the user or group.		X				6	
DC.2.3.1.2	Patient specific dosing and warnings	Identify drug-condition warnings and present weight/age appropriate dose recommendations	The clinician is alerted to drug-condition interactions and patient specific contraindications and warnings e.g. elite athlete, pregnancy, breast-feeding or occupational risks. The preferences of the patient may also be presented e.g. reluctance to use an antibiotic.		X				6	
DC.2.3.1.3	Medication recommendations	Recommend best practice treatment and monitoring on the basis of cost, local formularies or therapeutic guidelines and protocols	Offer alternative treatments on the basis of best practice (e.g. cost or adherence to guidelines), a generic brand, a different dosage, a different drug, or no drug ("watchful waiting"). Suggest lab order monitoring as appropriate.				X			

Care in the Community, Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.2.3.2	Support for medication administration.	Alert providers in real-time to potential administration errors such as wrong patient, wrong drug, wrong dose, wrong route and wrong time in support of medication administration management and workflow.	To reduce medication errors at the time of administration of a medication, the patient is positively identified; checks on the drug, the dose, the route and the time are facilitated. Documentation is a by-product of this checking; administration details and additional patient information, such as injection site, vital signs, and pain assessments, are captured. In addition, access to online drug monograph information allows providers to check details about a drug and enhances patient education.		X				6	
DC.2.4	Orders, referrals, results and care management									
DC.2.4.1	Support for non-medication ordering	Identify necessary order entry components for non-medication orders that make the order pertinent, relevant and resource conservative at the time of provider order entry; and flag any inappropriate orders based on patient profile. -	Possible order entry components include, but are not limited to: missing results required for the order, suggested corollary orders, notification of duplicate orders, institution-specific order guidelines, guideline-based orders/order sets, order sets, order reference text, patient diagnosis specific recommendations pertaining to the order. Also, warnings for orders that may be inappropriate or contraindicated for specific patients (e.g. X-rays for pregnant women) are presented.		X				4,6,8	
DC.2.4.2	Support for result interpretation	Evaluate results and notify provider of results within the context of the patient's clinical data.	Possible result interpretations include, but are not limited to: abnormal result evaluation/notification, trending of results (such as discrete lab values), evaluation of pertinent results at the time of provider order entry (such as evaluation of lab results at the time of ordering a radiology exam), evaluation of incoming results against active medication orders.			X				
DC.2.4.3	Support for referrals			DC 1.4						

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.2.4.3.1	Support for referrals	Evaluate referrals within the context of a patient's clinical data.	When a healthcare referral is made, pertinent health information, including pertinent results, demographic and insurance data elements (or lack thereof) are presented to the provider. Protocols for appropriate workup prior to referral may be presented.		X				3,4,5	
DC.2.4.3.2	Support for referral recommendations	Evaluate patient data and suggest appropriate referrals.	Entry of specific patient conditions may lead to recommendations for referral e.g. for smoking cessation counseling if the patient is prescribed a medication to support cessation.				X		8	
DC.2.4.4	Support for Care Delivery									
DC.2.4.4.1	Support for safe blood administration	Alert providers in real-time to potential blood administration errors such as wrong blood, wrong cross match, wrong source, wrong date and time, and wrong patient.	To reduce blood administration errors at the time of administration of blood products, the patient is positively identified and checks on the blood product, the amount, the route and the time are facilitated. Documentation is a by-product of this checking.				X			
DC.2.4.4.2	Support for accurate specimen collection	Alert providers in real-time to potential specimen collection errors, such as wrong patient, wrong specimen type, wrong collection means, and wrong date and time.	To ensure the accuracy of specimen collection, when a provider obtains specimens from a patient, the clinician can match each specimen collection identifier and the patient's ID bracelet. The provider is notified in real-time of potential collection errors such as wrong patient, wrong specimen type, wrong means of collection, wrong site, and wrong date and time. Documentation of the collection is a by-product of this checking.			X				
DC.2.5	Support for Health Maintenance: Preventive Care and Wellness									

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.2.5.1	Alerts preventive services and wellness	Identify patient specific suggestions/reminders, screening tests/exams, and other preventive services in support of routine preventive and wellness patient care standards.	At the time of an encounter, the provider or patient is presented with due or overdue activities based on protocols for preventive care and wellness. Examples include but are not limited to, routine immunizations (adult and well baby care), age and sex appropriate screening exams (such as PAP smears).			X				
DC.2.5.2	Notifications for preventive services and wellness	Notify the patient and/or appropriate provider of those preventive services, tests, behavioral actions that are due or overdue between patient-provider encounters.	The provider can generate notifications to patients regarding activities that are due or overdue and these communications can be captured. Examples include but are not limited to time sensitive patient and provider notification of: follow-up appointments, laboratory tests, immunizations or examinations. The notifications can be customized in terms of timing, repetitions and administration reports. E.g. a Pap test reminder might be sent to the patient a 2 months prior to the test being due, repeated at 3 month intervals, and then reported to the administrator or clinician when 9 months overdue.			X				
DC.2.6	Support for population health									
DC.2.6.1	Support for clinical health state monitoring within a population.	Support clinical health state monitoring of aggregate patient data for use in identifying health risks from the environment and/or population.	Standardized surveillance performance measures that are based on known patterns of disease presentation can be identified by aggregating data from multiple input mechanisms. For example, elements include, but are not limited to patient demographics, resource utilization, presenting symptoms, acute treatment regimens, laboratory and imaging study orders and results and genomic and proteomic data elements. Identification of known patterns of existing diseases involves aggregation and analysis of these data elements by existing relationships. However, the identification of new patterns of disease requires more sophisticated				X			

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			pattern recognition analysis. Early recognition of new patterns requires data points available early in the disease presentation. Demographics, ordering patterns and resource use (e.g., ventilator or intensive care utilization pattern changes) are often available earlier in the presentation of non-predictable diseases. Consumer-generated information is also valuable with respect to surveillance efforts.							
DC.2.6.2	Support for notification and response	Upon notification by an external, authoritative source of a health risk within the cared for population, alert relevant providers regarding specific potentially at-risk patients with the appropriate level of notification.	Upon receipt of notice of a health risk within a cared-for population from public health authorities or other external authoritative sources, identify and notify individual care providers or care managers that a risk has been identified and requires attention including suggestions on the appropriate course of action. This process gives a care provider the ability to influence how patients are notified, if necessary.				X			
DC.2.6.3	Support for monitoring and appropriate notifications regarding an individual patient's health	In the event of a health risk alert and subsequent notification related to a specific patient, monitor if expected actions have been taken, and execute follow-up notification if they have not.	Identifies that expected follow-up for a specific patient event (e.g., follow up to error alerts or absence of an expected lab result) has not occurred and communicate the omission to appropriate care providers in the chain of authority. Of great importance to the notification process is the ability to match a care provider's clinical privileges with the clinical requirements of the notification.	S.3.4.1			X			
DC.2.7	Support for knowledge access									
DC.2.7.1	Access clinical guidance	Provide relevant evidence-based information and knowledge to the point of care for use in clinical decisions and care planning	Examples include but are not limited to: evidence on treatment of conditions and wellness, as well as context-specific links to other knowledge resources. For example, when a condition is diagnosed provider is directed to relevant online evidence for management.		X				6	

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.2.7.2	Patient knowledge access	Enable the accessibility of reliable information about wellness, disease management, treatments, and related information that is relevant for a specific patient.	An individual will be able to find reliable information to answer a health question, follow up from a clinical visit, identify treatment options, or other health information needs. The information may be linked directly from entries in the health record, or may be accessed through other means such as key word searching.	DC.3.2.4; S.3.7.2	X				1,10	
DC.3	**Operations Management and Communication**									
DC.3.1	Clinical workflow tasking	Schedule and manage clinical tasks with appropriate timeliness.	Since the electronic health record will replace the paper chart, tasks that were based on the paper artifact must be effectively managed in the electronic environment. Functions must exist in the EHRS that support electronically any workflow that previously depended on the existence of a physical artifact (such as the paper chart, a phone message slip) in a paper based system. Tasks differ from other more generic communication among participants in the care process because they are a call to action and target completion of a specific workflow in the context of a patient's health record (including a specific component of the record). Tasks also require disposition (final resolution). The initiator may optionally require a response. For example, in a paper based system, physically placing charts in piles for review creates a physical queue of tasks related to those charts. This queue of tasks (for example, a set of patient phone calls to be returned) must be supported electronically so that the list (of patients to be called) is visible to the appropriate user or role for disposition. Tasks are time-limited							

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			(or finite). The state transition (e.g. created, performed and resolved) may be managed by the user explicitly or automatically based on rules. For example, if a user has a task to signoff on a test result, that task should automatically be marked complete by the EHR when the test result linked to the task is signed in the system. Patients will become more involved in the care process by receiving tasks related to their care. Examples of patient related tasks include acknowledgement of receipt of a test result forwarded from the provider, or a request to schedule an appointment for a pap smear (based on age and frequency criteria) generated automatically by the EHRS on behalf of the provider.							
DC.3.1.1	Clinical task assignment and routing	Assignment, delegation and/or transmission of tasks to the appropriate parties.	Tasks are at all times assigned to at least one user or role for disposition. Whether the task is assignable and to whom the task can be assigned will be determined by the specific needs of practitioners in a care setting. Task-assignment lists help users prioritize and complete assigned tasks. For example, after receiving a phone call from a patient, the triage nurse routes or assigns a task to return the patient's call to the physician who is on call. Task creation and assignment may be automated, where appropriate. An example of a system-triggered task is when lab results are received electronically; a task to review the result is automatically generated and assigned to a clinician. Task assignment ensures that all tasks are disposed of by the appropriate person or role and allows efficient interaction of entities in the care process.		X				4,6	

Care in the Community, Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.3.1.2	Clinical task linking	Linkage of tasks to patients and/or a relevant part of the electronic health record.	Clinical tasks are linked to a patient or to a component of a patient's medical record. An example of a well defined task is "Dr. Jones must review Mr. Smith's blood work results." Efficient workflow is facilitated by navigating to the appropriate area of the record to ensure that the appropriate test result for the correct patient is reviewed. Other examples of tasks might involve fulfillment of orders or responding to patient phone calls.		X				6,8,9	
DC.3.1.3	Clinical task tracking	Track tasks to guarantee that each task is carried out and completed appropriately.	In order to reduce the risk of errors during the care process due to missed tasks, the provider is able to view and track un-disposed tasks, current work lists, the status of each task, unassigned tasks or other tasks where a risk of omission exists. For example, a provider is able to create a report to show test results that have not been reviewed by the ordering provider based on an interval appropriate to the care setting.							
DC.3.1.3.1	Clinical task timeliness tracking	Track and/or report on timeliness of task completion.	Capability to track and review reports on the timeliness of certain tasks in accordance with relevant law and accreditation standards.		X				6,9	

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.3.2	Clinical communication		Healthcare requires secure communications among various participants: patients, doctors, nurses, chronic disease care managers, pharmacies, laboratories, payers, consultants, etc. An effective EHRS supports communication across all relevant participants, reduces the overhead and costs of healthcare-related communications, and provides automatic tracking and reporting. The list of communication participants is determined by the care setting and may change over time. Because of concerns about scalability of the specification over time, communication participants for all care settings or across care settings are not enumerated here because it would limit the possibilities available to each care setting and implementation. However, communication between providers and between patients and providers will be supported in all appropriate care settings and across care settings. Implementation of the EHRS enables new and more effective channels of communication, significantly improving efficiency and patient care. The communication functions of the EHRS will eventually change the way participants collaborate and distribute the work of patient care.							
DC.3.2.1	Inter-provider communication	Support secure electronic communication (inbound and outbound) between providers to trigger or respond to pertinent actions in the care process, document non-electronic communication (such as phone calls, correspondence or other encounters) and generate paper message artifacts where appropriate.	Communication among providers involved in the care process can range from real time communication (for example, fulfillment of an injection while the patient is in the exam room), to asynchronous communication (for example, consult reports between physicians). Some forms of inter-practitioner communication will be paper based and the EHRS must be able to produce appropriate documents.		X				6,7,8,9	

Care in the Community, Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.3.2.2	Pharmacy communication	Provide features to enable secure bidirectional communication of information electronically between practitioners and pharmacies.	When a medication is prescribed, the prescription is routed electronically to the pharmacy. This information is used to avoid transcription errors and facilitate detection of potential adverse reactions. Upon filling the prescription, information is sent back to the practitioner to indicate that the patient received the medication. If there is a question from the pharmacy, that communication can be presented to the provider with their other tasks.				X			
DC.3.2.3	Provider and patient or family communication	Trigger or respond to electronic communication (inbound and outbound) between providers and patients or patient representatives with pertinent actions in the care process.	The clinician is able to communicate with patients and others, capturing the nature and content of electronic communication, or the time and details of other communication. For example: 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; or a hospital may wish to communicate with selected patients about a new smoking cessation program.		X				1,8,9,10	
DC.3.2.4	Patient, family and care giver education	Identify and make available electronically or in print any educational or support resources for patients, families, and caregivers that are most pertinent for a given health concern, condition, or diagnosis and which are appropriate for the person (s).	The provider or patient is presented with a library of educational materials and where appropriate, given the opportunity to document patient/caregiver comprehension. The materials can be printed or electronically communicated to the patient.		X				1,8,9,10	
DC.3.2.5	Communication with medical devices	Support communication and presentation of data captured from medical devices.	Communication with medical devices is supported as appropriate to the care setting. Examples include: vital signs/pulse-oximeter, anesthesia machines, home diagnostic devices for chronic disease management, laboratory machines, bar coded		X				1,8,9,10	

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			artifacts (medicine, immunizations, demographics, history, and identification).							
S.1	**Clinical Support**									
S.1.1	Notifiable Registries	Enable the automated transfer of formatted demographic and clinical information to and from local disease specific registries (and other notifiable registries) for patient monitoring and subsequent epidemiological analysis.	The user can export personal health information to disease specific registries, other notifiable registries, and add new registries through the addition of standard data transfer protocols or messages.	I.2.4 I.4.7			X			
S.1.2	Donor management support	Provide capability to capture or receive, and share needed information on potential organ and blood donors and recipients.	The user is able to capture or receive information on potential organ and blood donors and recipients. The user can make this information available to internal and external donor matching agencies.	I.2.4; I.4.7			X			

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.1.3	Provider directory	Provide a current directory of provider information in accordance with relevant laws, regulations, and conventions.	Maintain or access current directory of provider information in accordance with relevant laws, regulations, and conventions, including full name, address or physical location, and a 24x7 telecommunications address (e.g. phone or pager access number) for the purposes of the following functions	I.1.3; I.4						
S.1.3.1	Provider demographics	Provide a current directory of practitioners that, in addition to demographic information, contains data needed to determine levels of access required by the EHR security system.			X					
S.1.3.2	Provider's location within facility	Provide provider location or contact information on a facility's premises.			X					
S.1.3.3	Provider's on call location	Provide provider location or contact information when on call.			X					
S.1.3.4	Provider's general location	Provide locations or contact information at which the provider practices, in order to direct patients or queries.			X					

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.1.4	Patient directory	Provide a current directory of patient information in accordance with relevant privacy and other applicable laws, regulations, and conventions.	Provide a current directory of patient information in accordance with relevant privacy and other applicable laws, regulations, and conventions, including, when available, full name, address or physical location, alternate contact person, primary phone number, and relevant health status information for the purposes of the following functions.	DC.1.1.1; I.1.4	X					
S.1.4.1	Patient demographics	Maintain, archive and update demographic information in accordance with realm-specific recordkeeping requirements.	The minimum demographic data set must include the data required by realm-specific laws governing health care transactions and reporting. This may also include data input of death status information.	S.1.4; I.1.5.1; S.3.7.3	X					
S.1.4.2	Patient's location within a facility	Provide the patient's location information within a facility's premises.	Example: The patient census in a hospital setting		X					
S.1.4.3	Patient's residence related to the provision and administration of services	Provide the patient's residence information solely for purposes related to the provision and administration of services to the patient, patient transport, and as required for public health reporting.			X					
S.1.4.4	Optimize patient bed assignment	Enable interaction with a bed management system to ensure that the patient's bed assignments within the facility optimize care and minimize risks e.g. of exposure to contagious patients.		S.1.7				X		

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.1.5	De-identified data request management	Provide patient data in a manner that meets local requirements for de-identification.	When an internal or external party requests patient data and that party requests de-identified data (or is not entitled to identify patient information, either by law or custom), the user can export the data in a fashion that meets local requirements for de-identification. An audit trail of these requests and exports is maintained. For internal clinical audit, a re-identification key may be added to the data.	I.1.8; I.3; I.6.1	X				7	
S.1.6	Scheduling	Provide the necessary data to a scheduling system for optimal efficiency in the scheduling of patient care, for either the patient or a resource/device.	The system user can schedule events as required. Relevant clinical or demographic information can be linked to the task.	DC.3.1; DC.3.2.1; I.2.3; I.4.1; I.7	X				1,8,9,10	
S.1.7	Healthcare resource availability	Support the distribution of local healthcare resource information in times of local or national emergencies.	In times of identified local or national emergencies and upon request from authorized bodies, provide current status of healthcare resources including, but not limited to, available beds, providers, support personal, ancillary care areas and devices, operating theaters, medical supplies, vaccines, and pharmaceuticals. The intent is for the authorized body to distribute either resources or patient load to maximize efficient healthcare delivery.	S.1.4.4; I.1.6; I.5.1				X		
S.2	**Measurement, Analysis, Research and Reports**									
S.2.1	Measurement, monitoring, and analysis	Support measurement and monitoring of care for relevant purposes.		DC.2.6.1; I.2.4						

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.2.1.1	Outcome Measures	Support the capture and reporting of information for the analysis of outcomes of care provided to populations, in facilities, by providers, and in communities.		S.3.6.2	,				7	
S.2.1.2	Performance and accountability measures	Support the capture and reporting of quality, performance, and accountability measures to which providers/facilities/delivery systems/communities are held accountable including measures related to process, outcomes, and/or costs of care – may be used in 'pay for performance' monitoring and adherence to best practice guidelines.		DC.2.6.3; DC.2.6.2; S.3.6	X				7	
S.2.2	Report generation	Provide report generation features for the generation of standard and ad hoc reports.	A user can create standard and ad hoc reports for clinical, administrative, and financial decision-making, and for patient use - including structured data and/or unstructured text from the patient's health record. Reports may be linked with financial and other external data sources (i.e. data external to the entity).; Such reports may include patient-level reports, provider/facility/delivery system-level reports, population-level reports, and reports to public health agencies. Examples of patient-level reports include: administratively required patient assessment forms, admission/transfer/discharge reports, operative and procedure reports, consultation reports, and drug profiles. Examples of population-level reports include: reports on the effectiveness of clinical pathways and other evidence-based practices, tracking completeness of clinical documentation, etcetera. Examples of reports to public health agencies include: vital statistics, reportable	DC.2.6.3; S.3.6	X				6,7	

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			diseases, discharge summaries, immunization data including adverse outcomes, cancer data, and other such data necessary to maintain the publics' health (including suspicion of newly emerging infectious disease and non-natural events).							
S.2.2.1	Health record output	Enable system user to define the records and/or reports that are considered the formal health record for disclosure purposes, and provide a mechanism for both chronological and specified record element output.	Provide hardcopy and electronic output that can 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.	I.2.4; DC.1.15	X					
S.3	**Administrative and Financial**									
S.3.1	Encounter/Episode of care management	Manage and document the health care needed and delivered during an episode of care.	Using data standards and technologies that support interoperability, encounter management promotes patient-centered/oriented care and enables real time, immediate point of service, point of care by facilitating efficient work flow and operations performance to ensure the integrity of (1) the health record, (2) public health, financial and administrative reporting, and (3) the healthcare delivery process.; This support is necessary for direct care functionality that relies on providing user interaction and workflows, which are configured according to clinical protocols and business rules based on encounter specific values such as care setting, encounter type (inpatient, outpatient, home health, etc), provider type, patient's EHR, health status, demographics, and the initial							

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			purpose of the encounter.							
S.3.1.1	Specialized views	Present specialized views based on the encounter-specific values, clinical protocols and business rules	The system user is presented with a presentation view and system interaction appropriate to the context with capture of encounter-specific values, clinical protocols and business rules. This “user view” may be configurable by the user or system technicians. As an example, a mobile home health care worker using wireless laptop at the patient's home would be presented with a home health care specific workflow synchronized to the current patient's care plan and tailored to support the interventions appropriate for this patient, including chronic disease management protocols.	DC.2.2.1.2;	X				6,9	
S.3.1.2	Encounter specific functionality	Provide assistance in assembling appropriate data, supporting data collection and processing output from the encounter.	Workflows, based on the encounter management settings, will assist in determining the appropriate data collection, import, export, extraction, linkages and transformation. As an example, a pediatrician is presented with diagnostic and procedure codes specific to pediatrics. Business rules enable automatic collection of necessary data from the patient's health record and patient registry. As the provider enters data, workflow processes are triggered to populate appropriate transactions and documents. For example, data entry might populate an eligibility verification transaction or query the immunization registry.		X				5,6,7	

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.3.1.3	Automatic generation of administrative and financial data from clinical record	Derive administrative or financial data from the patient's clinical data and include this in administrative and financial reports.	A user can generate a bill based on health record data. Maximizing the extent to which administrative and financial data can be derived or developed from clinical data will lessen provider reporting burdens and the time it takes to complete administrative and financial processes such as claim reimbursement. This may be implemented by mapping of clinical terminologies in use to administrative and financial terminologies.	S.3.2.2	X				5,6,7	
S.3.1.4	Support remote healthcare services	Support remote health care services such as telehealth and remote device monitoring by integrating records and data collected by these means into the patient's EHR for care management, billing and public health reporting purposes.	Enables remote treatment of patients using monitoring devices, and two way communications between provider and patient or provider and provider. - Promotes patient empowerment, self-determination and ability to maintain health status in the community. Promotes personal health, wellness and preventive care. For example, a diabetic pregnant Mom can self-monitor her condition from her home and use web TV to report to her provider. The same TV-internet connectivity allows her to get dietary and other health promoting information to assist her with managing her high-risk pregnancy.	DC.3.2.1; DC.3.2.3; DC.3.2.5; DC.1.1.7.2	X				1,8,9,10	
S.3.2	Information access for supplemental use	Support extraction, transformation and linkage of information from structured data and unstructured text in the patient's health record for care management, financial, administrative, and public health purposes.	Using data standards and technologies that support interoperability, information access functionalities serve primary and secondary record use and reporting with continuous record availability and access that ensure the integrity of (1) the health record, (2) public health, financial and administrative reporting, and (3) the healthcare delivery							

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			process.							
S.3.2.1	Rules-driven clinical coding assistance	Make available all pertinent patient information needed to support coding of diagnoses, procedures and outcomes.	The user is assisted in coding information for clinical reporting reasons. For example, a professional coder may have to code the principle diagnosis in the current, applicable ICD as a basis for hospital funding. All diagnoses during the episode may be presented to the coder, as well as the applicable ICD hierarchy containing these codes.	I.7	X				6	
S.3.2.2	Rules-driven financial and administrative coding assistance	Provide financial and administrative coding assistance based on the structured data and unstructured text available in the encounter documentation.	The user is assisted in coding information for billing or administrative reasons. For example, the HIPAA 837 Professional claim requires the date of the last menstrual cycle for claims involving pregnancy. To support the generation of this transaction, the clinician would need to be prompted to enter this date when the patient is first determined to be pregnant, then making this information available for the billing process.	I.7; S.3.1.3	X				6	
S.3.2.3	Integrate cost/financial information	Enable the use of cost management information required to guide users and workflows.	The provider is alerted or presented with the most cost-effective services, referrals, devices etc. to recommend to the patient. This may be tailored to the patient's health insurance/plan coverage rules. Medications may be presented in order of cost, or the cost of specific investigations may be presented at the time of ordering.		X					

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.3.3	Administrative transaction processing	Support the creation (including using external data sources, if necessary), electronic interchange, and processing of transactions listed below that may be necessary for encounter management during an episode of care	Support the creation (including using external data sources, if necessary), electronic interchange, and processing of transactions listed below that may be necessary for encounter management during an episode of care. - - The EHR system shall capture the patient health-related information needed for administrative and financial purposes including reimbursement. - - Captures the episode and encounter information to pass to administrative or financial processes (e.g. triggers transmissions of charge transactions as by-product of on-line interaction including order entry, order statusing, result entry, documentation entry, medication administration charting.) - - Automatically retrieves information needed to verify coverage and medical necessity. - As a byproduct of care delivery and documentation, captures and presents all patient information needed to support coding. Ideally performs coding based on documentation. - - Clinically automated revenue cycle - examples of reduced denials and error rates in claims. - - Clinical information needed for billing is available on the date of service. - - Physician and clinical teams do not perform additional data entry / tasks exclusively to support administrative or financial processes.	DC.1.3						

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.3.3.1	Enrollment of patients	Support interactions with other systems, applications, and modules to enable enrollment of uninsured patients into subsidized and unsubsidized health plans, and enrollment of patients who are eligible on the basis of health and/of financial status in social service and other programs, including clinical trials;	Expedites determination of health insurance coverage, thereby increasing patient access to care. The provider may be alerted that uninsured patients may be eligible for subsidized health insurance or other health programs because they meet eligibility criteria based on demographics and/or health status. For example: a provider is notified that the uninsured parents of a child enrolled in S-CHIP may now be eligible for a new subsidized health insurance program; a provider of a pregnant patient who has recently immigrated is presented with information about eligibility for subsidy. Links may be provided to online enrollment forms. When enrollment is determined, the health coverage information needed for processing administrative and financial documentation, reports or transactions is captured.		X				5	
S.3.3.2	Eligibility verification and determination of coverage	Support eligibility verification for health insurance and special programs, including verification of benefits and pre-determination of coverage;	Automatically retrieves information needed to support verification of coverage at the appropriate juncture in the encounter workflow. Improves patient access to covered care and reduces claim denials. When eligibility is verified, the EHRS would capture eligibility information needed for processing administrative and financial documentation, reports or transactions - updating or flagging any inconsistent data. In addition to health insurance eligibility, this function would support verification of registration in programs and registries, such as chronic care case management and immunization registries. An EHRS would likely verify health insurance eligibility prior to the encounter, but would verify registration in case management or immunization registries during the encounter.		X				5	

Care in the Community, Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.3.3.3	Service authorizations	Support the creation of requests, responses and appeals related to service authorization, including prior authorizations, referrals, and pre-certification;	Automatically retrieves information needed to support verification of medical necessity and prior authorization of services at the appropriate juncture in the encounter workflow. Improves timeliness of patient care and reduces claim denials.		X					
S.3.3.4	Support of service requests and claims	Creation of health care attachments for submitting additional clinical information in support of service requests and claims;	Automatically retrieves structured data, including lab, imaging and device monitoring data, and unstructured text based on rules or requests for additional clinical information in support of service requests or claims at the appropriate juncture in the encounter workflow		X					
S.3.3.5	Claims and encounter reports for reimbursement	Support the creation of claims and encounter reports for reimbursement	Automatically retrieves information needed to support claims and encounter reporting at the appropriate juncture in the encounter workflow.		X				5	
S.3.3.6	Health service reports at the conclusion of an episode of care.	Support the creation of health service reports at the conclusion of an episode of care. Support the creation of health service reports to authorized health entities, for example public health, such as notifiable condition reports, immunization, cancer registry and discharge data that a provider may be required to generate at the conclusion of an episode of care.	Effective use of this function means that clinicians do not perform additional data entry to support health management programs and reporting.	S.2.2			X			
S.3.4	Manage Practitioner/Patient relationships	Identify relationships among providers treating a single patient, and provide the ability to manage patient lists assigned to a particular provider.	This function addresses the ability to access and update current information about the relationships between caregivers and the subjects of care. This information should be able to flow seamlessly between the different components of the EHRS, and between the EHRS and other systems. Business rules may be reflected in the presentation of, and the access to this information. The relationship among providers treating a single patient will include any necessary chain of	DC.2.6.3 ; S.2.2	X					

Care in the Community, Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			authority/responsibility. Example: In a care setting with multiple providers, where the patient can only see certain kinds of providers (or an individual provider), allow the selection of only the appropriate providers. Example: The user is presented with a list of people assigned to a given practitioner and may alter the assignment as required - to a group, to another individual or by sharing the assignment.							
S.3.5	Subject to Subject relationship	Capture relationships between patients and others and facilitate access on this basis (e.g. parent of a child) if appropriate.	A user may assign the relationship of parent to a person who is their offspring. This relationship may facilitate access to their health record as parent of a young child.	S.1.4.1; I.1.3; I.1.5; I.2.2						
S.3.5.1	Related by genealogy	Provide information of Related by genealogy (blood relatives)			X					
S.3.5.2	Related by insurance	Provide information of Related by insurance (domestic partner, spouse, guarantor)			X					
S.3.5.3	Related by living situation	Provide information of Related by living situation (in same household)			X					
S.3.5.4	Related by other means	Provide information of Related by other means (e.g. epidemiologic exposure or other person authorized to see records – Living Will cases)					X			
S.3.6	Acuity and Severity	Provide the data necessary for the capability to support and manage patient acuity/severity of illness/risk adjustment		S.2.1.2	X					

Care in the Community, Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.3.7	Maintenance of supportive functions	Update EHR supportive content on an automated basis.								
S.3.7.1	Clinical decision support system guidelines updates	Receive and validate formatted inbound communications to facilitate updating of clinical decision support system guidelines and associated reference material		DC.1.2.1; DC.2.6.3; DC.2.7.1	X				1,8,9,10	
S.3.7.2	Patient education material updates	Receive and validate formatted inbound communications to facilitate updating of patient education material		DC.3.2.4	X				1,8,9,10	

Care in the Community, Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.3.7.3	Patient reminder information updates	Receive and validate formatted inbound communications to facilitate updating of patient reminder information from external sources such as Cancer or Immunization Registries		I.5.2; S.1.4.1	X				1,8,9,10	
S.3.7.4	Public health related updates	Receive and validate formatted inbound communications to facilitate updating of public health reporting guidelines		I.5.2		X				
I.1	**Security**	Secure the access to the EHR-S and EHR information. Prevent unauthorized use of data, data loss, tampering and destruction.	To enforce security, all EHR-S applications must adhere to the rules established to control access and protect the privacy of EHR information. Security measures assist in preventing unauthorized use of data and protect against loss, tampering and destruction.		X					
I.1.1	Entity Authentication	Authenticate EHR-S users and/or entities before allowing access to an EHR-S. Manage the sets of access-control permissions granted within an EHR-S	Both users and application are subject to authentication. The EHR-S must provide mechanisms for users and applications to be authenticated. Users will have to be authenticated when they attempt to use the application, the applications must authenticate themselves before accessing EHR information managed by other applications or remote EHR-S'. In order for authentication to be established a Chain of Trust agreement is assumed to be in place. Examples of entity authentication include:		X				3,5,6,7,8,9	

Care in the Community, Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			• Username/ password; • Digital certificate; • Secure token; • Biometrics							
I.1.2	Entity Authorization.	Manage the sets of access-control permissions granted to EHR-S users. An EHR-S grants authorizations to users, for roles, and within contexts. A combination of the authorization levels may be applied to control access to EHR-S functions or data.	EHR-S Users are authorized according to identity, role, work-assignment, present condition and/or location. • User based authorization refers to the permissions granted or denied based on the identity of an individual. An example of User based authorization is patient defined denial of access to all or part of a record to a particular party for reasons such as privacy. • Role based authorization refers to the responsibility or function performed in a particular operation or process. Example roles include: nurse, dietician, administrator, legal guardian, and auditor. • Context-based Authorization is defined by ISO as security-relevant properties of the context in which an access request occurs, explicitly time, location, route of access, and quality of authentication. In addition to the standard, context authorization for EHR-S is extended to satisfy special circumstances such as, assignment, consents, or other healthcare-related factors. A context-based example might be a right granted for a limited period to view those—and only those—EHR records connected to a specific topic of investigation.		X				3,5,6,7,8,9	

Care in the Community, Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.1.3	Entity Access Control	Verify and enforce access control to EHR information and functions for end-users, applications, sites, etc., to prevent unauthorized use of a resource, including the prevention or use of a resource in an unauthorized manner.	This is a fundamental function of EHR-S applications. To ensure access is controlled, the EHR-S applications will perform an identity lookup of users or application for any operations that require it (authentication, authorization, secure routing, querying, etc.) and enforce the system and information access rules that have been defined.							
I.1.3.1	Patient Access Management	Enable a healthcare professional to manage a patient's access to the patient's personal health information. Patient access-management includes allowing access to patient/subject-of-care information and restricting access to information that is potentially harmful to the patient/subject.	A healthcare professional will be able to manage a patient's ability to view his/her EHR. Typically, a patient has the right to view much of his/her EHR. However, a healthcare provider may sometimes need to prevent a patient (or guardian) from viewing parts of the record. For example, a patient receiving psychiatric care might harm himself (or others) if he reads the doctor's evaluation of his condition. Furthermore, reading the doctor's therapy-plan might actually cause the plan to fail.		X				8	
I.1.4	Non-repudiation	Limit an EHR-S user's ability to deny (repudiate) an electronic data-exchange originated or authorized by that user.	Non-repudiation ensures that a transferred message has been sent and received by the parties claiming to have sent and received the message. Non-repudiation is a way to guarantee that the sender of a message cannot later deny having sent the message and that the recipient cannot deny having received the message. Non-repudiation can be achieved through the use of a: • Digital signature -- which serves as a unique identifier for an individual (much like a written signature). • Confirmation service -- which utilizes a message transfer agent to create a digital receipt (providing confirmation that a message was sent and/or received). • Timestamp -- which proves that a document existed at a certain date and time.		X					

Care in the Community, Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.1.5	Secure Data Exchange	Send and receive EHR data securely.	Exchange of EHR information requires appropriate security and privacy considerations, including data obfuscation and both destination and source authentication when necessary. For example, it might be necessary to encrypt data sent to remote destinations. This function requires that there is an overall coordination regarding what information is exchanged between EHR-S entities and how that exchange is expected to occur. The policies applied at different locations must be consistent or compatible with each other in order to ensure that the information is protected when it crosses entity boundaries within the EHR-S or external to the EHR-S.		X				3,5,7,8,10	
I.1.6	Secure Data Routing	Route electronically-exchanged EHR data only to/from known, registered, and authenticated destinations/sources (according to applicable healthcare-specific rules and relevant standards).	EHR-S applications need to ensure that they are exchanging EHR information with the entities (applications, institutions, directories) they expect. This function depends on entity authorization, and authentication to be available in the system. For example, a physician practice management application in the EHR-S, might send claim attachment information to an external entity. For 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.	I.1.1; I.1.2	X				3,5,7,8,10	

Care in the Community, Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.1.7	Document Attestation	Manage electronic attestation of documents including the retention of the signature of attestation (or certificate of authenticity) associated with an incoming or outgoing document.	The purpose of attestation is to show authorship and assign responsibility for an act, event, condition, opinion, or diagnosis. Every entry in the health record must be identified with the author and should not be made or signed by someone other than the author. (Note: A transcriptionist may transcribe an author's notes and a senior clinician may attest to the accuracy of another's statement of events.) Attestation is required for (paper or electronic) entries such as narrative/progress notes, assessments, flow sheets, and orders. Digital signatures may be used to implement document attestation. For an incoming document, if included, the record of attestation is retained. Attestation functionality must meet applicable legal, regulatory and other applicable standards or requirements.		X				9	
I .1.8	Enforcement of Confidentiality	Enforce patient privacy rules as they apply to various parts of the EHR-S through the implementation of privacy mechanisms.	A patient's privacy may be adversely affected when EHRs are not held in confidence. Privacy rule enforcement decreases unauthorized access and promotes the level of EHR confidentiality.	I.6.1	X				6	
I.2	**Health record information and management**	Manage EHR information across EHR-S applications by • Ensuring that clinical information is valid according to clinical rules; • Ensuring that clinical information is accurate and complete according to clinical rules; and • Tracking amendments to clinical documents.	Since EHR information will typically be available on a variety of EHR-S applications, the EHR-S must provide the ability to access, manage and verify accuracy and completeness of EHR information, and provide the ability to audit the use of (and access to) EHR information.							

Care in the Community, Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.2.1	Data Retention and Availability	Retain, ensure availability, and destroy health record information according to organizational standards. This includes: • Retaining all clinical documents for the time period designated by policy or legal requirement; • Retaining inbound documents as originally received (unaltered); • Ensuring availability of information for the legally proscribed period of time; • Providing the ability to destroy EHR data/records in a systematic way according to policy and after the legally proscribed retention period.	Discrete and structured EHR data, records and reports must be: • Made available to users in a timely fashion; • Stored and retrieved in a semantically intelligent and useful manner (for example, chronologically, retrospectively per a given disease or event, or in accordance with business requirements, local policies, or legal requirements); • Retained for a legally-proscribed period of time; • Destroyed in a systematic manner in relation to the applicable retention period. The system must also allow an organization to identify data/records to be destroyed, and to review and approve destruction before it occurs.	I.1.7	X				6,8	

Care in the Community, Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.2.2	Audit trail	Provide audit trail capabilities for resource access and usage indicating the author, the modification (where pertinent), and the date/time at which a record was created, modified, viewed, extracted, or deleted. Audit trails extend to information exchange. Audit functionality includes the ability to generate audit reports and to interactively view change history for individual health records or for the EHR-S.	Audit functionality extends to security audits, data audits, audits of data exchange, and the ability to generate audit reports. Audit trail settings should be configurable to meet the needs of local policies. Examples of audited areas include: • Security audit - logs access attempts and resource usage including user login, file access, other various activities, and whether any actual or attempted security violations occurred. • Data audit - records who, when, and by which system an EHR record was created, updated, translated , viewed, extracted, or (if local policy permits) deleted. Audit-data may refer to system setup data or to clinical and patient management data. • Information exchange audit – record data exchanged between EHR-S applications (for example, sending application; the nature, history, and content of the information exchanged; and information about data transformations (for example, vocabulary translations), reception event details, etc.). • Audit reports – should be flexible and address various users' needs. For example, a legal authority might want to know how many patients a given healthcare provider treated while the provider's license was suspended. Similarly, in some cases a report detailing all those who modified or viewed a certain patient record might be needed. Security audit trails and data audit trail are used to verify enforcement of business, data integrity, security, and access-control rules.		X					

Care in the Community, Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.2.3	Synchronization	Maintain synchronization involving: • Interaction with entity directories; • Linkage of received data with existing entity records; • Location of each health record component; • Communication of changes between key systems.	The 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, the EHR-S maintains all the relevant information regarding the health record in synchrony. For example, if an MRI is ordered by a physician, a set of diagnostic images and a radiology report will be created. The patient demographics, the order for MRI, the diagnostic images associated with the order, and the report associated with the study must all be in synch in order for the clinicians to view the complete record.		X				7	
I.2.4	Extraction of health record information	Manage data extraction in accordance with 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 can be used to exchange data and provide reports for primary and ancillary purposes.	The EHR-S enables an authorized user (such as a clinician) to access and aggregate the distributed information that corresponds to the health record or records which are needed for viewing, reporting, disclosure, etc. The EHR-S must be able to 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 continuity of care records. In addition, data extractions can be used for administrative, financial, research, quality analysis and public health purposes.		X				6,7	

Care in the Community, Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.3	**Unique identity, registry, and directory services**	Enable secure use of registry services and directories to uniquely identify, link and retrieve records and identify the location of subjects of care and providers for health care purposes; payers, health plans, sponsors, employers and public health agencies for administrative and financial purposes; health care resources and devices for resource management purposes.	Unique identity, registry, and directory service functions are critical to successfully managing the security, interoperability, and the consistency of the health record data across the EHR-S.							
I.3.1	Distributed registry access	Enable system communication with registry services through standardized interfaces and extend to services provided externally to the EHR-S.	The EHR-S will rely on a set of infrastructure services, directories, and registries (organized hierarchically) that support communication between EHR-Systems. For example, a patient treated by a primary care physician for a chronic condition may become ill while out of town. The new provider's EHR-S will interrogate a local, regional, or national registry to find the patient's previous records. From the primary care record, the remote EHR-S will retrieve relevant information (in conformance with applicable patient privacy and confidentiality rules). An example of local registry usage is an EHR-S application sending a query message to the Hospital Information System to retrieve a patient's demographic data.		X				5	

Care in the Community, Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.4	**Health Informatics and Terminology Standards**	Ensure consistent terminologies, data correctness and interoperability by complying with standards for health care transactions, vocabularies, code sets, and artifacts such as templates, interface, decision support algorithms, and clinical document architecture.	Examples that EHR-S applications need to support are a consistent set of terminologies such as: LOINC, SNOMED, ICD-10 and messaging standards such as HL7. Vocabularies may be provided through a terminology service internal or external to the EHR-S.							
I.4.1	Maintenance and versioning of health informatics and terminology standards.	Enable version control according to customized policies to ensure maintenance of utilized standards.	Version control allows for multiple sets/versions of the same terminology to exist and be distinctly recognized over time. Terminology versioning supports retrospective analysis and research, as well as interoperability with systems that comply with different releases of the standard. Similar functionality exists for messaging and other informatics based standards. It should be possible to retire deprecated versions when applicable business cycles are completed while maintaining obsolescent code sets for possible claims adjustment throughout the claim's lifecycle.		X					
I.4.2	Mapping local terminology, codes, and formats	Map or translate local terminology, codes and/or formats to standard terminology, codes, and/or formats to comply with health informatics standards.	An EHR-S application which uses local terminology, must be capable of mapping and/or converting the local terminology into a standard terminology. For example, a local term or code for "Ionized Calcium" must be mapped to an equivalent, standardized (LOINC) term or code when archiving or exchanging artifacts.			X			8	
I.5	**Interoperability Standards**	Provide automate health delivery processes and seamless exchange of key clinical and administrative information.	Interoperability standards enable an EHR-S to operate as a set of applications.							
I.5.1	Interchange Standards	Support the ability to operate seamlessly with complementary systems by adherence to key interoperability standards. Systems may refer to EHR systems, applications within an EHR-S, or	Interoperable EHR-S applications require infrastructure components that adhere to standards for connectivity, information structures, and semantics ("interoperability standards"). Standard EHR Infrastructure components, which may exist locally or	I.4.2	X				3, 5, 7, 8, 10	

Care in the Community, Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
		other authorized entities that interact with an EHR-S.	remotely, must support seamless operations between complementary systems. Standard infrastructure components include: • HL7 Messages, Clinical Document Architecture (CDA), X12N healthcare transactions, Digital Imaging and Communication in Medicine (DICOM). • Common semantic representation to support information exchange. EHR-Systems may use different standardized or local vocabularies. In order to reconcile the semantic differences across vocabularies, the EHR-S must be able to adhere to standard vocabulary or leverage vocabulary lookup and mapping capabilities that are included in the Health Informatics and Terminology Standards. • Support of multiple interaction modes 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. In addition, even in the case where store-and-forward, message-oriented interoperability is used, the applications may need to support the appropriate interaction mode. For example: Unsolicited Event Notifications, Query/Response, Query for display, Unsolicited summary, structured/discrete, and unstructured clinical documents.							
I.5.2	Application Integration Standards	Provide integration with complementary applications and infrastructure services (directory, vocabulary, etc.) using standard-based application programming interfaces (for example, CCOW).	Similar to standard-based messaging, standard-based application integration requires that the EHR-S application use standardized programming interfaces, where applicable. For example, CCOW may be used for visual integration and WfMC for workflow integration.			X			3,5,7,8,10	

Care in the Community, Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.5.3	Interchange Agreements	Support interaction with entity directories to determine the recipients' address profile and data exchange requirements and use these rules of interaction when exchanging information with partners.	An EHR-S will use the entity registries to determine the security, addressing, and reliability requirements between partners and use this information to define how data will be exchanged between the sender and the receiver.	I.3	X				8	

Care in the Community, Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.6	**Business Rules Management**	Manage the ability to create, update, delete (or disable) and version business rules including institutional preferences. Apply business rules from necessary points within the EHR-S to control system behavior. Audit changes made to business rules, and audit compliance to and overrides of applied business rules.	Business Rule implementation functions include: decision support, diagnostic support, workflow control, access privileges, and system and user defaults and preferences. The EHR-S should support the ability for providers and institutions to customize decision support components such as triggers, rules or algorithms, and the wording of alerts and advice, to meet local requirements and preferences. Examples of applied business rules include: • Suggesting diagnosis based on the combination of symptoms (flu-like symptoms combined with widened mediastinum suggesting anthrax • Classifying a pregnant patient as high risk due to factors such as age, health status, and prior pregnancy outcomes. • Sending an update to an immunization registry when a vaccination is administered • Limiting access to mental health information to a patient's psychiatrist/psychologist • Establishing system level defaults such as for vocabulary data sets to be implemented. • Establishing user level preferences such as allowing the use of health information for research purposes.		X					
I.7	**Workflow**	Workflow management functions include both the management and set up of work queues, personnel, and system interfaces as well as the implementation functions that use workflow-related business rules to direct the flow of work assignments.	Workflow management functions include: • Distribution of information to and from internal and external parties; • Support for task-management as well as parallel and serial task distribution; • Support for notification and task		X					

Care in the Community, Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			routing based on system triggers; and • Support for task assignments, escalations and redirection in accordance with business rules. Workflow definitions and management may be implemented by a designated application or distributed across EHR-S applications.							

EHR Functional Outline and Standard
Care Category and Select Care Setting Definitions

Care Settings, Profiles, and Outreach Work Group

Tier 1: Care Category

Care Category:	Ambulatory
Version:	2.6
Date:	January 29, 2004
Care Category Definition	
Any facilities or settings that provide diagnostic, therapeutic and health maintenance services for persons not requiring stays that exceed 24 hours. The care provided is typically episodic and appointment based and can occur in a single visit or across many visits related to an acute or chronic illness or for routine periodic health maintenance. For ambulatory, the EHR-S establishes continuity of documentation that is referred to in subsequent visits (when they occur), so while the patient does not stay for more than 24 hours, the documentation is frequently used in a cumulative fashion over a period of time. In ambulatory care settings, a provider is responsible for an individual person's care across one or more loosely coupled care disciplines or specialties in one or more care environments encompassing one or more care episodes/durations at least one environment and/or discipline of which is certified and/or licensed as a healthcare provider. Ambulatory care may precede or occur as a follow up to an inpatient stay or admission, but does not include care provided during the period of confinement. For the purposes of the EHR-S, events that occur during an inpatient stay may be referred to, documented or summarized as a part of the patient's ongoing medical record for use in future ambulatory episodes.	

Tier 2: Care Settings within the Care Category

Examples of Care Settings INCLUDED in This Care Category and Rationale-

Settings Included:
Small ambulatory clinic (single specialty or primary care) and large ambulatory clinic (single or multi-specialty), stand alone or hospital based ambulatory care offices, diagnostic imaging centers, ambulatory surgery centers, dialysis centers, cardiac rehabilitation centers, cancer treatment centers, birth control centers, in–vitro fertilization centers, mental health centers, occupational medicine.

Why Examples Conform to Care Category Definition:
All Examples conform to the definition of heath services provided for diagnosis, treatment, and health maintenance where stays do not exceed 24 hours.

Examples of Care Settings NOT INCLUDED in This Care Category and Rationale

Settings Not Included:
Hospitals that provide the above cited services but may require a greater than 24 hour stay are not included. Fitness centers that do not have a specific rehabilitation function, nursing homes, pharmacies, emergency care units are not included.

Why Examples Do Not Conform to Care Category Definition:
Specialty hospitals conform better to acute inpatient care. Although fitness centers promote wellness and health maintenance those without a specific rehab function do not conform to the definition of diagnostic therapeutic and health maintenance. Emergency departments have information management needs similar to other ambulatory settings but have other information management needs that would ordinarily be found in an inpatient setting. If emergency departments are included in this care setting, the number of required features for the ambulatory care setting would increase to include many functions that are not required for most ambulatory providers.

Care Setting within This Category Scoped for the DSTU Ballot
[See scenario and prioritized list of DSTU functions]

Care Setting:	Small ambulatory clinic (single specialty or primary care) and large ambulatory clinic (single or multi-specialty) (US Realm)
Version:	2.6
Date:	January 29, 2004

Care Setting Definition:

For this DSTU, the primary focus will be the ambulatory clinic (or Doctor's Office) care setting. The workflow is typically encounter based, involving scheduling, check-in, interaction with licensed clinicians to provide diagnostic, therapeutic or health maintenance services followed by some kind of check out process. The care process may span one visit or repeated visits over a lifetime. Each ambulatory provider may require access for communication or information purposes to other providers across disparate facilities, business units and modalities as needed to coordinate care. Small ambulatory clinics are envisioned as single specialty physician offices or small primary care practices. The large ambulatory setting includes multi-specialty practices or large single specialty practices that require a wider array of functions from the EHR-S.

For the DSTU period, the functional profile has been prioritized into a single outline for small and large ambulatory clinics.

Basic Scenario - Ambulatory #1

A. PATIENT BACKGROUND

1.
A 70 year old male, Mr. Smith, receives notification [DC.2.5.2] from the clinic, both by mail and e-mail (based on his preference) [DC.3.2.3] advising him that he is due for his annual medical exam. His home town is located 200 miles from the clinic, but he has been coming regularly since the age of 60. He has been treated in the past at the clinic for intestinal polyps, hypertension and high cholesterol.

B. FACILITY, PRIMARY PROVIDERS, AND SYSTEMS BACKGROUND

2.
Mr. Smith is a patient at the High Plains clinic, a multi-specialty, primary care clinic with Board certified medical specialists in the areas of internal medicine, pulmonary and critical care, gastroenterology, infectious disease, endocrinology, diabetes, and metabolism, and cardiology.

C. PREV SIT PROCESS

3.
The scheduling system identifies his previous provider [S.3.4.1] [S.1.6] [S.3.4.2], who is a gastroenterologist and a first appointment is set up for about one month after the phone call. Had he wanted to be seen earlier, the scheduling system would have identified another physician with a similar professional profile in the physician master database [S.3.4.1].

4.
The EHRS is used to obtain a patient-provided update of information directly from Mr. Smith [DC.1.1.7.2] [DC.3.2.3]. Mr. Smith may either update computer-generated sheets of information on his previous care which are mailed to him (these are subsequently scanned into the EHRS using OCR or image processing technology), or he may log on through a secure [I.1.1] [I.1.2] [I.1.3.1] [I.1.5] patient portal connection to provide this information directly to the EHRS.

5.
Mr. Smith is asked for current complaints, an interim personal medical history (since his last visit) and any changes to his family history or payment information [DC.1.1.4] [DC.1.1.7]. Existing data in the EHRS is used to prompt Mr. Smith and eliminate unnecessary data entry. While logged into the portal, Mr. Smith may see other health maintenance reminders [DC2.5.1] [DC2.5.2] and have an opportunity to send a secure message to his physician [DC3.2.3]. Since he has been seen at the clinic before, he need only update the information that is on file. Mr. Smith's changes to his history are logged in the EHRS and an audit trail [I.2.2] of previous information is available to the provider.

6.
The care provider is assisted by having full historical and updated information available from the EHR [S.3.1.1]. The clinic contacts Mr. Smith's insurers, Medicare and BCBS Supplemental, and informs Mr. Smith of any non-covered services (e.g. enema service), co-pays or deductibles and policies regarding payment of them [S.3.3.2] [S.3.3.3].

D. CARE PROCESS

7.
When Mr. Smith arrives, he checks into the clinic at the desk of his primary provider, Dr. Jones. His check-in date and time are noted [S.3.1.2] [S.1.4.2]. Mr. Smith's physical location [S.1.4.2] is registered in the patient tracking system and his location will be updated as he moves from area to area within the clinic for his appointments.

8.
He is then shown to the exam room by the check-in staff and is visited a few minutes later by a nurse, who reviews Mr. Smith's patient-provided information [DC.1.1.5], noting any changes or corrections which s/he enters into the EHRS using a wireless tablet [DC.1.1.3.2] [DC1.1.3.3] [DC1.1.4] [DC1.1.5] [DC.1.1.7.2]. All new information is highlighted. S/he measures Mr. Smith's weight and height and vital signs which are entered into the EHRS via communication with a medical device [DC.3.2.5].

9.
Dr. Jones, meanwhile, has just been returning and urgent phone call to another patient, Mrs. Davis, that was added to his task list [DC.3.1.3] [DC.3.1]. Mrs. Davis is complaining that her anti-fungal medication is causing discomfort. Dr. Jones revises Mrs. Davis treatment plan [DC.1.1.3.3] [DC.1.2.2] [DC.1.3.1] [DC2.3.1.1] and routes a task [DC.3.1.1] to the triage nurse to phone in a new prescription to Mrs. Davis' neighborhood pharmacy (which is unable to receive prescriptions electronically [DC.3.2.2]). Dr. Jones signs off on the order electronically [I.1.1] [I.1.2] and the EHRS completes his task automatically [DC.3.1].

10.
Next Dr. Jones uses the EHRS to review today's schedule [S.1.6] showing the exam room location of each patient [S.1.4.2]. As he readies himself to greet Mr. Smith, he pauses at the monitor outside the exam room (Dr. Smith doesn't like tablets) to review Mr. Smith's data [DC.1.1.1] [DC.1.1.5], including information just added by the nurse [I.2.3]. He reviews Mr. Smith's patient provided information [S.3.1.1], and the EHRS chart summary [DC.1.1.5] including a list of previous diagnoses [DC.1.1.3.1]. He notes that Mr. Smith has recently been experiencing problems with his vision which Dr. Jones thinks may be associated with macular degeneration. The EHRS offers prompts for tests based on clinical guidelines specific for this patient's profile [DC.2.1.2] [DC.2.1.3] [DC.2.2.1.2]. One of these, recognizing the colon poly history and interval since last examination, prompts for colonoscopy scheduling [DC.2.2.1].

F. PHYSICIAN ENCOUNTER

11.
Dr. Jones enters the room and greets Mr. Smith. They go over the most cogent EHRS data together and discuss his health concerns. Dr. Jones then performs the physical examination and charts his findings in the EHRS [DC.1.1.6] [DC.1.1.7] ?. He notes Mr. Smith's blood pressure is higher than previously, but is not sure if this is a result of the tension of the moment. Mr. Smith complains that he thinks his hypertension medication has been causing dizziness. He would like to know if another medication can be substituted. Dr. Jones refers to his clinic's formulary and Mr. Smith's insurance formulary, stored in the EHRS, to determine an appropriate medication [DC.2.3.1] [DC.2.3.1.1] [DC.2.3.1.3] [DC.1.3.2].

12.
Dr. Jones checks the clinic guideline for management of chronic hypertension [DC.2.2.1] and then writes a prescription which is conveyed to the clinic's pharmacy [DC.3.2.2]; a prescription slip is also printed, which Dr. Jones gives to Mr. Smith. Using predefined order sets [DC.1.4.3] developed by the clinic, Dr. Jones enters several additional orders for Mr. Smith, including blood work and an ambulatory blood pressure monitor [DC.1.4.1]. He approves the colonoscopy order [DC.1.4.2]. He also orders a referral to an Ophthalmologist [DC.1.4.4]. The EHRS adds tasks [DC.3.1] for staff members to draw a blood sample, and complete requisitions to the orders system for the blood work, the colonoscopy, and to generate a referral to an ophthalmologist [DC.3.2.1]. Dr. Jones uses a combination of structured data input and free text entry using voice recognition to document his clinical note [DC.1.1.6].

13.
After Mr. Smith leaves, the EHRS recommends an E&M code based on documentation entered during the visit [S.3.1.3] [S.3.2.2]. Dr. Jones confirms the E&M code and routes the visit information to a coder in the business office for review and approval [DC.3.1.1]. Once the coder has approved the documentation and level of billing, the information required for charge transactions is sent to the clinic's billing system via an interface [S.3.3][S.3.1.3].

G. POST-ENCOUNTER ACTIVITY

14.
After Mr. Smith's colonoscopy is performed, the results based on biopsy indicate cancerous tissue. Dr. Jones is notified of the results by phone, as well as by an alert in the EHRS indicating an abnormal result [DC.1.4.5] [DC.2.4.2] [DC.2.6.3]. Mr. Smith is notified by Dr. Jones and asked to come in to see Dr. Jones. Mr. Smith prefers surgery and is admitted to the hospital. Mr. Smith's records are transmitted to the hospital's EHRS [DC.3.2.1] [I.4.2] [I.5.1].

15.
By accessing his list of incomplete tasks [DC.3.1.3], Dr. Jones sees that Mr. Smith's encounter has not been signed off. He then dismisses the episode by automated signature [I.1.1] [I.1.4] [I.1.7]. A summary of care is sent [DC.3.2.3] -- on paper or electronically --

to Mr. Smith and/or his home town provider, according to Mr. Smith's wishes. (If all results are in at the time of the patients last visit with the primary provider, this summary could have been provided to the patient at that time.) The summary indicates that in a year, Mr. Smith will be notified to come in for a follow-up colonoscopy and any other care he is to receive on a regular basis, according to approved protocols.

16.
After Mr. Smith's visit, de-identified information [S.1.5] regarding his diagnoses, procedures and demographics is transmitted [I.5.1] to the clinic's administrative and management databases and then, in summarized form, to governmental agencies and accrediting organizations, for epidemiological surveillance, population health statistics, regulatory requirements, patient safety monitoring and quality assurance [I.4.2] [I.2.4] [S.3.3.6] [S.2.1.1]. As Mr. Smith has signed an attestation declining to allow his health care information to be used for research purposes, none of his clinical data is transmitted to research databases, unless mandated by law [S.1.5.1].

EHR-S Functional Model: Ambulatory

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.1	**Care Management**									
DC.1.1	Health information capture, management, and review		For those functions related to data capture, data is captured using standardized code sets or nomenclature, depending on the nature of the data. Data may also be captured from devices.		X					
DC.1.1.1	Identify and locate a patient record	Maintain and identify a single patient record for each patient.	Key identifying information is stored and linked to the patient record. A lookup function uses this information to uniquely identify the patient.		X				10	
DC.1.1.2	Manage patient demographics	Capture and maintain demographic information that is reportable and, where appropriate, trackable over time.	Contact information including addresses and phone numbers, as well as key demographic information such as date of birth, sex, and other information is stored and maintained for reporting purposes and for the provision of care.	S.1.4.0; S.1.4.1; S.1.4.2; I.1.4.4; I.1.4.5	X					
DC.1.1.3	Manage summary lists	Create and maintain patient-specific summary lists.	Patient summary lists can be created and maintained when appropriate for the patient or a particular care setting.	S.1.4.0; S.1.4.1; S.1.4.2; I.1.4.4; I.1.4.5	X					

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.1.1.3.1	Manage problem list	Create and maintain patient-specific problem lists.	A problem list may include, but is not limited to: Chronic conditions, diagnoses, or symptoms, 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 history information and tracking the changing character of the problem and its priority. All pertinent dates, including date noted, dates of any changes in problem specification or prioritization, and date of resolution are stored. The entire problem history for any problem in the list is viewable.		X				10	
DC.1.1.3.2	Manage medication list	Create and maintain patient-specific medication lists.	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 is viewable. Medication lists are not limited to medication orders recorded by providers, but may include patient-reported medications.		X				8	
DC.1.1.3.3	Manage allergy and adverse reaction list	Create and maintain patient-specific allergies and reactions.	Allergens and substances are identified and coded (whenever possible) and the list is managed over time. All pertinent dates, including patient-reported events, are stored and the description of the patient allergy and reaction is modifiable over time. The entire allergy history, including reaction, for any allergen is viewable.		X				8,9	

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.1.1.4	Manage Patient History	Capture, review, and manage medical, procedural, social, and family history including the capture of pertinent negative histories, patient-reported or externally available patient clinical history.	Patient historical data related to previous medical diagnoses, surgeries and other procedures performed on the patient, and relevant health conditions of family members is captured through such methods as patient reporting (for example interview, medical alert band) or electronic or non-electronic historical data. This data may take the form of a positive or a negative such as: "The patient/family member has had..." or "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 is captured and presented alongside locally captured documentation and notes wherever appropriate.		X				5,8,9	
DC.1.1.5	Summarize health record	Present a chronological, filterable, comprehensive review of the patient's entire clinical history, subject to confidentiality constraints.	A key feature of an electronic health record is its ability to present, summarize, filter, and facilitate searching through the large amounts of data collected during the provision of patient care. Much of this data is date or date-range specific and should be presented chronologically. Local confidentiality rules that prohibit certain users from accessing certain patient information must be supported.		X				8,9,10	
DC.1.1.6	Manage clinical documents and notes	Create, addend, and authenticate transcribed or directly-entered clinical documentation and notes.	Clinical documents and notes may be created in a narrative form, which may be based on a template. The documents may also be structured documents that result in the capture of coded data. Each of these forms of clinical documentation are important and appropriate for different users and situations.		X				11,12	
DC.1.1.7	Capture key health data	Capture, manage, and review key health data by a variety of users.	Care-setting dependent data is entered by a variety of caregivers. Details of who entered data and when was captured should be tracked.	DC.3.2.5; S.3.1.4	X				5,11	

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.1.1.7.1	Capture external clinical documents	Incorporate clinical documents and notes from external sources.	Mechanisms for incorporating external clinical documentation, such as image documents, and other clinically relevant data are available. Data incorporated through these mechanisms is presented alongside locally captured documentation and notes wherever appropriate.			X				
DC.1.1.7.2	Capture patient-originated data	Capture patient-provided and patient-entered clinical data.	Patients may provide data for entry into the health record or be given a mechanism for entering this data directly. Patient-entered data intended for use by care providers will be available for their use.			X			4,8,9	
DC.1.2	Care plans, guidelines, and protocols									
DC.1.2.1	Present care plans, guidelines, and protocols	Present organizational guidelines for patient care as appropriate to support order entry and clinical documentation.	Care plans, guidelines, and protocols may be site specific or industry-wide standards. They may need to be managed across one or more providers. Tracking of implementation or approval dates, modifications and relevancy to specific domains or context is provided.			X				
DC.1.2.2	Manage patient-specific care plans, guidelines, and protocols.	Provide administrative tools for organizations to build guidelines and protocols for use during patient care.	Guidelines or protocols may contain goals or targets for the patient, specific guidance to the providers, suggested orders, and nursing interventions, among other items.	DC.1.2.1		X				

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.1.2.3	Manage patient-specific instructions	Generate and record patient-specific instructions related to pre- and post-procedural and post-discharge requirements.	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.			X				
DC.1.3	Medication ordering and management									
DC.1.3.1	Order medication	Create prescriptions or other medication orders with detail adequate for correct filling and administration by pharmacy and clinical staff.	Different medication orders require different levels and kinds of detail, as do medication orders placed in different situations. The correct details are recorded for each situation. Administration or patient instructions are available for selection by the ordering clinicians, or the ordering clinician is facilitated in creating such instructions. Appropriate time stamps for all medication related activity is generated.	DC.3.2.3	X				9	
DC.1.3.2	Manage medication formularies	Provide information regarding compliance of medication orders with formularies.	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. 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.		X				11	

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.1.3.3	Manage medication administration	Present to appropriate clinicians the medications that are to be administered to a patient, under what circumstances, and capture administration details.	In a setting in which medication orders are to be administered by a clinician rather than the patient him or herself, 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. Additionally, the clinician is able to 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.				X			
DC.1.4	Orders, referrals, and results management									
DC.1.4.1	Place generic orders	Capture and track orders based on input from specific care providers.	Orders that request actions or items can be captured and tracked. Examples include orders to transfer a patient between units, to ambulate a patient, for medical supplies, durable medical equipment, home IV, and diet or therapy orders. For each orderable item, the appropriate detail, including order identification and instructions, can be captured. Orders should be communicated to the correct recipient for completion if appropriate.	DC.1.3.1		X			12	
DC.1.4.2	Order diagnostic tests	Submit diagnostic test orders based on input from specific care providers.	For each orderable item, the appropriate detail and instructions must be available for the ordering care provider to complete. Orders for diagnostic tests should be transmitted to the correct destination for completion or generate appropriate requisitions for communication to the relevant resulting agencies.		X				12	

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.1.4.3	Manage order sets	Provide order sets based on provider input or system prompt.	Order sets allow a care provider to choose common orders for a particular circumstance or disease state according to best practice or other criteria. Recommend order sets may be presented based on patient data or other contexts.			X			12	
DC.1.4.4	Manage referrals	Enable the origination, documentation and tracking of referrals between care providers or care settings, including clinical and administrative details of the referral.	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.			X			12	
DC.1.4.5	Manage results	Route, manage and present current and historical test results to appropriate clinical personnel for review, filtering and comparison.	Results of tests are presented in an easily accessible manner and to the appropriate care providers. Flow sheets, graphs, or other tools allow care providers to view or uncover trends in test data over time. In addition to making results viewable, it is often necessary to send results to appropriate care providers using an electronic messaging systems, pagers, or other mechanism. Results may also be routed to patients electronically or in the form of a letter.		X				14	
DC.1.4.6	Order blood products and other biologics	Communicate with appropriate sources or registries to order blood products or other biologics.	Interact with a blood bank system or other source to manage orders for blood products or other biologics. Use of such products in the provision of care is captured. Blood bank or other functionality that may come under federal or other regulation (such as by the FDA in the United States) is not required; functional communication with such a system is.	S.1.1.0			X			

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.1.5	Consents and authorizations									
DC.1.5.1	Manage consents and authorizations	Create, maintain, and verify patient treatment decisions in the form of consents and authorizations when required during the ordering process.	Treatment decisions are documented and include the extent of information, verification levels and exposition of treatment options. This documentation helps ensure that decisions made at the discretion of the patient, family, or other responsible party govern the actual care that is delivered or withheld.			X			16	
DC.1.5.2	Manage patient advanced directives	Capture, maintain and provide access to patient advanced directives	Patient advanced directives can be captured as well as the date and circumstances under which the directives were received, and the location of any paper records of advanced directives as appropriate.			X				
DC.2	**Clinical Decision Support**									
DC.2.1	Health information capture and review			D.C. 1.1						
DC.2.1.1	Support for standard assessments	Offer knowledge-based prompts to support the adherence to care plans, guidelines, and protocols at the point of information capture.	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 II diabetic review, fall and 70+, rectal bleeding etc. As another example, to appropriately manage the use of restraints, an online alert is presented defining the requirements for a behavioral health restraint when it is selected.				X			

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.2.1.2	Support for Patient Context-enabled Assessments	Offer knowledge-based prompts based on patient-specific data at the point of information capture.	When a clinician fills out an assessment, data entered is matched against data already in the system to identify potential linkages. For example, the system could scan the medication list and the knowledge base to see if any of the symptoms are side effects of medication already prescribed. Important but rare diagnoses could be brought to the doctor's attention – for instance ectopic pregnancy in a woman of child bearing age who has abdominal pain.				X		10	
DC.2.1.3	Support for identification of potential problems and trends	Identify specific problems or trends that may lead to significant problems, which may be based on patient data, providing prompts for consideration at the point of information capture.	When personal health information is collected directly during a patient visit input by the patient, or acquired from an external source (lab results), it is important to be able to identify potential problems and trends that may be patient-specific, given the individual's personal health profile, or changes warranting further assessment. For example: significant trends (lab results, weight); a decrease in creatinine clearance for a patient on metformin, or an abnormal increase in INR for a patient on warfarin.				X		10	
DC.2.1.4	Patient and family preferences	Capture patient and family preferences at the time of information intake and integrate them into clinical - decision support at all appropriate opportunities.	Decision support functions should permit consideration of patient/family preferences and concerns, such as with language, medication choice, invasive testing, and advanced directives.				X			
DC.2.2	Care plans, guidelines and protocols			DC 1.2						
DC.2.2.1	Support for condition based care plans, guidelines, protocols								10,12	

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.2.2.1.1	Present standard care plans, guidelines, protocols	Identify the appropriate care plans, guidelines and/or protocols for the management of specific conditions.	At the time of the clinical encounter, standard care protocols are presented. These may include site-specific considerations.			X				
DC.2.2.1.2	Present context sensitive care plans, guidelines, protocols	Identify the appropriate care plans, guidelines and/or protocols for the management of specific conditions that are adjusted to the patient specific profile.	At the time of the clinical encounter, recommendations for tests, treatments, medications, immunizations, referrals and evaluations are presented based on evaluation of patient specific data, their health profile and any site-specific considerations. These may be modified on the basis of new clinical data at subsequent encounters.				X			
DC.2.2.1.3	Capture variances from standard care plans, guidelines, protocols	Identify variances from standard care plans, guidelines, and protocols.	Variances from care plans, guidelines, or protocols are identified and tracked, with alerts, notifications and reports as clinically appropriate.				X			
DC.2.2.1.4	Support management of patient groups or populations	Provide support for the management of populations of patients that share diagnoses, problems, demographic characteristics, etc.	Populations or groups of patients that share diagnoses (such as diabetes or hypertension), problems, demographic characteristics, medication orders are identified. The clinician may be notified of eligibility for a particular test, therapy, or follow-up; or results from audits of compliance of these populations with disease management protocols.				X			
DC.2.2.1.5	Support research protocols	Provide support for the identification of patients for potential enrolment in research protocols and management of patients enrolled in research protocols.	Potential candidates for participation in a research study are identified and the clinician notified of patient eligibility. The clinician is presented with protocol-based care to patients enrolled in research studies.				X			

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.2.2.1.6	Support self-care	Provide the patient with decision support for self-management of a condition between patient-provider encounters.	Patients with specific conditions need to follow self-management plans that may include schedules for home monitoring, lab tests, and clinical check ups; recommendations about nutrition, physical activity, tobacco use, etc.; and guidance or reminders about medications.	DC.1.1.7.2; DC.3.2.4			X			
DC.2.3	Medications and medication management			DC 1.3						
DC.2.3.1	Support for medication ordering				X				11	
DC.2.3.1.1	Drug, food, allergy interaction checking	Identify drug-drug, drug-allergy and drug-food interaction warnings at the point of medication ordering.	The clinician is alerted to drug-drug, drug-allergy, and drug-food interactions at levels appropriate to the health care entity. These alerts may be customized to suit the user or group.		X				11	
DC.2.3.1.2	Patient specific dosing and warnings	Identify drug-condition warnings and present weight/age appropriate dose recommendations	The clinician is alerted to drug-condition interactions and patient specific contraindications and warnings e.g. elite athlete, pregnancy, breast-feeding or occupational risks. The preferences of the patient may also be presented e.g. reluctance to use an antibiotic.				X			
DC.2.3.1.3	Medication recommendations	Recommend best practice treatment and monitoring on the basis of cost, local formularies or therapeutic guidelines and protocols	Offer alternative treatments on the basis of best practice (e.g. cost or adherence to guidelines), a generic brand, a different dosage, a different drug, or no drug ("watchful waiting"). Suggest lab order monitoring as appropriate.				X		11	

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.2.3.2	Support for medication administration.	Alert providers in real-time to potential administration errors such as wrong patient, wrong drug, wrong dose, wrong route and wrong time in support of medication administration management and workflow.	To reduce medication errors at the time of administration of a medication, the patient is positively identified; checks on the drug, the dose, the route and the time are facilitated. Documentation is a by-product of this checking; administration details and additional patient information, such as injection site, vital signs, and pain assessments, are captured. In addition, access to online drug monograph information allows providers to check details about a drug and enhances patient education.				X			
DC.2.4	Orders, referrals, results and care management									
DC.2.4.1	Support for non-medication ordering	Identify necessary order entry components for non-medication orders that make the order pertinent, relevant and resource conservative at the time of provider order entry; and flag any inappropriate orders based on patient profile. -	Possible order entry components include, but are not limited to: missing results required for the order, suggested corollary orders, notification of duplicate orders, institution-specific order guidelines, guideline-based orders/order sets, order sets, order reference text, patient diagnosis specific recommendations pertaining to the order. Also, warnings for orders that may be inappropriate or contraindicated for specific patients (e.g. X-rays for pregnant women) are presented.				X			
DC.2.4.2	Support for result interpretation	Evaluate results and notify provider of results within the context of the patient's clinical data.	Possible result interpretations include, but are not limited to: abnormal result evaluation/notification, trending of results (such as discrete lab values), evaluation of pertinent results at the time of provider order entry (such as evaluation of lab results at the time of ordering a radiology exam), evaluation of incoming results against active medication orders.				X		14	
DC.2.4.3	Support for referrals			DC 1.4						

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.2.4.3.1	Support for referrals	Evaluate referrals within the context of a patient's clinical data.	When a healthcare referral is made, pertinent health information, including pertinent results, demographic and insurance data elements (or lack thereof) are presented to the provider. Protocols for appropriate workup prior to referral may be presented.				X			
DC.2.4.3.2	Support for referral recommendations	Evaluate patient data and suggest appropriate referrals.	Entry of specific patient conditions may lead to recommendations for referral e.g. for smoking cessation counseling if the patient is prescribed a medication to support cessation.				X			
DC.2.4.4	Support for Care Delivery									
DC.2.4.4.1	Support for safe blood administration	Alert providers in real-time to potential blood administration errors such as wrong blood, wrong cross match, wrong source, wrong date and time, and wrong patient.	To reduce blood administration errors at the time of administration of blood products, the patient is positively identified and checks on the blood product, the amount, the route and the time are facilitated. Documentation is a by-product of this checking.				X			
DC.2.4.4.2	Support for accurate specimen collection	Alert providers in real-time to potential specimen collection errors, such as wrong patient, wrong specimen type, wrong collection means, and wrong date and time.	To ensure the accuracy of specimen collection, when a provider obtains specimens from a patient, the clinician can match each specimen collection identifier and the patient's ID bracelet. The provider is notified in real-time of potential collection errors such as wrong patient, wrong specimen type, wrong means of collection, wrong site, and wrong date and time. Documentation of the collection is a by-product of this checking.				X			
DC.2.5	Support for Health Maintenance: Preventive Care and Wellness									

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.2.5.1	Alerts preventive services and wellness	Identify patient specific suggestions/reminders, screening tests/exams, and other preventive services in support of routine preventive and wellness patient care standards.	At the time of an encounter, the provider or patient is presented with due or overdue activities based on protocols for preventive care and wellness. Examples include but are not limited to, routine immunizations (adult and well baby care), age and sex appropriate screening exams (such as PAP smears).		X				5	
DC.2.5.2	Notifications for preventive services and wellness	Notify the patient and/or appropriate provider of those preventive services, tests, behavioral actions that are due or overdue between patient-provider encounters.	The provider can generate notifications to patients regarding activities that are due or overdue and these communications can be captured. Examples include but are not limited to time sensitive patient and provider notification of: follow-up appointments, laboratory tests, immunizations or examinations. The notifications can be customized in terms of timing, repetitions and administration reports. E.g. a Pap test reminder might be sent to the patient a 2 months prior to the test being due, repeated at 3 month intervals, and then reported to the administrator or clinician when 9 months overdue.			X			1,5	
DC.2.6	Support for population health									
DC.2.6.1	Support for clinical health state monitoring within a population.	Support clinical health state monitoring of aggregate patient data for use in identifying health risks from the environment and/or population.	Standardized surveillance performance measures that are based on known patterns of disease presentation can be identified by aggregating data from multiple input mechanisms. For example, elements include, but are not limited to patient demographics, resource utilization, presenting symptoms, acute treatment regimens, laboratory and imaging study orders and results and genomic and proteomic data elements. Identification of known patterns of existing diseases involves aggregation and analysis of these data elements by existing relationships. However, the identification of new patterns of disease requires more sophisticated			X				

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			pattern recognition analysis. Early recognition of new patterns requires data points available early in the disease presentation. Demographics, ordering patterns and resource use (e.g., ventilator or intensive care utilization pattern changes) are often available earlier in the presentation of non-predictable diseases. Consumer-generated information is also valuable with respect to surveillance efforts.							
DC.2.6.2	Support for notification and response	Upon notification by an external, authoritative source of a health risk within the cared for population, alert relevant providers regarding specific potentially at-risk patients with the appropriate level of notification.	Upon receipt of notice of a health risk within a cared-for population from public health authorities or other external authoritative sources, identify and notify individual care providers or care managers that a risk has been identified and requires attention including suggestions on the appropriate course of action. This process gives a care provider the ability to influence how patients are notified, if necessary.				X			
DC.2.6.3	Support for monitoring and appropriate notifications regarding an individual patient's health	In the event of a health risk alert and subsequent notification related to a specific patient, monitor if expected actions have been taken, and execute follow-up notification if they have not.	Identifies that expected follow-up for a specific patient event (e.g., follow up to error alerts or absence of an expected lab result) has not occurred and communicate the omission to appropriate care providers in the chain of authority. Of great importance to the notification process is the ability to match a care provider's clinical privileges with the clinical requirements of the notification.	S.3.4.1			X		14	
DC.2.7	Support for knowledge access									
DC.2.7.1	Access clinical guidance	Provide relevant evidence-based information and knowledge to the point of care for use in clinical decisions and care planning	Examples include but are not limited to: evidence on treatment of conditions and wellness, as well as context-specific links to other knowledge resources. For example, when a condition is diagnosed provider is directed to relevant online evidence for management.			X				

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.2.7.2	Patient knowledge access	Enable the accessibility of reliable information about wellness, disease management, treatments, and related information that is relevant for a specific patient.	An individual will be able to find reliable information to answer a health question, follow up from a clinical visit, identify treatment options, or other health information needs. The information may be linked directly from entries in the health record, or may be accessed through other means such as key word searching.	DC.3.2.4; S.3.7.2			X			
DC.3	**Operations Management and Communication**									
DC.3.1	Clinical workflow tasking	Schedule and manage clinical tasks with appropriate timeliness.	Since the electronic health record will replace the paper chart, tasks that were based on the paper artifact must be effectively managed in the electronic environment. Functions must exist in the EHRS that support electronically any workflow that previously depended on the existence of a physical artifact (such as the paper chart, a phone message slip) in a paper based system. Tasks differ from other more generic communication among participants in the care process because they are a call to action and target completion of a specific workflow in the context of a patient's health record (including a specific component of the record). Tasks also require disposition (final resolution). The initiator may optionally require a response. For example, in a paper based system, physically placing charts in piles for review creates a physical queue of tasks related to those charts. This queue of tasks (for example, a set of patient phone calls to be returned) must be supported electronically so that the list (of patients to be called) is visible to the appropriate user or role for disposition. Tasks are time-limited			X			9,12	

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			(or finite). The state transition (e.g. created, performed and resolved) may be managed by the user explicitly or automatically based on rules. For example, if a user has a task to signoff on a test result, that task should automatically be marked complete by the EHR when the test result linked to the task is signed in the system. Patients will become more involved in the care process by receiving tasks related to their care. Examples of patient related tasks include acknowledgement of receipt of a test result forwarded from the provider, or a request to schedule an appointment for a pap smear (based on age and frequency criteria) generated automatically by the EHRS on behalf of the provider.							
DC.3.1.1	Clinical task assignment and routing	Assignment, delegation and/or transmission of tasks to the appropriate parties.	Tasks are at all times assigned to at least one user or role for disposition. Whether the task is assignable and to whom the task can be assigned will be determined by the specific needs of practitioners in a care setting. Task-assignment lists help users prioritize and complete assigned tasks. For example, after receiving a phone call from a patient, the triage nurse routes or assigns a task to return the patient's call to the physician who is on call. Task creation and assignment may be automated, where appropriate. An example of a system-triggered task is when lab results are received electronically; a task to review the result is automatically generated and assigned to a clinician. Task assignment ensures that all tasks are disposed of by the appropriate person or role and allows efficient interaction of entities in the care process.			X			9	

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.3.1.2	Clinical task linking	Linkage of tasks to patients and/or a relevant part of the electronic health record.	Clinical tasks are linked to a patient or to a component of a patient's medical record. An example of a well defined task is "Dr. Jones must review Mr. Smith's blood work results." Efficient workflow is facilitated by navigating to the appropriate area of the record to ensure that the appropriate test result for the correct patient is reviewed. Other examples of tasks might involve fulfillment of orders or responding to patient phone calls.			X				
DC.3.1.3	Clinical task tracking	Track tasks to guarantee that each task is carried out and completed appropriately.	In order to reduce the risk of errors during the care process due to missed tasks, the provider is able to view and track un-disposed tasks, current work lists, the status of each task, unassigned tasks or other tasks where a risk of omission exists. For example, a provider is able to create a report to show test results that have not been reviewed by the ordering provider based on an interval appropriate to the care setting.				X		9,15	
DC.3.1.3.1	Clinical task timeliness tracking	Track and/or report on timeliness of task completion.	Capability to track and review reports on the timeliness of certain tasks in accordance with relevant law and accreditation standards.				X			

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.3.2	Clinical communication		Healthcare requires secure communications among various participants: patients, doctors, nurses, chronic disease care managers, pharmacies, laboratories, payers, consultants, etc. An effective EHRS supports communication across all relevant participants, reduces the overhead and costs of healthcare-related communications, and provides automatic tracking and reporting. The list of communication participants is determined by the care setting and may change over time. Because of concerns about scalability of the specification over time, communication participants for all care settings or across care settings are not enumerated here because it would limit the possibilities available to each care setting and implementation. However, communication between providers and between patients and providers will be supported in all appropriate care settings and across care settings. Implementation of the EHRS enables new and more effective channels of communication, significantly improving efficiency and patient care. The communication functions of the EHRS will eventually change the way participants collaborate and distribute the work of patient care.							
DC.3.2.1	Inter-provider communication	Support secure electronic communication (inbound and outbound) between providers to trigger or respond to pertinent actions in the care process, document non-electronic communication (such as phone calls, correspondence or other encounters) and generate paper message artifacts where appropriate.	Communication among providers involved in the care process can range from real time communication (for example, fulfillment of an injection while the patient is in the exam room), to asynchronous communication (for example, consult reports between physicians). Some forms of inter-practitioner communication will be paper based and the EHRS must be able to produce appropriate documents.		X				12,14	

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.3.2.2	Pharmacy communication	Provide features to enable secure bidirectional communication of information electronically between practitioners and pharmacies.	When a medication is prescribed, the prescription is routed electronically to the pharmacy. This information is used to avoid transcription errors and facilitate detection of potential adverse reactions. Upon filling the prescription, information is sent back to the practitioner to indicate that the patient received the medication. If there is a question from the pharmacy, that communication can be presented to the provider with their other tasks.			X			9,12	
DC.3.2.3	Provider and patient or family communication	Trigger or respond to electronic communication (inbound and outbound) between providers and patients or patient representatives with pertinent actions in the care process.	The clinician is able to communicate with patients and others, capturing the nature and content of electronic communication, or the time and details of other communication. For example: 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; or a hospital may wish to communicate with selected patients about a new smoking cessation program.			X			1,4,5,15	
DC.3.2.4	Patient, family and care giver education	Identify and make available electronically or in print any educational or support resources for patients, families, and caregivers that are most pertinent for a given health concern, condition, or diagnosis and which are appropriate for the person (s).	The provider or patient is presented with a library of educational materials and where appropriate, given the opportunity to document patient/caregiver comprehension. The materials can be printed or electronically communicated to the patient.		X					
DC.3.2.5	Communication with medical devices	Support communication and presentation of data captured from medical devices.	Communication with medical devices is supported as appropriate to the care setting. Examples include: vital signs/pulse-oximeter, anesthesia machines, home diagnostic devices for chronic disease management, laboratory machines, bar coded				X		8,9	

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			artifacts (medicine, immunizations, demographics, history, and identification).							
S.1	**Clinical Support**									
S.1.1	Notifiable Registries	Enable the automated transfer of formatted demographic and clinical information to and from local disease specific registries (and other notifiable registries) for patient monitoring and subsequent epidemiological analysis.	The user can export personal health information to disease specific registries, other notifiable registries, and add new registries through the addition of standard data transfer protocols or messages.	I.2.4 I.4.7		X				
S.1.2	Donor management support	Provide capability to capture or receive, and share needed information on potential organ and blood donors and recipients.	The user is able to capture or receive information on potential organ and blood donors and recipients. The user can make this information available to internal and external donor matching agencies.	I.2.4; I.4.7			X			

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.1.3	Provider directory	Provide a current directory of provider information in accordance with relevant laws, regulations, and conventions.	Maintain or access current directory of provider information in accordance with relevant laws, regulations, and conventions, including full name, address or physical location, and a 24x7 telecommunications address (e.g. phone or pager access number) for the purposes of the following functions	I.1.3; I.4			X			
S.1.3.1	Provider demographics	Provide a current directory of practitioners that, in addition to demographic information, contains data needed to determine levels of access required by the EHR security system.					X			
S.1.3.2	Provider's location within facility	Provide provider location or contact information on a facility's premises.					X			
S.1.3.3	Provider's on call location	Provide provider location or contact information when on call.					X			
S.1.3.4	Provider's general location	Provide locations or contact information at which the provider practices, in order to direct patients or queries.					X			

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.1.4	Patient directory	Provide a current directory of patient information in accordance with relevant privacy and other applicable laws, regulations, and conventions.	Provide a current directory of patient information in accordance with relevant privacy and other applicable laws, regulations, and conventions, including, when available, full name, address or physical location, alternate contact person, primary phone number, and relevant health status information for the purposes of the following functions.	DC.1.1.1; I.1.4				X		
S.1.4.1	Patient demographics	Maintain, archive and update demographic information in accordance with realm-specific recordkeeping requirements.	The minimum demographic data set must include the data required by realm-specific laws governing health care transactions and reporting. This may also include data input of death status information.	S.1.4; I.1.5.1; S.3.7.3	X					
S.1.4.2	Patient's location within a facility	Provide the patient's location information within a facility's premises.	Example: The patient census in a hospital setting				X		7,10	
S.1.4.3	Patient's residence related to the provision and administration of services	Provide the patient's residence information solely for purposes related to the provision and administration of services to the patient, patient transport, and as required for public health reporting.				X				
S.1.4.4	Optimize patient bed assignment	Enable interaction with a bed management system to ensure that the patient's bed assignments within the facility optimize care and minimize risks e.g. of exposure to contagious patients.		S.1.7				X		

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.1.5	De-identified data request management	Provide patient data in a manner that meets local requirements for de-identification.	When an internal or external party requests patient data and that party requests de-identified data (or is not entitled to identify patient information, either by law or custom), the user can export the data in a fashion that meets local requirements for de-identification. An audit trail of these requests and exports is maintained. For internal clinical audit, a re-identification key may be added to the data.	I.1.8; I.3; I.6.1		X			16	
S.1.6	Scheduling	Provide the necessary data to a scheduling system for optimal efficiency in the scheduling of patient care, for either the patient or a resource/device.	The system user can schedule events as required. Relevant clinical or demographic information can be linked to the task.	DC.3.1; DC.3.2.1; I.2.3; I.4.1; I.7		X			3,10	
S.1.7	Healthcare resource availability	Support the distribution of local healthcare resource information in times of local or national emergencies.	In times of identified local or national emergencies and upon request from authorized bodies, provide current status of healthcare resources including, but not limited to, available beds, providers, support personal, ancillary care areas and devices, operating theaters, medical supplies, vaccines, and pharmaceuticals. The intent is for the authorized body to distribute either resources or patient load to maximize efficient healthcare delivery.	S.1.4.4; I.1.6; I.5.1				X		
S.2	**Measurement, Analysis, Research and Reports**									
S.2.1	Measurement, monitoring, and analysis	Support measurement and monitoring of care for relevant purposes.		DC.2.6.1; I.2.4						

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.2.1.1	Outcome Measures	Support the capture and reporting of information for the analysis of outcomes of care provided to populations, in facilities, by providers, and in communities.		S.3.6.2		X			16	
S.2.1.2	Performance and accountability measures	Support the capture and reporting of quality, performance, and accountability measures to which providers/facilities/delivery systems/communities are held accountable including measures related to process, outcomes, and/or costs of care – may be used in 'pay for performance' monitoring and adherence to best practice guidelines.		DC.2.6.3; DC.2.6.2; S.3.6			X			
S.2.2	Report generation	Provide report generation features for the generation of standard and ad hoc reports.	A user can create standard and ad hoc reports for clinical, administrative, and financial decision-making, and for patient use - including structured data and/or unstructured text from the patient's health record. Reports may be linked with financial and other external data sources (i.e. data external to the entity).; Such reports may include patient-level reports, provider/facility/delivery system-level reports, population-level reports, and reports to public health agencies. Examples of patient-level reports include: administratively required patient assessment forms, admission/transfer/discharge reports, operative and procedure reports, consultation reports, and drug profiles. Examples of population-level reports include: reports on the effectiveness of clinical pathways and other evidence-based practices, tracking completeness of clinical documentation, etcetera. Examples of reports to public health agencies include: vital statistics, reportable	DC.2.6.3; S.3.6	X					

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			diseases, discharge summaries, immunization data including adverse outcomes, cancer data, and other such data necessary to maintain the publics' health (including suspicion of newly emerging infectious disease and non-natural events).							
S.2.2.1	Health record output	Enable system user to define the records and/or reports that are considered the formal health record for disclosure purposes, and provide a mechanism for both chronological and specified record element output.	Provide hardcopy and electronic output that can 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.	I.2.4; DC.1.15		X				
S.3	**Administrative and Financial**									
S.3.1	Encounter/Episode of care management	Manage and document the health care needed and delivered during an episode of care.	Using data standards and technologies that support interoperability, encounter management promotes patient-centered/oriented care and enables real time, immediate point of service, point of care by facilitating efficient work flow and operations performance to ensure the integrity of (1) the health record, (2) public health, financial and administrative reporting, and (3) the healthcare delivery process.; This support is necessary for direct care functionality that relies on providing user interaction and workflows, which are configured according to clinical protocols and business rules based on encounter specific values such as care setting, encounter type (inpatient, outpatient, home health, etc), provider type, patient's EHR, health status, demographics, and the initial			X				

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			purpose of the encounter.							
S.3.1.1	Specialized views	Present specialized views based on the encounter-specific values, clinical protocols and business rules	The system user is presented with a presentation view and system interaction appropriate to the context with capture of encounter-specific values, clinical protocols and business rules. This “user view” may be configurable by the user or system technicians. As an example, a mobile home health care worker using wireless laptop at the patient's home would be presented with a home health care specific workflow synchronized to the current patient's care plan and tailored to support the interventions appropriate for this patient, including chronic disease management protocols.	DC.2.2.1.2;			X		6,10,13	
S.3.1.2	Encounter specific functionality	Provide assistance in assembling appropriate data, supporting data collection and processing output from the encounter.	Workflows, based on the encounter management settings, will assist in determining the appropriate data collection, import, export, extraction, linkages and transformation. As an example, a pediatrician is presented with diagnostic and procedure codes specific to pediatrics. Business rules enable automatic collection of necessary data from the patient's health record and patient registry. As the provider enters data, workflow processes are triggered to populate appropriate transactions and documents. For example, data entry might populate an eligibility verification transaction or query the immunization registry.				X			

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.3.1.3	Automatic generation of administrative and financial data from clinical record	Derive administrative or financial data from the patient's clinical data and include this in administrative and financial reports.	A user can generate a bill based on health record data. Maximizing the extent to which administrative and financial data can be derived or developed from clinical data will lessen provider reporting burdens and the time it takes to complete administrative and financial processes such as claim reimbursement. This may be implemented by mapping of clinical terminologies in use to administrative and financial terminologies.	S.3.2.2			X		13	
S.3.1.4	Support remote healthcare services	Support remote health care services such as telehealth and remote device monitoring by integrating records and data collected by these means into the patient's EHR for care management, billing and public health reporting purposes.	Enables remote treatment of patients using monitoring devices, and two way communications between provider and patient or provider and provider. - Promotes patient empowerment, self-determination and ability to maintain health status in the community. Promotes personal health, wellness and preventive care. For example, a diabetic pregnant Mom can self-monitor her condition from her home and use web TV to report to her provider. The same TV-internet connectivity allows her to get dietary and other health promoting information to assist her with managing her high-risk pregnancy.	DC.3.2.1; DC.3.2.3; DC.3.2.5; DC.1.1.7.2			X			
S.3.2	Information access for supplemental use	Support extraction, transformation and linkage of information from structured data and unstructured text in the patient's health record for care management, financial, administrative, and public health purposes.	Using data standards and technologies that support interoperability, information access functionalities serve primary and secondary record use and reporting with continuous record availability and access that ensure the integrity of (1) the health record, (2) public health, financial and administrative reporting, and (3) the healthcare delivery			X				

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			process.							
S.3.2.1	Rules-driven clinical coding assistance	Make available all pertinent patient information needed to support coding of diagnoses, procedures and outcomes.	The user is assisted in coding information for clinical reporting reasons. For example, a professional coder may have to code the principle diagnosis in the current, applicable ICD as a basis for hospital funding. All diagnoses during the episode may be presented to the coder, as well as the applicable ICD hierarchy containing these codes.	I.7		X				
S.3.2.2	Rules-driven financial and administrative coding assistance	Provide financial and administrative coding assistance based on the structured data and unstructured text available in the encounter documentation.	The user is assisted in coding information for billing or administrative reasons. For example, the HIPAA 837 Professional claim requires the date of the last menstrual cycle for claims involving pregnancy. To support the generation of this transaction, the clinician would need to be prompted to enter this date when the patient is first determined to be pregnant, then making this information available for the billing process.	I.7; S.3.1.3			X			
S.3.2.3	Integrate cost/financial information	Enable the use of cost management information required to guide users and workflows.	The provider is alerted or presented with the most cost-effective services, referrals, devices etc. to recommend to the patient. This may be tailored to the patient's health insurance/plan coverage rules. Medications may be presented in order of cost, or the cost of specific investigations may be presented at the time of ordering.				X			

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.3.3	Administrative transaction processing	Support the creation (including using external data sources, if necessary), electronic interchange, and processing of transactions listed below that may be necessary for encounter management during an episode of care	Support the creation (including using external data sources, if necessary), electronic interchange, and processing of transactions listed below that may be necessary for encounter management during an episode of care. - - The EHR system shall capture the patient health-related information needed for administrative and financial purposes including reimbursement. - - Captures the episode and encounter information to pass to administrative or financial processes (e.g. triggers transmissions of charge transactions as by-product of on-line interaction including order entry, order statusing, result entry, documentation entry, medication administration charting.) - - Automatically retrieves information needed to verify coverage and medical necessity. - As a byproduct of care delivery and documentation, captures and presents all patient information needed to support coding. Ideally performs coding based on documentation. - - Clinically automated revenue cycle - examples of reduced denials and error rates in claims. - - Clinical information needed for billing is available on the date of service. - - Physician and clinical teams do not perform additional data entry / tasks exclusively to support administrative or financial processes.	DC.1.3			X		13	

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.3.3.1	Enrollment of patients	Support interactions with other systems, applications, and modules to enable enrollment of uninsured patients into subsidized and unsubsidized health plans, and enrollment of patients who are eligible on the basis of health and/of financial status in social service and other programs, including clinical trials;	Expedites determination of health insurance coverage, thereby increasing patient access to care. The provider may be alerted that uninsured patients may be eligible for subsidized health insurance or other health programs because they meet eligibility criteria based on demographics and/or health status. For example: a provider is notified that the uninsured parents of a child enrolled in S-CHIP may now be eligible for a new subsidized health insurance program; a provider of a pregnant patient who has recently immigrated is presented with information about eligibility for subsidy. Links may be provided to online enrollment forms. When enrollment is determined, the health coverage information needed for processing administrative and financial documentation, reports or transactions is captured.				X			
S.3.3.2	Eligibility verification and determination of coverage	Support eligibility verification for health insurance and special programs, including verification of benefits and pre-determination of coverage;	Automatically retrieves information needed to support verification of coverage at the appropriate juncture in the encounter workflow. Improves patient access to covered care and reduces claim denials. When eligibility is verified, the EHRS would capture eligibility information needed for processing administrative and financial documentation, reports or transactions - updating or flagging any inconsistent data. In addition to health insurance eligibility, this function would support verification of registration in programs and registries, such as chronic care case management and immunization registries. An EHRS would likely verify health insurance eligibility prior to the encounter, but would verify registration in case management or immunization registries during the encounter.				X		6	

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.3.3.3	Service authorizations	Support the creation of requests, responses and appeals related to service authorization, including prior authorizations, referrals, and pre-certification;	Automatically retrieves information needed to support verification of medical necessity and prior authorization of services at the appropriate juncture in the encounter workflow. Improves timeliness of patient care and reduces claim denials.				X		6	
S.3.3.4	Support of service requests and claims	Creation of health care attachments for submitting additional clinical information in support of service requests and claims;	Automatically retrieves structured data, including lab, imaging and device monitoring data, and unstructured text based on rules or requests for additional clinical information in support of service requests or claims at the appropriate juncture in the encounter workflow			X				
S.3.3.5	Claims and encounter reports for reimbursement	Support the creation of claims and encounter reports for reimbursement	Automatically retrieves information needed to support claims and encounter reporting at the appropriate juncture in the encounter workflow.				X			
S.3.3.6	Health service reports at the conclusion of an episode of care.	Support the creation of health service reports at the conclusion of an episode of care. Support the creation of health service reports to authorized health entities, for example public health, such as notifiable condition reports, immunization, cancer registry and discharge data that a provider may be required to generate at the conclusion of an episode of care.	Effective use of this function means that clinicians do not perform additional data entry to support health management programs and reporting.	S.2.2			X		16	
S.3.4	Manage Practitioner/Patient relationships	Identify relationships among providers treating a single patient, and provide the ability to manage patient lists assigned to a particular provider.	This function addresses the ability to access and update current information about the relationships between caregivers and the subjects of care. This information should be able to flow seamlessly between the different components of the EHRS, and between the EHRS and other systems. Business rules may be reflected in the presentation of, and the access to this information. The relationship among providers treating a single patient will include any necessary chain of	DC.2.6.3 ; S.2.2		X			3	

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			authority/responsibility. Example: In a care setting with multiple providers, where the patient can only see certain kinds of providers (or an individual provider), allow the selection of only the appropriate providers. Example: The user is presented with a list of people assigned to a given practitioner and may alter the assignment as required - to a group, to another individual or by sharing the assignment.							
S.3.5	Subject to Subject relationship	Capture relationships between patients and others and facilitate access on this basis (e.g. parent of a child) if appropriate.	A user may assign the relationship of parent to a person who is their offspring. This relationship may facilitate access to their health record as parent of a young child.	S.1.4.1; I.1.3; I.1.5; I.2.2						
S.3.5.1	Related by genealogy	Provide information of Related by genealogy (blood relatives)						X		
S.3.5.2	Related by insurance	Provide information of Related by insurance (domestic partner, spouse, guarantor)			X					
S.3.5.3	Related by living situation	Provide information of Related by living situation (in same household)					X			
S.3.5.4	Related by other means	Provide information of Related by other means (e.g. epidemiologic exposure or other person authorized to see records – Living Will cases)					X			
S.3.6	Acuity and Severity	Provide the data necessary for the capability to support and manage patient acuity/severity of illness/risk adjustment		S.2.1.2		X				

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.3.7	Maintenance of supportive functions	Update EHR supportive content on an automated basis.					X			
S.3.7.1	Clinical decision support system guidelines updates	Receive and validate formatted inbound communications to facilitate updating of clinical decision support system guidelines and associated reference material		DC.1.2.1; DC.2.6.3; DC.2.7.1			X			
S.3.7.2	Patient education material updates	Receive and validate formatted inbound communications to facilitate updating of patient education material		DC.3.2.4			X			

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.3.7.3	Patient reminder information updates	Receive and validate formatted inbound communications to facilitate updating of patient reminder information from external sources such as Cancer or Immunization Registries		I.5.2; S.1.4.1		X				
S.3.7.4	Public health related updates	Receive and validate formatted inbound communications to facilitate updating of public health reporting guidelines		I.5.2		X				
I.1	**Security**	Secure the access to the EHR-S and EHR information. Prevent unauthorized use of data, data loss, tampering and destruction.	To enforce security, all EHR-S applications must adhere to the rules established to control access and protect the privacy of EHR information. Security measures assist in preventing unauthorized use of data and protect against loss, tampering and destruction.							
I.1.1	Entity Authentication	Authenticate EHR-S users and/or entities before allowing access to an EHR-S. Manage the sets of access-control permissions granted within an EHR-S	Both users and application are subject to authentication. The EHR-S must provide mechanisms for users and applications to be authenticated. Users will have to be authenticated when they attempt to use the application, the applications must authenticate themselves before accessing EHR information managed by other applications or remote EHR-S'. In order for authentication to be established a Chain of Trust agreement is assumed to be in place. Examples of entity authentication include:		X				4,15	

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			• Username/ password; • Digital certificate; • Secure token; • Biometrics							
I.1.2	Entity Authorization.	Manage the sets of access-control permissions granted to EHR-S users. An EHR-S grants authorizations to users, for roles, and within contexts. A combination of the authorization levels may be applied to control access to EHR-S functions or data.	EHR-S Users are authorized according to identity, role, work-assignment, present condition and/or location. • User based authorization refers to the permissions granted or denied based on the identity of an individual. An example of User based authorization is patient defined denial of access to all or part of a record to a particular party for reasons such as privacy. • Role based authorization refers to the responsibility or function performed in a particular operation or process. Example roles include: nurse, dietician, administrator, legal guardian, and auditor. • Context-based Authorization is defined by ISO as security-relevant properties of the context in which an access request occurs, explicitly time, location, route of access, and quality of authentication. In addition to the standard, context authorization for EHR-S is extended to satisfy special circumstances such as, assignment, consents, or other healthcare-related factors. A context-based example might be a right granted for a limited period to view those—and only those—EHR records connected to a specific topic of investigation.		X				4,9	

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.1.3	Entity Access Control	Verify and enforce access control to EHR information and functions for end-users, applications, sites, etc., to prevent unauthorized use of a resource, including the prevention or use of a resource in an unauthorized manner.	This is a fundamental function of EHR-S applications. To ensure access is controlled, the EHR-S applications will perform an identity lookup of users or application for any operations that require it (authentication, authorization, secure routing, querying, etc.) and enforce the system and information access rules that have been defined.		X					
I.1.3.1	Patient Access Management	Enable a healthcare professional to manage a patient's access to the patient's personal health information. Patient access-management includes allowing access to patient/subject-of-care information and restricting access to information that is potentially harmful to the patient/subject.	A healthcare professional will be able to manage a patient's ability to view his/her EHR. Typically, a patient has the right to view much of his/her EHR. However, a healthcare provider may sometimes need to prevent a patient (or guardian) from viewing parts of the record. For example, a patient receiving psychiatric care might harm himself (or others) if he reads the doctor's evaluation of his condition. Furthermore, reading the doctor's therapy-plan might actually cause the plan to fail.		X				4	
I.1.4	Non-repudiation	Limit an EHR-S user's ability to deny (repudiate) an electronic data-exchange originated or authorized by that user.	Non-repudiation ensures that a transferred message has been sent and received by the parties claiming to have sent and received the message. Non-repudiation is a way to guarantee that the sender of a message cannot later deny having sent the message and that the recipient cannot deny having received the message. Non-repudiation can be achieved through the use of a: • Digital signature -- which serves as a unique identifier for an individual (much like a written signature). • Confirmation service -- which utilizes a message transfer agent to create a digital receipt (providing confirmation that a message was sent and/or received). • Timestamp -- which proves that a document existed at a certain date and time.			X			15	

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.1.5	Secure Data Exchange	Send and receive EHR data securely.	Exchange of EHR information requires appropriate security and privacy considerations, including data obfuscation and both destination and source authentication when necessary. For example, it might be necessary to encrypt data sent to remote destinations. This function requires that there is an overall coordination regarding what information is exchanged between EHR-S entities and how that exchange is expected to occur. The policies applied at different locations must be consistent or compatible with each other in order to ensure that the information is protected when it crosses entity boundaries within the EHR-S or external to the EHR-S.		X				4	
I.1.6	Secure Data Routing	Route electronically-exchanged EHR data only to/from known, registered, and authenticated destinations/sources (according to applicable healthcare-specific rules and relevant standards).	EHR-S applications need to ensure that they are exchanging EHR information with the entities (applications, institutions, directories) they expect. This function depends on entity authorization, and authentication to be available in the system. For example, a physician practice management application in the EHR-S, might send claim attachment information to an external entity. For 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.	I.1.1; I.1.2	X					

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.1.7	Document Attestation	Manage electronic attestation of documents including the retention of the signature of attestation (or certificate of authenticity) associated with an incoming or outgoing document.	The purpose of attestation is to show authorship and assign responsibility for an act, event, condition, opinion, or diagnosis. Every entry in the health record must be identified with the author and should not be made or signed by someone other than the author. (Note: A transcriptionist may transcribe an author's notes and a senior clinician may attest to the accuracy of another's statement of events.) Attestation is required for (paper or electronic) entries such as narrative/progress notes, assessments, flow sheets, and orders. Digital signatures may be used to implement document attestation. For an incoming document, if included, the record of attestation is retained. Attestation functionality must meet applicable legal, regulatory and other applicable standards or requirements.		X				15	
I .1.8	Enforcement of Confidentiality	Enforce patient privacy rules as they apply to various parts of the EHR-S through the implementation of privacy mechanisms.	A patient's privacy may be adversely affected when EHRs are not held in confidence. Privacy rule enforcement decreases unauthorized access and promotes the level of EHR confidentiality.	I.6.1	X					
I.2	**Health record information and management**	Manage EHR information across EHR-S applications by • Ensuring that clinical information is valid according to clinical rules; • Ensuring that clinical information is accurate and complete according to clinical rules; and • Tracking amendments to clinical documents.	Since EHR information will typically be available on a variety of EHR-S applications, the EHR-S must provide the ability to access, manage and verify accuracy and completeness of EHR information, and provide the ability to audit the use of (and access to) EHR information.							

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.2.1	Data Retention and Availability	Retain, ensure availability, and destroy health record information according to organizational standards. This includes: • Retaining all clinical documents for the time period designated by policy or legal requirement; • Retaining inbound documents as originally received (unaltered); • Ensuring availability of information for the legally proscribed period of time; • Providing the ability to destroy EHR data/records in a systematic way according to policy and after the legally proscribed retention period.	Discrete and structured EHR data, records and reports must be: • Made available to users in a timely fashion; • Stored and retrieved in a semantically intelligent and useful manner (for example, chronologically, retrospectively per a given disease or event, or in accordance with business requirements, local policies, or legal requirements); • Retained for a legally-proscribed period of time; • Destroyed in a systematic manner in relation to the applicable retention period. The system must also allow an organization to identify data/records to be destroyed, and to review and approve destruction before it occurs.	I.1.7	X					

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.2.2	Audit trail	Provide audit trail capabilities for resource access and usage indicating the author, the modification (where pertinent), and the date/time at which a record was created, modified, viewed, extracted, or deleted. Audit trails extend to information exchange. Audit functionality includes the ability to generate audit reports and to interactively view change history for individual health records or for the EHR-S.	Audit functionality extends to security audits, data audits, audits of data exchange, and the ability to generate audit reports. Audit trail settings should be configurable to meet the needs of local policies. Examples of audited areas include: • Security audit - logs access attempts and resource usage including user login, file access, other various activities, and whether any actual or attempted security violations occurred. • Data audit - records who, when, and by which system an EHR record was created, updated, translated , viewed, extracted, or (if local policy permits) deleted. Audit-data may refer to system setup data or to clinical and patient management data. • Information exchange audit – record data exchanged between EHR-S applications (for example, sending application; the nature, history, and content of the information exchanged; and information about data transformations (for example, vocabulary translations), reception event details, etc.). • Audit reports – should be flexible and address various users' needs. For example, a legal authority might want to know how many patients a given healthcare provider treated while the provider's license was suspended. Similarly, in some cases a report detailing all those who modified or viewed a certain patient record might be needed. Security audit trails and data audit trail are used to verify enforcement of business, data integrity, security, and access-control rules.		X				5	

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.2.3	Synchronization	Maintain synchronization involving: • Interaction with entity directories; • Linkage of received data with existing entity records; • Location of each health record component; • Communication of changes between key systems.	The 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, the EHR-S maintains all the relevant information regarding the health record in synchrony. For example, if an MRI is ordered by a physician, a set of diagnostic images and a radiology report will be created. The patient demographics, the order for MRI, the diagnostic images associated with the order, and the report associated with the study must all be in synch in order for the clinicians to view the complete record.		X				10	
I.2.4	Extraction of health record information	Manage data extraction in accordance with 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 can be used to exchange data and provide reports for primary and ancillary purposes.	The EHR-S enables an authorized user (such as a clinician) to access and aggregate the distributed information that corresponds to the health record or records which are needed for viewing, reporting, disclosure, etc. The EHR-S must be able to 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 continuity of care records. In addition, data extractions can be used for administrative, financial, research, quality analysis and public health purposes.			X			16	

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.3	**Unique identity, registry, and directory services**	Enable secure use of registry services and directories to uniquely identify, link and retrieve records and identify the location of subjects of care and providers for health care purposes; payers, health plans, sponsors, employers and public health agencies for administrative and financial purposes; health care resources and devices for resource management purposes.	Unique identity, registry, and directory service functions are critical to successfully managing the security, interoperability, and the consistency of the health record data across the EHR-S.							
I.3.1	Distributed registry access	Enable system communication with registry services through standardized interfaces and extend to services provided externally to the EHR-S.	The EHR-S will rely on a set of infrastructure services, directories, and registries (organized hierarchically) that support communication between EHR-Systems. For example, a patient treated by a primary care physician for a chronic condition may become ill while out of town. The new provider's EHR-S will interrogate a local, regional, or national registry to find the patient's previous records. From the primary care record, the remote EHR-S will retrieve relevant information (in conformance with applicable patient privacy and confidentiality rules). An example of local registry usage is an EHR-S application sending a query message to the Hospital Information System to retrieve a patient's demographic data.				X			

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.4	**Health Informatics and Terminology Standards**	Ensure consistent terminologies, data correctness and interoperability by complying with standards for health care transactions, vocabularies, code sets, and artifacts such as templates, interface, decision support algorithms, and clinical document architecture.	Examples that EHR-S applications need to support are a consistent set of terminologies such as: LOINC, SNOMED, ICD-10 and messaging standards such as HL7. Vocabularies may be provided through a terminology service internal or external to the EHR-S.							
I.4.1	Maintenance and versioning of health informatics and terminology standards.	Enable version control according to customized policies to ensure maintenance of utilized standards.	Version control allows for multiple sets/versions of the same terminology to exist and be distinctly recognized over time. Terminology versioning supports retrospective analysis and research, as well as interoperability with systems that comply with different releases of the standard. Similar functionality exists for messaging and other informatics based standards. It should be possible to retire deprecated versions when applicable business cycles are completed while maintaining obsolescent code sets for possible claims adjustment throughout the claim's lifecycle.		X					
I.4.2	Mapping local terminology, codes, and formats	Map or translate local terminology, codes and/or formats to standard terminology, codes, and/or formats to comply with health informatics standards.	An EHR-S application which uses local terminology, must be capable of mapping and/or converting the local terminology into a standard terminology. For example, a local term or code for "Ionized Calcium" must be mapped to an equivalent, standardized (LOINC) term or code when archiving or exchanging artifacts.			X			14,16	
I.5	**Interoperability Standards**	Provide automate health delivery processes and seamless exchange of key clinical and administrative information.	Interoperability standards enable an EHR-S to operate as a set of applications.							
I.5.1	Interchange Standards	Support the ability to operate seamlessly with complementary systems by adherence to key interoperability standards. Systems may refer to EHR systems, applications within an EHR-S, or	Interoperable EHR-S applications require infrastructure components that adhere to standards for connectivity, information structures, and semantics ("interoperability standards"). Standard EHR Infrastructure components, which may exist locally or	I.4.2	X				14,16	

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
		other authorized entities that interact with an EHR-S.	remotely, must support seamless operations between complementary systems. Standard infrastructure components include: • HL7 Messages, Clinical Document Architecture (CDA), X12N healthcare transactions, Digital Imaging and Communication in Medicine (DICOM). • Common semantic representation to support information exchange. EHR-Systems may use different standardized or local vocabularies. In order to reconcile the semantic differences across vocabularies, the EHR-S must be able to adhere to standard vocabulary or leverage vocabulary lookup and mapping capabilities that are included in the Health Informatics and Terminology Standards. • Support of multiple interaction modes 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. In addition, even in the case where store-and-forward, message-oriented interoperability is used, the applications may need to support the appropriate interaction mode. For example: Unsolicited Event Notifications, Query/Response, Query for display, Unsolicited summary, structured/discrete, and unstructured clinical documents.							
I.5.2	Application Integration Standards	Provide integration with complementary applications and infrastructure services (directory, vocabulary, etc.) using standard-based application programming interfaces (for example, CCOW).	Similar to standard-based messaging, standard-based application integration requires that the EHR-S application use standardized programming interfaces, where applicable. For example, CCOW may be used for visual integration and WfMC for workflow integration.			X				

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.5.3	Interchange Agreements	Support interaction with entity directories to determine the recipients' address profile and data exchange requirements and use these rules of interaction when exchanging information with partners.	An EHR-S will use the entity registries to determine the security, addressing, and reliability requirements between partners and use this information to define how data will be exchanged between the sender and the receiver.	I.3		X				

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.6	**Business Rules Management**	Manage the ability to create, update, delete (or disable) and version business rules including institutional preferences. Apply business rules from necessary points within the EHR-S to control system behavior. Audit changes made to business rules, and audit compliance to and overrides of applied business rules.	Business Rule implementation functions include: decision support, diagnostic support, workflow control, access privileges, and system and user defaults and preferences. The EHR-S should support the ability for providers and institutions to customize decision support components such as triggers, rules or algorithms, and the wording of alerts and advice, to meet local requirements and preferences. Examples of applied business rules include: • Suggesting diagnosis based on the combination of symptoms (flu-like symptoms combined with widened mediastinum suggesting anthrax • Classifying a pregnant patient as high risk due to factors such as age, health status, and prior pregnancy outcomes. • Sending an update to an immunization registry when a vaccination is administered • Limiting access to mental health information to a patient's psychiatrist/psychologist • Establishing system level defaults such as for vocabulary data sets to be implemented. • Establishing user level preferences such as allowing the use of health information for research purposes.			X				

Ambulatory Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.7	**Workflow**	Workflow management functions include both the management and set up of work queues, personnel, and system interfaces as well as the implementation functions that use workflow-related business rules to direct the flow of work assignments.	Workflow management functions include: • Distribution of information to and from internal and external parties; • Support for task-management as well as parallel and serial task distribution; • Support for notification and task routing based on system triggers; and • Support for task assignments, escalations and redirection in accordance with business rules. Workflow definitions and management may be implemented by a designated application or distributed across EHR-S applications.			X				

EHR Functional Outline and Standard
Care Category and Select Care Setting Definitions

Care Settings, Profiles, and Outreach Work Group

Tier 1: Care Category

Care Category:	Hospital
Version:	2.6
Date:	February 2, 2004

Care Category Definition

An institution whose primary function is to provide patient services, diagnostic and therapeutic services for particular or general medical conditions. This institution is responsible for an individual person's care, typically across multiple care disciplines in multiple care environments encompassing one or more acute care episodes, in a facility which is certified and/or licensed as a hospital. A hospital typically delivers physician services, nursing care, advanced clinical equipment and support services, and care coordination that support a consumer's goals for quality, effective healthcare in response to disease, illness, or injury. General requirements of a hospital include the following:

- The facility maintains multiple inpatient beds, continuously available for the care of nonrelated patients for an average stay in excess of 24 hours per admission
- The facility is constructed, equipped, and maintained to ensure the health, safety and quality treatment of patients
- There shall be an identified governing authority and chief executive legally responsible for the conduct and operation of the facility
- There shall be an organized medical staff of licensed physicians, registered nurse supervision and services that are continuous
- A current and complete medical record is maintained by the facility and available to providers
- The facility provides patients with food services that meets their nutritional and therapeutic needs, and also maintains a pharmacy service.

The Hospital care category has many levels of patient care and service settings within an institutions such as Acute Inpatient Care, Intensive Care Units, Surgery, Emergency Department, Pediatrics Units , Inpatient Mental Health and Substance Abuse, etc. There are also several types of hospitals, including General, Special, Rehabilitation and Chronic Disease, and Psychiatric. The group has chosen to approach, define, and aggregate these service settings and hospital types(subsets) as appropriate over time with awareness that formal industry agreement has not been reached on the categorization of care setting such as the Emergency Department or Same Day Surgery.

2: Care Settings within the Care Category

Examples of Care Settings INCLUDED in This Care Category and Rationale-
Settings Included: All licensed acute care and long term care hospitals. These hospitals may include, but are not required to have, specialty units such as emergency department, pediatrics, obstetrics, surgery, etc. They may be a medium-sized community hospital, a rural Critical Access Hospital, an urban Medical Center or University-based teaching hospital. Northwestern Hospital, UC Davis Medical Center, Cook County (Stroger) Hospital are examples. ***Why Examples Conform to Care Category Definition:*** Even smallest hospitals must meet certain licensure requirements. Although some hospitals may, or may not have critical care units, such as ICU or CCU, these are not a requirement to be licensed as a hospital. Likewise, specialty care is also not required for licensure, but licensure does require the ability to manage an acute episode of illness, staffing with registered nurses, provider visits at least daily and a length of stay greater than 24 hours.
Examples of Care Settings NOT INCLUDED in This Care Category and Rationale
Settings Not Included: Urgent Aid Facilities and Standalone Outpatient Surgery Centers are not part of this care setting. ***Why Examples Do Not Conform to Care Category Definition:*** These standing facilities share many staffing attributes of a hospital, but do not meeting the licensure and length of patient stay requirement for a hospital. More importantly, they are expected to be part of the Ambulatory care setting areas.

Care Setting within This Category Scoped for the DSTU Ballot [See scenario and prioritized list of DSTU functions]	
Care Setting:	Acute Care Inpatient (US Realm)
Version:	2.4
Date:	January 16, 2004

Care Setting Definition:
For this DSTU, for the purpose of the EHR functional model, an acute care inpatient is a level of service that occurs within a facility that is licensed by state or federal law to manage an acute episode of illness, which by nature of the requirement for observation or treatment cannot be managed in a less restrictive care setting. To meet our definition, the acute care inpatient setting occurs at a hospital staffed by registered nurses at all times (24/7) and an acute episodes o f illness require admission for greater than 24 hours and monitoring and documentation at least daily by an assigned care provider with admission and prescriptive authority. This care setting is not intended to include the Intensive Care Unit, Cardiac Care Unit or the Emergency Department.

Basic Scenario – Acute Care Inpatient (1.6)

A. PATIENT BACKGROUND

1
John Doe is a 67 year-old white male with a history of asthma, diabetes and hypertension. Mr. Doe is also a reformed, but past, smoker. Over the past two days, he has developed a fever, chest congestion, and a cough. Because of his asthma history, he presents at the High Plains Medical Clinic in High Plains, MT.

B. FACILITY, PRIMARY PROVIDERS AND SYSTEMS BACKGROUND

2
The High Plains Clinic is attached to the High Plains Hospital (4 beds) and High Plains Nursing Facility (30 beds). High Plains Medical Complex is licensed as a Critical Access Hospital (CAH) as well as a Skilled Nursing Facility. The Clinic is staffed two days per week with a physician, Dr. William Tell, the Medical Director, who commutes from Helena, MT, 50 miles away. The other three days of the week and for all urgent situations, healthcare is conducted by Joseph Smith RN, PA – with support as needed from the nursing staff of the Skilled Nursing Facility.

3
Regarding systems, the hospital and nursing facility have a new EHR System, for which facility staff were well trained in using and facility procedures updated to enhance the utility of the system. The clinic has a preexisting computerized medical record system that provides access to the past 2 years of scanned patient clinic charts, and supports order entry and basic test results review – and will migrate to the new EHRS next year.

4
Joseph is connected to William Tell via telemedicine links that allow video and audio communications, and secure remote systems access via a virtual private network link. These telemedicine links are also available to link High Plains with a variety of medical specialists in medical centers across the USA. Dr. Tell is a member of a group practice that share on call responsibility for the High Plains Medical Complex. Provider information for call purposes {S1.3.0, S1.6.0}is available automatically via the scheduling module of the EHRS.

C. INITIAL CARE SITUATION

5
On initial examination at the clinic, Joseph determines that John Doe is in significant respiratory distress due to probable pneumonia, and a secondary diagnosis of COPD (Chronic Obstructive Pulmonary Disease), Emphysema. Because of the history of asthma and the various other medical conditions, Joseph determines that John should be admitted to the hospital for IV antibiotic therapy. Joseph sends John next door to the hospital for immediate admission.

6
As part of the admission process, hospital staff verify John Doe's insurance coverage, determine that a $150 co-pay is required, and(DC1.1.2} update the patient address and contact information. Joseph also links immediately with Dr. William Tell to detail the treatment protocols {DC3.2.1}and to establish a connection if a transfer becomes necessary due to a significant change in health status. The hospital will also be able to contact Dr. Tell if necessary and will receive orders as indicated.

7
Joseph initiates standard admission orders into the order management module of their new EHR System for IV antibiotics, oxygen, chest x-ray, and laboratory tests. John is also diabetic and requests a vegetarian diet. While essential lab work can be conducted at the hospital, some more complex lab work must be sent by courier to Helena. Lab results from Helena will be reported via computer link between the Helena lab and High Plains Hospital.

8
Joseph also consults previous hardcopy hospital records and has system access to the clinic records {CD1.1.1}scanned images and then begins to establish a diagnosis list, allergy list, medication list, and to begin an immediate problem list for the treatment plan {DC1.1.31, DC1.1.3.3}on the facilities new EHR System. These various lists incorporate historical information, the current verbal information from John, and will allow for continual updating as conditions and situations change during this episode of illness. The clinic records indicate that John has been seen annually by a pulmonologist in Helena for his asthma. Via the EHRS, Joseph initiates an email request for copies of medical records from that physician. Because High Plains Hospital maintains only a basic pharmacy formulary, Joseph also sends off a pharmaceutical request for a more potent antibiotic as discussed with Dr. Tell. Both the High Plains formulary and the formulary available from the Gotchieu Pharmacy are available online {DC1.3.2}.

9
Registered Nurses in the High Plains Hospital have admitted John Doe and have attempted to take an admission nursing history {DC1.1.5}. Because John has so much difficulty breathing, the nurses obtain history from his wife as well. Administratively, John is requested to sign a consent for treatment {DC1.5.1}and is provided a Notice of Privacy Practice from the hospital for his signature, as noted in the EHRS. John's wife relates that both she and John have made advance directives decisions {DC1.5.2}that are on file at the High Plains Hospital and the Clinic.

10
Physical assessments and vital signs are recorded and a nursing care plan is begun. Nursing diagnoses and treatment protocols are available as part of the care planning package. Oxygen administration, lab work, IV start, and x-rays are conducted. An interim antibiotic from the hospital stock supply is begun, awaiting delivery of the second medication and results of the lab work sent to Helena. Administration of this medication

and that of other medications that are routine for John Doe are documented {DC1.3.3}on the EHRS Medication Administration Record (MAR). Results of a culture and sensitivity will take several days and may indicate a change to yet a third antibiotic.

D. ONGOING CARE AND ADMINISTRATION

11
As noted above, the High Plains hospital had submitted an eligibility verification from John Doe's insurance company{S3.3.2}. Once verified, the business office also generated an admission authorization{S3.3.3}. This particular Payer has requirements for prior authorization for numerous procedures and pharmaceuticals if they fall out of the standard protocols. The business office has flagged the chart with these requirements in case those procedures should be necessary.

12
Joseph checks the disease based protocols available in the EHRS {DC2.1.1, DC2.2.1.1} and determines that perhaps this case of pneumonia is actually related to influenza. He is prompted to order additional lab work and will report the case to the county health officer if influenza is established. He also receives paper medical record information from the pulmonologist in Helena, indicating that John Doe's asthma has created some long term-effects. These records indicate the level of pulmonary function that is within reasonable limits for John. This information and the reference to the paper documents is noted in the EHRS.

13
Later that evening, Dr. Tell arrives to review the care already provided to John and to supervise the work of Joseph Smith. The EHRS notifies Dr. Tell that results of lab work and x-rays conducted earlier are ready to be reviewed and signed off {DC1.4.5, DC3.1.2}. Dr. Tell determines that John's pneumonia is the result of influenza. Medications are changed accordingly and report is made to the county health department.

14
Via management reports from the systems, the county health officer confirms that all appropriate protocols have been performed{DC2.6.1}. The county health officer will follow up with any further public health implications of the influenza diagnosis.

15
By the next day, John is responding favorably to the oxygen therapy and the medications. His vital signs have stabilized, although he still has a fever. Based on chronic disease protocol prompts, his type II diabetes continues to be monitored with blood glucose measurements. His cough is beginning to be productive. Nursing documentation indicates that John is resting fairly well. Based on the lab values, vital signs, treatment diagnosis, and disease history, the decision support module of the EHRS provides an alert {DC2.1.3, DC2.2.1.2} that suggests a modification to the care protocol and includes a link to the supporting New England Journal of Medicine study and related CDC notice on the condition and related treatment recommendations.

16
Because of the seriousness of John's condition, Dr. Tell returns to High Plains to see the patient in the afternoon. In addition, Joseph has seen the patient in the morning. Based on an email exchange, and joint review by Dr. Tell and Joseph of the above clinical care alert, it is agreed to accept the suggested care modifications. Progress notes reflect changes in care orders and lab work. Because one of the new medications is one that requires pre authorization{S3.3.3}. Dr. Tell submits a pre-authorization request. Once authorization is received, the pharmacy is notified to supply the proper medication.

17
By the third day, John Doe is responding well to therapy. His fever is gone and he is coughing more productively. Dr. Tell will not be required to visit the patient today as Joseph Smith can continue the care protocol. Because John will likely be discharged within the next day or so, discharge planning has begun. High Plains is not a large community and some services are not available. Discharge medications will have to be ordered from Helena because John will not be able to make that trip for several days after discharge. John will also require supplemental oxygen for several days after discharge. The oxygen equipment must be ordered and delivered from Helena.

18
Additionally, Mrs. Doe has also developed a milder case of influenza. It will not require hospitalization, but she will be less able to care for her husband. There is not a home health agency in High Plains, but one of the hospital staff nurses is a neighbor of the Does. She has agreed to look in on them twice a day after discharge. John will be scheduled to visit Joseph in the clinic four days after discharge. If Mrs. Doe cannot drive him to the clinic, he will contact the minister to supply the transport. Discharge planning orders are accumulated by the EHRS for a final discharge sheet for John to take home. Orders for discharge medications and oxygen are transmitted to the Gotchieu Pharmacy and Big Sky Air and Oxygen. The EHRS prompts Joseph Smith to be sure that the Oxygen company provides proper instructions relating to the oxygen delivery settings necessary for management of this episode as it interfaces with John's history of chronic asthma.

E. COMPLETION OF CARE

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After several days of treatment, John Doe is ready to be discharged. Discharge prescriptions have been filled and sent to High Plains Hospital and oxygen supplies for home care have been delivered, and are noted in the EHRS. Both John and his wife have received instruction on their options to set up a home email Q&A with Joseph, how to manage the home oxygen, and to establish a daily dial-in for assessment. A return appointment has been set for four days from now in the High Plains Clinic. Joseph Smith will conduct that examination. Joseph has noted and accepted the EHRS-recommended referral of John back to the pulmonologist for an appointment one month from now {DC 2.4.3.2}. John receives discharge instructions in written form along with his prescriptions and oxygen supplies.

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After discharge, the discharge summary is written by Joseph Smith and approved by Dr. Tell. The medical treatment is coded and a bill is prepared to send to John Doe's insurance company{S3.3.5}. Pharmacy costs are part of the contractual arrangement between High Plains and the Gotchieu Pharmacy, however, High Plains is allowed to submit these additional charges due to the prior authorization approval. The oxygen company will bill the insurance separately. The entire medical record is collected and archived according to medical record protocols. The EHRS also prompts the High Plains Clinic to {DC2.5.1}recommend that John Doe receive a pneumonia vaccination and influenza vaccination next year.

EHR-S Functional Model: ACUTE CARE INPATIENT V1.2

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.1	**Care Management**									
DC.1.1	Health information capture, management, and review		For those functions related to data capture, data is captured using standardized code sets or nomenclature, depending on the nature of the data. Data may also be captured from devices.							
DC.1.1.1	Identify and locate a patient record	Maintain and identify a single patient record for each patient.	Key identifying information is stored and linked to the patient record. A lookup function uses this information to uniquely identify the patient.		X				E-8	
DC.1.1.2	Manage patient demographics	Capture and maintain demographic information that is reportable and, where appropriate, trackable over time.	Contact information including addresses and phone numbers, as well as key demographic information such as date of birth, sex, and other information is stored and maintained for reporting purposes and for the provision of care.	S.1.4.0; S.1.4.1; S.1.4.2; I.1.4.4; I.1.4.5	X				E-6	
DC.1.1.3	Manage summary lists	Create and maintain patient-specific summary lists.	Patient summary lists can be created and maintained when appropriate for the patient or a particular care setting.	S.1.4.0; S.1.4.1; S.1.4.2; I.1.4.4; I.1.4.5	X				-	

Acute Inpatient Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.1.1.3.1	Manage problem list	Create and maintain patient-specific problem lists.	A problem list may include, but is not limited to: Chronic conditions, diagnoses, or symptoms, 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 history information and tracking the changing character of the problem and its priority. All pertinent dates, including date noted, dates of any changes in problem specification or prioritization, and date of resolution are stored. The entire problem history for any problem in the list is viewable.		X				E-8	
DC.1.1.3.2	Manage medication list	Create and maintain patient-specific medication lists.	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 is viewable. Medication lists are not limited to medication orders recorded by providers, but may include patient-reported medications.		X				E-8	
DC.1.1.3.3	Manage allergy and adverse reaction list	Create and maintain patient-specific allergies and reactions.	Allergens and substances are identified and coded (whenever possible) and the list is managed over time. All pertinent dates, including patient-reported events, are stored and the description of the patient allergy and reaction is modifiable over time. The entire allergy history, including reaction, for any allergen is viewable.		X				E-8	

Acute Inpatient Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.1.1.4	Manage Patient History	Capture, review, and manage medical, procedural, social, and family history including the capture of pertinent negative histories, patient-reported or externally available patient clinical history.	Patient historical data related to previous medical diagnoses, surgeries and other procedures performed on the patient, and relevant health conditions of family members is captured through such methods as patient reporting (for example interview, medical alert band) or electronic or non-electronic historical data. This data may take the form of a positive or a negative such as: "The patient/family member has had..." or "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 is captured and presented alongside locally captured documentation and notes wherever appropriate.		X				E-9	
DC.1.1.5	Summarize health record	Present a chronological, filterable, comprehensive review of the patient's entire clinical history, subject to confidentiality constraints.	A key feature of an electronic health record is its ability to present, summarize, filter, and facilitate searching through the large amounts of data collected during the provision of patient care. Much of this data is date or date-range specific and should be presented chronologically. Local confidentiality rules that prohibit certain users from accessing certain patient information must be supported.		X				-	
DC.1.1.6	Manage clinical documents and notes	Create, addend, and authenticate transcribed or directly-entered clinical documentation and notes.	Clinical documents and notes may be created in a narrative form, which may be based on a template. The documents may also be structured documents that result in the capture of coded data. Each of these forms of clinical documentation are important and appropriate for different users and situations.		X				E-10, E-16	
DC.1.1.7	Capture key health data	Capture, manage, and review key health data by a variety of users.	Care-setting dependent data is entered by a variety of caregivers. Details of who entered data and when was captured should be tracked.	DC.3.2.5; S.3.1.4					E-7, E-10	

Acute Inpatient Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.1.1.7.1	Capture external clinical documents	Incorporate clinical documents and notes from external sources.	Mechanisms for incorporating external clinical documentation, such as image documents, and other clinically relevant data are available. Data incorporated through these mechanisms is presented alongside locally captured documentation and notes wherever appropriate.			X			E-12	
DC.1.1.7.2	Capture patient-originated data	Capture patient-provided and patient-entered clinical data.	Patients may provide data for entry into the health record or be given a mechanism for entering this data directly. Patient-entered data intended for use by care providers will be available for their use.			X			E-6, E-9	
DC.1.2	Care plans, guidelines, and protocols									
DC.1.2.1	Present care plans, guidelines, and protocols	Present organizational guidelines for patient care as appropriate to support order entry and clinical documentation.	Care plans, guidelines, and protocols may be site specific or industry-wide standards. They may need to be managed across one or more providers. Tracking of implementation or approval dates, modifications and relevancy to specific domains or context is provided.		X				E-12	
DC.1.2.2	Manage patient-specific care plans, guidelines, and protocols.	Provide administrative tools for organizations to build guidelines and protocols for use during patient care.	Guidelines or protocols may contain goals or targets for the patient, specific guidance to the providers, suggested orders, and nursing interventions, among other items.	DC.1.2.1	X				E-15	

Acute Inpatient Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.1.2.3	Manage patient-specific instructions	Generate and record patient-specific instructions related to pre- and post-procedural and post-discharge requirements.	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.		X				E-19	
DC.1.3	Medication ordering and management									
DC.1.3.1	Order medication	Create prescriptions or other medication orders with detail adequate for correct filling and administration by pharmacy and clinical staff.	Different medication orders require different levels and kinds of detail, as do medication orders placed in different situations. The correct details are recorded for each situation. Administration or patient instructions are available for selection by the ordering clinicians, or the ordering clinician is facilitated in creating such instructions. Appropriate time stamps for all medication related activity is generated.	DC.3.2.3	X				E-7, E-16	
DC.1.3.2	Manage medication formularies	Provide information regarding compliance of medication orders with formularies.	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. 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.			X			E-9	

Acute Inpatient Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.1.3.3	Manage medication administration	Present to appropriate clinicians the medications that are to be administered to a patient, under what circumstances, and capture administration details.	In a setting in which medication orders are to be administered by a clinician rather than the patient him or herself, 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. Additionally, the clinician is able to 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.		X				E-9	
DC.1.4	Orders, referrals, and results management									
DC.1.4.1	Place generic orders	Capture and track orders based on input from specific care providers.	Orders that request actions or items can be captured and tracked. Examples include orders to transfer a patient between units, to ambulate a patient, for medical supplies, durable medical equipment, home IV, and diet or therapy orders. For each orderable item, the appropriate detail, including order identification and instructions, can be captured. Orders should be communicated to the correct recipient for completion if appropriate.	DC.1.3.1	X				E-8, I-19	
DC.1.4.2	Order diagnostic tests	Submit diagnostic test orders based on input from specific care providers.	For each orderable item, the appropriate detail and instructions must be available for the ordering care provider to complete. Orders for diagnostic tests should be transmitted to the correct destination for completion or generate appropriate requisitions for communication to the relevant resulting agencies.		X				I-10	

Acute Inpatient Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.1.4.3	Manage order sets	Provide order sets based on provider input or system prompt.	Order sets allow a care provider to choose common orders for a particular circumstance or disease state according to best practice or other criteria. Recommend order sets may be presented based on patient data or other contexts.				X		E-7	
DC.1.4.4	Manage referrals	Enable the origination, documentation and tracking of referrals between care providers or care settings, including clinical and administrative details of the referral.	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.			X			I-19	
DC.1.4.5	Manage results	Route, manage and present current and historical test results to appropriate clinical personnel for review, filtering and comparison.	Results of tests are presented in an easily accessible manner and to the appropriate care providers. Flow sheets, graphs, or other tools allow care providers to view or uncover trends in test data over time. In addition to making results viewable, it is often necessary to send results to appropriate care providers using an electronic messaging systems, pagers, or other mechanism. Results may also be routed to patients electronically or in the form of a letter.		X				E-13	
DC.1.4.6	Order blood products and other biologics	Communicate with appropriate sources or registries to order blood products or other biologics.	Interact with a blood bank system or other source to manage orders for blood products or other biologics. Use of such products in the provision of care is captured. Blood bank or other functionality that may come under federal or other regulation (such as by the FDA in the United States) is not required; functional communication with such a system is.	S.1.1.0			X		-	

Acute Inpatient Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.1.5	Consents and authorizations									
DC.1.5.1	Manage consents and authorizations	Create, maintain, and verify patient treatment decisions in the form of consents and authorizations when required during the ordering process.	Treatment decisions are documented and include the extent of information, verification levels and exposition of treatment options. This documentation helps ensure that decisions made at the discretion of the patient, family, or other responsible party govern the actual care that is delivered or withheld.				X		E-9	
DC.1.5.2	Manage patient advanced directives	Capture, maintain and provide access to patient advanced directives	Patient advanced directives can be captured as well as the date and circumstances under which the directives were received, and the location of any paper records of advanced directives as appropriate.			X			E-9	
DC.2	**Clinical Decision Support**									
DC.2.1	Health information capture and review			D.C. 1.1						
DC.2.1.1	Support for standard assessments	Offer knowledge-based prompts to support the adherence to care plans, guidelines, and protocols at the point of information capture.	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 II diabetic review, fall and 70+, rectal bleeding etc. As another example, to appropriately manage the use of restraints, an online alert is presented defining the requirements for a behavioral health restraint when it is selected.		X				E-12	

Acute Inpatient Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.2.1.2	Support for Patient Context-enabled Assessments	Offer knowledge-based prompts based on patient-specific data at the point of information capture.	When a clinician fills out an assessment, data entered is matched against data already in the system to identify potential linkages. For example, the system could scan the medication list and the knowledge base to see if any of the symptoms are side effects of medication already prescribed. Important but rare diagnoses could be brought to the doctor's attention – for instance ectopic pregnancy in a woman of child bearing age who has abdominal pain.			X			-	
DC.2.1.3	Support for identification of potential problems and trends	Identify specific problems or trends that may lead to significant problems, which may be based on patient data, providing prompts for consideration at the point of information capture.	When personal health information is collected directly during a patient visit input by the patient, or acquired from an external source (lab results), it is important to be able to identify potential problems and trends that may be patient-specific, given the individual's personal health profile, or changes warranting further assessment. For example: significant trends (lab results, weight); a decrease in creatinine clearance for a patient on metformin, or an abnormal increase in INR for a patient on warfarin.			X			E-15	
DC.2.1.4	Patient and family preferences	Capture patient and family preferences at the time of information intake and integrate them into clinical - decision support at all appropriate opportunities.	Decision support functions should permit consideration of patient/family preferences and concerns, such as with language, medication choice, invasive testing, and advanced directives.			X			E-7	
DC.2.2	Care plans, guidelines and protocols			DC 1.2						
DC.2.2.1	Support for condition based care plans, guidelines, protocols									

Acute Inpatient Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.2.2.1.1	Present standard care plans, guidelines, protocols	Identify the appropriate care plans, guidelines and/or protocols for the management of specific conditions.	At the time of the clinical encounter, standard care protocols are presented. These may include site-specific considerations.		X				E-12	
DC.2.2.1.2	Present context sensitive care plans, guidelines, protocols	Identify the appropriate care plans, guidelines and/or protocols for the management of specific conditions that are adjusted to the patient specific profile.	At the time of the clinical encounter, recommendations for tests, treatments, medications, immunizations, referrals and evaluations are presented based on evaluation of patient specific data, their health profile and any site-specific considerations. These may be modified on the basis of new clinical data at subsequent encounters.			X			E-15	
DC.2.2.1.3	Capture variances from standard care plans, guidelines, protocols	Identify variances from standard care plans, guidelines, and protocols.	Variances from care plans, guidelines, or protocols are identified and tracked, with alerts, notifications and reports as clinically appropriate.			X			E-16	
DC.2.2.1.4	Support management of patient groups or populations	Provide support for the management of populations of patients that share diagnoses, problems, demographic characteristics, etc.	Populations or groups of patients that share diagnoses (such as diabetes or hypertension), problems, demographic characteristics, medication orders are identified. The clinician may be notified of eligibility for a particular test, therapy, or follow-up; or results from audits of compliance of these populations with disease management protocols.				X		-	
DC.2.2.1.5	Support research protocols	Provide support for the identification of patients for potential enrolment in research protocols and management of patients enrolled in research protocols.	Potential candidates for participation in a research study are identified and the clinician notified of patient eligibility. The clinician is presented with protocol-based care to patients enrolled in research studies.				X		-	

Acute Inpatient Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.2.2.1.6	Support self-care	Provide the patient with decision support for self-management of a condition between patient-provider encounters.	Patients with specific conditions need to follow self-management plans that may include schedules for home monitoring, lab tests, and clinical check ups; recommendations about nutrition, physical activity, tobacco use, etc.; and guidance or reminders about medications.	DC.1.1.7.2; DC.3.2.4		X			I-19	
DC.2.3	Medications and medication management			DC 1.3						
DC.2.3.1	Support for medication ordering									
DC.2.3.1.1	Drug, food, allergy interaction checking	Identify drug-drug, drug-allergy and drug-food interaction warnings at the point of medication ordering.	The clinician is alerted to drug-drug, drug-allergy, and drug-food interactions at levels appropriate to the health care entity. These alerts may be customized to suit the user or group.		X				I-7	
DC.2.3.1.2	Patient specific dosing and warnings	Identify drug-condition warnings and present weight/age appropriate dose recommendations	The clinician is alerted to drug-condition interactions and patient specific contraindications and warnings e.g. elite athlete, pregnancy, breast-feeding or occupational risks. The preferences of the patient may also be presented e.g. reluctance to use an antibiotic.			X			-	
DC.2.3.1.3	Medication recommendations	Recommend best practice treatment and monitoring on the basis of cost, local formularies or therapeutic guidelines and protocols	Offer alternative treatments on the basis of best practice (e.g. cost or adherence to guidelines), a generic brand, a different dosage, a different drug, or no drug ("watchful waiting"). Suggest lab order monitoring as appropriate.			X			-	

Acute Inpatient Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.2.3.2	Support for medication administration.	Alert providers in real-time to potential administration errors such as wrong patient, wrong drug, wrong dose, wrong route and wrong time in support of medication administration management and workflow.	To reduce medication errors at the time of administration of a medication, the patient is positively identified; checks on the drug, the dose, the route and the time are facilitated. Documentation is a by-product of this checking; administration details and additional patient information, such as injection site, vital signs, and pain assessments, are captured. In addition, access to online drug monograph information allows providers to check details about a drug and enhances patient education.		X				E-10	
DC.2.4	Orders, referrals, results and care management									
DC.2.4.1	Support for non-medication ordering	Identify necessary order entry components for non-medication orders that make the order pertinent, relevant and resource conservative at the time of provider order entry; and flag any inappropriate orders based on patient profile. -	Possible order entry components include, but are not limited to: missing results required for the order, suggested corollary orders, notification of duplicate orders, institution-specific order guidelines, guideline-based orders/order sets, order sets, order reference text, patient diagnosis specific recommendations pertaining to the order. Also, warnings for orders that may be inappropriate or contraindicated for specific patients (e.g. X-rays for pregnant women) are presented.		X				E-18	
DC.2.4.2	Support for result interpretation	Evaluate results and notify provider of results within the context of the patient's clinical data.	Possible result interpretations include, but are not limited to: abnormal result evaluation/notification, trending of results (such as discrete lab values), evaluation of pertinent results at the time of provider order entry (such as evaluation of lab results at the time of ordering a radiology exam), evaluation of incoming results against active medication orders.		X				I-13	
DC.2.4.3	Support for referrals			DC 1.4						

Acute Inpatient Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.2.4.3.1	Support for referrals	Evaluate referrals within the context of a patient's clinical data.	When a healthcare referral is made, pertinent health information, including pertinent results, demographic and insurance data elements (or lack thereof) are presented to the provider. Protocols for appropriate workup prior to referral may be presented.			X			-	
DC.2.4.3.2	Support for referral recommendations	Evaluate patient data and suggest appropriate referrals.	Entry of specific patient conditions may lead to recommendations for referral e.g. for smoking cessation counseling if the patient is prescribed a medication to support cessation.				X		E-19	
DC.2.4.4	Support for Care Delivery									
DC.2.4.4.1	Support for safe blood administration	Alert providers in real-time to potential blood administration errors such as wrong blood, wrong cross match, wrong source, wrong date and time, and wrong patient.	To reduce blood administration errors at the time of administration of blood products, the patient is positively identified and checks on the blood product, the amount, the route and the time are facilitated. Documentation is a by-product of this checking.		X				-	
DC.2.4.4.2	Support for accurate specimen collection	Alert providers in real-time to potential specimen collection errors, such as wrong patient, wrong specimen type, wrong collection means, and wrong date and time.	To ensure the accuracy of specimen collection, when a provider obtains specimens from a patient, the clinician can match each specimen collection identifier and the patient's ID bracelet. The provider is notified in real-time of potential collection errors such as wrong patient, wrong specimen type, wrong means of collection, wrong site, and wrong date and time. Documentation of the collection is a by-product of this checking.			X			I-10	
DC.2.5	Support for Health Maintenance: Preventive Care and Wellness									

Acute Inpatient Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.2.5.1	Alerts preventive services and wellness	Identify patient specific suggestions/reminders, screening tests/exams, and other preventive services in support of routine preventive and wellness patient care standards.	At the time of an encounter, the provider or patient is presented with due or overdue activities based on protocols for preventive care and wellness. Examples include but are not limited to, routine immunizations (adult and well baby care), age and sex appropriate screening exams (such as PAP smears).				X		-	
DC.2.5.2	Notifications for preventive services and wellness	Notify the patient and/or appropriate provider of those preventive services, tests, behavioral actions that are due or overdue between patient-provider encounters.	The provider can generate notifications to patients regarding activities that are due or overdue and these communications can be captured. Examples include but are not limited to time sensitive patient and provider notification of: follow-up appointments, laboratory tests, immunizations or examinations. The notifications can be customized in terms of timing, repetitions and administration reports. E.g. a Pap test reminder might be sent to the patient a 2 months prior to the test being due, repeated at 3 month intervals, and then reported to the administrator or clinician when 9 months overdue.				X		E-20	
DC.2.6	Support for population health									
DC.2.6.1	Support for clinical health state monitoring within a population.	Support clinical health state monitoring of aggregate patient data for use in identifying health risks from the environment and/or population.	Standardized surveillance performance measures that are based on known patterns of disease presentation can be identified by aggregating data from multiple input mechanisms. For example, elements include, but are not limited to patient demographics, resource utilization, presenting symptoms, acute treatment regimens, laboratory and imaging study orders and results and genomic and proteomic data elements. Identification of known patterns of existing diseases involves aggregation and analysis of these data elements by existing relationships. However, the identification of new patterns of disease requires more sophisticated		X				E-14	

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			pattern recognition analysis. Early recognition of new patterns requires data points available early in the disease presentation. Demographics, ordering patterns and resource use (e.g., ventilator or intensive care utilization pattern changes) are often available earlier in the presentation of non-predictable diseases. Consumer-generated information is also valuable with respect to surveillance efforts.							
DC.2.6.2	Support for notification and response	Upon notification by an external, authoritative source of a health risk within the cared for population, alert relevant providers regarding specific potentially at-risk patients with the appropriate level of notification.	Upon receipt of notice of a health risk within a cared-for population from public health authorities or other external authoritative sources, identify and notify individual care providers or care managers that a risk has been identified and requires attention including suggestions on the appropriate course of action. This process gives a care provider the ability to influence how patients are notified, if necessary.			X			-	
DC.2.6.3	Support for monitoring and appropriate notifications regarding an individual patient's health	In the event of a health risk alert and subsequent notification related to a specific patient, monitor if expected actions have been taken, and execute follow-up notification if they have not.	Identifies that expected follow-up for a specific patient event (e.g., follow up to error alerts or absence of an expected lab result) has not occurred and communicate the omission to appropriate care providers in the chain of authority. Of great importance to the notification process is the ability to match a care provider's clinical privileges with the clinical requirements of the notification.	S.3.4.1		X			-	
DC.2.7	Support for knowledge access									
DC.2.7.1	Access clinical guidance	Provide relevant evidence-based information and knowledge to the point of care for use in clinical decisions and care planning	Examples include but are not limited to: evidence on treatment of conditions and wellness, as well as context-specific links to other knowledge resources. For example, when a condition is diagnosed provider is directed to relevant online evidence for management.		X				E-12	

Acute Inpatient Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.2.7.2	Patient knowledge access	Enable the accessibility of reliable information about wellness, disease management, treatments, and related information that is relevant for a specific patient.	An individual will be able to find reliable information to answer a health question, follow up from a clinical visit, identify treatment options, or other health information needs. The information may be linked directly from entries in the health record, or may be accessed through other means such as key word searching.	DC.3.2.4; S.3.7.2		X			-	
DC.3	**Operations Management and Communication**									
DC.3.1	Clinical workflow tasking	Schedule and manage clinical tasks with appropriate timeliness.	Since the electronic health record will replace the paper chart, tasks that were based on the paper artifact must be effectively managed in the electronic environment. Functions must exist in the EHRS that support electronically any workflow that previously depended on the existence of a physical artifact (such as the paper chart, a phone message slip) in a paper based system. Tasks differ from other more generic communication among participants in the care process because they are a call to action and target completion of a specific workflow in the context of a patient's health record (including a specific component of the record). Tasks also require disposition (final resolution). The initiator may optionally require a response. For example, in a paper based system, physically placing charts in piles for review creates a physical queue of tasks related to those charts. This queue of tasks (for example, a set of patient phone calls to be returned) must be supported electronically so that the list (of patients to be called) is visible to the appropriate user or role for disposition. Tasks are time-limited							

Acute Inpatient Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			(or finite). The state transition (e.g. created, performed and resolved) may be managed by the user explicitly or automatically based on rules. For example, if a user has a task to signoff on a test result, that task should automatically be marked complete by the EHR when the test result linked to the task is signed in the system. Patients will become more involved in the care process by receiving tasks related to their care. Examples of patient related tasks include acknowledgement of receipt of a test result forwarded from the provider, or a request to schedule an appointment for a pap smear (based on age and frequency criteria) generated automatically by the EHRS on behalf of the provider.							
DC.3.1.1	Clinical task assignment and routing	Assignment, delegation and/or transmission of tasks to the appropriate parties.	Tasks are at all times assigned to at least one user or role for disposition. Whether the task is assignable and to whom the task can be assigned will be determined by the specific needs of practitioners in a care setting. Task-assignment lists help users prioritize and complete assigned tasks. For example, after receiving a phone call from a patient, the triage nurse routes or assigns a task to return the patient's call to the physician who is on call. Task creation and assignment may be automated, where appropriate. An example of a system-triggered task is when lab results are received electronically; a task to review the result is automatically generated and assigned to a clinician. Task assignment ensures that all tasks are disposed of by the appropriate person or role and allows efficient interaction of entities in the care process.			X			I-17	

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.3.1.2	Clinical task linking	Linkage of tasks to patients and/or a relevant part of the electronic health record.	Clinical tasks are linked to a patient or to a component of a patient's medical record. An example of a well defined task is "Dr. Jones must review Mr. Smith's blood work results." Efficient workflow is facilitated by navigating to the appropriate area of the record to ensure that the appropriate test result for the correct patient is reviewed. Other examples of tasks might involve fulfillment of orders or responding to patient phone calls.				X		E-13	
DC.3.1.3	Clinical task tracking	Track tasks to guarantee that each task is carried out and completed appropriately.	In order to reduce the risk of errors during the care process due to missed tasks, the provider is able to view and track un-disposed tasks, current work lists, the status of each task, unassigned tasks or other tasks where a risk of omission exists. For example, a provider is able to create a report to show test results that have not been reviewed by the ordering provider based on an interval appropriate to the care setting.			X			I-13	
DC.3.1.3.1	Clinical task timeliness tracking	Track and/or report on timeliness of task completion.	Capability to track and review reports on the timeliness of certain tasks in accordance with relevant law and accreditation standards.				X		-	

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.3.2	Clinical communication		Healthcare requires secure communications among various participants: patients, doctors, nurses, chronic disease care managers, pharmacies, laboratories, payers, consultants, etc. An effective EHRS supports communication across all relevant participants, reduces the overhead and costs of healthcare-related communications, and provides automatic tracking and reporting. The list of communication participants is determined by the care setting and may change over time. Because of concerns about scalability of the specification over time, communication participants for all care settings or across care settings are not enumerated here because it would limit the possibilities available to each care setting and implementation. However, communication between providers and between patients and providers will be supported in all appropriate care settings and across care settings. Implementation of the EHRS enables new and more effective channels of communication, significantly improving efficiency and patient care. The communication functions of the EHRS will eventually change the way participants collaborate and distribute the work of patient care.							
DC.3.2.1	Inter-provider communication	Support secure electronic communication (inbound and outbound) between providers to trigger or respond to pertinent actions in the care process, document non-electronic communication (such as phone calls, correspondence or other encounters) and generate paper message artifacts where appropriate.	Communication among providers involved in the care process can range from real time communication (for example, fulfillment of an injection while the patient is in the exam room), to asynchronous communication (for example, consult reports between physicians). Some forms of inter-practitioner communication will be paper based and the EHRS must be able to produce appropriate documents.		X					E-4, E-6

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
DC.3.2.2	Pharmacy communication	Provide features to enable secure bidirectional communication of information electronically between practitioners and pharmacies.	When a medication is prescribed, the prescription is routed electronically to the pharmacy. This information is used to avoid transcription errors and facilitate detection of potential adverse reactions. Upon filling the prescription, information is sent back to the practitioner to indicate that the patient received the medication. If there is a question from the pharmacy, that communication can be presented to the provider with their other tasks.			X			I-8	
DC.3.2.3	Provider and patient or family communication	Trigger or respond to electronic communication (inbound and outbound) between providers and patients or patient representatives with pertinent actions in the care process.	The clinician is able to communicate with patients and others, capturing the nature and content of electronic communication, or the time and details of other communication. For example: 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; or a hospital may wish to communicate with selected patients about a new smoking cessation program.				X		E-19	
DC.3.2.4	Patient, family and care giver education	Identify and make available electronically or in print any educational or support resources for patients, families, and caregivers that are most pertinent for a given health concern, condition, or diagnosis and which are appropriate for the person (s).	The provider or patient is presented with a library of educational materials and where appropriate, given the opportunity to document patient/caregiver comprehension. The materials can be printed or electronically communicated to the patient.				X		-	
DC.3.2.5	Communication with medical devices	Support communication and presentation of data captured from medical devices.	Communication with medical devices is supported as appropriate to the care setting. Examples include: vital signs/pulse-oximeter, anesthesia machines, home diagnostic devices for chronic disease management, laboratory machines, bar coded			X			E-19	

Acute Inpatient Care Setting

ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			artifacts (medicine, immunizations, demographics, history, and identification).							
S.1	**Clinical Support**									
S.1.1	Notifiable Registries	Enable the automated transfer of formatted demographic and clinical information to and from local disease specific registries (and other notifiable registries) for patient monitoring and subsequent epidemiological analysis.	The user can export personal health information to disease specific registries, other notifiable registries, and add new registries through the addition of standard data transfer protocols or messages.	I.2.4 I.4.7	X				I-13	
S.1.2	Donor management support	Provide capability to capture or receive, and share needed information on potential organ and blood donors and recipients.	The user is able to capture or receive information on potential organ and blood donors and recipients. The user can make this information available to internal and external donor matching agencies.	I.2.4; I.4.7			X		-	

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.1.3	Provider directory	Provide a current directory of provider information in accordance with relevant laws, regulations, and conventions.	Maintain or access current directory of provider information in accordance with relevant laws, regulations, and conventions, including full name, address or physical location, and a 24x7 telecommunications address (e.g. phone or pager access number) for the purposes of the following functions	I.1.3; I.4						
S.1.3.1	Provider demographics	Provide a current directory of practitioners that, in addition to demographic information, contains data needed to determine levels of access required by the EHR security system.			X				-	
S.1.3.2	Provider's location within facility	Provide provider location or contact information on a facility's premises.					X		I-2	
S.1.3.3	Provider's on call location	Provide provider location or contact information when on call.					X		E-4	
S.1.3.4	Provider's general location	Provide locations or contact information at which the provider practices, in order to direct patients or queries.					X		I-18	

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.1.4	Patient directory	Provide a current directory of patient information in accordance with relevant privacy and other applicable laws, regulations, and conventions.	Provide a current directory of patient information in accordance with relevant privacy and other applicable laws, regulations, and conventions, including, when available, full name, address or physical location, alternate contact person, primary phone number, and relevant health status information for the purposes of the following functions.	DC.1.1.1; I.1.4						
S.1.4.1	Patient demographics	Maintain, archive and update demographic information in accordance with realm-specific recordkeeping requirements.	The minimum demographic data set must include the data required by realm-specific laws governing health care transactions and reporting. This may also include data input of death status information.	S.1.4; I.1.5.1; S.3.7.3	X				I-6	
S.1.4.2	Patient's location within a facility	Provide the patient's location information within a facility's premises.	Example: The patient census in a hospital setting		X				-	
S.1.4.3	Patient's residence related to the provision and administration of services	Provide the patient's residence information solely for purposes related to the provision and administration of services to the patient, patient transport, and as required for public health reporting.					X		-	
S.1.4.4	Optimize patient bed assignment	Enable interaction with a bed management system to ensure that the patient's bed assignments within the facility optimize care and minimize risks e.g. of exposure to contagious patients.		S.1.7	X				-	

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.1.5	De-identified data request management	Provide patient data in a manner that meets local requirements for de-identification.	When an internal or external party requests patient data and that party requests de-identified data (or is not entitled to identify patient information, either by law or custom), the user can export the data in a fashion that meets local requirements for de-identification. An audit trail of these requests and exports is maintained. For internal clinical audit, a re-identification key may be added to the data.	I.1.8; I.3; I.6.1	X				-	
S.1.6	Scheduling	Provide the necessary data to a scheduling system for optimal efficiency in the scheduling of patient care, for either the patient or a resource/device.	The system user can schedule events as required. Relevant clinical or demographic information can be linked to the task.	DC.3.1; DC.3.2.1; I.2.3; I.4.1; I.7	X				-	
S.1.7	Healthcare resource availability	Support the distribution of local healthcare resource information in times of local or national emergencies.	In times of identified local or national emergencies and upon request from authorized bodies, provide current status of healthcare resources including, but not limited to, available beds, providers, support personal, ancillary care areas and devices, operating theaters, medical supplies, vaccines, and pharmaceuticals. The intent is for the authorized body to distribute either resources or patient load to maximize efficient healthcare delivery.	S.1.4.4; I.1.6; I.5.1		X			-	
S.2	**Measurement, Analysis, Research and Reports**									
S.2.1	Measurement, monitoring, and analysis	Support measurement and monitoring of care for relevant purposes.		DC.2.6.1; I.2.4						

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.2.1.1	Outcome Measures	Support the capture and reporting of information for the analysis of outcomes of care provided to populations, in facilities, by providers, and in communities.		S.3.6.2	X				-	
S.2.1.2	Performance and accountability measures	Support the capture and reporting of quality, performance, and accountability measures to which providers/facilities/delivery systems/communities are held accountable including measures related to process, outcomes, and/or costs of care – may be used in 'pay for performance' monitoring and adherence to best practice guidelines.		DC.2.6.3; DC.2.6.2; S.3.6		X			-	
S.2.2	Report generation	Provide report generation features for the generation of standard and ad hoc reports.	A user can create standard and ad hoc reports for clinical, administrative, and financial decision-making, and for patient use - including structured data and/or unstructured text from the patient's health record. Reports may be linked with financial and other external data sources (i.e. data external to the entity).; Such reports may include patient-level reports, provider/facility/delivery system-level reports, population-level reports, and reports to public health agencies. Examples of patient-level reports include: administratively required patient assessment forms, admission/transfer/discharge reports, operative and procedure reports, consultation reports, and drug profiles. Examples of population-level reports include: reports on the effectiveness of clinical pathways and other evidence-based practices, tracking completeness of clinical documentation, etcetera. Examples of reports to public health agencies include: vital statistics, reportable	DC.2.6.3; S.3.6	X				E-14	

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			diseases, discharge summaries, immunization data including adverse outcomes, cancer data, and other such data necessary to maintain the publics' health (including suspicion of newly emerging infectious disease and non-natural events).							
S.2.2.1	Health record output	Enable system user to define the records and/or reports that are considered the formal health record for disclosure purposes, and provide a mechanism for both chronological and specified record element output.	Provide hardcopy and electronic output that can 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.	I.2.4; DC.1.15		X			-	
S.3	**Administrative and Financial**									
S.3.1	Encounter/Episode of care management	Manage and document the health care needed and delivered during an episode of care.	Using data standards and technologies that support interoperability, encounter management promotes patient-centered/oriented care and enables real time, immediate point of service, point of care by facilitating efficient work flow and operations performance to ensure the integrity of (1) the health record, (2) public health, financial and administrative reporting, and (3) the healthcare delivery process.; This support is necessary for direct care functionality that relies on providing user interaction and workflows, which are configured according to clinical protocols and business rules based on encounter specific values such as care setting, encounter type (inpatient, outpatient, home health, etc), provider type, patient's EHR, health status, demographics, and the initial							

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			purpose of the encounter.							
S.3.1.1	Specialized views	Present specialized views based on the encounter-specific values, clinical protocols and business rules	The system user is presented with a presentation view and system interaction appropriate to the context with capture of encounter-specific values, clinical protocols and business rules. This “user view” may be configurable by the user or system technicians. As an example, a mobile home health care worker using wireless laptop at the patient's home would be presented with a home health care specific workflow synchronized to the current patient's care plan and tailored to support the interventions appropriate for this patient, including chronic disease management protocols.	DC.2.2.1.2;	X				I-13	
S.3.1.2	Encounter specific functionality	Provide assistance in assembling appropriate data, supporting data collection and processing output from the encounter.	Workflows, based on the encounter management settings, will assist in determining the appropriate data collection, import, export, extraction, linkages and transformation. As an example, a pediatrician is presented with diagnostic and procedure codes specific to pediatrics. Business rules enable automatic collection of necessary data from the patient's health record and patient registry. As the provider enters data, workflow processes are triggered to populate appropriate transactions and documents. For example, data entry might populate an eligibility verification transaction or query the immunization registry.			X			I-15	

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.3.1.3	Automatic generation of administrative and financial data from clinical record	Derive administrative or financial data from the patient's clinical data and include this in administrative and financial reports.	A user can generate a bill based on health record data. Maximizing the extent to which administrative and financial data can be derived or developed from clinical data will lessen provider reporting burdens and the time it takes to complete administrative and financial processes such as claim reimbursement. This may be implemented by mapping of clinical terminologies in use to administrative and financial terminologies.	S.3.2.2		X			E-20	
S.3.1.4	Support remote healthcare services	Support remote health care services such as telehealth and remote device monitoring by integrating records and data collected by these means into the patient's EHR for care management, billing and public health reporting purposes.	Enables remote treatment of patients using monitoring devices, and two way communications between provider and patient or provider and provider. - Promotes patient empowerment, self-determination and ability to maintain health status in the community. Promotes personal health, wellness and preventive care. For example, a diabetic pregnant Mom can self-monitor her condition from her home and use web TV to report to her provider. The same TV-internet connectivity allows her to get dietary and other health promoting information to assist her with managing her high-risk pregnancy.	DC.3.2.1; DC.3.2.3; DC.3.2.5; DC.1.1.7.2			X		E-19	
S.3.2	Information access for supplemental use	Support extraction, transformation and linkage of information from structured data and unstructured text in the patient's health record for care management, financial, administrative, and public health purposes.	Using data standards and technologies that support interoperability, information access functionalities serve primary and secondary record use and reporting with continuous record availability and access that ensure the integrity of (1) the health record, (2) public health, financial and administrative reporting, and (3) the healthcare delivery							

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			process.							
S.3.2.1	Rules-driven clinical coding assistance	Make available all pertinent patient information needed to support coding of diagnoses, procedures and outcomes.	The user is assisted in coding information for clinical reporting reasons. For example, a professional coder may have to code the principle diagnosis in the current, applicable ICD as a basis for hospital funding. All diagnoses during the episode may be presented to the coder, as well as the applicable ICD hierarchy containing these codes.	I.7		X			I-20	
S.3.2.2	Rules-driven financial and administrative coding assistance	Provide financial and administrative coding assistance based on the structured data and unstructured text available in the encounter documentation.	The user is assisted in coding information for billing or administrative reasons. For example, the HIPAA 837 Professional claim requires the date of the last menstrual cycle for claims involving pregnancy. To support the generation of this transaction, the clinician would need to be prompted to enter this date when the patient is first determined to be pregnant, then making this information available for the billing process.	I.7; S.3.1.3		X			I-20	
S.3.2.3	Integrate cost/financial information	Enable the use of cost management information required to guide users and workflows.	The provider is alerted or presented with the most cost-effective services, referrals, devices etc. to recommend to the patient. This may be tailored to the patient's health insurance/plan coverage rules. Medications may be presented in order of cost, or the cost of specific investigations may be presented at the time of ordering.			X			-	

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.3.3	Administrative transaction processing	Support the creation (including using external data sources, if necessary), electronic interchange, and processing of transactions listed below that may be necessary for encounter management during an episode of care	Support the creation (including using external data sources, if necessary), electronic interchange, and processing of transactions listed below that may be necessary for encounter management during an episode of care. - - The EHR system shall capture the patient health-related information needed for administrative and financial purposes including reimbursement. - - Captures the episode and encounter information to pass to administrative or financial processes (e.g. triggers transmissions of charge transactions as by-product of on-line interaction including order entry, order statusing, result entry, documentation entry, medication administration charting.) - - Automatically retrieves information needed to verify coverage and medical necessity. - As a byproduct of care delivery and documentation, captures and presents all patient information needed to support coding. Ideally performs coding based on documentation. - - Clinically automated revenue cycle - examples of reduced denials and error rates in claims. - - Clinical information needed for billing is available on the date of service. - - Physician and clinical teams do not perform additional data entry / tasks exclusively to support administrative or financial processes.	DC.1.3						

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.3.3.1	Enrollment of patients	Support interactions with other systems, applications, and modules to enable enrollment of uninsured patients into subsidized and unsubsidized health plans, and enrollment of patients who are eligible on the basis of health and/of financial status in social service and other programs, including clinical trials;	Expedites determination of health insurance coverage, thereby increasing patient access to care. The provider may be alerted that uninsured patients may be eligible for subsidized health insurance or other health programs because they meet eligibility criteria based on demographics and/or health status. For example: a provider is notified that the uninsured parents of a child enrolled in S-CHIP may now be eligible for a new subsidized health insurance program; a provider of a pregnant patient who has recently immigrated is presented with information about eligibility for subsidy. Links may be provided to online enrollment forms. When enrollment is determined, the health coverage information needed for processing administrative and financial documentation, reports or transactions is captured.				X		-	
S.3.3.2	Eligibility verification and determination of coverage	Support eligibility verification for health insurance and special programs, including verification of benefits and pre-determination of coverage;	Automatically retrieves information needed to support verification of coverage at the appropriate juncture in the encounter workflow. Improves patient access to covered care and reduces claim denials. When eligibility is verified, the EHRS would capture eligibility information needed for processing administrative and financial documentation, reports or transactions - updating or flagging any inconsistent data. In addition to health insurance eligibility, this function would support verification of registration in programs and registries, such as chronic care case management and immunization registries. An EHRS would likely verify health insurance eligibility prior to the encounter, but would verify registration in case management or immunization registries during the encounter.		X				E-6	

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.3.3.3	Service authorizations	Support the creation of requests, responses and appeals related to service authorization, including prior authorizations, referrals, and pre-certification;	Automatically retrieves information needed to support verification of medical necessity and prior authorization of services at the appropriate juncture in the encounter workflow. Improves timeliness of patient care and reduces claim denials.		X				E-11, E-16	
S.3.3.4	Support of service requests and claims	Creation of health care attachments for submitting additional clinical information in support of service requests and claims;	Automatically retrieves structured data, including lab, imaging and device monitoring data, and unstructured text based on rules or requests for additional clinical information in support of service requests or claims at the appropriate juncture in the encounter workflow			X			I-20	
S.3.3.5	Claims and encounter reports for reimbursement	Support the creation of claims and encounter reports for reimbursement	Automatically retrieves information needed to support claims and encounter reporting at the appropriate juncture in the encounter workflow.		X				E-20	
S.3.3.6	Health service reports at the conclusion of an episode of care.	Support the creation of health service reports at the conclusion of an episode of care. Support the creation of health service reports to authorized health entities, for example public health, such as notifiable condition reports, immunization, cancer registry and discharge data that a provider may be required to generate at the conclusion of an episode of care.	Effective use of this function means that clinicians do not perform additional data entry to support health management programs and reporting.	S.2.2	X				I-20	
S.3.4	Manage Practitioner/Patient relationships	Identify relationships among providers treating a single patient, and provide the ability to manage patient lists assigned to a particular provider.	This function addresses the ability to access and update current information about the relationships between caregivers and the subjects of care. This information should be able to flow seamlessly between the different components of the EHRS, and between the EHRS and other systems. Business rules may be reflected in the presentation of, and the access to this information. The relationship among providers treating a single patient will include any necessary chain of	DC.2.6.3 ; S.2.2	X				I-6	

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			authority/responsibility. Example: In a care setting with multiple providers, where the patient can only see certain kinds of providers (or an individual provider), allow the selection of only the appropriate providers. Example: The user is presented with a list of people assigned to a given practitioner and may alter the assignment as required - to a group, to another individual or by sharing the assignment.							
S.3.5	Subject to Subject relationship	Capture relationships between patients and others and facilitate access on this basis (e.g. parent of a child) if appropriate.	A user may assign the relationship of parent to a person who is their offspring. This relationship may facilitate access to their health record as parent of a young child.	S.1.4.1; I.1.3; I.1.5; I.2.2						
S.3.5.1	Related by genealogy	Provide information of Related by genealogy (blood relatives)					X		-	
S.3.5.2	Related by insurance	Provide information of Related by insurance (domestic partner, spouse, guarantor)					X		I-6	
S.3.5.3	Related by living situation	Provide information of Related by living situation (in same household)					X		E-9	
S.3.5.4	Related by other means	Provide information of Related by other means (e.g. epidemiologic exposure or other person authorized to see records – Living Will cases)					X		-	
S.3.6	Acuity and Severity	Provide the data necessary for the capability to support and manage patient acuity/severity of illness/risk adjustment		S.2.1.2						

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.3.7	Maintenance of supportive functions	Update EHR supportive content on an automated basis.								
S.3.7.1	Clinical decision support system guidelines updates	Receive and validate formatted inbound communications to facilitate updating of clinical decision support system guidelines and associated reference material		DC.1.2.1; DC.2.6.3; DC.2.7.1	X				I-12	
S.3.7.2	Patient education material updates	Receive and validate formatted inbound communications to facilitate updating of patient education material		DC.3.2.4			X		I-19	

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
S.3.7.3	Patient reminder information updates	Receive and validate formatted inbound communications to facilitate updating of patient reminder information from external sources such as Cancer or Immunization Registries		I.5.2; S.1.4.1			X		-	
S.3.7.4	Public health related updates	Receive and validate formatted inbound communications to facilitate updating of public health reporting guidelines		I.5.2			X		I-13	
I.1	**Security**	Secure the access to the EHR-S and EHR information. Prevent unauthorized use of data, data loss, tampering and destruction.	To enforce security, all EHR-S applications must adhere to the rules established to control access and protect the privacy of EHR information. Security measures assist in preventing unauthorized use of data and protect against loss, tampering and destruction.							
I.1.1	Entity Authentication	Authenticate EHR-S users and/or entities before allowing access to an EHR-S. Manage the sets of access-control permissions granted within an EHR-S	Both users and application are subject to authentication. The EHR-S must provide mechanisms for users and applications to be authenticated. Users will have to be authenticated when they attempt to use the application, the applications must authenticate themselves before accessing EHR information managed by other applications or remote EHR-S'. In order for authentication to be established a Chain of Trust agreement is assumed to be in place. Examples of entity authentication include: • Username/ password; • Digital certificate; • Secure token; • Biometrics		X				I-4	

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.1.2	Entity Authorization.	Manage the sets of access-control permissions granted to EHR-S users. An EHR-S grants authorizations to users, for roles, and within contexts. A combination of the authorization levels may be applied to control access to EHR-S functions or data.	EHR-S Users are authorized according to identity, role, work-assignment, present condition and/or location. • User based authorization refers to the permissions granted or denied based on the identity of an individual. An example of User based authorization is patient defined denial of access to all or part of a record to a particular party for reasons such as privacy. • Role based authorization refers to the responsibility or function performed in a particular operation or process. Example roles include: nurse, dietician, administrator, legal guardian, and auditor. • Context-based Authorization is defined by ISO as security-relevant properties of the context in which an access request occurs, explicitly time, location, route of access, and quality of authentication. In addition to the standard, context authorization for EHR-S is extended to satisfy special circumstances such as, assignment, consents, or other healthcare-related factors. A context-based example might be a right granted for a limited period to view those—and only those—EHR records connected to a specific topic of investigation.		X				-	
I.1.3	Entity Access Control	Verify and enforce access control to EHR information and functions for end-users, applications, sites, etc., to prevent unauthorized use of a resource, including the prevention or use of a resource in an unauthorized manner.	This is a fundamental function of EHR-S applications. To ensure access is controlled, the EHR-S applications will perform an identity lookup of users or application for any operations that require it (authentication, authorization, secure routing, querying, etc.) and enforce the system and information access rules that have been defined.		X				I-19	

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.1.3.1	Patient Access Management	Enable a healthcare professional to manage a patient's access to the patient's personal health information. Patient access-management includes allowing access to patient/subject-of-care information and restricting access to information that is potentially harmful to the patient/subject.	A healthcare professional will be able to manage a patient's ability to view his/her EHR. Typically, a patient has the right to view much of his/her EHR. However, a healthcare provider may sometimes need to prevent a patient (or guardian) from viewing parts of the record. For example, a patient receiving psychiatric care might harm himself (or others) if he reads the doctor's evaluation of his condition. Furthermore, reading the doctor's therapy-plan might actually cause the plan to fail.			X			-	
I.1.4	Non-repudiation	Limit an EHR-S user's ability to deny (repudiate) an electronic data-exchange originated or authorized by that user.	Non-repudiation ensures that a transferred message has been sent and received by the parties claiming to have sent and received the message. Non-repudiation is a way to guarantee that the sender of a message cannot later deny having sent the message and that the recipient cannot deny having received the message. Non-repudiation can be achieved through the use of a: • Digital signature -- which serves as a unique identifier for an individual (much like a written signature). • Confirmation service -- which utilizes a message transfer agent to create a digital receipt (providing confirmation that a message was sent and/or received). • Timestamp -- which proves that a document existed at a certain date and time.		X				I-4	

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.1.5	Secure Data Exchange	Send and receive EHR data securely.	Exchange of EHR information requires appropriate security and privacy considerations, including data obfuscation and both destination and source authentication when necessary. For example, it might be necessary to encrypt data sent to remote destinations. This function requires that there is an overall coordination regarding what information is exchanged between EHR-S entities and how that exchange is expected to occur. The policies applied at different locations must be consistent or compatible with each other in order to ensure that the information is protected when it crosses entity boundaries within the EHR-S or external to the EHR-S.		X				I-19	
I.1.6	Secure Data Routing	Route electronically-exchanged EHR data only to/from known, registered, and authenticated destinations/sources (according to applicable healthcare-specific rules and relevant standards).	EHR-S applications need to ensure that they are exchanging EHR information with the entities (applications, institutions, directories) they expect. This function depends on entity authorization, and authentication to be available in the system. For example, a physician practice management application in the EHR-S, might send claim attachment information to an external entity. For 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.	I.1.1; I.1.2	X				I-4	

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.1.7	Document Attestation	Manage electronic attestation of documents including the retention of the signature of attestation (or certificate of authenticity) associated with an incoming or outgoing document.	The purpose of attestation is to show authorship and assign responsibility for an act, event, condition, opinion, or diagnosis. Every entry in the health record must be identified with the author and should not be made or signed by someone other than the author. (Note: A transcriptionist may transcribe an author's notes and a senior clinician may attest to the accuracy of another's statement of events.) Attestation is required for (paper or electronic) entries such as narrative/progress notes, assessments, flow sheets, and orders. Digital signatures may be used to implement document attestation. For an incoming document, if included, the record of attestation is retained. Attestation functionality must meet applicable legal, regulatory and other applicable standards or requirements.		X				I-10	
I .1.8	Enforcement of Confidentiality	Enforce patient privacy rules as they apply to various parts of the EHR-S through the implementation of privacy mechanisms.	A patient's privacy may be adversely affected when EHRs are not held in confidence. Privacy rule enforcement decreases unauthorized access and promotes the level of EHR confidentiality.	I.6.1		X			I-10	
I.2	**Health record information and management**	Manage EHR information across EHR-S applications by • Ensuring that clinical information is valid according to clinical rules; • Ensuring that clinical information is accurate and complete according to clinical rules; and • Tracking amendments to clinical documents.	Since EHR information will typically be available on a variety of EHR-S applications, the EHR-S must provide the ability to access, manage and verify accuracy and completeness of EHR information, and provide the ability to audit the use of (and access to) EHR information.							

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.2.1	Data Retention and Availability	Retain, ensure availability, and destroy health record information according to organizational standards. This includes: • Retaining all clinical documents for the time period designated by policy or legal requirement; • Retaining inbound documents as originally received (unaltered); • Ensuring availability of information for the legally proscribed period of time; • Providing the ability to destroy EHR data/records in a systematic way according to policy and after the legally proscribed retention period.	Discrete and structured EHR data, records and reports must be: • Made available to users in a timely fashion; • Stored and retrieved in a semantically intelligent and useful manner (for example, chronologically, retrospectively per a given disease or event, or in accordance with business requirements, local policies, or legal requirements); • Retained for a legally-proscribed period of time; • Destroyed in a systematic manner in relation to the applicable retention period. The system must also allow an organization to identify data/records to be destroyed, and to review and approve destruction before it occurs.	I.1.7	x				E-20	

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.2.2	Audit trail	Provide audit trail capabilities for resource access and usage indicating the author, the modification (where pertinent), and the date/time at which a record was created, modified, viewed, extracted, or deleted. Audit trails extend to information exchange. Audit functionality includes the ability to generate audit reports and to interactively view change history for individual health records or for the EHR-S.	Audit functionality extends to security audits, data audits, audits of data exchange, and the ability to generate audit reports. Audit trail settings should be configurable to meet the needs of local policies. Examples of audited areas include: • Security audit - logs access attempts and resource usage including user login, file access, other various activities, and whether any actual or attempted security violations occurred. • Data audit - records who, when, and by which system an EHR record was created, updated, translated , viewed, extracted, or (if local policy permits) deleted. Audit-data may refer to system setup data or to clinical and patient management data. • Information exchange audit – record data exchanged between EHR-S applications (for example, sending application; the nature, history, and content of the information exchanged; and information about data transformations (for example, vocabulary translations), reception event details, etc.). • Audit reports – should be flexible and address various users' needs. For example, a legal authority might want to know how many patients a given healthcare provider treated while the provider's license was suspended. Similarly, in some cases a report detailing all those who modified or viewed a certain patient record might be needed. Security audit trails and data audit trail are used to verify enforcement of business, data integrity, security, and access-control rules.		X				I-7, I-10	

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.2.3	Synchronization	Maintain synchronization involving: • Interaction with entity directories; • Linkage of received data with existing entity records; • Location of each health record component; • Communication of changes between key systems.	The 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, the EHR-S maintains all the relevant information regarding the health record in synchrony. For example, if an MRI is ordered by a physician, a set of diagnostic images and a radiology report will be created. The patient demographics, the order for MRI, the diagnostic images associated with the order, and the report associated with the study must all be in synch in order for the clinicians to view the complete record.			X			I-7, I-10	
I.2.4	Extraction of health record information	Manage data extraction in accordance with 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 can be used to exchange data and provide reports for primary and ancillary purposes.	The EHR-S enables an authorized user (such as a clinician) to access and aggregate the distributed information that corresponds to the health record or records which are needed for viewing, reporting, disclosure, etc. The EHR-S must be able to 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 continuity of care records. In addition, data extractions can be used for administrative, financial, research, quality analysis and public health purposes.		X				E-14	

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.3	**Unique identity, registry, and directory services**	Enable secure use of registry services and directories to uniquely identify, link and retrieve records and identify the location of subjects of care and providers for health care purposes; payers, health plans, sponsors, employers and public health agencies for administrative and financial purposes; health care resources and devices for resource management purposes.	Unique identity, registry, and directory service functions are critical to successfully managing the security, interoperability, and the consistency of the health record data across the EHR-S.							
I.3.1	Distributed registry access	Enable system communication with registry services through standardized interfaces and extend to services provided externally to the EHR-S.	The EHR-S will rely on a set of infrastructure services, directories, and registries (organized hierarchically) that support communication between EHR-Systems. For example, a patient treated by a primary care physician for a chronic condition may become ill while out of town. The new provider's EHR-S will interrogate a local, regional, or national registry to find the patient's previous records. From the primary care record, the remote EHR-S will retrieve relevant information (in conformance with applicable patient privacy and confidentiality rules). An example of local registry usage is an EHR-S application sending a query message to the Hospital Information System to retrieve a patient's demographic data.			X			-	

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.4	**Health Informatics and Terminology Standards**	Ensure consistent terminologies, data correctness and interoperability by complying with standards for health care transactions, vocabularies, code sets, and artifacts such as templates, interface, decision support algorithms, and clinical document architecture.	Examples that EHR-S applications need to support are a consistent set of terminologies such as: LOINC, SNOMED, ICD-10 and messaging standards such as HL7. Vocabularies may be provided through a terminology service internal or external to the EHR-S.							
I.4.1	Maintenance and versioning of health informatics and terminology standards.	Enable version control according to customized policies to ensure maintenance of utilized standards.	Version control allows for multiple sets/versions of the same terminology to exist and be distinctly recognized over time. Terminology versioning supports retrospective analysis and research, as well as interoperability with systems that comply with different releases of the standard. Similar functionality exists for messaging and other informatics based standards. It should be possible to retire deprecated versions when applicable business cycles are completed while maintaining obsolescent code sets for possible claims adjustment throughout the claim's lifecycle.		X				I-11, I-20	
I.4.2	Mapping local terminology, codes, and formats	Map or translate local terminology, codes and/or formats to standard terminology, codes, and/or formats to comply with health informatics standards.	An EHR-S application which uses local terminology, must be capable of mapping and/or converting the local terminology into a standard terminology. For example, a local term or code for "Ionized Calcium" must be mapped to an equivalent, standardized (LOINC) term or code when archiving or exchanging artifacts.				X		-	
I.5	**Interoperability Standards**	Provide automate health delivery processes and seamless exchange of key clinical and administrative information.	Interoperability standards enable an EHR-S to operate as a set of applications.							
I.5.1	Interchange Standards	Support the ability to operate seamlessly with complementary systems by adherence to key interoperability standards. Systems may refer to EHR systems, applications within an EHR-S, or	Interoperable EHR-S applications require infrastructure components that adhere to standards for connectivity, information structures, and semantics ("interoperability standards"). Standard EHR Infrastructure components, which may exist locally or	I.4.2	X				I-4, I-8	

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
		other authorized entities that interact with an EHR-S.	remotely, must support seamless operations between complementary systems. Standard infrastructure components include: • HL7 Messages, Clinical Document Architecture (CDA), X12N healthcare transactions, Digital Imaging and Communication in Medicine (DICOM). • Common semantic representation to support information exchange. EHR-Systems may use different standardized or local vocabularies. In order to reconcile the semantic differences across vocabularies, the EHR-S must be able to adhere to standard vocabulary or leverage vocabulary lookup and mapping capabilities that are included in the Health Informatics and Terminology Standards. • Support of multiple interaction modes 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. In addition, even in the case where store-and-forward, message-oriented interoperability is used, the applications may need to support the appropriate interaction mode. For example: Unsolicited Event Notifications, Query/Response, Query for display, Unsolicited summary, structured/discrete, and unstructured clinical documents.							
I.5.2	Application Integration Standards	Provide integration with complementary applications and infrastructure services (directory, vocabulary, etc.) using standard-based application programming interfaces (for example, CCOW).	Similar to standard-based messaging, standard-based application integration requires that the EHR-S application use standardized programming interfaces, where applicable. For example, CCOW may be used for visual integration and WfMC for workflow integration.				X		-	

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
I.5.3	Interchange Agreements	Support interaction with entity directories to determine the recipients' address profile and data exchange requirements and use these rules of interaction when exchanging information with partners.	An EHR-S will use the entity registries to determine the security, addressing, and reliability requirements between partners and use this information to define how data will be exchanged between the sender and the receiver.	I.3			X		-	

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities EN	Priorities EF	Priorities O	Priorities NA	Basic Scenario	Comments
I.6	**Business Rules Management**	Manage the ability to create, update, delete (or disable) and version business rules including institutional preferences. Apply business rules from necessary points within the EHR-S to control system behavior. Audit changes made to business rules, and audit compliance to and overrides of applied business rules.	Business Rule implementation functions include: decision support, diagnostic support, workflow control, access privileges, and system and user defaults and preferences. The EHR-S should support the ability for providers and institutions to customize decision support components such as triggers, rules or algorithms, and the wording of alerts and advice, to meet local requirements and preferences. Examples of applied business rules include: • Suggesting diagnosis based on the combination of symptoms (flu-like symptoms combined with widened mediastinum suggesting anthrax • Classifying a pregnant patient as high risk due to factors such as age, health status, and prior pregnancy outcomes. • Sending an update to an immunization registry when a vaccination is administered • Limiting access to mental health information to a patient's psychiatrist/psychologist • Establishing system level defaults such as for vocabulary data sets to be implemented. • Establishing user level preferences such as allowing the use of health information for research purposes.		X				**I-6, I-10**	
I.7	**Workflow**	Workflow management functions include both the management and set up of work queues, personnel, and system interfaces as well as the implementation functions that use workflow-related business rules to direct the flow of work assignments.	Workflow management functions include: • Distribution of information to and from internal and external parties; • Support for task-management as well as parallel and serial task distribution; • Support for notification and task		X					

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ID	Function Name	Function Statement	Functional Description	See Also	Priorities				Basic Scenario	Comments
					EN	EF	O	NA		
			routing based on system triggers; and • Support for task assignments, escalations and redirection in accordance with business rules. Workflow definitions and management may be implemented by a designated application or distributed across EHR-S applications.							