

ONC/AHIC/HITSP Use Cases

**Part 1: Alignment with HL7 EHR/PHR
Models**

Part 2: Forward Strategy

HL7 EHR Technical Committee

2 June 2008

Terms and Acronyms

Glossary

- AHIC - American Health Information Community
- ANSI - American National Standards Institute
- CCHIT - Certification Commission for HIT
- CDAR2 - HL7 Clinical Document Architecture, Release 2
- EHR - Electronic Health Record
- EHR TC - HL7 EHR Technical Committee
- HIT - Health Information Technology
- HITSP - ANSI HIT Standards Panel
- HL7 - Health Level Seven, an ANSI Accredited Standards Developer
- IHE - Integrating the Health Enterprise
- ISO - International Organization for Standardization
- ONC - Office of the National Coordinator for HIT
- PHR - Personal Health Record
- SOA - Service Oriented Architecture
- XDS/XDR - IHE Cross-Enterprise Document Sharing/Repository

Presentation Overview

Part 1: Background & Alignment

- Describes:
 - Health Level Seven (HL7)
 - EHR Technical Committee
 - Consensus Balloted EHR/PHR Standards
- Shows:
 - How ONC/AHIC/HITSP Use Cases are aligned with (supported by) HL7 EHR/PHR Models
 - Alignment methodology, gap analysis
 - How Use Case Actions are evidenced by persistent Action Records

HL7 Electronic Health Record Technical Committee

HL7 EHR Technical Committee

Mission

Establish requirements for:

- Functionality of EHR and PHR Systems
- Ubiquitous Record Interoperability amongst EHR and PHR Systems
- End-to-End Trust Framework for Interoperable EHR Records

HL7 EHR/PHR Models

HL7 EHR Technical Committee

EHR/PHR Models

	HL7 Model	Specifies...
S Y S T E M S	EHR Functional Model (EHR/FM)	Functional characteristics (functions) of Electronic Health Record <u>Systems</u> (EHR)
	PHR Functional Model (PHR/FM)	Functional characteristics (functions) of Personal Health Record <u>Systems</u> (PHR)
R E C O R D S	EHR Interoperability Model (EHR/IM)	Characteristics of interoperable EHR <u>Records</u>
	EHR Lifecycle Model (EHR/LM)	Key events in the EHR <u>Record</u> lifecycle

HL7 EHR System Functional Model

EHR/S/FM

- Normative Standard
 - Balloted/approved January 2007
 - Published March 2007
- HL7 and ANSI Approved
- Approved as ISO TC215 Work Item
- Specifies functional characteristics (functions) of EHR Systems
- Is profiled for care settings, localities and uses
 - EHR Systems conform to EHR/S/FM Profiles
- Is used as framework for CCHIT certification of EHR Systems

Alignment Analysis:

- Specifies functions required (or likely to be invoked) by each Use Case Action
- Optionally, specifies function-related conformance criteria
- Identifies gaps (i.e., missing functions or criteria)

HL7 PHR System Functional Model

PHRS/FM

- Draft Standard for Trial Use
 - Balloted/approved December 2007
- Specifies functional characteristics (functions) of PHR Systems
- May be profiled for sponsors, localities and uses
 - PHR Systems conform to PHRS/FM Profiles
- Offers potential framework for CCHIT certification of PHR Systems (future)

Alignment Analysis:

- Specifies functions required (or likely to be invoked) by each Use Case Action
- Optionally, specifies function-related conformance criteria
- Identifies gaps (i.e., missing functions or criteria)

HL7 EHR Interoperability Model

EHR/IM

- Draft Standard for Trial Use
 - Balloted/approved January 2007
 - Published March 2007
- Specifies characteristics of interoperable EHR records
- Establishes Common EHR Record Unit (Action Record)
- Establishes/anchors end-to-end “chain of trust” for EHR Records
 - From point of record origination
 - To each ultimate point of record access/use
 - Traversing multiple points of exchange, if applicable

Alignment Analysis:

- Shows each Use Case Action documented by persistent Action Record, as applicable
- Shows which EHR interoperability requirements are applicable to each Use Case
- Shows how Action Records are ascribed as to: Who, What, When, Where (Action Context)
- Identifies gaps (i.e., missing interoperability characteristics or criteria)

HL7 EHR Lifecycle Model

EHR/LM

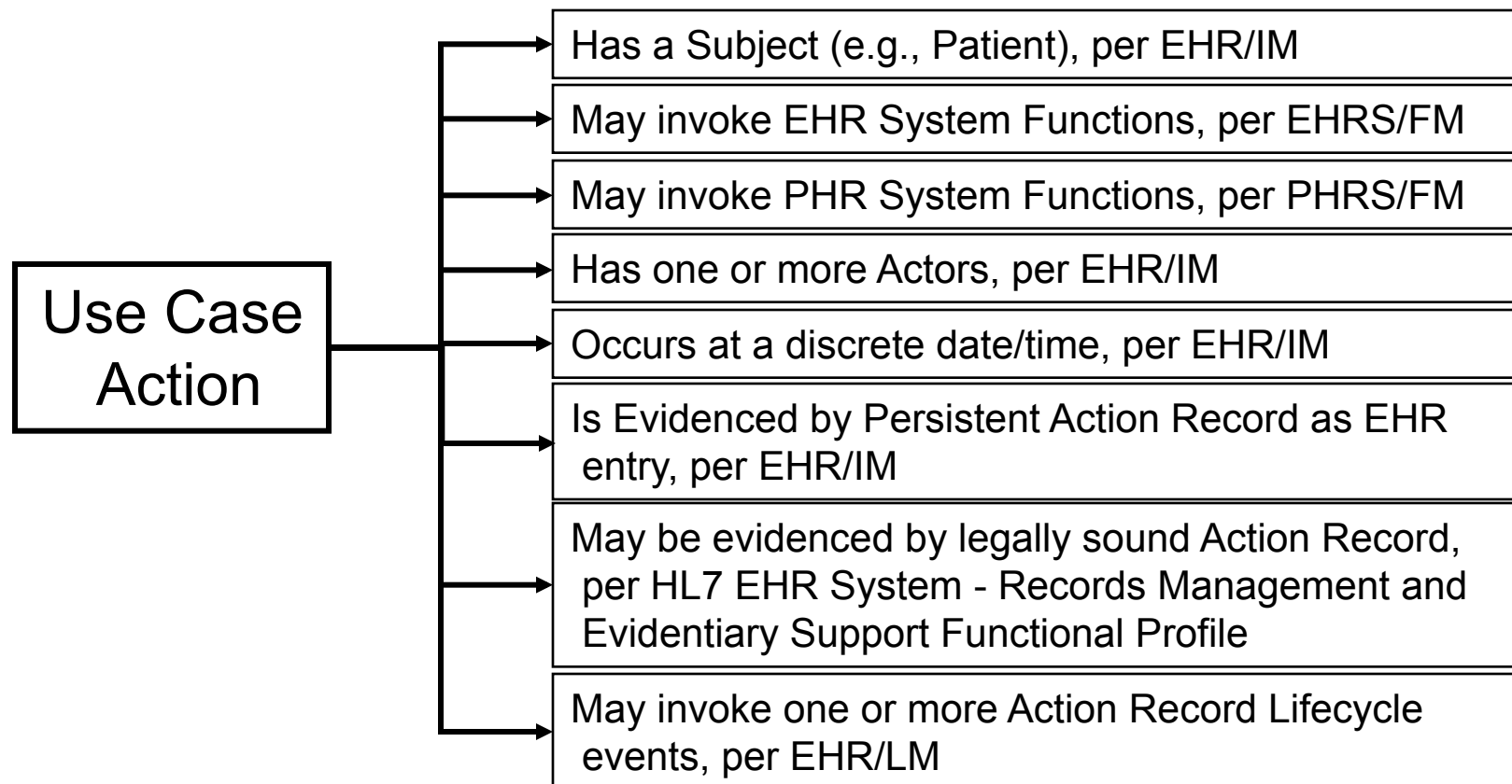
- Draft Standard for Trial Use
 - Balloted/approved January 2008
 - Published March 2008
- Shows record lifecycle events within System retaining EHR records
- Shows end-to-end record lifecycle events across multiple Systems and traversing points of record exchange
- Supplements EHR Interoperability Model

Alignment Analysis:

- Specifies EHRS lifecycle event(s) corresponding to each Use Case Action
- Identifies gaps, missing events

Support for Use Case Actions

Designed into HL7 Models



etc...

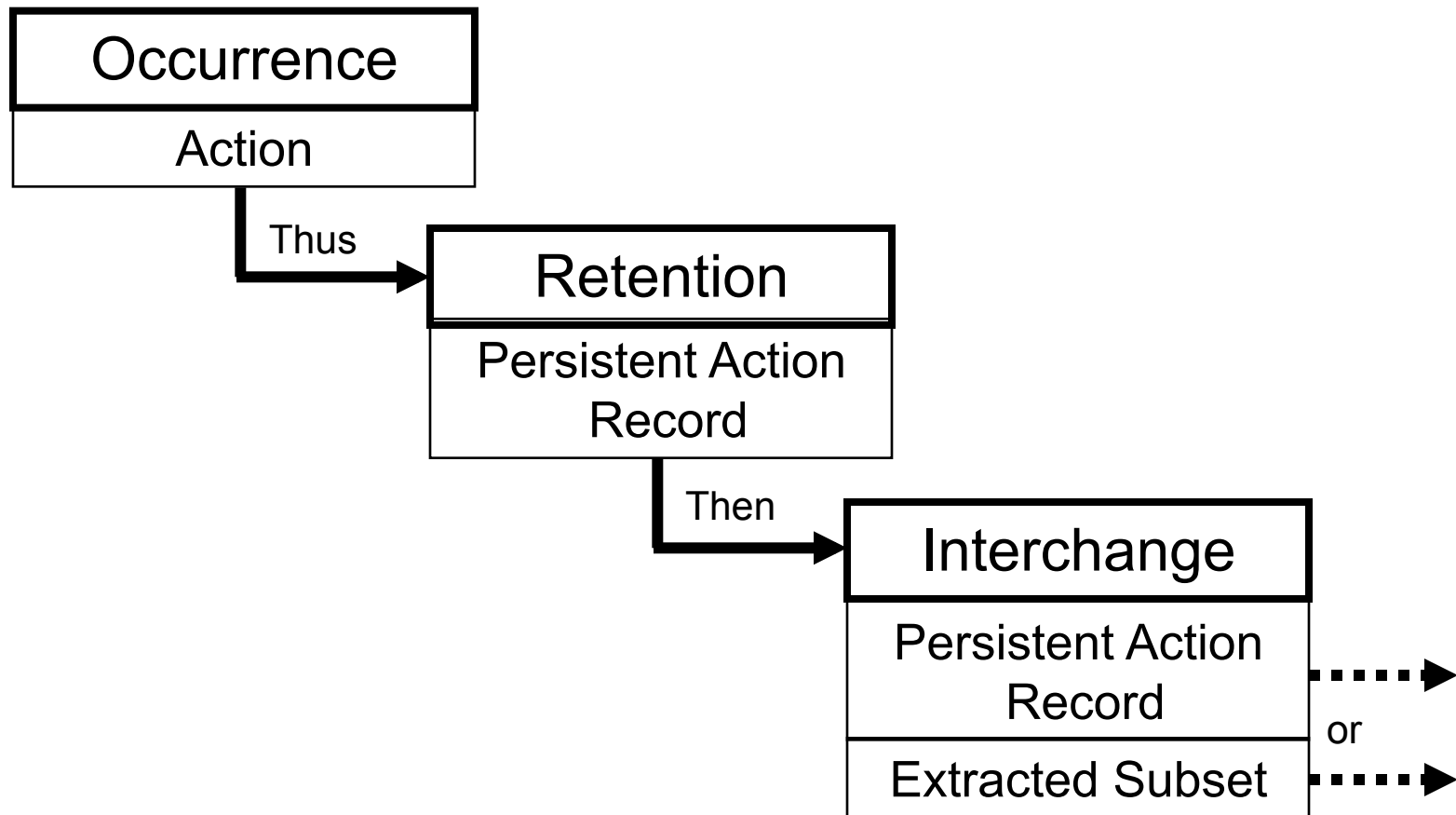
A Paradigm for Accountability The Action + Action Record

Simple Paradigm

- Start with a discrete unit of service
 - Action
- Establish a corresponding EHR unit of record
 - Action Record
- Persist in EHR
 - Action Records = persistent entries in EHR

EHR Interoperability Fundamentals

Occurrence/Retention/Interchange



Use Case Alignment Analysis

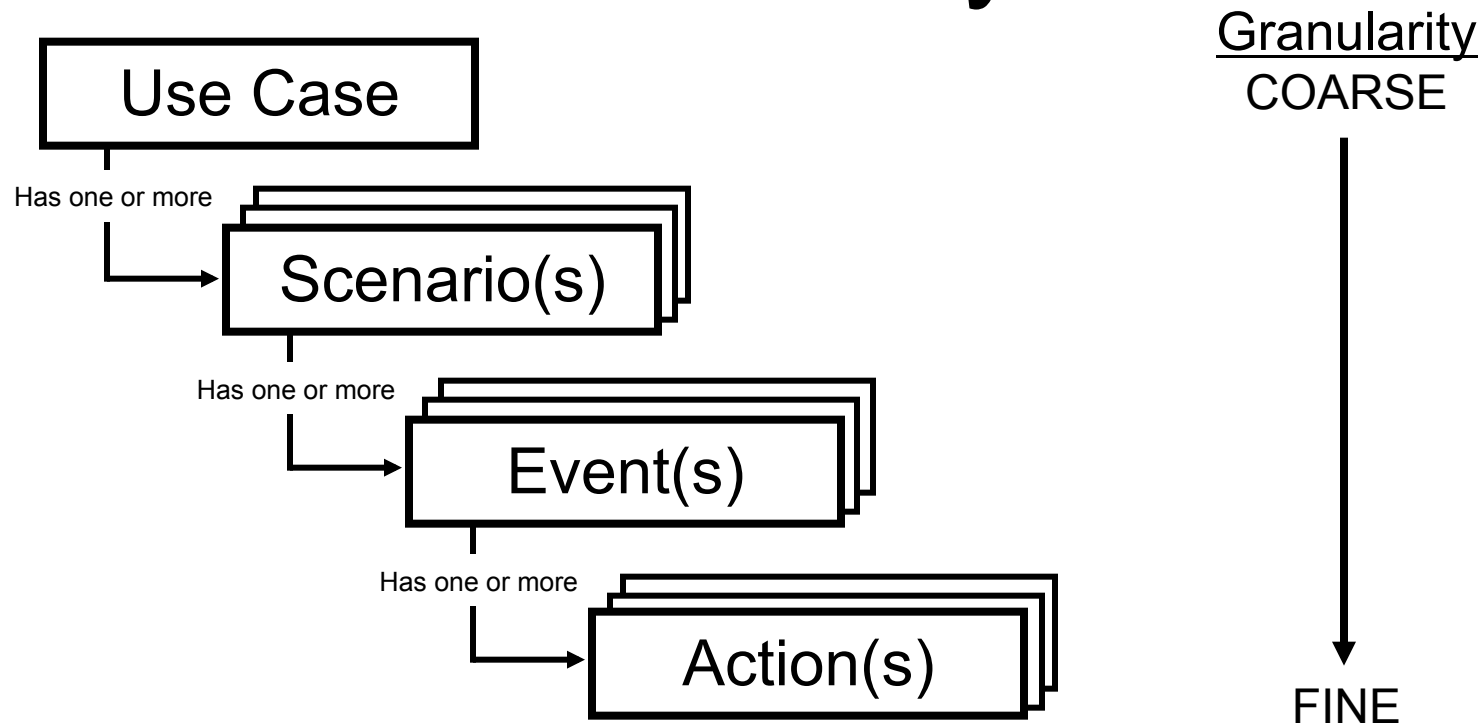
ONC/AHIC/HITSP

Use Case Alignment Analysis

- Year 1 - Analysis Complete
 - Care Delivery - EHR/Lab Results Reporting
 - Consumer Empowerment - Demographics and Medication History
 - Population Health - Biosurveillance
- Year 2/3 - Analysis Underway
 - Quality Reporting
 - Remote Monitoring

ONC/AHIC/HITSP

Use Case Hierarchy



- Actions occur at leaf level of each Use Case.
- All Use Cases resolve to a set (and sequence) of Actions.

Use Case Alignment Analysis

Methodology

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

For each Use Case Action:

2a Specify which EHR system function(s) it likely invokes.

2b Specify any EHR system function(s) that are required but absent from the current EHRs/FM (a gap).

3a Specify which PHR system function(s) it likely invokes.

3b Specify any PHR system function(s) that are required but absent from the current PHRS/FM draft (a gap).

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 an Action Record, as persistent evidence of Action occurrence.

Use Case Alignment Analysis

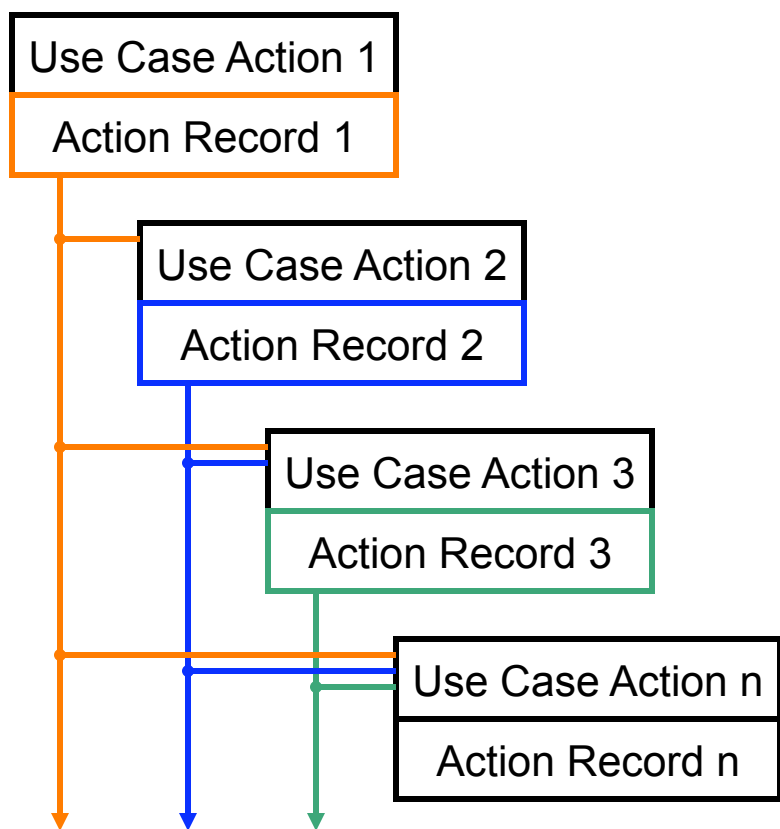
Methodology, con't

For each Use Case Action (con't):

- 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).
- 5 Specify 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.

Use Case Alignment Analysis

Record Flow



As applicable, each Use Case Action produces an Action Record which is then available to inform (as input to) subsequent Action(s).

Use Case Alignment Analysis

Completeness

	Documented By	Complete
Action 1	Action Record 1	X
Action 2	Action Record 2	X
Action 3	Action Record 3	X
Action n	Action Record n	X
Use Case Scenario (Sum of Actions)	Action Records 1-n	X

Completion of each Use Case Scenario may be predicated on completion of contained Actions and Action Records.

HL7 EHR Technical Committee

References

- ONC/AHIC/HITSP Use Case Alignment with HL7 EHR/PHR Models
 - Chapter 1, Year 1 EHR/Lab Results Reporting Use Case
 - Chapter 2, Year 1 Consumer Empowerment/Demographics and Medication History
 - Chapter 3, Year 1 Population Health/Biosurveillance
- HL7 EHR System Functional Model
- HL7 PHR System Functional Model
- HL7 EHR Interoperability Model
- HL7 EHR Lifecycle Model
- HL7 Implementation Guide for CDA Release 2: Reference Profile for EHR Interoperability
- HL7 “Coming to Terms” White Paper
- HL7 EHR System - Records Management and Evidentiary Support Functional Profile

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Resources

- EHR TC
 - <http://www.hl7.org/ehr>