Section Interop-Intro – EHR Interoperability/Lifecycle Models – Introduction and Basic Concepts

#### Section Intro.1: Background

In recent years "interoperability" has been a topic of great interest to the healthcare community. Many interoperability definitions have been offered, multiple interoperability claims have been made. The HL7 EHR TC has taken a particular interest to ensure that EHR interoperability is not just a byword but that industry consensus could be achieved regarding "What is EHR interoperability?" and that EHR interoperability could in fact be manifested via testable conformance criteria.

The first crucial step is to achieve an industry consensus agreement. This is the purpose of the HL7 EHR Interoperability Model (EHR/IM). It offers a set of EHR interoperability assertions and characteristics. Assertions express foundational concepts. Characteristics describe pertinent qualifiers and have testable conformance criteria (to allow validation of actual EHR records).

As the interoperability characteristics of EHR records were established, it was apparent that interoperability was not fulfilled at a single instance in time. Indeed the entire record lifecycle is within the scope of interoperability, starting at the point of record origination with vital continuity assured through subsequent record related events.

#### Section Intro.2: Purpose

The HL7 EHR Lifecycle Model supplements the HL7 EHR Interoperability Model, building on the Act Record as a common record unit of the EHR. The EHR/IM formalizes the EHR Act Record, as a persistent record of acts (actions) occurring in health(care) delivery. The EHR/LM formalizes events in the Act Record lifecycle.

The following example illustrates how the EHR Record lifecycle propagates downstream via EHR record flows from the source System (from ISO 21089, "Health Informatics – Trusted End-to-End Information Flows").



Figure 1: From ISO 21089, "Health Informatics – Trusted End-to-End Information Flows"

### Section Intro.3: Objectives

Objectives for the EHR Lifecycle Model are to:

- Establish a common industry reference for the EHR Act Record lifecycle.
- Establish a requirements-first standard specification for EHR Act Record lifecycle.
- Establish a model that is focused on lifecycle events of EHR Act Records as a supplement to the HL7 EHR Interoperability Model (focused on the interoperability characteristics of EHR Records) and its companion, the HL7 EHR-S Functional Model (focused on functional characteristics of EHR Systems).
- Establish testable conformance criteria for EHR Systems and EHR Records at key points/events in the Act Record lifecycle.
- Establish a framework to promote legally qualified EHR Act Records.
- Specify the context of EHR Act Record **flow and lifecycle**, including origination, retention, amendment, interchange, protection, access, and use.
- Specify the EHR Act Record in context as an **immediate record (documentation) of the health(care) delivery process**, integral to work flow and concurrent to clinical practice.
- Specify **What** (i.e., EHR Act Record Lifecycle Characteristics) and **Why** (i.e., Rationale), but **not HOW** (i.e., Architectures and Implementations).
- Establish an industry consensus EHR Act Record lifecycle specification that is **technology-, vendor-, and productneutral**.
- Leverage the **HL7 v3 Reference Information Model** to describe the primary EHR Act Record classes of Act, Actor, Role, and Participation.
- Leverage the HL7/ANSI open consensus standards development process to achieve industry collaboration and agreement.
- Ballot and publish a draft standard for trial use (DSTU) as precedent to a full normative standard.
- Enable conformance profiles specific to care settings, realms, products, implementations, and uses.

#### Section Intro.4: Health(care) Delivery

The HL7 EHR Interoperability Model establishes the following frame of reference for health(care) delivery and the health record. From EHR/IM, Section 1:

- Health(care) delivery occurs at points along a time continuum.
- The Health Record documents health(care) along the time continuum.

### Section Intro.5: The Health(care) Act

In EHR/IM Section 2, the health(care) Act includes these key aspects:

- An Act is a discrete action, service or event occurring in the course of health(care) delivery.
- An Act is an accountable unit of health(care) delivery.
- Health(care) delivery is comprised of Acts.
- An Act has associated facts, findings, and observations.
- An Act may be patient specific or not.
- An Act has Actor(s), in roles and with specific participations.
- An Act occurs at a specific date/time and has an elapsed time.

#### Section Intro.6: The Act Record

In EHR/IM Section 3, the Act Record is described in the following terms:

- An Act is documented by an Act Record instance.
- An Act/Act Record instance is uniquely identifiable.
- An Act Record is persistent legal evidence of Act occurrence.
- An Act Record is a unit of record of the Health Record.

EHR entry [is that] portion of an electronic health record documenting part or all of a delivered or intended care activity, a clinical observation or a statement concerning health status or needs, and which is to be managed as a whole from an EHR repository and life-cycle perspective.

NOTE: The scope of the EHR Lifecycle Model is intentionally constrained to EHR entries committed to persistent storage in the EHR. Interim data or records, initiated or in process but not yet ready for persistent storage, is out of scope.

# Section Intro.7: The Act/Act Record Paradigm

The following depicts the progression of an Act, documented/evidenced by an Act Record, retained and persisted by the Source System then interchanged (if appropriate) as an indivisible Act Record or its proper subset.



# Section 8: The Act Record Interchange Paradigm

The following offers a simple example of how Act Records are interchanged from their Source System downstream to additional Receiver Systems, either as persistent indivisible Act Records or proper subsets thereof.

