HL7 EHR Work Group

Electronic Health Record-System Functional Model, Release 2.0 May 2012

Chapter One: Overview

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Preface

i. Notes to Readers

The HL7 EHR-S Functional Model, which was approved in July, 2004 as a Draft Standard for Trial Use (DSTU), has undergone a series of enhancements in the last year as it made its way to a fully approved American National Standards Institute (ANSI) standard in February of 2007. A broad constituency - including intensive outreach to industry, care providers, and healthcare organizations - has worked to refine the initial and subsequent versions of EHR-S Functional Model. Release 2.0 reflects many changes—including ballot comments that had been made on past ballots and where the Work Group had committed to bringing the requested changes forward to the next release. It also includes comments that were considered for future used form the ISO ballot of 2009 as well as the considerations of the Comment Only ballot that was circulated in May, 2011.

Other inclusions were made as a result of the multiple profiles that have been written based off of the functional model. There was great learning in those various domain as well as companion profiles. And last but not least, the EHR-S FM has incorporated two other Draft Standards for Trial Use including the EHR Lifecycle Model and the EHR Interoperability Model.

ii. Acknowledgements

The committee is indebted to the following past co-chairs and facilitators for their contributions towards all parts of this model and the material presented here. We are thankful to every person who was able to contribute, whether for a short period of time, or week-in/week-out work. For the early mornings and the late evenings and weekends. We cannot thank you enough. Direct and indirect participants in the development of the model, including workgroup contributors and other participants, can be found in the "Contributor Listing" found at www.HL7.org/EHR in the "documents" section.

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Table 1: Acknowledgements

iii. Changes from Previous Release

The HL7 EHR-S Functional Model was promoted to an ISO International Standard after passing HL7 consensus ballot as a normative standard and achieving ANSI approval. This promotion follows the process outlined in the ISO/HL7 Pilot Agreement. The June, 2009 R.1.1 of this document includes updates from the joint ISO/HL7 ballot. The dates of the comment for the 60 day Draft International Standard (DIS) ballot were February through April, 2009. The HL7 comment period was a 30 day window that coordinated with the last 30 days of the ISO-DIS ballot period. Reconciliation was accomplished in May and early June of 2009.

Chapter 1 Introduction and Overview

The HL7 Electronic Health Records Special Interest Group (EHR SIG) was established in the spring of 2002. In the spring of 2003 the HL7 group began efforts to develop a standardized functional specification for Electronic Health Records Systems (EHR-S). In May 2004 the SIG was promoted to a full HL7 Technical Committee, becoming the EHR TC. The EHR TC is intended primarily to serve as a body which promotes the uptake of Electronic Health Record (EHR) implementation by standardizing the functions that may be present, based on user selection, in an EHR-S.

The Department of Health and Human Services, the Veterans Health Administration, the Health Information Management Systems Society and the Robert Wood Johnson Foundation, in a public-private partnership, approached HL7 to accelerate their existing work to develop a consensus standard to define the functions of an EHR-S. HL7, through its EHR SIG, responded by developing an EHR-S Functional Model that passed ballot as a Draft Standard for Trial Use (DSTU) in April 2004. The Functional Model DSTU was published and formally registered with the American National Standards Institute (ANSI) in July 2004. The Functional Model was then balloted and passed as a normative standard as part of the January 2007 HL7 Workgroup Meeting and is now registered as a normative standard with ANSI

Learning important lessons from the ballot process, a Functional Model with a clearer, more simplified list of functions, has been created. The HL7 EHR System Functional Model provides a reference list of functions that may be present in an Electronic Health Record System (EHR-S). The function list is described from a user perspective with the intent to enable consistent expression of system functionality. This EHR-S Model, through the creation of Functional Profiles, enables a standardized description and common understanding of functions sought or available in a given setting (e.g. intensive care, cardiology, office practice in one country or primary care in another country).

1.1 Background

1.1.1 What is HL7?

Established in 1987, Health Level Seven (HL7) is an American National Standards Institute (ANSI) accredited, not-for-profit standards-development organization, whose mission is to provide standards for the exchange, integration, sharing, and retrieval of electronic health information; support clinical practice; and support the management, delivery and evaluation of health services. ANSI accreditation, coupled with HL7's own procedures, dictates that any standard published by HL7 and submitted to ANSI for approval, be developed and ratified by a process that adheres to ANSI's procedures for open consensus and meets a balance of interest requirement by attaining near equal participation in the voting process by the various constituencies that are materially affected by the standard (e.g., vendors, providers, government agencies, consultants, non-profit organizations). This balance of interest goal ensures that a particular constituency is neither refused participation nor is it allowed to dominate the development and ratification of a proposed standard. More information and background on ANSI is available on their website at: http://www.ANSI.org

1.1.2 What are Electronic Health Record Systems?

The effective use of information technology is a key focal point for improving healthcare in terms of patient safety, quality outcomes, and economic efficiency. A series of reports from the U.S. Institute of Medicine (IOM) identifies a crisis of "system" failure and calls for "system" transformation enabled by the use of information technology. Such a change is possible by "an infrastructure that permits fully interconnected, universal, secure network of systems that can deliver information for patient care anytime, anywhere."(HHS Goals in Pursuing HL7 EHR Functional Standard" in Memorandum to HIMSS from C. Clancy and W. Raub co-chairs of HHS

Council on the Application of Health Information Technology, dated November 12, 2003.) A critical foundational component for resolving these system and infrastructure issues is the Electronic Health Record System (EHR-S).

In developing this EHR-S Functional Model, HL7 relied on three well-accepted definitions: two provided by the U.S. Institute of Medicine and one developed by the European Committee for Standardization/ Comité Européen de Normalisation (CEN). This Functional Model leverages these existing EHR-S definitions and does not attempt to create a redundant definition of an EHR-S.

1.1.3 Existing EHR System Definitions

The IOM's 1991 report, The Computer-Based Patient Record: An Essential Technology, and updated in 1997 (Dick, R.S, Steen, E.B., & Detmer, D.E. (Editors), National Academy Press: Washington, DC) defined an EHR System as:

- The set of components that form the mechanism by which patient records are created, used, stored, and retrieved.
- A patient record system is usually located within a health care provider setting. It includes people, data, rules and procedures, processing and storage devices (e.g., paper and pen, hardware and software), and communication and support facilities.
- The 2003 IOM Letter Report, Key Capabilities of an Electronic Health Record System, defined the EHR System as including:
- longitudinal collection of electronic health information for and about persons, where health information is defined as information pertaining to the health of an individual or health care provided to an individual
- immediate electronic access to person- and population-level information by authorized, and only authorized, users
- provision of knowledge and decision-support that enhance the quality, safety, and efficiency of patient care; and
- support of efficient processes for health care delivery
- The 2003 ISO/TS 18308 references the IOM 1991 definition above as well as CEN 13606, 2000:
- A system for recording, retrieving and manipulating information in electronic health records.

1.1.4 How were the Functions Identified and Developed?

To achieve healthcare community consensus at the outset, the functions are described at a conceptual level, providing a robust foundation for a more detailed work. Functions were included if considered essential in at least one care setting. Written in user-oriented language, the document is intended for a broad readership.

Functional Granularity is a term used to describe the level of abstraction at which a function is represented. Functions that are commonly grouped together in practice or by major systems have been consolidated where appropriate; functions requiring extra or separate language or involving different workflows have been kept separate where appropriate. For example, decision support is maintained as a separate section, but mapped to other key sections, to indicate the "smart" function behind an action. All of the functions could be expanded into more granular elements but a balance between a usable document and an unwieldy list of functions has been agreed upon. The goal of determining an appropriate level of functional granularity at this time is to present functions that can be easily selected and used by readers of this standard, but that are not so abstract that readers would need to create a large number of additional functions within each function.

Although the determination of functional granularity is a relatively subjective task, systematic evaluation of each function by diverse groups of industry professionals has resulted in a level of granularity appropriate for this EHR-S Functional Model. Every attempt has been made to

provide supporting information in the functional descriptions to illustrate the more granular aspects of functions that may have been consolidated for usability purposes.

Keeping with the intent of this EHR-S Functional Model to be independent with regard to technology or implementation strategy, no specific technology has been included in the functions, but may be used in the examples to illustrate the functions. Inclusion of specific technologies in the examples does not endorse or support the use of those technologies as implementation strategies.

Drafts of the EHR-S Functional Model and of specific functions have been widely reviewed by healthcare providers, vendors, and other stakeholders. This proposed standard reflects input from all these reviewers.

1.1.5 What is the EHR-S Functional Model Package?

The EHR-S Functional Model Package includes the following materials:

Document Title	File Name
EHR-S Functional Model Chapter 1: Overview	EHRS_FM_R2_C1_Overview_2012MAY
EHR-S Functional Model Chapter 2: Conformance	EHRS_FM_R2_C2_ConformanceClause_2012MAY
EHR-S Functional Model Chapter 3: Functions List	EHRS_FM_R2_C3_FunctionList_2012MAY
EHR-S Functional Model Chapter 4: Glossary	EHRS_FM_R2_C4_Glossary_2012MAY

Table 2: Functional Model Package

Note that the related document “How-To Guide for Creating Functional Profiles” is published separately.

This EHR-S Functional Model package includes both Reference and Normative sections.

Status	Description
Reference	Content of the EHR-S Functional Model Package that contains information which clarifies concepts or otherwise provides additional information to aid understanding and comprehension. Reference material is not balloted as part of the standard.
Normative	Content that is part of the EHR-S Functional Model which HL7 committee members and interested industry participants have formally reviewed and balloted following the HL7 procedures for Balloting Normative Documents. This HL7 developed Functional Model document has been successfully balloted as a normative standard by the HL7 organization.

Table 3: Normative Status Types

Each section within a chapter of the Functional Model document is clearly labeled "Normative" if it is normative. For example, in Chapter 1 (Overview) is Normative. In Chapter 2 (Conformance Clause); sections 1 through 6 are normative.

In Chapter 3 (Function List); the Function ID, Function Name, Function Statement, and Conformance Criteria components are Normative in this Functional Model.

1.2 Purpose and Scope (Normative)

The HL7 EHR System Functional Model provides a reference list of functions that may be present in an Electronic Health Record System (EHR-S). The function list is described from a user perspective with the intent to enable consistent expression of system functionality. This EHR-S Functional Model, through the creation of Functional Profiles for care settings and realms, enables a standardized description and common understanding of functions sought or available

in a given setting (e.g., intensive care, cardiology, office practice in one country or primary care in another country).

1.2.1 EHR-S Functional Model Scope

The HL7 EHR-S Functional Model defines a standardized model of the functions that may be present in EHR Systems. From the outset, a clear distinction between the EHR as a singular entity and systems that operate on the EHR – i.e., EHR Systems is critical. Section 1.1.3 describes the basis and foundation for the HL7 definition of an EHR System. Notably, the EHR-S Functional Model does not address whether the EHR-S is a system-of-systems or a single system providing the functions required by the users. This standard makes no distinction regarding implementation - the EHR-S described in a functional profile may be a single system or a system of systems. Within the normative sections of the functional model, the term “system” is used generically to cover the continuum of implementation options. This includes “core” healthcare functionality, typically provided by healthcare-specific applications that manage electronic healthcare information. It also includes associated generic application-level capabilities that are typically provided by middleware or other infrastructure components. The latter includes interoperability and integration capabilities such as location discovery and such areas as cross application workflow. Interoperability is considered both from semantic (clear, consistent and persistent communication of meaning) and technical (format, syntax and physical connectivity) viewpoints. Further, the functions make no statement about which technology is used, or about the content of the electronic health record. The specifics of 'how' EHR systems are developed or implemented is not considered to be within the scope of this model now or in the future. This EHR-S Functional Model does not address or endorse implementations or technology, nor does it include the data content of the electronic health record.

Finally, the EHR-S Functional Model supports research needs by ensuring that the data available to researchers follow the required protocols for privacy, confidentiality, and security. The diversity of research needs precludes the specific listing of functions that are potentially useful for research.

This Functional Model is not:

- a messaging specification
- an implementation specification
- a conformance specification
- an EHR specification
- a conformance or conformance testing metric
- an exercise in creating a definition for an EHR or EHR-S

Additionally, the EHR-S Functional Model is not sufficient to provide a longitudinal health record; however, it will contribute to its development. The information exchange enabled by the EHR-S supports the population of clinical documents, event summaries, minimum data sets, claims attachments, and in the future will enable a longitudinal health record.

1.3 Overview and Definition of the Functional Model (Normative)

The EHR-S Functional Model is composed of a list of functions, known as the Function List, which is divided into seven sections: Overarching, Care Provision, Care Provision Support, Population Health Support, administrative Support, Record Infrastructure and Trust Infrastructure.

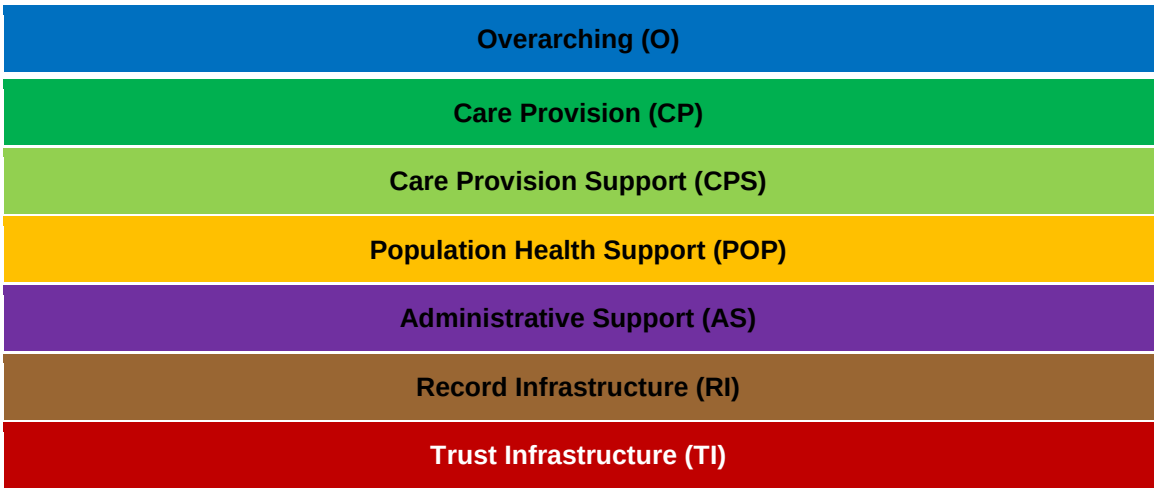


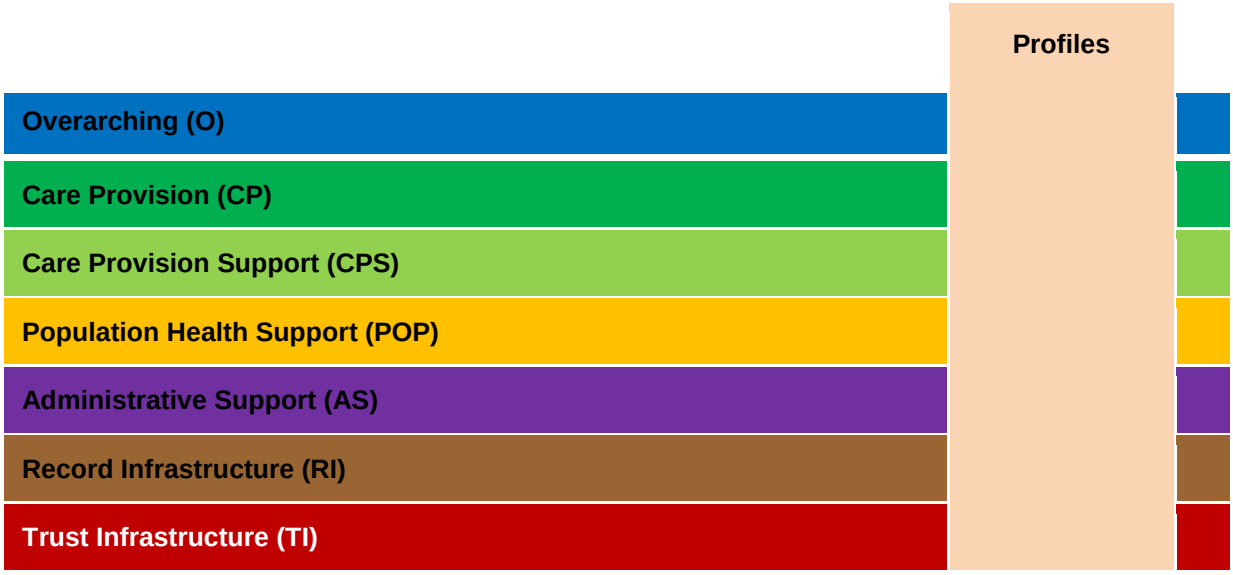
Figure 1: Function List Sections

Within the seven Sections of the Functional List the functions are grouped under header functions which each have one or more sub-functions in a hierarchical structure.

1.3.1 Functional Profiles

While the Functional Model should contain all reasonably anticipated EHR-S functions, it is not itself intended as a list of all functions to be found in a specific EHR-S. Functional Profiles should be used to constrain the functions to an intended use. This document defines the Functional Model and describes the general use of profiles and priorities (See 1.4 Anticipated Uses).

In the aggregate, the functional model is intended to include the superset of functions from which a subset can be generated by the user to illustrate what they need within their EHR-S. Only a subset of this inclusive set of functions will apply to any particular EHR-S.



The Conformance Clause is a high level description of what is required of profiles and implementations. It, in turn, refers to other parts of the standard for details. The Conformance Clause describes concepts critical to the understanding and implementation of the Functional Model, such as: what is a profile, what are conformance criteria, and how do you know what is mandatory versus optional. A conformance clause can also provide a communication between the implementers (vendors) and users (buyers) as to what is required, and gives meaning to the phrases, "conforming profile" and "conforming EHR system". Additionally, it serves as the basis for testing and certification activities which may be performed by organizations external to HL7.

Refer to the Conformance Clause Chapter 2 for additional information.

1.3.2 EHR-S Function List Components

The EHR-S Function List is a list (superset) of functions organized into discrete sections and sub-sections. Functions describe the behavior of a system in user-oriented language so as to be recognizable to the key stakeholders of an EHR-S.

EHR-S functions can be used to:

- Facilitate describing end user defined benefits such as patient safety, quality outcomes and cost efficiencies in terms of standard EHR-S functions.
- Promote a common understanding of EHR functions upon which developers, vendors, users and other interested parties can plan and evaluate EHR-S functions.
- Provide the necessary framework to drive the requirements and applications of next level standards, such as EHR content, coding, information models, constructs and interoperability for information portability between sub-systems of an EHR-S and across EHR-S'.
- Establish a standards-based method by which each realm (country) can apply these EHR functions to care settings, uses, and priorities.
- Inform those concerned with secondary use of EHR data and national infrastructure what functions can be expected in an EHR System.

Each function in the HL7 EHR-S Functional Model is identified and described using a set of elements or components as detailed below.

ID	Type	Name	Statement	Description	Conformance Criteria
CP.1.4	F	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, injury/poisoning (both intentional and unintentional), adverse effects of medical care (e.g., drugs, surgical), functional limitations, visit or stay-specific conditions, diagnoses, or symptoms…	
CP.1.4	C				1. The system SHALL provide the ability to manage, as discrete data, all active problems associated with a patient.
CP.1.4	C				2. The system SHALL capture

					and render a history of all problems associated with a patient.
CP.1.4	C				3. The system SHALL provide the ability to manage relevant dates including the onset date and resolution date of problem.

Table 4: Function List Example

1.2.3.1 Function ID (Normative)

This is the unique identifier of a function in the Function List (e.g. CP.1.1) and should be used to uniquely identify the function when referencing functions. The Function ID also serves to identify the section within which the function exists (CP = Care Provision Section) and the hierarchy or relationship between functions (CP.1.1 is a sibling to CP.1.2, parent of CP.1.1.1 and child of CP.1). In many cases the parent is fully expressed by the children.

1.2.3.2 Function Type (Reference)

Indication of the line item as being a header (H), parent (P) or leaf (L) function or conformance criteria.

1.2.3.3 Function Name (Normative)

This is the name of the Function and whilst expected to be unique within the Function List; it is not recommended to be used to identify the function without being accompanied by the Function ID.

Example: Manage Medication List

1.2.3.4 Function Statement (Normative)

This is a brief statement of the purpose of this function. Whist not restricted to the use of structured language that is used in the Conformance Criteria (see below); the Statement should clearly identify the purpose and scope of the function.

Example: Create and maintain patient-specific medication lists.

1.2.3.5 Description (Reference)

This is a more detailed description of the function, including examples if needed.

Example: Medication lists are managed over time, whether over the course of a visit or stay, or the lifetime of a patient. All pertinent dates, including medication start, modification, and end dates are stored. The entire medication history for any medication, including alternative supplements and herbal medications, is viewable. Medication lists are not limited to medication orders recorded by providers, but may include, for example, pharmacy dispense/supply records, patient-reported medications and additional information such as age specific dosage..

1.2.3.6 Conformance Criteria (Normative)

Each function in the Function List includes one or more Conformance Criteria. A Conformance Criteria, which exists as normative language in this standard, defines the requirements for conforming to the function. The language used to express a conformance criterion is highly structured with standardized components with set meanings. The structured language used to define conformance clauses in the Function List are defined in the Glossary (Chapter 4).

1.4 Anticipated Uses

HL7 is an international community and supports the development of Functional Profiles, which are country specific (HL7 realm) specifications within a standard. It is anticipated that there will be profiles registered with HL7 that designate a subset of functions from the model for use in

specific care settings (e.g. Behavioral Health) or functional areas (e.g. the legal EHR). Included in the EHR-S standard package will be samples of registered functional profiles. These example profiles will be included as reference documents in the *How-to Guide for Creating Functional Profiles*.

1.4.1 Anticipated Development Approach: Functional Profiles

A “functional profile" is a selected set of functions that are applicable for a particular purpose, user, care setting, domain, etcetera. Functional profiles help to manage the master list of functions. It is not anticipated that the full Functional Model will apply to any single EHR-S implementation.

As such, an EHR system does not conform directly to the Functional Model; rather, it conforms to one or more functional profiles. For more information about creating, registering, and balloting functional profiles, see Chapter Two: Conformance Clause, Sections 2 and 6.

Functional profiles are the expression of usable subsets of functions from this EHR-S Functional Model. In this EHR-S Functional Model the reader will see a long list of Function Names and Function Statements, which serve as reasonable representations of functions that may be needed for a clinical environment. The list of functions is not intended to be used in its entirety. For example, the functions outlined in this model apply differently to different care settings. Many of the functions in the model apply to a nursing home setting, but some like CP.1.7.2.3 (Manage Orders for Blood Products and Other Biologics) would not apply. The list of functions is not considered to be in a usable form until a functional profile or constraint is generated.

The act of creating a functional profile is to support a business case for EHR-S use by selecting an applicable subset of functions from the EHR-S Functional Model list of functions, in effect constraining the model to meet specific requirements. For example, a functional profile may be created by a purchaser, to indicate requirements; by a vendor, to indicate the capability of specific products; or by any person/entity wishing to stipulate a desired subset of functions for a particular purpose, including a care setting within a specific realm. Once an applicable subset of functions has been selected, the person/entity creating the profile gives each function a priority of essential now, essential future or optional. For more information about the steps to creating a functional profile, see the *How-to Guide for Creating Functional Profiles*.

Readers may 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 technical people might focus especially 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.

Three vignettes are included here to help readers in different positions or organizations envision how they would study, and ultimately utilize the EHR-S Functional Model.

1.1.4.1 Scenario 1 – Group Practice

Dr. Smith is part of a 50-person group practice. The practice currently has a clinical information system that provides billing, scheduling, and other administrative support. For several reasons, it will need to be upgraded or replaced within 2 years. It does not include electronic health records. Dr. Smith and interested colleagues review an Ambulatory Care registered profile to see how the use setting and scenario illustrate the EHR functions related to their practice; they look at the Ambulatory Care prioritization of the individual functions that a group of experts working with HL7 have identified. With a good understanding of what the EHR functions would mean for their practice, Dr. Smith and several other providers then focus on the Direct Care and Supportive sections, while the technical support staff look at the Information Infrastructure section. They meet to discuss their conclusions. They plan to use the list of functions in discussions with vendors about their next IT system, recognizing that some functions may not yet be available.

1.1.4.2 Scenario 2 - Hospital

Mr. Jones is the Chief Informatics Officer in a large hospital organization Their IT system was installed two years ago and includes patient tracking and ordering components; it was upgraded for HIPAA compliance. It does not include clinical decision support, performance monitoring, or public health reporting. Mr. Jones asks the Chief Medical Officer to organize a review of the HL7 EHR-S Functional Model while his team also reviews it. They both begin by looking at an Acute Care balloted profile to see how a group of experts working with HL7 have identified how an EHR-S could be used within a hospital. The scenario and prioritization of the individual functions is helpful. The CMO and several doctors and senior nurses review the Direct Care and Supportive sections of the EHR-S Functional Model Acute Care profile; the CIO and his team focus on the Information Infrastructure section but also look at the Direct Care and Supportive sections. A small team of providers and IT staff meet to discuss their conclusions. They plan to use the list of functions in discussions with vendors about adding decision support, performance monitoring, and public health reporting to their existing system, recognizing that their budget will only allow very limited expansion in the near term.

1.1.4.3 Scenario 3 - IT Vendor

Ms. Green is the head of the clinical systems division of a large health IT company. Their product line includes both dedicated EHR systems and integrated systems that include an EHR. Their EHR and integrated systems have some decision support for medication ordering, but no performance monitoring/reporting functions. While most of their clients are larger provider organizations and hospitals, they are planning to expand into the small practice and home health markets with a simple, less expensive clinical system. In anticipation of HHS's implementation of the Medicare Reform law, which provides financial incentives for providers who use IT to track patients, the company wants to add a range of functionality to its products that would meet or exceed the Medicare requirements. Ms. Green asks her staff to review the entire HL7 EHR-S Functional Model package, beginning with care setting profile examples included as exhibits in the *How-to Guide for Creating Functional Profiles* in the reference section. Based on the examples of care setting functional profiles, they determine that they could add a relatively small number of functions to various products to be able to offer superior products for current and future clients. They see value in the EHR-S Functional Model for their discussions with their clients about upgrades or new purchases.

1.4.2 Example of Current Use

1.2.4.1 The Certification Commission for Health Information Technology

Below is text from a July 2006 HL7 press release regarding industry use of the EHR-S Functional Model:

> ANN ARBOR, Mich. July 20, 2006—Health Level Seven (HL7) today congratulates the Certification Commission for Healthcare Information Technology (CCHIT℠), upon announcing the first list of ambulatory Electronic Health Records (EHR) products to achieve the CCHIT Certified℠ seal. Products that are CCHIT Certified comply with 100 percent of the tests for functionality and security and included an initial step in interoperability: that of receiving lab results electronically. This certification marks a significant milestone for CCHIT and the healthcare information technology industry as it provides the first ever benchmark for ambulatory EHR products. CCHIT's certification efforts will help accelerate the adoption of health information technology by ensuring the interoperability of EHR's through a standards-based compatibility with the National Health Information Network (NHIN) architecture.
>
> "The announcement of the first ambulatory EHR products to achieve CCHIT certification is a great accomplishment," said HL7 Chair Chuck Meyer. "HL7 is proud to have provided CCHIT with the EHR-S Functional Model to use as a framework in the development of its certification requirements. We are pleased that CCHIT has found the EHR-S Functional Model useful. HL7 looks forward to continuing its efforts toward the development of

> widespread standards for EHR in the global healthcare community and to meeting the needs for standards that support the interoperability of healthcare information."
>
> An EHR standard is seen as one of the keys to supporting the exchange of information for clinical decisions and treatments, and can help lay the groundwork for nationwide interoperability by providing common language parameters that can be used in developing systems that support electronic health records. According to CCHIT Chair, Mark Leavitt, MD, PhD, Health Level Seven's EHR-S Functional Model served such a purpose in CCHIT's certification testing process.
>
> "CCHIT's recent launch of Ambulatory EHR certification affirms the work of many volunteers, both within as well as external to our organization," said Leavitt. "In this regard, the HL7 standards development organization has been a particularly important partner for us, supplying the standards for ambulatory EHR functionality as a starting point for CCHIT's efforts in testing EHR product compliance."

[NOTE: While there is no formal HL7 / CCHIT business agreement, the HL7 EHR TC commits to working with CCHIT in every way possible to synchronize the EHR-S Functional Model with certification criteria. The HL7 EHR TC encourages CCHIT's continued use of the EHR-S Functional Model in their certification efforts. Due to timing differences between the two projects, CCHIT certification criteria are not aligned with the 2007 normative version of the EHR-S Functional Model. Both CCHIT and the HL7 EHR TC have recognized the need to synchronize certification criteria and the functional model on an ongoing basis. As the CCHIT certification criteria are updated, the HL7 EHR TC will make every effort to synchronize them with the functional model's conformance criteria. In addition, the EHR TC encourages CCHIT to register one or more HL7-Compliant profiles with HL7.]