HL7 EHR Work Group

Personal Health Record System Functional Model, Release 1
Draft Standard for Trial Use
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Chapter One: Overview

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Preface

i. Notes to Readers

The HL7 Personal Health Record System Functional Model (PHR-S FM), through these and other documents, was first released for public comment in August 2007. The PHR-S FM has undergone extensive review and debate over the last year by the PHR Work Group (PHR WG), and now invites your comments on it through a continuation of the official ballot process. In November, 2007 the Draft Standard for Trail Use (DSTU) version of the PHR-S FM was released for comment. We have used those comments to change and improve the model. This version (July, 2008) is now available for general review and Trial Use. The WG intends to work toward a version to be balloted in the future as a fully accredited standard.

ii. Acknowledgements

HL7's EHR Work Group is indebted to the following PHR WG facilitators for their contributions towards the material presented here. There have been a number of other work group members who have contributed greatly to the development of the PHR-S FM, but whose names cannot be listed here for brevity's sake.

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iii. Changes from Previous Release

This is the third version of this document.

In November, 2007, the Draft Standard for Trail Use (DSTU) version of the PHR-S FM was released for comment. We have used the comments to change and improve the model. Some of the key changes to the ballot are related to the presentation of a model that is more international in applicability – specifically, in relation to Account Holder privacy. We have also included identified 'gaps' between the PHR-S FM DSTU and interoperability use cases. See the PHR-S FM Read-Me Guide for details on the changes.

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Chapter 1 Introduction and Overview

1 Background (the What, Why and Who of Personal Health Record Systems)

1.1 Who 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

1.2 Personal Health Record (PHR) Versus a Personal Health Record System (PHR-S)

The PHR WG makes a clear distinction between a PHR and a PHR System (PHR-S). The PHR is the underlying record that the software functionality of a PHR System maintains. There has been much discussion surrounding the definition of a personal health record. The PHR-S FM does not attempt to define the PHR, but rather identify the features and functions in a system necessary to create and effectively manage PHRs.

The overarching theme of a PHR-S involves a patient-centric tool that is controlled, for the most part, by the individual. A PHR-S should be immediately available electronically and able to link to other systems, either in a “pull-push” or “push-pull” method. The PHR-S is intended to provide functionality to help an individual maintain a longitudinal view of his or her health history, and may be comprised of information from a plethora of sources – e.g., from providers and health plans, as well as from the individual. Data collected by the system is administrative and/or clinical, and the tool may provide access to a wealth of health-related forms (e.g., Advance Directives) and advice (e.g., diet, exercise, or disease management). A PHR-S might also help the individual collect behavioral health, public health, patient-entered and

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patient-accessed data (including medical monitoring devices), medication information, care management plans and the like, and might be connected to providers, laboratories, pharmacies, nursing homes, hospitals and other institutions and clinical resources.

At its core, the PHR-S should provide the ability for the individual to capture and maintain demographic, insurance coverage, and provider information. It should also provide the ability to capture health history in the form of a health summary, problems, conditions, symptoms, allergies, medications, laboratory and other test results, immunizations and encounters. Additionally, personal care planning features such as Advance Directives and care plans should be available. The system must be secure and have appropriate identity and access management capabilities, and must use standard nomenclature, coding and data exchange standards for consistency and interoperability. A host of optional features have been addressed over the course of this initiative, including secure messaging, graphical presentation of test results, patient education, guideline-based reminders, appointment scheduling and reminders, drug-drug interactions, formulary management, health care cost comparisons, document storage and clinical trial eligibility.

The effective use of a PHR-S is a key point for improving healthcare in terms of self-management, patient-provider communication and quality outcomes.

1.3 PHR WG Background and Charge

The HL7 Personal Health Record Work Group (PHR WG) was established in 2005 by the HL7 EHR Work Group. The PHR WG consisted of a diverse set of stakeholders, including consumer advocates, clinicians, PHR system software suppliers, as well as Information Technology and health information management professionals.

At that time, the EHR WG was focused on establishing the EHR-S Functional Model as a fully-accredited ANSI standard. However, the EHR WG anticipated that at some future point, an EHR-S would need to exchange health information with the emerging PHR systems. Thus, the PHR WG was initially charged with developing a functional model that identified the functions within a PHR that would be needed to exchange health information with an EHR-S. To that end, the PHR WG began its work by conducting an environmental scan of PHR requirements against which a system would need to conform, as well as of PHR system functions already implemented in existing PHR systems. The PHR WG continues to analyze the functionality of PHR systems developed internationally and to include such perspectives in the PHR-S FM.

The WG reviewed PHR definitions, functional descriptions, and other useful material from Connecting for Health, AHIMA, and the National Cancer Institute. It also received a vast amount of information from those volunteers in the WG who had direct marketplace knowledge of PHR system functionality, expertise in protecting the

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confidentiality of health information and the privacy of the individual, and functionality of EHR systems.

The PHR WG developed its first PHR-S FM based on the Connecting for Health functional description. As it was developing that early iteration, the healthcare industry was clearly moving forward on the need for – and benefits of – the personal health record. Consequently, after a little over a year's worth of effort, the WG concluded that it should develop a standard for a full PHR-S, rather than simply a standard that targeted the exchange of health information between a PHR-S and an EHR-S (as per its original charge). However, the original charge was not lost, as functions for the exchange of health information between a PHR-S and an EHR-S appear as part of the entire set of PHR-S functions.

2 Purpose and Scope

2.1 PHR-S Functional Model Scope

The HL7 PHR-S FM defines a standardized model of the functions that may be present in PHR Systems.

2.2 This Functional Model Is Not:

- A messaging specification
- An implementation specification
- A conformance specification
- A specification for the underlying PHR (i.e., the record itself)
- An exercise in creating a definition for a PHR
- A conformance or conformance testing metric
- A requirement specification for a single PHR system (see *Anticipate Uses* below)

The information exchange enabled by the PHR-S supports the retrieval and population of clinical documents, event summaries, minimum data sets, claims attachments, and in the future will enable a longitudinal health record.

3 Overview and Definition of the Functional Model

The PHR-S FM is divided into three sections: Personal Health, Supportive, and Information Infrastructure. Functional profiles are beginning to be developed which identify various functions from one or more of these three sections in order to describe a given system, and allows for further characterization of that profile by the assignment of priorities to each function in the profile (see Figure 1). While the PHR-S FM should contain all reasonably anticipated PHR-S functions, it is not intended to comprise the entire list of all functions that may be found in any specific PHR-S. Again, functional profiles must be developed that will constrain the functions to an

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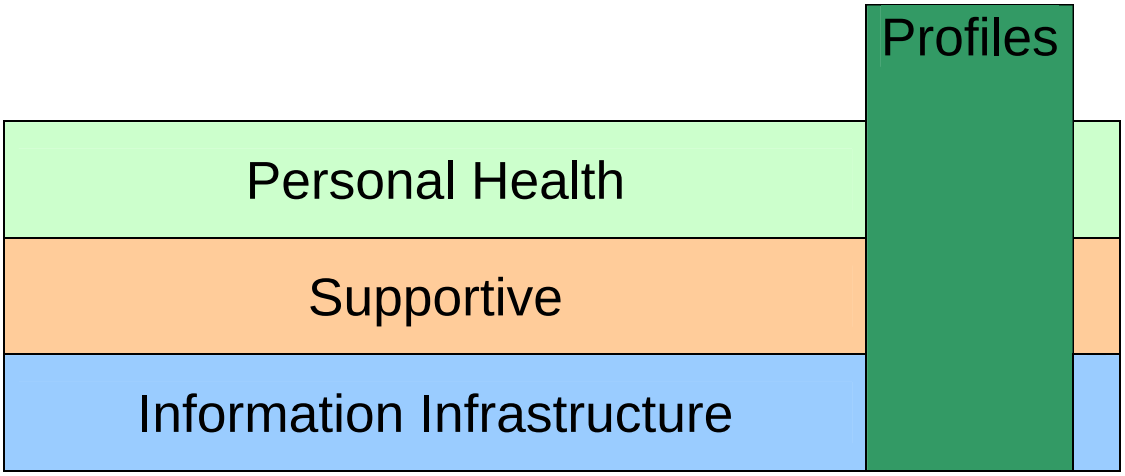
intended use (see Section 4.1). This document defines the Functional Model and describes the general use of profiles and priorities (see the Appendix, PHR Sources, for examples of stakeholders that might create profiles).



(figure 1)

As previously mentioned, the PHR-S Functional Model is divided into three main sections: Personal Health, Supportive, and Information Infrastructure. Within the three main sections are a number of subsections (parent-child relationships). Each subsection is comprised of a number of individual functions. Functions describe the behavior of a system in consumer-oriented language and are intended to be recognizable to all key stakeholders of a PHR-S. Each function contains a Function Name, Function Statement, and Conformance Criteria (which will eventually be the "normative" or ANSI accredited standard) as well as other associated information such as Description (which is reference information and is not part of the ANSI accredited standard).

The numbering of the functions maintains parent-child relationships between the sections and subsections (e.g., "PH.1.1 Account Holder Profile" is the parent of child "PH.1.1.1 Identify and Maintain a Patient Record"). In many cases the parent is fully expressed by the children (see Figure 2). In the aggregate, the Functional Model is intended to include the superset of functions from which a subset can be generated by the Account Holder to illustrate what they need within their PHR-S. Only a subset of this inclusive set of functions will apply to any particular PHR-S.

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Personal Health	PH.1.0	Account Holder Profile
	PH.2.0	Manage Historical Clinical Data And Current State Data
	PH.3.0	Wellness, Preventive Medicine, and Self Care
	PH.4.0	Manage Health Education
	PH.5.0	Account Holder Decision Support
	PH.6.0	Manage Encounters with Providers
Supportive	S.1.0	Provider Management
	S.2.0	Financial Management
	S.3.0	Administrative Management
	S.4.0	Other Resource Management
Information Infrastructure	IN.1.0	Health Record Information Management
	IN.2.0	Standards Based Interoperability
	IN.3.0	Security
	IN.4.0	Auditable Records

(figure 2)

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3.1 PHR-S Functional Outline: The Functions and Their Use

PHR functions can be used to:

- Promote a common understanding of PHR functions upon which developers, vendors, users and other interested parties can plan and evaluate PHR functions.
- Provide the necessary framework to drive the requirements and applications of next level standards, such as PHR content, coding, information models, constructs and interoperability for information portability between sub-systems of a PHR-S and across more than one PHR-S.
- Establish a standards-based method by which each realm (country) can apply these PHR-S functions to care settings, uses, and priorities.
- Inform those concerned with secondary use of PHR data and national infrastructure what functions can be expected in a PHR-S.
- Ensure that clinical information or data from authoritative sources are not edited or modified without appropriate annotation.

3.1.1 Personal Health Functions

Description of Personal Health functions: The Personal Health (PH) functions are the subset of the PHR functions that manage information and features related to self-care and provider based care over time. PH functions can yield a summary record of an individual's care, including ad hoc views of the overall PHR.

Example of a Personal Health function: A PH function exists in the PHR-S FM that will ensure that the individual's demographic information is captured and maintained so that the individual is unambiguously identified.

Actors for Personal Health functions: The Account Holder is the principal user of PH functions, because PH data is descriptive of the user/owner of the PHR.

3.1.2 Supportive PHR Functions

Description of Supportive functions: The Supportive functions are the subset of functions that assist with the administrative and financial requirements associated with the delivery of health care. Supportive PHR functions also provide input to systems that perform medical research, promote public health and seek to improve the quality of health care delivered.

Example of a Supportive function: During a healthcare encounter, the Supportive functions could electronically query local immunization registries to ensure that a person is currently registered and determine the person's immunization status. After

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treatment, supportive PHR functions could report any immunization to an immunization registry and will provide any encounter data required by financial and administrative systems.

Actors for Supportive functions: The Account Holder is the principal user of Supportive functions, but under certain circumstances, health care providers might be expected to perform various supportive functions.

3.1.3 Information Infrastructure Functions

Description of Information Infrastructure functions: The Information Infrastructure functions consist of common functions that support Personal Health and Supportive functions. Information Infrastructure functions ensure that the PHR-S provides information privacy and security, promote interoperability between PHR systems and potentially EHR systems, and helps make PHR-S features accessible and easy to use.

Example of an Information Infrastructure function: The PHR-S must operate in a secure environment. Information Infrastructure functions ensure that PHR data, such as an immunization record, can only be viewed and updated after an individual or system authenticates the user's identity within the PHR-S.

Actors for Information Infrastructure functions: Information Infrastructure functions are expected to be performed transparently by PHR-S applications on behalf of PHR-S end-users or other systems.

3.2 Components of the PHR-S FM

As previously stated, this package is released for trial use by the PHR stakeholders. However, please be aware that after the model has been refined through your comments, it is intended that the PHR-S FM will be released for ballot voting for approval as a fully accredited standard. Though the PHR-S FM contains many components, not all components are technically those that must be adhered to as part of the standard. These 'reference' components are provided in the model to offer more explanation, details, or guidance. Those components that must be adhered to as part of the standard are called "normative" components (see table 1).

Status	Description
Reference	Content of the PHR-S Functional Model Package that contains information that 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 PHR-S Functional Model which HL7 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.

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(table 1)

Each function in the HL7 PHR-S FM is identified and described using a set of elements or components as detailed in figure 3.

Function ID	Function Type	Function Name	Function Statement /Description	See Also in PHR-S FM	See Also in EHR-S FM	Conformance Criteria
Intended as Reference	Intended as Reference	Intended as Normative	Intended as Normative/ Reference	Intended as Reference	Intended as Reference	Intended as Normative

(figure 3)

- **Function ID – Intended as Reference, Content in Chapters 3, 4 and 5**

The Function ID is a unique identifier for a given function. The Personal Health functions are identified by 'PH' followed by a number (Example PH.1.1.3.1; PH.1.1.3.2). Supportive functions are identified by an 'S' followed by a number (Example S.2.1; S.2.1.1). Information Infrastructure functions are identified by an 'IN' followed by a number (Example IN.1.1; IN.1.2). Numbering for all sections begins at n.1.

- **Function Type – Intended as Reference, Content in Chapters 3, 4 and 5**

The Function Type indicates whether a given function is a header (H) or function (F).

- **Function Name – Intended as Normative, Content in Chapters 3, 4 and 5**

The Function Name conveys a terse description of a given function.
Example: Account Holder Profile

- **Function Statement – Intended as Normative, Content in Chapters 3, 4 and 5**

The Function Statement offers a brief description of a function's purpose.
Example: Maintain PHR Account Holder demographics, preferences, advanced directives, consents and authorizations

- **Description – Intended as Reference, Content in Chapters 3, 4 and 5**

The Description conveys the fuller meaning and nuances of the Function Statement, often accompanied by clarifying examples.
Example: The person that is the subject of the personal health record is referred to as the Account Holder to distinguish them as someone other than a patient or subject *of a given healthcare system.* The Account Holder creates a record that contains relevant demographic information and includes other administrative statements necessary to provide care, including advanced directives and consents for care.

- **See Also in PHR-S FM – Intended as Reference, Content in Chapters 3, 4 and 5**

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The identifiers in the See Also in PHR-S FM column are intended to identify relationships between functions within the PHR-S FM. These identifiers can help the reader to quickly find all of the functions in the PHR-S FM related to a given concept.

- **See Also in EHR-S FM – Intended as Reference, Content in Chapters 3, 4 and 5**

The identifiers in the See Also in EHR-S FM column are intended to identify relationships between PHR-S functions and those of the EHR-S Functional Model. In the development of the PHR-S FM, it was noted that the EHR-S FM contained a similar or related concept. Since it is important not to lose the knowledge of those references to the EHR-S FM, pointers are offered.

- **Conformance Criteria – Intended as Normative, Content in Chapters 3, 4 and 5.**

The Conformance Criteria clarify how conformance to a given function may be viewed. Review Chapter Two: Conformance Clause, Sections 4 and 5, for further information on conformance criteria and their uses.

3.3 Common Major Concepts Across the Model

3.3.1 The "Manage Hierarchy"

Within the PHR WG, there was an intentional effort to create language consistency in the conformance criteria. The "Manage Hierarchy" diagram below was used to create semantic harmony within the model so that, for example, if the Personal Health Chapter has a conformance criterion using the term "nullify", that the term has the same meaning as used in the Supportive Chapter's conformance criteria.

The levels in the hierarchy are granular and have a parent-child relationship. For example, the diagram below depicts that managing the "Capture" of information comes from an External Source or from an Internal Source. Similarly, under the "Maintain" section of the diagram, the term "Store" could invoke all five verbs listed below it (i.e., Save, Backup, Compact, Encrypt, or Archive). If the parent term is not used, then the respective verbs in the child will be cited individually in the criterion. If the term "Manage" is used, all of the applicable verbs included in the table are encompassed in that criterion. Authors are responsible for determining whether one or more of the subverbs are not appropriate for a given function and must write conformance criteria that constrain the use of the verb hierarchy according to the intent of the profile being created.

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MANAGE							
Capture		**Maintain**				**Render**	
Input (External)	Create (Internal)	Store	Update	Restrict Access	Remove Access	Read (Internal)	Output (External)
Receive Accept Download Import	Enter Compute Record	Save Backup Compact Encrypt Archive	Edit Correct Amend Augment Annotate Comment Associate Tag	Hide Mask Filter	Obsolete Inactivate Destroy Nullify Purge	View Report Display Access Present	Send Upload Export Synchronize

The hierarchical principle above was applied during the development of the PHR-S FM. Additional terms used in the model are found in the model's Glossary. It is important to be consistent in the terminology used in the model's conformance criteria so there is consistent interpretation of the conformance criteria's intent in defining the functionality.

3.3.2 PHR Account Holder Privacy

It is the bias of this model that consumer privacy rights be protected to the fullest extent possible. However, as an international model that attempts to describe functionality for many PHR system sub-types (e.g., integrated PHR/EHR systems, stand-alone PHR systems, or vendor-provided Web-based systems), statements concerning consumer control over information are frequently tempered by the phrase (with some variations) "in accordance with user role, organizational policy, or jurisdictional law." This phrase does not extend license to institutions to violate individual rights, but acknowledges that legitimate exceptions may exist to the general rule of PHR Account Holder control over PHR-S information. In all cases, the model requires that the privacy policy of a PHR system be fully transparent to PHR Account Holders, and that a PHR-S has the ability to capture a PHR Account Holder's consent on how his or her personal information may be used and disclosed (see functions in IN.3.8, Patient Privacy and Confidentiality for additional detail.)

3.3.3 Functionality versus Implementation

It is important to note that many functions provide the capacity for functionality (e.g., provide for standards-based interoperability), but do not give implementation details. A function, when implemented, must be implemented within the context of the entire PHR-S FM. For example, implementation of many functions throughout the model

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are expected to conform to the security and audit functions found within IN.3 (Security) and IN.4 (Auditable Records), and functions performed “by the PHR Account Holder” may be actually performed by others as delegated by the Account Holder (see IN.3.2, Entity Authorization).

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.

4.1 Anticipated Development Approach: Functional Profiles

A functional profile is a selected set of functions that are applicable for a particular purpose, group of users, degree of interoperability, custodian, etc. Functional profiles help to manage the master list of functions. It is not anticipated that the full Functional Model will apply to any single PHR-S implementation.

Similar to the EHR-S, a PHR-S does not conform directly to the Functional Model; rather, it conforms to a functional profile. For more information about creating, registering, and balloting functional profiles, see Chapter Two: Conformance Clause, Sections 2 and 6.

Functional profiles are the more concrete expression of usable subsets of functions from this PHR-S FM. In this PHR-S FM the reader will see a long list of Function Names and Function Statements, which serve as reasonable representations of functions that may be needed by an individual, or by a provider in a clinical environment. The list of functions is not intended to be used in its entirety for a given implementation and some of the functions may apply differently under different use scenarios. For example, many of the functions in the model apply directly to the PHR Account Holder, but some functions (e.g., PH.2.5.9 Manage Personal Genetic Information) might more appropriately be used by a specialist on behalf of the PHR Account Holder. The list of functions is not considered to be in a usable form until a functional profile or constraint is generated. NOTE: See the examples of PHR-S functional profiles, as referenced in the Appendix.

The goal of creating a functional profile is to support a business case for PHR-S use by selecting an applicable subset of functions from the PHR-S FM. For example, a functional profile may be created by a vendor to develop a unique product for a specific population, or by any person/entity wishing to stipulate a desired subset of functions for a particular purpose or specific realm (see the Appendix). Once an applicable subset of functions has been selected, the person/entity creating the profile assigns 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.

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A Conformance Clause defines the minimum requirements for profiles claiming conformance to the PHR-S FM. 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 PHR-S FM, such as: what is a profile, what are conformance criteria, and 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 PHR system”. Additionally, it serves as the basis for testing and certification activities that may be performed by organizations external to HL7.

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APPENDIX: PHR Sources (Reference Section)

It is widely believed that health care costs are increasing at a rate that is not sustainable for the long term. Furthermore, there is a perception that the quality of care being delivered is not commensurate with the expense. There are many diverse and complicated reasons for these cost and quality trends, and as one means to address them, many health care industry stakeholders are beginning to engage consumers to address these issues through individual awareness and education. On an ever increasing basis, Integrated Delivery Networks, Healthcare providers and Payers have been engaging their patients and members through innovative care management programs and wellness initiatives. A PHR-S has the potential to be an important component for the success of these programs and there are tremendous opportunities surrounding their adoption and use.

As detailed in the Conformance Chapter, the PHR-S FM is a broad-based model. It is expected that profiles will be defined for both varied stakeholders and targeted uses of a PHR system. For example, a functional profile may be appropriate to reflect the specific requirements and expectations of one system from a particular stakeholder source, e.g., a hospital, medical group, payer, or a health record bank. We provide examples below, and samples of work-in-process profiles are included as reference documents representing the kind of profile efforts that may be registered or formally balloted in the future. (See diagram below and related description in Section 7 of Chapter 2, Conformance).

A. Provider-linked

The provider-linked PHR, sometimes called a tethered PHR, is distinguished from other PHR models primarily by its link to views of the medical record contained in the clinician-controlled electronic health record system (EHR-S). It is also distinguished by its ability to integrate transactional functions such as secure email exchange, e-prescribing, prescription refill requests and clinical appointment scheduling into the PHR.

A provider-linked PHR can accommodate self-entered data, data from medical devices and data from administrative sources as long as the data is tagged with the source of entry. The direct link to the provider's EHR-S enables consumers to identify inaccuracies, reviewable by both the provider and the PHR Account Holder, thus improving the quality of the medical record and helping to increase patient safety. A benefit of the provider-linked PHR is the way that it naturally integrates the connection between providers and consumers for bi-directional information delivery.
Provider-linked PHRs can support interoperability with other PHR systems, EHR systems, and health information exchanges. Provider systems (and consumers) also can make choices about how they handle persistence (the amount of time their record is available for use) over time and the type and amount of access for

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other providers (those who are not part of the group that “provides” the PHR to the individual).

B. Payer-linked

One visible trend that has emerged in the health insurance industry over the past several years is a concept referred to as “Care Management” or “Care Coordination”. While originally focused on acute care situations, insurers have taken a very proactive role in supporting and encouraging consumer engagement in their health care to increase their understanding and involvement during times of health as well as times of chronic or acute illnesses. This change of focus is all part of an overarching industry effort to engender overall member/patient well-being, in addition to controlling costs and improving outcomes. As part of this trend of greater payer participation in current disease management/care coordination activities, the payer-based PHR supports the role of the insurers as an “engaged actor” in the consumer engagement process.

The payer-linked PHR can include aggregated system-populated clinical data (e.g., diagnoses, procedures, medications, or lab results) from claims data as well as data from multiple providers, in addition to consumer entered data (e.g., allergies or history). The payer-based PHR could also include encounter information (e.g., a list of treating providers, dates and contact information) and messages to patients (e.g., reminders, appointment scheduling, or research sources). Payer-based PHRs could include both patient-only access models and models supporting interoperability with health information exchanges and provider electronic medical record systems.

Many commercial health plans are moving in this direction, and may soon have data to demonstrate improvements in health outcomes. Recently, the U.S. government health insurance system (Medicare) initiated a number of pilot programs to explore the use of PHRs with Medicare beneficiaries – CMS, as the largest payer in the United States, seeks to encourage Medicare beneficiaries to use PHRs to track their health care services and as a resource for better communication with their providers, with the hope that these tools will in fact improve health care quality and outcomes

C. Health Record Bank

Health Record Banks, or Trusts, serve as a persistent secure health information repository for an individual. Information is aggregated from multiple sources for multiple uses with all access and use controlled by the individual concerned. It is likely that most health record banks will provide a comprehensive personal health record based upon the aggregated information, although this is not an explicit requirement.

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D. Hybrid Payer & Provider Linked

In some healthcare systems, the provision of healthcare services and the payment for those services, along with the clinical and administrative data that support both, are integrated. In some cases, the provision of care is a within a hybrid model, whereby many (or most) services are obtained through a primary provider group, supplemented by care from providers in a variety of other health care systems. In parallel, hybrid PHR systems which support this model have a base, provider-linked PHR system which can also accommodate information from both the integrated administrative systems and from external payer or provider linked systems. In these hybrid systems, source tagging, and the views of integrated information (e.g., immunizations given at different physician offices from different base health systems shown within one list) are particularly important in order for a person's complete health history to be consumable by both PHR account holders and supporting clinicians (as permitted by PHR account holders).

E. Web-based, Consumer-centric Model

There is industry growth and increasing consumer interest in Web-based PHR Systems, that may encompass a variety of applications, that enable people to control, collect, view, manage, or share copies of their health information. These systems offer the basic requirements of storing and consolidating health information, while integrating tools to assist consumers in better managing their health. This model of PHR Systems are based on the fundamental concept of facilitating an individual's access to, creation and control of personal health information – as part of a beneficial trend toward greater engagement of consumers in their own health and health care.

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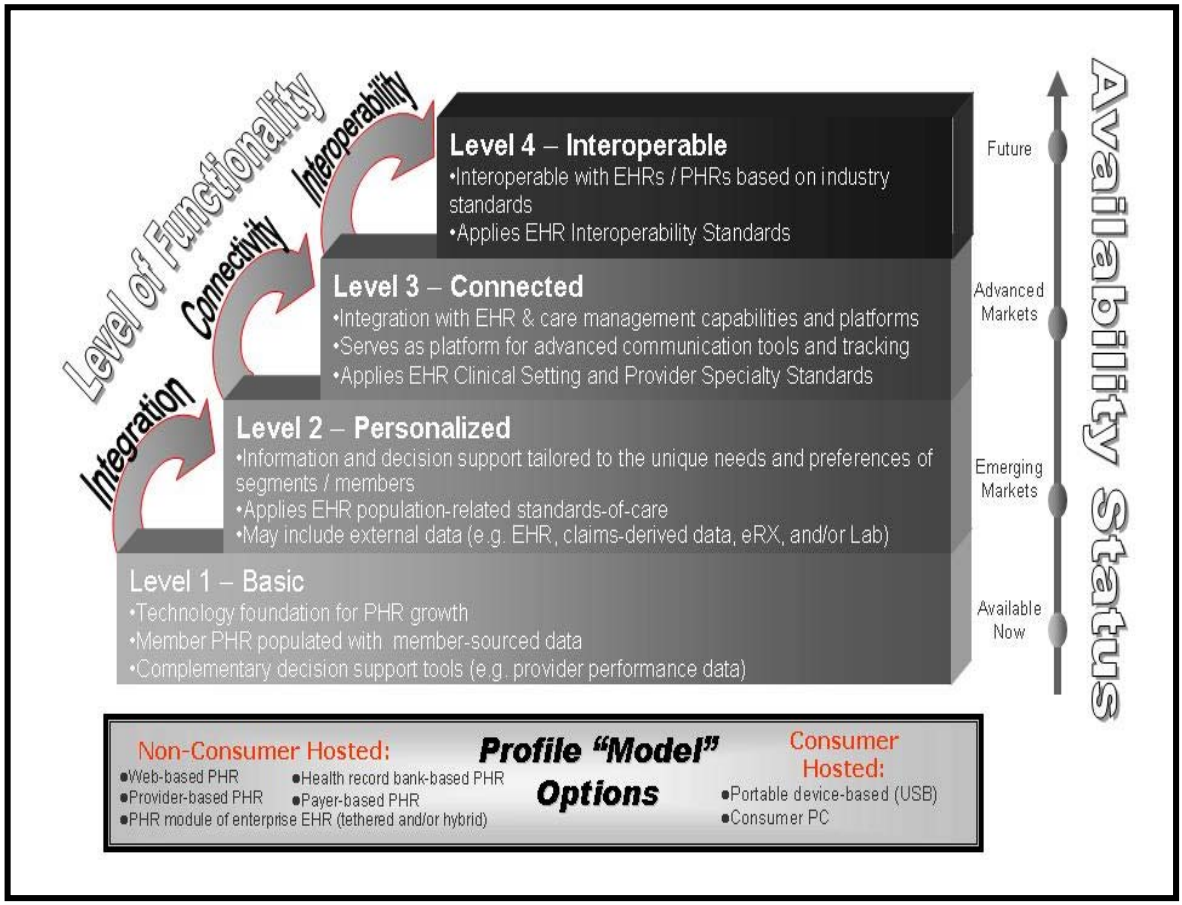

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