



Physician's Guide

CCHIT Certification for Ambulatory
Electronic Health Records | 2006

You may be ready to invest in electronic health record (EHR) software, but you face challenging questions such as these:

- **With over 200 products in the ambulatory EHR marketplace, how do I begin?**
- **Our physicians can't agree on what must be included in an EHR—is there an authoritative source?**
- **With all the talk of RHIOs and the National Health Information Network, how can we be sure our EHR will be compatible with them?**
- **Everyone is worrying about electronic data and privacy today, so how can we assure the EHR we buy has adequate security?**

The Certification Commission for Healthcare Information Technology or CCHITSM was founded with the precise goal of helping you answer these questions. CCHIT is the recognized authority in the United States for certifying EHR products—an independent, nonprofit, public/private organization that sets the benchmark for healthcare information technology.

The CCHIT certification program can reduce your risk when you select an EHR. CCHIT stays abreast of the new demands that practices face, and ensures that CCHIT CertifiedSM products have the capability of fulfilling those needs. For example, CCHIT Certified products will give you the capability of measuring and reporting the quality indicators needed for pay-for-performance incentive programs.

The Commission certifies ambulatory EHRs—those designed to be used in physician offices and clinics—right now. Inpatient EHR certification is planned in 2007, and certification of the networks through which EHRs interoperate is planned in 2008.

We have created this guide to help physicians and practice managers understand the benefits they can expect when EHR products have been certified by CCHIT.

Look for the CCHIT Certified Seal



The CCHIT Certified seal assures you that an EHR product meets basic requirements for:

- Functionality (ability to create and manage electronic records for all your patients, as well as automate the workflow in your office)
- Interoperability (ability to receive and send electronic data to other entities such as laboratories); and
- Security (ability to keep your patients' information safe)

Beware of claims that products are "CCHIT-compliant." Only the CCHIT Certified seal guarantees that products have undergone the rigorous testing required for certification by the Commission.

The list of CCHIT Certified products can be found at: www.cchit.org/cchit-certified

About CCHIT



CCHIT was founded by the American Health Information Management Association, the Healthcare Information and Management Systems Society and the National Alliance for Health Information Technology.

The U.S. Department of Health and Human Services (HHS) awarded CCHIT a three-year contract to develop and test certification criteria and manage an inspection process for certifying EHRs. At the end of the contract, CCHIT will transition to a self-sustaining certification agency.

CCHIT works in collaboration with the American Health Information Community, the Department of Commerce's National Institute of Standard and Technology, and with several other organizations awarded HHS contracts to harmonize standards, develop prototypes for a national health information network architecture, and assess privacy and security laws and practices.

The work of CCHIT has been endorsed by a number of physician professional organizations, including:

- The American Academy of Family Physicians
- The American Academy of Pediatrics
- The American College of Physicians
- Physicians Foundation for Health Systems Excellence and Physicians' Foundation for Health Systems Innovation

The Certification Process

CCHIT criteria and processes are open and transparent to all.

As a physician or provider contemplating purchase of an EHR product, you are about to make a substantial investment in a system that you and your colleagues must rely on for a long time—10, 20 years or more. Few practices have the time and resources to evaluate every detail for every potential product of interest. Relying on certification can help with your selection process.

Companies that apply for CCHIT certification must submit their products to a rigorous inspection process against comprehensive criteria. A jury of three EHR experts—including at least one practicing physician—observes a carefully scripted product demonstration. This inspection takes a full day and covers four distinct clinical scenarios.

One script, for example, recreates a scenario of a visit by a well child to a primary care physician and checks an EHR's ability to:

- Correctly identify the patient and his parent,
- Document and track immunization history, prescriptions and lab reports, and
- Provide guidelines for prevention and wellness care.

In another scenario, an elderly man with poorly controlled diabetes, hypertension and other chronic conditions visits his doctor, and EHR functions that must be demonstrated include:

- Monitoring potential adverse drug reactions,
- Disease management,
- Treatment plans, and
- Generation of quality improvement reports.

The precise criteria used, and the test scripts followed, are all available at CCHIT's web site, www.cchit.org. Through this web site, you can also follow the ongoing progress of CCHIT as it enhances the criteria and inspection process for the future.

What Certification Requires

The functions and capabilities required for certification by CCHIT for ambulatory EHRs were developed by a broad panel of volunteer experts meeting in multi-disciplinary Work Groups, and approved by the Commissioners.

These criteria have been published on CCHIT's web site. Besides specifying the criteria required in 2006, the criteria documents include a Roadmap forecasting additional criteria to be required in 2007 and 2008. The Roadmap provides guidance to providers and the industry by offering a realistic time table for incremental improvements in EHR systems, and each year the Roadmap will be extended to maintain visibility two years into the future.

CCHIT has classified some criteria as provisional and some as assignable.

Provisional criteria were tested, but only for the purpose of validating those criteria and test steps for future years. Vendors are not scored on provisional criteria for 2006 certification.

Assignable criteria are those which the vendor does not directly control. For example, there is a security requirement that the EHR product create a backup copy of all data. However, some EHR vendors provide this service through a third party. To be characterized as assignable, a vendor must provide documentation that the product feature is provided through a third party.

Functionality

CCHIT certification for the functionality of an ambulatory EHR—its ability to carry out specific tasks—requires products to meet 263 criteria in the following 41 categories:

Identify and maintain the patient record	Present alerts for disease management, preventive services and wellness
Manage patient demographics	Notifications and reminders for disease management, preventive services and wellness
Manage problem list	Clinical task assignments and routing
Manage medication list	Inter-provider communication
Manage allergy and adverse reaction list	Pharmacy communication
Manage patient history	Provider demographics
Summarize health record	Scheduling
Manage clinical documents and notes	Report generation
Capture external clinical documents	Health record output
Generate and record patient-specific instructions	Encounter management
Order medications	Rules-driven financial and administrative coding assistance
Order diagnostic tests	Eligibility verification and determination of coverage
Manage order sets	Manage practitioner/patient relationships
Manage results	Clinical decision support system guidelines updates
Manage consents and authorizations	Entity authorization
Manage patient advance directives	Enforcement of confidentiality
Support for standard care plans, guidelines and protocols	Data retention, availability and destruction
Capture variances from standard care plans, guidelines and protocols	Audit trail
Support for drug interaction	Extraction of health record information
Support for medication or immunization administration or supply	Concurrent use
Support for non-medication ordering (referrals, care management)	

For specific criteria for each category, see Appendix 1.

Security and Reliability

An EHR must protect the privacy of patients' health information while providing secure and reliable access for care providers. To ensure data privacy and prevent data loss, CCHIT requires EHRs to meet 48 criteria in four security categories and three reliability categories:

SECURITY:

Access control
Audit
Authentication
Technical services

RELIABILITY:

Backup/recovery
Documentation
Technical services

For specific criteria for each category, see Appendix 2.

Interoperability

The 27 CCHIT criteria governing certification requirements for interoperability—the ability to exchange data with other systems—require EHRs to be able to receive and transmit information in six categories:

Laboratory and imaging
Medications
Immunizations
Clinical documentation
Secondary uses of clinical data
Administrative and financial data

It's important to note that Interoperability requires the availability of well-defined standards. Because efforts to harmonize standards are just beginning, the first CCHIT Interoperability criteria for Ambulatory EHRs are on the Roadmap to take effect in 2007, not 2006.

For specific criteria for each category, see Appendix 3.

In selecting an electronic health record (EHR) for your office or clinic, be certain to ask:

Is it certified by the Certification Commission for Healthcare Information Technology (CCHIT)?

Frequently Asked Questions

Q: Should we delay an EHR purchase until all future criteria for certification based on the CCHIT Roadmap are developed?

A: No. The CCHIT Roadmap is revised annually so there always will be new requirements on the horizon. It also takes time—two years or more—to start-up a new EHR system, collect data and implement a meaningful quality improvement mechanism that can lead to your receiving incentive payments that are built into pay-for-performance and other programs. Those who wait could miss several years of potential incentive payments. Also, in a competitive environment, it will be hard to catch up with medical practices that implemented EHR systems sooner.

Q: What effect will certification have on innovation and competition in the health information technology (HIT) market place?

A: HIT vendors will compete and innovate beyond the requirements of certification to differentiate their products and make them attractive to potential customers. Certification is not subjective or comparative. It provides a baseline, requiring products to meet basic standards of functionality, security and interoperability, so EHR purchasers have a sound starting point to make more reliable buying decisions.

Q: Will we pay more for a CCHIT Certified system because of the fees vendors are being charged to have products certified?

A: CCHIT set the price for certification at a reasonable level so all companies—large and small—could participate. Ultimately, we believe the marketplace will set the price for EHR products. In other areas of new technology, when purchase volume goes up with increased adoption, prices go down.

Q: Small physician practices don't need the same interoperability and security features that larger practices require. Doesn't it make sense for smaller practices to buy less expensive products that don't have to meet the rigorous certification criteria for those features?

A: An EHR is one of the most important purchases a practice will make, regardless of its size. It is a critical business decision that should not be based on cost alone. Physicians in practices of all sizes may want to share information electronically with other physicians, hospitals, pharmacies, laboratories, radiology groups and others. If its EHR does not have the appropriate interoperability and security features, a small practice and its patients will be at a serious disadvantage.

Q: What if we buy a CCHIT Certified EHR and it doesn't perform as the vendor or CCHIT says it should?

A: Physicians should always turn to their vendor first for resolution of these matters. If an EHR customer has evidence that a product being marketed as CCHIT Certified is not substantially equivalent to the version submitted for testing, CCHIT has a formal process for investigating. You also may request that remedies for false claims of product performance be included in your sales agreement with the vendor.

Q: How long will the CCHIT Certified designation apply to the system we buy?

A: A product is CCHIT Certified for three years from the testing date as having met the criteria for the year in which it was tested (e.g., "Ambulatory EHR 2006"). However, vendors may wish to re-certify their products annually to keep pace with new criteria.

Q: Is CCHIT a government agency?

A: No, CCHIT is an independent, private-sector initiative organized as a limited liability corporation. Certification is voluntary. In October 2005, CCHIT was awarded a contract by the U.S. Department of Health and Human Services (HHS). The transitional funding from HHS will support certification development, testing, and assessment, after which CCHIT will operate as a self-sustaining business.

Appendices

Appendix 1: Functionality Criteria	Page 13
Appendix 2: Security & Reliability Criteria	24
Appendix 3: Interoperability Criteria	27

Appendix 1: Functionality Criteria

To be certified by the Certification Commission for Healthcare Information Technology (CCHIT), Ambulatory Electronic Health Records (EHRs) must meet the following criteria governing the functions the EHR is able to perform:

Category: Identify and Maintain a Patient Record

Key identifying information is stored and linked to the patient record. Both static and dynamic data elements will be maintained. A look-up function uses this information to uniquely identify the patient.

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Create a single patient record for each patient.	2006
Associate (store and link) key identifier information (e.g., system ID, medical record number) with each patient record.	2006
Store more than one identifier for each patient record.	2006
Use key identifying information to identify (look up) the unique patient record.	2006
Provide more than one means of identifying (looking up) a patient.	2006
<i>Provisional</i> —Provide a field which will identify patients as being exempt from reporting functions.	2006
Provide the ability to merge patient information in a controlled method when appropriate.	2008

Category: Manage Patient Demographics

Contact information including addresses and phone numbers, as well as key demographic information such as date of birth, gender, and other information is stored and maintained for reporting purposes and for the provision of care.

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Capture and maintain demographic information as part of the patient record.	2006
Provide the ability to include demographic information in reports.	2006
Maintain historic information for prior names and addresses.	2007
Provide the ability to modify demographic information about the patient.	2006
Store demographic information in the patient medical record in separate data fields, such that data extraction tools can retrieve these data.	2007

Category: Manage Problem List

Create and maintain patient specific problem lists.

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Display all current problems associated with a patient.	2006
Maintain a history of all problems associated with a patient.	2006
Provide the ability to maintain the onset date of the problem.	2006
Provide the ability to record the chronicity (chronic, acute/self-limiting, etc.) of a problem.	2006
Record the user ID and date of all updates to the problem list.	2006
Provide the ability to associate orders, medications, and notes with one or more problems.	2007
Provide the ability to maintain a coded list of problems.	2006
Provide the ability to display inactive and/or resolved problems.	2006
Provide the ability to manually order/sort the problem list.	2007

Category: Manage Medication List

Create and maintain patient specific medication lists. Please see DC.1.3.1 for medication ordering as there is some overlap.

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Create and maintain medication lists.	2006
Record the prescribing of medications including the identity of the prescriber.	2006
Maintain medication ordering dates.	2006
Maintain other dates associated with medications including start, modify, renewal and end dates as applicable.	2006
Display medication history for the patient.	2006
Capture medications entered by authorized users other than the prescriber.	2006
Provide the ability to enter non-prescription medications, including over-the-counter and complementary medications such as vitamins, herbs and supplements.	2006
Provide the ability to exclude a medication from the current medication list (e.g., marked inactive, erroneous, completed, discontinued) and document reason for such action.	2006
Store medication information in discrete data fields such as dose, route, sig, dispense amount, refills, associated diagnoses, etc.	2008

→ CRITERIA FOR THIS CATEGORY CONTINUED.

Category: Manage Medication List (continued)

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Provide the ability to print a current medication list.	2006
Provide the ability to display current medications only.	2006
Include standard medication codes associated with items in the medication list.	2007
Provide the ability to enter uncoded or free text medications when medications are not on the standard medication list or information is insufficient to completely identify the medication.	2007
Alert the user at the time a new medication is prescribed that drug interaction and allergy checking will not be performed against the uncoded or free text medication.	2007
Provide the ability to enter or further specify in a discrete field that the patient takes no medications.	2007
Capture and display the identity of the user and date of changes made to the medication list for the patient.	2007

Category: Manage Allergy and Adverse Reaction List

Create and maintain patient specific allergy and adverse reaction lists.

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Capture and store lists of medications and other agents to which the patient has had an allergic or other adverse reaction.	2006
Provide the ability to specify the type of allergic or adverse reaction.	2007
Provide the ability to remove an item from the allergy and adverse reaction list.	2006
Provide the ability to specify the reason for removing an allergy/allergen from the allergy list.	2008
Record the removal of items from the allergy list, including the ID of the user who removed the item and attributes of the items removed.	2007
Provide the ability to review the allergies for a patient and record the date the review was performed and the ID of the user who performed it.	2007
Provide the ability to explicitly indicate that a patient has no known drug allergies.	2006
Provide the ability to display information which has been removed from the list or prior information that has been modified.	2008
Capture non-drug agents to which the patient has had an allergic or other adverse reaction.	2006

Category: Manage Patient History

Capture, review, and manage medical, procedural/surgical, social and family history including the capture of pertinent positive and negative histories, patient reported or externally available patient clinical history.

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Capture, store, display, and manage patient history.	2006
Provide the ability to capture structured data in the patient history.	2007
Provide the ability to update a patient history by modifying, adding, removing, or inactivating items from the patient history as appropriate.	2006
Provide the ability to capture patient history as both a presence and absence of conditions, i.e., the specification of the absence of a personal or family history of a specific diagnosis, procedure or health risk behavior.	2007
Capture history collected from outside sources.	2006
Capture patient history in a coded form.	2008

Category: Summarize Health Record

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Create and display a summary list for each patient that includes, at a minimum, the active problem list, current medication list, medication allergies and adverse reactions.	2006

Category: Manage Clinical Documents and Notes

Create, correct, authenticate, and close, as needed, transcribed or directly entered clinical documentation.

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Create clinical documentation or notes (henceforth documentation).	2006
Display documentation.	2006
Save a note in progress prior to finalizing the note.	2006
Provide the ability to finalize a note, i.e., change the status of the note from in progress to complete so that any subsequent changes are recorded as such.	2006
Record the identity of the user finalizing each note and the date and time of finalization.	2006
Provide the ability to cosign a note and record the date and time of signature.	2007
Provide the ability to addend and/or correct notes that have been finalized.	2006
Record and display the identity of the user who addended or corrected a note, as well as other attributes of the addenda or correction, such as the date and time of the change.	2006
Provide the ability to enter free text notes.	2006
<i>Provisional</i> —Provide the ability to filter, search or order notes by the provider who finalized the note.	2006
Provide the ability to filter, search or order notes by associated diagnosis within a patient record.	2007
Capture patient vital signs, including blood pressure, heart rate, respiratory rate, height, and weight, as discrete data.	2006
Capture other clinical data elements, such as peak expiratory flow rate, size of lesions, severity of pain, as discrete data.	2008
Associate standard codes with discrete data elements in a note.	2008
Provide templates for inputting data in a structured format as part of clinical documentation.	2006
Provide the ability to customize clinical templates.	2006
Provide templates for displaying medical summary data in a structured format.	2008
Display patient-disputed information such that a user could identify it as being disputed.	2008
Link disputed information to the original entry.	2006
Identify patient completed information.	2008
Provide the ability to graph height and weight over time.	2006

Category: Capture External Clinical Documents

Incorporate clinical documentation from external sources.

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Provide the ability to capture and store external documents.	2006
Receive, store in the patient's record, and display discrete lab results received through an electronic interface.	2006
Provide the ability to save scanned documents as images.	2006
Receive, store in the patient's record, and display text-based outside reports.	2006
Provide the ability to save radiologic images, slides or other visual data as images.	2008
Accept, store in the patient's record, and display clinical results received through an interface with an external source.	2008
Accept, store in the patient's record, and display medication details from an external source.	2008
Accept, store in the patient's record, and display structured text-based reports received from an external source.	2008
Accept, store in the patient's record, and display fully structured, codified data received from an external source.	2008

Category: Generate and Record Patient Specific Instructions

Generate and record patient specific instructions as clinically indicated.

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Provide access to patient instructions and patient educational materials, which may reside within the system or be provided through links to external sources.	2007
Provide access to medication instructions, which may reside within the system or be provided through links to external sources.	2006
Provide access to test and procedure instructions that can be customized by the physician or health organization. These documents may reside within the system or be provided through links to external sources.	2007
Provide the ability to record that patient specific instructions or educational material were provided to the patient .	2006
Provide the ability to create patient specific instructions.	2006

Category: Manage Order Sets

Provide order sets based on provider input or system prompt, medication suggestions, drug recall updates.

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Provide the ability to define a set of related orders to be subsequently ordered as a group on multiple occasions.	2007
Provide the ability to modify order sets.	2007
Provide the ability to include in an order set orders for medications, laboratory tests, imaging studies, procedures and referrals.	2007
Provide the ability to display orders placed through an order set either individually or as a group.	2007
Provide the ability for individual items in an order set to be selected or deselected.	2008

Category: Manage Results

Route, manage, and present current and historical test results to appropriate clinical personnel for review, with the ability to filter and compare results.

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Indicate normal and abnormal results based on data provided from the original data source.	2006
Display numerical results in flow sheets and graphical form in order to compare results.	2007
Display non-numeric current and historical test results as textual data.	2006
Notify the relevant providers (ordering, copy to) that new results have been received.	2007
Filter or sort results by patient, type of test, and date.	2007
Provide the ability to forward a result to other users.	2007
Provide the ability to transfer the responsibility to perform follow up actions from clinical to other clinical personnel.	2007
Link the results to the original order.	2007
Provide the ability to enter a free text annotation to a result.	2007
Provide the ability to associate one or more images with a result.	2008
Provide the ability for a user to whom a result is presented to acknowledge the result.	2006

Category: Manage Consents and Authorizations

Create, maintain, and verify patient treatment decisions in the form of consents and authorizations when required.

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Capture scanned paper consent documents (covered in DC 117).	2006
Generate both on-line and printable consent forms.	2007
Store and display administrative authorizations (e.g. privacy notices).	2007
Store and display authorizations associated with a specific clinical activity (e.g., treatment, surgery) along with that event in the patient's electronic chart.	2008
Provide the ability to chronologically display consents and authorizations.	2008

Category: Manage Patient Advance Directives

Capture, maintain, and provide access to patient advance directives.

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Provide the ability to indicate that a patient has completed advanced directive(s).	2006
Provide the ability to indicate the type of advanced directives, such as living will, durable power of attorney, or a Do Not Resuscitate order.	2007
Provide the ability to indicate when advanced directives were last reviewed.	2007

Category: Support for Standard Care Plans, Guidelines, Protocols

Support the use of appropriate standard care plans, guidelines, and/or protocols for the management of specific conditions.

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Provide access to standard care plan, protocol and guideline documents when requested at the time of the clinical encounter. These documents may reside within the system or be provided through links to external sources.	2006
Provide the ability to create site-specific care plan, protocol, and guideline documents.	2006
Provide the ability to modify site-specific standard care plan, protocol, and guideline documents obtained from outside sources.	2007

Category: Capture Variances From Standard Care Plans, Guidelines, Protocols

Identify variances from patient-specific and standard care plans, guidelines, and protocols.

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Provide the ability to record variances from care plans, guidelines, and protocols.	2008
Provide the ability to record the reason for variation from care plans, guidelines, and protocols.	2007

Category: Support for Drug Interaction

Identify drug interaction warnings at the point of medication ordering.

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Check for potential interactions between medications to be prescribed and current medications and alert the user at the time of medication ordering if potential interactions exist.	2006
Check for potential interactions between medications to be prescribed and medication allergies and intolerances listed in the record and alert the user at the time of medication ordering if potential interactions exist.	2006
Provide the ability to prescribe a medication despite alerts for interactions and/or allergies being present.	2006
Provide the ability to set the severity level at which drug interaction warnings should be displayed.	2006
Check for duplicate therapies by pharmaceutical class and alert the user at the time of medication ordering if such exist.	2007
Provide the ability to document reasons for overriding a drug interaction warning.	2007
Provide alerts indicating to the prescriber that certain lab test results may be impacted by a patient's medications.	2008
Provide the ability to check whether a medication being prescribed has been noted to be ineffective for the patient in the past, and alert the user at the time of medication ordering if noted ineffectiveness exists.	2008
Provide the ability to display, on demand, potential interactions on a patient's medication list, even if a medication is not being prescribed at the time.	2007
Provide drug-disease interaction alerts.	2008
Provide the ability to view the rationale for a drug interaction alert.	2008
Provide the ability to check for potential interactions between a current medication and a newly entered allergy.	2008
Generate alerts based on patient age.	2008

Category: Support for Medication or Immunization Administration or Supply

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 byproduct 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.

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Provide the ability to document medication administration.	2006
Provide the ability to document immunization administration.	2006
Document immunization, dose, time, route, site, lot number, expiration date, manufacturer, and user ID as structured documentation.	2007
Provide the ability to indicate a reaction to a specific immunization administration.	2008
Alert a user at the time of ordering that the patient had a prior adverse reaction to that immunization.	2008

Category: Support for Non-Medication Ordering (Referrals, Care Management)

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Create referral orders with detail adequate for correct routing.	2007
Record user ID and date/time stamp for all referral related events.	2007

Category: Inter-Provider Communication

Support secure electronic communication (inbound and outbound) between providers in the same practice to trigger or respond to pertinent actions in the care process (including referral), document non-electronic communication (such as phone calls, correspondence or other encounters) and generate paper message artifacts where appropriate.

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Provide the ability to document verbal/telephone communication into the patient record.	2006
Provide the ability to incorporate paper documents from external providers into the patient record.	2006
Support messaging between users.	2006

Category: Pharmacy Communication

Provide features to enable secure and reliable communication of information electronically between practitioners and pharmacies or between practitioner and intended recipient of pharmacy orders.

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Provide electronic communication between prescribers and pharmacies or other intended recipients of the medication order.	2006
Electronically communicate from the prescriber to the pharmacy an initial medication order as well as changes to or renewals of an existing order.	2007
Capture any acknowledgments, prior authorizations, renewals, inquiries and fill notifications provided by the pharmacy or other participants in the electronic prescription.	2008

Category: 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 and to support the practice of medicine.

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Maintain a directory of all clinical personnel who currently use or access the system.	2006
<i>Provisional</i> —Maintain a directory which contains identifiers required for licensed clinicians to support the practice of medicine including at a minimum state medical license, DEA, NPI, and UPIN number.	2006
Maintain a directory that stores user attributes required to determine the system security level to be granted to each user.	2006
Allow authorized users to update the directory.	2006
Maintain a directory of clinical personnel external to the organization who are not users of the system to facilitate communication and information exchange.	2007

Category: Scheduling

Support interactions with other systems, applications, and modules to 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.

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Display a schedule of patient appointments, populated either through data entry in the system itself or through an external application interoperating with the system.	2006

Category: Rules-Driven Financial and Administrative Coding Assistance

Provide financial and administrative coding assistance based on the structured data available in the encounter documentation.

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Provide a list of financial and administrative codes.	2006
Provide the ability to select an appropriate CPT Evaluation and management code based on data found in a clinical encounter.	2006
Provide assistance in selecting appropriate billing codes based on codified clinical information in the encounter.	2008
Prompt for data required to determine appropriate administrative (evaluation & management) codes if such data is not present in encounter data.	2008

Category: Eligibility Verification and Determination of Coverage

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Display medical eligibility obtained from patient's insurance carrier, populated either through data entry in the system itself or through an external application interoperating with the system.	2007
Store and display information received through electronic prescription eligibility checking.	2008

Category: 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.

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Identify by name all providers associated with a specific patient encounter.	2006
Provide the ability to specify the role of each provider associated with a patient, such as encounter provider, primary care provider, attending, resident, or consultant.	2008
Provide the ability to specify the primary or principal provider responsible for the care of a patient within a care setting.	2006
Create a list of all patients who have had an encounter with a given provider.	2008

Category: 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.

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Provide the ability to update the clinical content or rules utilized to generate clinical decision support reminders and alerts.	2006
Provide the ability to update clinical decision support guidelines and associated reference material.	2006

Category: Entity Authorization

Manage the sets of access control permissions granted to entities that use an EHR-S. Enable EHR-S security administrators to grant 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 within an EHR-S, including at the application or the OS level.

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Provide the ability to designate certain note types, medications, tests, etc as confidential and only make those values accessible by appropriately authorized users.	2008

Category: Enforcement of Confidentiality

Enforce the applicable jurisdiction's patient privacy rules as they apply to various parts of an EHR-S through the implementation of security mechanisms.

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Audit the date/time and user of each instance when a patient chart is printed.	2007
Provide the ability for the patient to review, and for patient-disputed information to be documented in, the chart.	2008
Identify all users who have accessed an individual's chart over a given time period.	2007
Provide the ability to identify certain information as confidential and only make that accessible by appropriately authorized users.	2008
Provide the ability to prevent specified user(s) from accessing a designated patient's chart.	2007

Category: Data Retention, Availability, and Destruction

Retain, ensure availability, and destroy health record information according to organizational standards. This includes: Retaining all EHR-S data and 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 prescribed period of time; and Providing the ability to destroy EHR data/records in a systematic way according to policy and after the legally prescribed retention period.

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Retain data until otherwise purged, deleted, archived or otherwise deliberately removed.	2006
Provide a method for archiving health record information.	2008
Provide the ability to support retention periods as determined by applicable local, state or federal requirements.	2008

Category: Audit Trail

Provide audit trail capabilities for resource access and usage indicating the author, the modification (where pertinent), and the date and time at which a record was created, modified, viewed, extracted, or removed Audit trails extend to information exchange and to audit of consent status management (to support DC151) and to entity authentication attempts Audit functionality includes the ability to generate audit reports and to interactively view change history for individual health records or for an EHR-system.

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Provide the ability to audit information exchange.	2008
Audit the receipt of documents.	2008

Category: 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 deidentified) before transmission Data extractions may be used to exchange data and provide reports for primary and ancillary purposes.

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
<i>Provisional</i> —Provide the ability to export (extract) pre-defined set(s) of data out of the system.	2006
Provide the ability to import data into the system.	2007
Provide the ability remove discrete patient identifiers.	2007
Provide the ability to track the intended destination of the extracted information.	2008

Category: Concurrent Use

EHR system supports multiple concurrent physicians through application, OS and database.

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Provide the ability for multiple users to interact concurrently with the EHR application.	2006
Provide the ability for concurrent users to simultaneously view the same record.	2006
Provide the ability for concurrent users to view the same clinical documentation or template.	2006
Provide record level protection to maintain the integrity of clinical data.	2006

Category: Security-Authentication

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Authenticate the user before any access to Protected Resources (e.g., PHI) is allowed including when not connected to a network e.g. mobile devices.	2006
Support password strength rules that allow for minimum number of characters, and inclusion of alpha-numeric complexity.	2006
Upon detection of inactivity shall prevent further viewing and access to the system by initiating a session lock that remains in effect until the user reestablishes access using appropriate identification and authentication procedures. The inactivity timeout shall be configurable.	2006
Enforces a limit of [Assignment: organization-defined number] consecutive invalid access attempts by a user during a [Assignment: organization-defined time period] time period. The information system shall protect against further malicious user authentication attempts using an appropriate mechanism (e.g., locks the account/node until released by an administrator, locks the account/node for an [Assignment: organization-defined time period], or delays next login prompt according to [Assignment: organization-defined delay algorithm]).	2006
Provide an administrative function that resets passwords.	2006
Shall require the user to change the password at next successful logon.	2007
Provide only limited feedback information to the user during the authentication.	2006
Support case insensitive usernames that contain typeable alpha and numeric characters in support of ISO-646/ECMA-6 (aka Us ASCII).	2006
Allow an authenticated user to change their password consistent with password strength rule (#13) that allow for minimum number of characters, and inclusion of alpha-numeric complexity.	2006
Support case sensitive passwords that contain typeable alpha and numeric characters in support of ISO-646/ECMA-6 (aka Us ASCII).	2006
<i>Provisional</i> —When passwords are used, the system shall not store passwords in plain text.	2006
When passwords are used, the system shall prevent the reuse of passwords within a specific timeframe.	2007
Include documentation that covers: method used to create, modify, and remove user accounts.	2006

Category: Security-Technical Services

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
<i>Provisional</i> —Support protection of confidentiality of all Protected Health Information (PHI) delivered over the Internet or other known open networks via encryption using triple-DEs (3DEs) or the Advanced Encryption standard (AEs) and an open protocol such as TLS, SSL, IPsec, XML encryptions, or s/mlmE or their successors.	2006
<i>Provisional</i> —Support protection of integrity of all Protected Health Information (PHI) delivered over the Internet or other known open networks via SHA1 hashing and an open protocol such as TLS, SSL, IPsec, XML digital signature, or s/mlmE or their successors.	2006
Not display passwords while being entered.	2006
<i>Provisional</i> —Provide an SSL configuration mechanism (e.g., This might be a manual that describes the proper configuration steps).	2006
<i>Provisional</i> —Support protection of integrity of all Protected Health Information (PHI) delivered over the Internet or other known open networks via SHA1 hashing and an open protocol such as TLS, SSL, IPsec, XML digital signature, or s/mlmE or their successors.	2006
<i>Provisional</i> —Support ensuring the authenticity of remote nodes (mutual node authentication) when communicating Protected Health Information (PHI) over the Internet or other known open networks using open protocol (eg TLS, SSL, IPsec, XML sig, s/mlmE).	2006

Category: Reliability-Backup/Recovery

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Generate a backup copy of the application data, security credentials, and log/audit files.	2006
Restore functionality shall result in a fully operational and secure state. This state shall include the restoration of the application data, security credentials, and log/audit files to their previous state.	2006
Claims to be available 24x7 then the system shall have ability to run a backup concurrently with the operation of the application.	2006

Category: Reliability–Documentation

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Provide documentation on known issues regarding the use of off-the-shelf malware detection and eradication software.	2006
Include documentation that covers: Expected physical environment necessary for proper secure & reliable operation of the system including: electrical, HVAC, sterilization, and work area.	2006
Include documentation that covers: The services (e.g., php, web service) and network protocols/ports (eg hl7, http, ftp) that are necessary for proper operation and servicing of the system, including justification of the need for that service and protocol. This information may be used by the healthcare facility to properly configure their network defenses (firewalls and routers).	2006
Include documentation of known conflicts with security services (e.g., antivirus, intrusion detection, malware eradication, host based firewall, etc) and the resolution of that conflict.	2006
Include documentation that covers: The steps needed to confirm that the installation was properly completed and that the system is operational.	2006
Include documentation that covers: The patch (hot-fix) handling process the vendor will use for EHR, operating system and underlying tools (e.g., specific web site where patch notices are, approved patch list, special instructions for installation, and post installation test).	2006
Include documentation that explains system error or performance messages to users and administrators, with actions required.	2006
Have documentation of product capacities (e.g., number of users, number of transactions per second, number of records, network load, etc) given a baseline representative configurations (e.g. number or type of processors, server/workstation configuration and network capacity, etc).	2006

Category: Reliability–Technical Services

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
<i>Provisional</i> —Including installation media, shall be free of currently, well-known malware.	2006
Include documentation of the minimal privileges necessary for each service and protocol necessary to provide EHR functionality and/or serviceability.	2006
Be configurable to prevent corruption or loss of data already accepted into the system in the event of a system failure (e.g., integrating with a UPS, etc).	2006
Include documentation that covers: Guidelines for proper configuration of the EHR security controls (eg users, roles management, password management, audit logs) necessary for proper secure and reliable operation of the system.	2007

Appendix 3: Interoperability Criteria

Category: Laboratory and Imaging

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Receive lab results (no specified format)-self attestation.	2006
Receive general laboratory results using common vocabulary with inbound interface optionality removed.	2007
Send orders to lab systems.	2007
(1) Create and share sets of digital medical images managed by PACs;	
(2) Create and share imaging reports like EKGs;	
(3) Web access to digital medical images and reports from EHRs.	2007
Order and schedule radiology tests.	2008

Category: Medications

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Transmission of prescriptions.	2007
Use standardized Communication of sig instructions in e-prescribing.	2008
Query and receive medication information.	2007
(1) Query and receive eligibility information;	
(2) Distribute Formulary and Benefits Information.	2007
Receive medication fulfillment history.	2007

Category: Immunizations

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Report patient immunizations.	2007
Retrieve immunization history from registry.	2007

Category: Clinical Documentation

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Register documents with registry: Basic RHIO functionality.	2007
Query registry for documents: Basic RHIO functionality.	2007
Send documents to repository: RHIO functionality (with repository).	2008
Refer or transfer clinical care of patient.	2007
Communicate data to PHRs.	2008
Receive data from PHRs.	2008

Category: Secondary Uses of Clinical Data

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Public Health Disease Reporting.	2007
Quality Improvement Reporting.	2007
Practice management system communication, Revenue cycle related transactions, Query and receive electronic eligibility information.	2007

Category: Administrative and Financial Data

SPECIFIC CRITERIA	COMPLIANCE DEADLINE
The system shall:	
Enable patient & user identity correlation. Coordinate patient information.	2007
Patient administration.	2008
Scheduling.	2008
Receive electronic authorization for referral (from payor).	2008
Clinical Trials.	2008



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