

HIMSS Electronic Health Record Definitional Model

Version 1.0

**Approved by the HIMSS Board of Directors June 30, 2003 and
the HIMSS EHR Committee on June 9, 2003.**

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Electronic Health Record HIMSS Definitional Model

Purpose:

To develop a model of a fully functional Electronic Health Record (EHR) that includes:

- An EHR definition
- Key attributes and essential requirements
- Evidence for each attribute that will demonstrate the essential requirements have been met. Mandatory evidence is bolded.

The definitional model will be the basis of assessing the extent to which an organization is using an EHR.

Definition:

The Electronic Health Record (EHR) is a secure, real-time, point-of-care, patient-centric information resource for clinicians. The EHR aids clinicians' decision-making by providing access to patient health record information when they need it and incorporating evidence-based decision support. The EHR automates and streamlines the clinician's workflow, ensuring all clinical information is communicated and ameliorates delays in response that result in delays or gaps in care. The EHR also supports the collection of data for uses other than clinical care, such as billing, quality management, outcomes reporting, and public health disease surveillance and reporting.

Guidance Recommendation:

To date, the United States does not have a working model for a patient health record, nor does it have a standard process for patient access to their health information. The HIMSS EHR Definitional Model is based upon current, existing realities within the United States.

HIMSS applauds and encourages the Institute of Medicine and Health Level 7 to develop a standard for the Electronic Health Record that encompasses the patient health record and patient access to health records maintained by their care providers.

Attributes, Essential Requirements, and Evidence^{1,2,3,4}

1. Provides secure, reliable, real-time access to patient health record information, where and when it is needed to support care.

Essential Requirements:

- Provides tools to guarantee the confidentiality and security of patient health information.
- Available and reliable at all times that care is provided.
- Responsive enough to integrate with clinicians' workflow.
- Accessible where needed, including inpatient and ambulatory care sites, as well as enabling remote access to information.

Evidence that an implemented EHR possesses these attributes:

- **Meets HIPAA requirements.**
- 99.999 percent availability
- **Response time appropriate to task completion and user acceptance.**
- Clinicians can access the EHR where and when needed for patient care.

2. Captures and manages episodic and longitudinal electronic health record information.

Essential Requirements:

- Checks information captured or imported for reasonableness and provides time stamps, information source, and an audit trail for amendments.
- Complies with approved industry standards for message and vocabulary / content.
- Accepts information from external systems and automated data capture devices such as patient monitors, laboratory analysis equipment, and bar code scanners.
- Ideally accepts and integrates health record information from outside the immediate organization, including medication dispensing information from community pharmacies.
- Provides tools for unique patient identification and information integration across systems and settings without requiring the use of a common patient identifier.
- Permits efficient data entry of all orders and documentation by authorized clinicians. This includes prescription writing and refill management. Ideally supports various means of clinician entry (e.g., keyboard, voice, pointer device, or handwriting recognition). Ideally, documentation includes clinical reasoning and rationale.
- Supports electronic signature where permitted by law.
- Accepts self-reported patient health information.
- Ideally differentiates between patient historical data (applicable across visits and across the continuum of care, e.g. allergies) vs. episodic data (applicable within a single visit, e.g. breath sounds from last respiratory assessment) and supports copying data forward as appropriate to support

continuity of care, accuracy of ordering, and efficiency of clinical documentation.

Evidence that implemented EHR possesses these attributes:

- Supports government-endorsed message and content standards (DICOM, HL7, LOINC, RxNorm).
- **Accepts and integrates information from a range of external systems covering more than one setting of care.**
- **More than 75 percent of physician orders and documentation is done by physicians directly using the system.**
- **More than 75 percent of care team member documentation (patient observations, orders, care delivery and patient outcomes) is done directly using the system.**
- Patients report satisfaction with communication of their pertinent health data between members of the healthcare team across settings.
- Clinicians report satisfaction with the continuity of care supported.
- Clinicians report time savings, increased accuracy and compliance with the entry of orders and clinical documentation.

3. **Functions as clinicians' primary information resource during the provision of patient care.**

Essential Requirements:

- Includes patient problem list, patient history and physical exam, allergies, immunizations, medications dispensed and administered, diagnostic results and images (at least in ED and ICU, OR), most recent vital signs and Input/Output.
- Facilitates access to the patient information needed with integrated views, specialty-specific forms, and identification of information that is outside of normal limits.
- Provides access tools and displays that can be tailored to role or specialty and customized to end-user preferences. Ideally provides problem, disease, and situation-specific (i.e. ED, NICU) integrated patient views.
- Provides access to knowledge sources at any point within the clinical workflow.
- For subsequent episodes or encounters, provides access to relevant information from prior care.
- Organizes and prioritizes patient-related communications, such as messages and diagnostic results, and supports management of communications until resolution.
- Ideally EHR information also includes progress/nursing/visit note/consult documentation and patient functional status in coded form.
- Ideally the system can access electronic health information from outside of the organization.

Evidence that implemented EHR possesses these attributes:

- **Organization policy is that the EHR is the source of patient information to use in delivery of care.**
- Ideally the information is complete enough that it is also the official medical record as permitted under law.
- **Integrated views of patient information are routinely used for more than 75 percent of patients as physicians and other clinicians provide care.**
- Paper medical records no longer are routinely pulled for every patient interaction.

4. Assists with the work of planning and delivering evidence-based care to individual and groups of patients.

Essential Requirements:

- Supports assessment and ordering appropriate to the clinical situation.
- Supports interdisciplinary care planning, delivery, and monitoring of time-based plans and patient outcomes (care plans, disease management).
- Provides tools to support the work of the caregiver for individual patients, such as patient lists, task lists, and task completion.
- Provides tools for planning and organizing the clinicians' work over a variety of time segments, such as today, this shift, this clinic session, during offices hours, etc.
- Provides tools to facilitate teamwork and coordination process: coverage, handoffs, escalation, and delegation.
- Provides tools for monitoring policy compliance, quick notification of changes in patient status, and potential adverse events.
- Provides tools to facilitate and manage order communication to diagnostic and therapeutic areas, and monitor the completion process.
- For hospital-based care, gathers data and performs checking to support regulatory and accreditation requirements (e.g., JCAHO safe care standards, Leapfrog standards for medication error prevention, Medicare scope of work).
- For ambulatory care, gathers data and performs checking to support regulatory and accreditation requirements (HEDIS, Medicare scope of work).
- Includes decision-support tools to guide and critique medication administration—right patient, right drug, right dose, right time, right route.
- Includes basic decision-support tools, such as order sets and rules-based documentation templates, as well as complex tools, such as care paths and rules-based prompting, to reduce practice variance in the ordering and care-delivery process.
- Ideally provides recommendations and alerts tailored to the individual patient condition, situation, and preferences, and supports clinicians in directing the course of care, e.g., suggests potential and time-relevant problems to care providers to consider for a specific patient based on

automated scanning of pertinent patient data documented by all members of the care team.

Evidence that implemented EHR possesses these attributes

- Evidence of reductions in medication error rates.
- Consistent significant (greater than 40 percent) reduction in nurse documentation time, as compared with previous manual processes.
- **More than 90 percent compliance with electronic documentation requirements.**
- More than 75 percent of care team members cite the EHR as one of the top reasons for job satisfaction. Supporting reasons include enhanced interdisciplinary communication, enhanced coordination of care, reduction of duplicate work, enhanced communication of patient information, and enhanced patient safety.
- **Clinical decision support has been applied to physician/clinician order entry process to address potential problems with high-risk medications identified in the organization's safety program.**
- **The organization has evidence that incorporated decision-support reminders and alerts are closing identified gaps in patient safety, quality, and cost.**

5. **Supports continuous quality improvement, utilization review, risk management, and performance monitoring.**

Essential Requirements:

- Provides flexible reporting tools for evaluating processes and outcomes of care that do not rely upon programming language.
- Supports reporting regarding compliance with care and process standards.
- Integrates EHR information with financial information and other external data, such as patient satisfaction and industry comparative data for purposes of analyzing process and practice performance.
- Includes data modeling tools for evaluation of potential changes.
- Ideally supports real-time surveillance and alerting of potential adverse events.
- Ideally provides concurrent care, management-level and on-line displays that enable easy access to summary views of pertinent information for groups (cohorts) of patients (e.g., all patients on a specific care unit, all patients assigned to a particular case manager, all patients associated with a specific physician or group practice, all patients with specific symptoms and demographics, etc.) to support managers' detection and resolution of potential quality, staffing, and risk management issues.

Evidence that implemented EHR possesses these attributes:

- **Data captured in the EHR is the source used by the organization's quality and safety program to assess, measure, and manage quality.**

- On last audit visit (e.g., JCAHO, CMS, HEDIS, etc.), auditor relied on EHR documentation to conduct review rather than the pull paper medical records.
- The organization has multiple examples of where the EHR helped in meeting regulatory, safe practice, and quality initiatives.
- Supervisory personnel, case managers and physicians report decreased incidences of undetected signs and symptoms of impending deterioration of patients' conditions and increased incidences of timely intervention.

6. Captures the patient health-related information needed for reimbursement.

Essential Requirements:

- Captures the episode and encounter information to pass to billing, (e.g. triggers transmissions of charge transactions as a byproduct of online interaction, including order entry, order statusing, result entry, documentation entry and 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.

Evidence that implemented EHR possesses these attributes

- Clinically automated revenue cycle – examples of reduced error rates on claims.
- Clinical information needed for billing is available on the date of service.
- **Physicians and clinical teams perform no extra tasks exclusively for reimbursement.**

7. Provides longitudinal, appropriately masked information to support clinical research, public health reporting, and population health initiatives.

Essential Requirements:

- Identifies populations of patients who can benefit from health management initiatives.
- Identifies and tracks patients who are enrolled in health management programs.
- Provides integrated disease management support for education, outreach and care to enrolled patients.
- Supports mandatory reporting, state health, product liability reporting and social welfare reporting.

Evidence that implemented EHR supports these attributes

- Organization has a specific program when the EHR is used to identify and track patients in health management and/or disease management programs.

- **Clinicians do not perform additional data entry to support health management programs and reporting.**
- Organization has a history and examples of using the EHR for clinical research and responding to public health requirements.

8. Supports clinical trials.

Essential requirements:

- Supports the identification of patients for recruitment.
- Ideally supports the protocols and additional documentation and reporting needed for clinical trials.

Evidence that implemented EHR supports these attributes:

- Organization shows increased participation in clinical trials.
- Organization shows development of its own evidence.

¹ CPRI-HOST Electronic Health Record Core Attributes

² A Restatement of Gartner's CPR Definition Update: 12 December 2000, Thomas Handler, MD Note #: TU-12-9718

³ ISO 2.1, Electronic Health Record Characteristics

⁴ Using Innovative Technology to Enhance Patient Care Delivery, American Academy of Nursing Technology and Workforce Conference, July 12 –14, 2002