Health Level Seven

EHR Technical Committee – EHR Interoperability Project Team

ONC/AHIC/HITSP Use Case Alignment w/HL7 EHR/PHR Models

Chapter 3
Consumer Empowerment Use Case: Registration and Medication History

Final Draft, March 21, 2008

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Health Level Seven Electronic Health Record Technical Committee
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21 March 2008

Introduction

Since the outset of standards harmonization activities within ANSI HITSP, use cases – developed by ONC and AHIC – have driven the process (reference http://www.hhs.gov/healthit/usecases/). Use cases describe health(care) business and clinical scenarios.

This alignment draft follows a process of discovery, to document applicability of HL7 Electronic Health Record (EHR) and Personal Health Record (PHR) Models with the formalized ONC/AHIC/HITSP use cases, and to identify relevant gaps.

The use cases are organized as a four level hierarchy:

Use Case; which has one or more
Scenario(s); which have one or more
Event(s); which have one or more
Action(s).

Actions are the elemental tasks of each Use Case: Actions = discrete tasks. Actions are supported by specific EHR system functions, typically invoked as the Action is performed/provided. Also, most provider-related Actions require persistent evidence of their occurrence (in the form of a persistent Action Record).

To inform ongoing development work of the EHR TC, the analysis started with a single ONC/AHIC/HITSP Use Case. The resulting alignment draft confirms applicability, detailed to the Use Case Action level, as follows:

HL7 EHR/PHR Model	Alignment Analysis intends to…
EHR/PHR System Functional Models (system functions)	• Specify functions required (or likely to be invoked) by each Use Case Action • Optionally, specify related conformance criteria • Identify gaps (i.e., missing functions or criteria)
EHR Interoperability Model (record interoperability characteristics)	• Show Action documented by Action Record • Show Action Record in context of Common EHR Record Unit (CRU) • Show how Action Records (as CRUs) are interoperable • Show how Action Records (as CRUs) might be implemented (ref. CDAr2 Profile) • Show how Action Record is ascribed as to Who, What, When, Where • Show how Action Record is consistent with legal record requirements (ref. Legal Profile) • Show how trust aspects of Action Record are assured – access control, authentication, audit, traceability • Show how Action Records are originated, amended and versioned (also ref. CDAr2 Profile) • Identify gaps (i.e., missing interoperability characteristics or criteria)
EHR Lifecycle Model (record lifecycle events)	• Show Action consistency with Action Record lifecycle events • Identify gaps (i.e., missing lifecycle events)

Section 1. Purpose

This document describes results of the alignment analysis of ONC/AHIC/HITSP Use Cases vis-à-vis the HL7 EHR/PHR Models, including both coverage and gaps. The analyses together encompass EHR/PHR system functionality and EHR record interoperability and EHR record lifecycle. The four HL7 Models include:

.1 HL7 Electronic Health Record System Functional Model (EHRS/FM): Normative, ANSI approved, submitted as ISO TC215/WG8 Work Item, February 2007
.2 HL7 Personal Health Record System Functional Model (PHRS/FM): Public Comment Draft, August 2007
.3 HL7 EHR Interoperability Model (EHR/IM): Draft Standard for Trial Use, February 2007
.4 HL7 EHR Lifecycle Model (EHR/LM): Current Working Draft

This is Chapter 3, focusing on analysis of the Consumer Empowerment Use Case. Subsequent Chapters will describe analyses of the remaining Use Cases.

Section 2. Objectives

Following are the objectives of this alignment analysis:

.1 To analyze specifications of ONC/AHIC (use cases) and ANSI HITSP (Interoperability Specifications) to discover how they align with HL7 EHR/PHR Models.
.2 For the EHRS/FM, to show which EHR system functions (functional characteristics) are invoked by each Use Case Action.
.3 For the PHRS/FM, to show which PHR system functions (functional characteristics) are invoked by each Use Case Action. [Not applicable to this Use Case.]
.4 For the EHR/IM, to show which EHR interoperability characteristics are required to fulfill (or persistently evidence) each Use Case Action.
.5 For the EHR/LM, to show which EHR lifecycle events, as specified in the EHR/LM, are invoked to fulfill each Use Case Action.

.6 To first inform continuing work of the HL7 EHR Technical Committee.
.7 To also inform development of HITSP Interoperability Specifications and CCHIT certification criteria.

Section 3. Methodology

Following is the proposed alignment analysis methodology.

.1 Review Use Case narrative, Scenarios, Events and Actions.

.2a Complete Section 5, EHRS/FM column, specifying for each Use Case Action which EHR system function(s) it likely invokes.

.2b Specify for each Use Case Action, any EHR system function(s) that are required but absent from the current EHRS/FM.

.3a Complete Section 5, PHRS/FM column, specifying for each Use Case Action which PHR system function(s) it likely invokes.

.3b Specify for each Use Case Action, any PHR system function(s) that are required but absent from the current PHRS/FM draft.

.4a Many provider Actions are accountable from a clinical and medical/legal perspective and require a persistent Action Record. Determine which Use Case Actions require the origination of an Action Record, as persistent evidence of Action occurrence.

.4b For purposes of the persistent EHR, an Action is often logically combined with other closely corresponding Actions. (An Action may be comprised of one or more other Actions, thus an Action Record instance may document one or more Actions.) Determine which Actions may be logically combined in a single Action Record.

.4c Determine, as applicable, Actions which invoke Act Record Lifecycle Events (per the EHR Lifecycle Model).

.4d Complete Section 6, EHR Record Persistence and Lifecycle, specifying each Use Case Action as per Steps 4a-4c.

.5 Complete Section 7, specifying which EHR Interoperability characteristics (per Act/Action Record, Section 3 of the EHR Interoperability Model) are pertinent to evidence Action occurrence – in the form of a persistent Action Record.

Section 4. Title Use Case Narrative

There are three (3) scenarios in this Use Case related to a consumer's personal health record (PHR). The first scenario is "Consumer Creates Account to Host Registration Summary & Medication History." It assumes a consumer is either purchasing a PHR or obtaining one through a health plan or other entity. The scenario defines the flow for a consumer to create their own account, obtain registration summary and medication data, view and modify that data and provide to the PHR. There are a number of pre-conditions that must be in place prior to the start of the scenario, such as a secure network infrastructure, authentication service, various privacy and security policies and procedures, and various functional abilities within the systems for exchanging data. The business actors include the consumer, PHR service provider, RHIO or HIE, EHR system, Health plan/intermediaries, and PBM/Pharmacies.

The second scenario is "Consumer Visits Healthcare Provider and Provides Registration Summary Information". It defines the flow for a consumer to log onto their account once it is set up and obtain registration summary and medication data. It also allows a healthcare provider to review the registration data and update it in their EHR. It holds the same pre-conditions as scenario 1. It is recommended in this scenario that at the end of a healthcare encounter, that the new information be pushed to the 'document registry' (in the RHIO or HIE) to close any potential holes in the continuity of care of the consumer. The outputs of the scenario is that the consumer's PHR is updated with current patient registration and medication history information, and the consumer's EHR has been updated within the provider's setting. In addition, the registration/medication history entries are integrated into the health care provider's EHR, with the source identified, which allows the healthcare provider to distinguish between consumer-provided information and information provided by other healthcare entities. The business actors include the consumer, PHR service provider, RHIO or HIE, EHR system, Health plan/intermediaries, and PBM/Pharmacies.

The third scenario is “Authorized Healthcare Provider Reviews Medication History”. It defines the flow for a consumer to log onto their account and obtain registration summary and medication data, and it allows a healthcare provider to review the medication data. This allows the consumer and any healthcare provider staff that has been given consent by the consumer to access the consumer’s PHR. It describes how the consumer will connect to the PHR and request documents from the RHIO/HIE. The RHIO/HIE identifies which documents are relevant. Once the documents are identified, the PHR retrieves them. Then when the consumer goes to their healthcare provider and is asked to provide information, the consumer advises that the information is available via their PHR. The business actors include the consumer, PHR service provider, RHIO or HIE, EHR system, Health plan/intermediaries, and PBM/Pharmacies.

Section 5. EHR/PHR System Functionality

[See Methodology, Steps 2a-2b above.] The following specifies EHR/PHR system functions invoked by Actions of the Consumer Empowerment Registration and Medication History Use Case. Both coverage (existing EHRS/FM and PHRS/FM functions) and gaps (missing functions) are identified.

Use Case Ref	Consumer Empowerment: Registration and Medication History Use Case Event/Action	EHRS/FM	PHRS/ FM
	Consumer/Patient Perspective		
2.1.1.0	**Event: Select a provider of PHR services**		
2.1.1.1	**Action:** Provide identification data	N/A	PH.1.1, PH.1.2, PH.2.1, S.3.1, IN.3.1
2.1.2.0	**Event: Establish/Change permissions**		
2.1.2.1	**Action**: Authenticate to system	IN.1.1	IN.3, IN.3.1

Use Case Ref	Consumer Empowerment: Registration and Medication History Use Case Event/Action	EHRS/FM	PHRS/ FM
2.1.2.2	**Action:** Establish/Modify permissions for access to the system	IN.1.2, IN.2.5.1	PH.3.5.3, IN.3.2
2.1.3.0	**Event: Log on to system**		
2.1.3.1	**Action:** Authenticate to system	IN.1.1	IN.3.1
2.1.4.0	**Event: View registration and medication data**		
2.1.4.1	**Action:** Authenticate to system	IN.1.1	IN.3.1
2.1.4.2	**Action:** Request data	IN.1.6	IN.3.5, PH.2.4
2.1.4.3	**Action:** Receive data	IN.1.6	IN.3.5
2.1.5.0	**Modify: Modify registration and medication data**		
2.1.5.1	**Action:** Authenticate to system	IN.1.1	IN.3.1
2.1.5.2	**Action:** Request data	IN.1.6	IN.3.5, IN3.6
2.1.5.3	**Action:** Receive data	IN.1.6	IN.3.5, IN3.6
2.1.5.4	**Action:** Modify data	N/A	PH.2.5.2, PH. 3.4
2.1.5.4a	**Alternate Action:** Annotate data		PH.2.1(4)
2.1.5.5	**Action:** Transmit modified and/or annotated data		S.3.6, IN 3.5, IN3.6
2.1.5.5a	**Alternate Action:** Transmit request to modify and/or correct data	IN.5.4	IN.2.1, IN.3.5, S.3.6, PH.2.5.2
2.1.6.0	**Event: Close Account**		
2.1.6.1	**Action:** Request to close PHR account		IN.1.1(7), IN.2.2, PH.1.1(9)

Use Case Ref	Consumer Empowerment: Registration and Medication History Use Case Event/Action	EHRS/FM	PHRS/ FM
2.1.6.1a	**Alternate Action:** Request registration and medication data sent to another provider of PHR services		IN.1.5, IN.1.6
2.1.6.2	**Action:** Receive confirmation of account closure		GAP
2.1.6.2a	**Alternate Action:** Receive confirmation of account transfer		GAP
	Provider of PHR Services Perspective		
2.2.1.0	**Event: Create account**		
2.2.1.1	**Action:** Confirm consumer's identity	IN .1.1, S.1.4.1, S.3.1.5	PH.1.1(5), IN.3.1
2.2.1.2	**Action:** Create consumer's account	N/A	PH.1.1, IN.4,
2.2.1.3	**Action:** Maintain consumer's permissions for system access	IN.1.2	IN.3.2, PH.3.5.3
2.2.2.0	**Event: Gather registration and/or medication data**		
2.2.2.1	**Action:** Receive consumer's request	IN1.1, S.2.2.1	IN.3.1
2.2.2.2	**Action:** Confirm consumer's identity	IN.1.1	PH.1.1, IN.3.1
2.2.2.3	**Action:** Transmit request for registration/medication data to data or network system	IN.5.1, IN.1.6, IN.2.1, IN.1.7	IN.2.1, IN.3.5, IN.1.1, IN3.6, IN.3.10 S.3.6
2.2.2.4	**Action:** Receive registration/medication data	IN.1.6, IN.1.7	IN.3.5, IN.3.6, PH.2.5.2, IN.1 (2)
2.2.2.5	**Action:** Acknowledge receipt of registration/ medication data	IN.1.5	IN.3.4, IN.3.5
2.2.2.6	**Action:** Log interaction	IN.2.2	IN.4

Use Case Ref	Consumer Empowerment: Registration and Medication History Use Case Event/Action	EHRS/FM	PHRS/ FM
2.2.3.0	**Event: Process request for registration and/or medication data**		
2.2.3.1	**Action:** Receive and validate the query request	IN.6.1.5, IN.2.2.1	S.3.8, S.3.9
2.2.3.2	**Action:** Authenticate and verify the authorization of the requestor	IN1.1, IN.1.2, IN.1.3	IN.3.1, IN.3.2, IN.3.3
2.2.3.3	**Action:** Transmit registration and medication data to an authorized system	IN.1.5, S.3.3.3	IN.3.4, S.3.6, IN.1.4
2.2.3.4	**Action:** Log interactions	IN2.2	IN.4
2.2.4.0	**Event: Close Account**		
2.2.4.1	**Action:** Receive and validate query	IN.6.1.5, IN.2.2.1	S.3.8
2.2.4.2	**Action:** Authenticate and verify authorization of the requestor	DC.1.1.3.2, DC.1.1.3.3,	IN.3.1, IN.3.2, IN.3.3
2.2.4.3	**Action:** Terminate account	IN.2.1	PH.1.1(9), IN.1.1(7)
2.2.4.3a	**Alternate Action:** Transmit registration and medication data to the new provider of PHR services	N/A	IN.1.4, IN.3.4, S.3.6
2.2.4.4	**Action:** Transmit confirmation to consumer	IN.2.1	IN.1.1(6)
2.2.4.5	**Action:** Log interaction	IN.2.2	IN.4
	Health Care Provider Perspective		
2.3.1.0	**Event: View registration and/or medication data**		
2.3.1.1	**Action:** Submit authentication information to PHR	DC.1.1.3.2, DC.1.1.3.3, IN.1.7	IN.3.1.4, IN.3.1.5,

Use Case Ref	Consumer Empowerment: Registration and Medication History Use Case Event/Action	EHRS/FM	PHRS/ FM
2.3.1.2	**Action:** Receive registration and medication data	IN.2.5.1 IN.2.5.2	S.3.6.5, S.3.6.6, IN.1.4
2.3.2.0	**Event: Integrate registration data into EHR or other care system**		
2.3.2.1	**Action:** Transmit request for registration/medication data to provider of PHR services	GAP	N/A
2.3.2.2	**Action:** Accept data into EHR system	DC.1.1.2, DC.1.1.3, IN.2.4	N/A
2.3.2.3	**Action:** Confirm data integrity	IN.1.6, IN.1.7, IN.1.8	IN.3.5, IN.3.6, IN.3.7
2.3.2.3a	**Alternate Action:** Produce exception list of errors	GAP	GAP
2.3.2.4	**Action:** Parse and validate results content	IN.2.4, IN.1.8	IN.1.4, IN.3.7
2.3.2.5	**Action:** Acknowledge receipt of registration and medication data	GAP	GAP
2.3.2.6	**Action:** Log interaction	DC.3.2.3.3, IN.2.2	IN.4
2.3.3.0	**Event: Process requested data**		
2.3.3.1	**Action:** Receive and validate the query request	DC.1.1.3	IN.1.4.5, IN.1.4.6,
2.3.3.2	**Action:** Authenticate and verify authorization of the requestor	IN.1.1, IN.1.2	IN.3.1, IN.3.2
2.3.3.3	**Action:** Transmit registration and medication data to an authorized system	DC 2.4.4.1	PH.6.6
2.3.3.4	**Action:** Log interaction	DC.3.2.3.3, IN.2.2	IN.4
	Data or Network System Perspective		
2.4.1.0	**Event: Process request for registration and/or medication data**		

Use Case Ref	Consumer Empowerment: Registration and Medication History Use Case Event/Action	EHRS/FM	PHRS/ FM
2.4.1.1	**Action:** Receive and validate the query request	N/A	S.3.8
2.4.1.2	**Action:** Authenticate and verify authorization of the requestor	DC.1.1.1, IN.1.1, IN.1.2, IN.1.3, IN.1.3, IN.1.6, DC.1.3.3	PH.3.5.3, IN.3.1, IN.3.2, IN.3.3, S.3.3.1
2.4.1.3	**Action:** Authorize release of registration and medication data	N/A	S.3.6, S.3.8, PH.3.5.3
2.4.1.4	**Action:** Transmit registration and medication data to an authorized system	IN.7, IN.5.1, IN.1.6, IN.1.7, DC.2.4.4.1, IN.2.2	IN.1.12, IN.2.1, IN.3.5, IN.3.6(1, 3), PH.6.6
2.4.1.5	**Action:** Log interaction	IN.2.2	IN.4
	Locator Service		
	NO INFORMATION LISTED ON THE PDF		

Section 6. EHR Record Persistence and Lifecycle

[See Methodology Steps 4a-4d above.] The primary Action of the Consumer Empowerment Use Case is the sharing of clinical information between the consumer and their providers. From this Action (Transmit registration and medication data to an authorized system), a persistent Action Record is originated – comprising of medication history and registration

information and related context (who, what, when, where). Additional Action Records may be originated for those Use Case Actions requiring entries (and thus persistent evidence) in the EHR.

The following table specifies for each Action:
.1 Column C – Whether the Action [shall/should/may/does not] require a persistent Action Record
.2 Column D – Related Actions which may combine Action Records, if applicable
.3 Column E – Related EHR/LM Lifecycle Event, if applicable

Use Case Ref	Consumer Empowerment Use Case Use Case Event/Action	Action _____ require an Action Record	Combined Action Records	EHR/LM – Lifecycle Event
	Consumer/Patient Perspective			
2.1.1.0	**Event: Select a provider of PHR services**			
2.1.1.1	**Action:** Provide identification data	does not		
2.1.2.0	**Event: Establish/Change permissions**			
2.1.2.1	**Action**: Authenticate to system	does not		
2.1.2.2	**Action:** Establish/Modify permissions for access to the system	should		1 – Originate Record
2.1.3.0	**Event: Log on to system**			
2.1.3.1	**Action:** Authenticate to system	does not		
2.1.4.0	**Event: View registration and medication data**			
2.1.4.1	**Action:** Authenticate to system	does not	Combine all 2.1.4.- Actions	
2.1.4.2	**Action:** Request data	may	Combine all 2.1.4.- Actions	
2.1.4.3	**Action:** Receive data	should		6.x – Receive Record
2.1.5.0	**Event: Modify registration and medication data**			

Use Case Ref	Consumer Empowerment Use Case Use Case Event/Action	Action _____ require an Action Record	Combined Action Records	EHR/LM – Lifecycle Event
2.1.5.1	**Action:** Authenticate to system	does not	Combine Actions 2.1.5.1-3	
2.1.5.2	**Action:** Request data	may	Combine Actions 2.1.5.1-3	
2.1.5.3	**Action:** Receive data	may	Combine Actions 2.1.5.1-3	6.x – Receive Record
2.1.5.4	**Action:** Modify data	shall		2.1 – Amend Record Content
2.1.5.4a	**Alternate Action:** Annotate data	shall		2.1 – Amend Record Content
2.1.5.5	**Action:** Transmit modified and/or annotated data	should		5.x – Transmit Record
2.1.5.5a	**Alternate Action:** Transmit request to modify and/or correct data	should		5.x – Transmit Record
2.1.6.0	**Event: Close Account**			
2.1.6.1	**Action:** Request to close PHR account	shall		1 – Originate Record
2.1.6.1a	**Alternate Action:** Request registration and medication data sent to another provider of PHR services	should		5.x – Transmit Record
2.1.6.2	**Action:** Receive confirmation of account closure	should		6.x – Receive Record
2.1.6.2a	**Alternate Action:** Receive confirmation of account transfer	should		6.x – Receive Record
2.2.1.0	**Event: Create account**			

Use Case Ref	Consumer Empowerment Use Case Use Case Event/Action	Action _____ require an Action Record	Combined Action Records	EHR/LM – Lifecycle Event
2.2.1.1	**Action:** Confirm consumer's identity	does not	Combine all 2.2.1.- Actions	
2.2.1.2	**Action:** Create consumer's account	shall	Combine all 2.2.1.- Actions	1 – Originate Record
2.2.1.3	**Action:** Maintain consumer's permissions for system access	shall	Combine all 2.2.1.- Actions	1 – Originate Record
2.2.2.0	**Event: Gather registration and/or medication data**			
2.2.2.1	**Action:** Receive consumer's request	may	Combine all 2.2.2.- Actions	
2.2.2.2	**Action:** Confirm consumer's identity	may	Combine all 2.2.2.- Actions	
2.2.2.3	**Action:** Transmit request for registration/medication data to data or network system	may	Combine all 2.2.2.- Actions	
2.2.2.4	**Action:** Receive registration/medication data	may	Combine all 2.2.2.- Actions	6.x – Receive Record
2.2.2.5	**Action:** Acknowledge receipt of registration/ medication data	may	Combine all 2.2.2.- Actions	
2.2.2.6	**Action:** Log interaction	should	Combine all 2.2.2.- Actions	1 – Originate Record
2.2.3.0	**Event: Process request for registration and/or medication data**			
2.2.3.1	**Action:** Receive and validate the query request	may	Combine all 2.2.3.- Actions	
2.2.3.2	**Action:** Authenticate and verify the authorization of the requestor	may	Combine all 2.2.3.- Actions	
2.2.3.3	**Action:** Transmit registration and medication data to an authorized system	should	Combine all 2.2.3.- Actions	5.x – Transmit Record(s)

Use Case Ref	Consumer Empowerment Use Case Use Case Event/Action	Action _____ require an Action Record	Combined Action Records	EHR/LM – Lifecycle Event
2.2.3.4	**Action:** Log interactions	should		1 – Originate Record
2.2.4.0	**Event: Close Account**			
2.2.4.1	**Action:** Receive and validate query	should	Combine all 2.2.4.- Actions	
2.2.4.2	**Action:** Authenticate and verify authorization of the requestor	may	Combine all 2.2.4.- Actions	
2.2.4.3	**Action:** Terminate account	shall	Combine all 2.2.4.- Actions	
2.2.4.3a	**Alternate Action:** Transmit registration and medication data to the new provider of PHR services	should	Combine all 2.2.4.- Actions	2 – Transmit Record(s)
2.2.4.4	**Action:** Transmit confirmation to consumer	may	Combine all 2.2.4.- Actions	
2.2.4.5	**Action:** Log interaction	should	Combine all 2.2.4.- Actions	1 – Originate Record
	Health Care Provider Perspective			
2.3.1.0	**Event: View registration and/or medication data**			
2.3.1.1	**Action:** Submit authentication information to PHR	should	Combine both 2.3.1.- Actions	
2.3.1.2	**Action:** Receive registration and medication data	should	Combine both 2.3.1.- Actions	6.x – Receive Record(s)
2.3.2.0	**Event: Integrate registration data into EHR or other care system**			
2.3.2.1	**Action:** Transmit request for registration/medication data to provider of PHR services	may	Combine all 2.3.2.- Actions	

Use Case Ref	Consumer Empowerment Use Case Use Case Event/Action	Action _____ require an Action Record	Combined Action Records	EHR/LM – Lifecycle Event
2.3.2.2	**Action:** Accept data into EHR system	should	Combine all 2.3.2.- Actions	
2.3.2.3	**Action:** Confirm data integrity	may	Combine all 2.3.2.- Actions	
2.3.2.3a	**Alternate Action:** Produce exception list of errors	may	Combine all 2.3.2.- Actions	
2.3.2.4	**Action:** Parse and validate results content	may	Combine all 2.3.2.- Actions	
2.3.2.5	**Action:** Acknowledge receipt of registration and medication data	may	Combine all 2.3.2.- Actions	
2.3.2.6	**Action:** Log interaction	should	Combine all 2.3.2.- Actions	
2.3.3.0	**Event: Process requested data**			
2.3.3.1	**Action:** Receive and validate the query request	may		
2.3.3.2	**Action:** Authenticate and verify authorization of the requestor	may		
2.3.3.3	**Action:** Transmit registration and medication data to an authorized system	should		
2.3.3.4	**Action:** Log interaction	should		
	Data o Data or Network System Perspective Network System Perspective			
2.4.1.0	**Event: Process request for registration and/or medication data**			
2.4.1.1	**Action:** Receive and validate the query request	may	Combine all 2.4.1.- Actions	
2.4.1.2	**Action:** Authenticate and verify authorization of the requestor	may	Combine all 2.4.1.- Actions	

Use Case Ref	Consumer Empowerment Use Case Use Case Event/Action	Action _____ require an Action Record	Combined Action Records	EHR/LM – Lifecycle Event
2.4.1.3	**Action:** Authorize release of registration and medication data	may	Combine all 2.4.1.- Actions	
2.4.1.4	**Action:** Transmit registration and medication data to an authorized system	should	Combine all 2.4.1.- Actions	5.x – Transmit Record(s)
2.4.1.5	**Action:** Log interaction	should	Combine all 2.4.1.- Actions	1 – Originate Record
	Clinician Perspective			

Section 7. EHR Record Interoperability

[See Methodology Step 5 above.] The following specifies which EHR Interoperability characteristics (per Action Record, Section 3 of the EHR Interoperability Model) are applicable – to evidence Action occurrence – in the form of a persistent Action Record. Note that Action (Use Case term) is equivalent to Act (EHR Interoperability Model term).

In Column C, requirement is specified as "shall", "may" or Not Applicable ('N/A").

EHR/IM Ref	EHR Interoperability Characteristic	Applicability
3	An Act is documented by an Act Record instance.	shall
3.1	An Act/Act Record instance is uniquely identifiable.	shall
3.2	An Act Record is persistent legal evidence of Act occurrence.	shall
3.3	An Act Record is a unit of record of the Health Record.	shall
3.4	An Act Record is comprised of multiple attributes (elements).	shall
3.5	An Act Record may contain attributes:	
3.5.1	Current to the Act	shall
3.5.2	Of an historical nature	may

EHR/IM Ref	EHR Interoperability Characteristic	Applicability
3.6	An Act Record is (one of):	
3.6.1	Patient related and patient identifiable.	shall
3.6.2	Not patient specific.	N/A
3.6.3	Patient related but aliased.	N/A
3.6.4	Patient related but anonymized.	N/A
3.7	An Act Record is (one of):	
3.7.1	A non-attestable unit of the health record	N/A
3.7.2	An attestable (signature specific) unit of the health record, which is (one of):	
3.7.2.1	Attested by one or more Actor(s)/ Author(s)	shall
3.7.2.2	Not yet attested	may
3.8	An Act Record has (may have):	
3.8.1	One or more originating Actor(s)/Author(s)	shall
3.8.2	One or more amending Actor(s)/Author(s)	N/A
3.9	An Act Record is sourced by an originating application.	shall
3.10	An Act Record allows revision by additive amendment only.	N/A
3.10.1	Each Act Record amendment may include a reason for amendment	N/A
3.11	An Act Record is timestamped according to:	
3.11.1	Act Date/Time	shall
3.11.2	Act Duration	may
3.11.3	Act Record Origination Date/Time	shall
3.11.4	Act Record Amendment Date(s)/Time(s)	N/A
3.12	An Act Record is oriented to physical locations:	
3.12.1	Act Location	shall
3.12.2	Act Record Origination Location	shall
3.12.3	Act Record Amendment Location(s)	N/A
3.13	An Act Record is originated/amended at a specific device and network location.	shall
3.14	An Act Record may contain uniquely identified multi-media elements.	may
3.15	An Act Record may contain uniquely identified document elements.	may

EHR/IM Ref	EHR Interoperability Characteristic	Applicability
3.16	An Act Record may be signed or attested as complete, by declaration or by algorithmic measure.	may

Section 8. Discoveries and Comments

This section is divided into three sections, according to which area discoveries and comments were made: the EHR functional model, the PHR functional model, or the ONC/AHIC Use Case or HITSP Interoperability Specification.

EHR Functional Model:

1. Action: Receive and validate the query request (2.4.1.1) – The EHRS/FM may be missing two functions:
    a. Validate the query request.
    b. Support one-time requests for data. Currently, only Support for recurring requests is documented in the FM.

2. Action: Authorize release of registration and medication data (2.4.1.3) – The EHRS/FM does not appear to support this action.

PHR Functional Model:

1. Creating an account should have specific functions that address the intent of the Use Case. For instance, what type of data should be required prior to activation of the account, how is that data verified, etc.?
2. Action 2.2.1.2: Create consumer account - Does this refer to the act of a new record in the PHR for a new account, or does it encompass the gathering of data for necessary components, such as the provider/facility information?
3. Action 2.4.1.2: Authenticate and verify authorization of the requestor - IN.3.2 Entity Authorization appears to support this action after reading it's description, but there is no specific conformance criteria. Should one be added?

ONC/AHIC Use Case or HITSP Interoperability Specification

1. Action 2.2.1.2**:** Create consumer's account – There seems to be a gap in how to get information INTO the PHR. What type of data goes into creating an account? Does it rely on the patient filling in all sections? How would it be verified or validated?
2. Data/Network System Perspective: One step appears to be missing from the Use Case. How does the data/network system retrieve the data from either the EHRS or PHRS? There should be an "Action: Retrieve (or extract) requested registration and medication data" before the Action: Transmit registration and medication data to

an authorized system. The system cannot send the data without first retrieving it from either the EHRS or PHRS. There are multiple functions in both models that support this action.

3. There appears to be HIPAA Security violations in the Use Case itself. Throughout the risk analysis process, access to the Internet has been identified as a risk to the Internet – particularly in public health and other government agencies. Many public health office front staff have 'dummy terminals' that only have programs installed that were designated by the agency to run the office. There are no external drives or access to the Internet. However, even if they had access to the Internet, HIPAA Security policy often forbids the downloading of information onto their network.
4. PHR providers are not considered a 'covered entity' under HIPAA and are not held to HIPAA standards for privacy and security concerns.
5. The business actors include RHIOs and HIEs, yet there are no actions and events for a record locator service.

APPENDIX A

Section A.1. Terms and Acronyms

AHIC	American Health Information Community, Advisory to HHS Secretary
ANSI	American National Standards Institute
CCHIT	Certification Commission for Health Information Technology
EHR	Electronic Health Record
EHR TC	HL7 Electronic Health Record Technical Committee
EHRS/FM	HL7 Electronic Health Record Functional Model, Normative Standard, published February 2007
EHR/IM	HL7 EHR Interoperability Model, Draft Standard for Trial Use, published February 2007
EHR/LM	HL7 EHR Lifecycle Model, Current Working Draft
HITSP	ANSI Health Information Technology Standards Panel
HL7	Health Level Seven, an ANSI accredited Standards Developing Organization
ONC	HHS Office of the National Coordinator (for Health Information Technology)
PHR	Personal Health Record
PHRS/FM	HL7 Personal Health Record System Model, Current Working Draft

Section A.2. 2006-07 ONC/AHIC/HITSP Use Cases

Following are the seven ONC/AHIC/HITSP Uses Cases for Years 1&2 (2006-07). Note that Chapter numbers are in the same sequence.

Year 1 – 2006

1. EHR/Lab Results Reporting (Chapter 1)
2. Biosurveillance
3. Consumer Empowerment – demographic clipboard, medication summary

Year 2 – 2007

4. Emergency Responder
5. Medication Management
6. Quality Reporting
7. Consumer Access to Health Information

Complete ONC/AHIC Use Cases are available at this URL: http://www.hhs.gov/healthit/usecases/

Section A.3. ONC/AHIC/HITSP Four Level Use Case Hierarchy

Following is the four level Use Case hierarchy:

.1 Use Case :: has one or more
.2 Scenario(s) :: which have one or more
.3 Event(s) :: which have one or more
.4 Action(s)

Note that ONC/AHIC Use Case Actions are equivalent to the Acts specified in the HL7 EHR/IM and EHR/LM.