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An American National Standard

Standard Practice for Modeling in Health Informatics[1]

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1. Scope

1.1 Information models appropriately are used for analysis, design, and sharing a common understanding in health and healthcare information engineering, in healthcare process improvement, in building information systems, and in health informatics standards development.

1.2 The purpose of this practice is to identify best practices for the creation, use, and assessment of information models in the health and healthcare domain.

1.3 Included in this practice are recommended organizational policies and procedures, where modeling is best used in healthcare, and recommended modeling methods, best practices and evaluation criteria.

1.4 Excluded from this practice are detailed specifications of modeling techniques that are specified or described in other sources.

2. Referenced Documents

2.1 *ASTM Standards:*

E 1239 Guide for Description of Reservation/Registration-Admission, Discharge, Transfer (R-ADT) Systems for Automated Patient Care Information Systems[2]

E 1384 Guide for Content and Structure of the Electronic Health Record (EHR)[2]

E 1639 Guide for Functional Requirements of Clinical Laboratory Information Management Systems[2]

E 1715 Practice for Object-Oriented Model for Registration, Admitting, Discharge and Transfer (RADT) Functions in Computer-Based Patient Record Systems[2]

2.2 *ANSI Standards:*[3]

ANSI X3.172–1990 Dictionary for Information Systems

IEEE 1320.1-1998 Standard for Functional Modeling Language—Syntax and Semantics for IDEF0

IEEE 1320.2-1998 Standard for Functional Modeling Language—Syntax and Semantics for IDEF1X (Object 97)

2.3 *ISO Standards:*[3]

ISO 8601-88 Data Elements and Interchange Formats—Representation of Dates and Times

ISO/IEC 1087 Terminology Work—Vocabulary-Part 1: Theory and Application

ISO/IEC 11179 Information Technology—Specification and Standardization of Data Elements, Parts 1-6

ISO/IEC 2382 Information Processing Systems—Vocabulary

2.4 *FIPS Standards:*[4]

Information Modeling (IDEF1X) Federal Information Processing Standard 184. Gaithersburg, MD: National Institute of Standards and Technology. December 21, 1993. See also: IEEE 1320.2

Integration Definitions for Functional Modeling (IDEF0) Federal Information Processing Standard 183. Gaithersburg, MD: National Institute of Standards and Technology. December 21, 1993. See also: IEEE 1320.1

3. Terminology

3.1 The following sections present terms, definitions, and acronyms found in this practice and in various modeling activities.

3.2 *Definitions:*

3.2.1 *activity*, *n*—a group of logically related tasks performed for a purpose.

3.2.2 *alternate key attribute*, *n*—any candidate key of an entity other than the primary key.

3.2.3 *attribute*, *n*—a characteristic of an object or entity (see ISO/IEC 11179).

3.2.4 *attribute value*, *n*—a representation of an instance of an attribute (see ISO/IEC 11179).

3.2.5 *behavior column*, *n*—a column is a physical data model and relational database structure that is analogous to the attribute of a logical data model.

3.2.6 *concept*, *n*—a unit of thought constituted through abstraction on the basis of characteristics common to a set of objects, (see ISO/IEC 1087).

3.2.7 *concept activity model*, *n*—the activity component of the Concept Model.

3.2.8 *concept data model*, *n*—the data component of the Concept Model.

[1] This practice is under the jurisdiction of ASTM Committee E31 on Health Informatics and is the direct responsibility of Subcommittee E31.23 on Modeling for Health Informatics.

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[2] *Annual Book of ASTM Standards*, Vol 14.01.

[3] Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036. http://www.ansi.org.

[4] Available from National Technical Information Service (NTIS), U.S. Dept. of Commerce, 5285 Port Royal Road, Springfield, VA 22161. http://www.fedworld.gov.

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