



Standard Practice for an Object-Oriented Model for Registration, Admitting, Discharge, and Transfer (RADT) Functions in Computer- Based Patient Record Systems¹

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1. Scope

1.1 This practice is intended to amplify Guide E 1239 and to complement Guide E 1384 by detailing the objects that make up the reservation, registration, admitting, discharge, and transfer (RADT) functional domain of the computer-based record of care (CPR). As identified in Guide E 1239, this domain is seminal to all patient record and ancillary system functions, including messaging functions used in telecommunications. For example, it is applicable to clinical laboratory information management systems, pharmacy information management systems, and radiology, or other image management, information management systems. The object model terminology is used to be compatible with other national and international standards for health care data and information systems engineering or telecommunications standards applied to health care data or systems. This practice is intended for those familiar with modeling concepts, system design, and implementation. It is not intended for the general computer user or as an initial introduction to the concepts.

2. Referenced Documents

2.1 ASTM Standards:

- E 1238 Specification for Transferring Clinical Observations Between Independent Computer Systems²
- E 1239 Guide for Description of Reservation/Registration-Admission, Discharge, Transfer (RADT) Systems for Automated Patient Care Information Systems²
- E 1384 Guide for Description for Content and Structure of an Automated Primary Record of Care²
- E 1633 Specification for Coded Values Used in Computer-Based Patient Record²
- E 1639 Guide for Functional Requirements of Clinical Laboratory Information Management Systems²
- E 1744 Guide for a View of Emergency Medical Care in the Computer-Based Patient Record²
- F 1629 Guide for Establishing and/or Operating Emergency Medical Services Management Information Systems

¹ This practice is under the jurisdiction of ASTM Committee E-31 on Healthcare Informatics and is the direct responsibility of Subcommittee E31.19 on Computer-Based Patient Record Content and Structure.

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² Annual Book of ASTM Standards, Vol 14.01.

2.2 ANSI Standard:

ANSI X3.172 Dictionary of Information Systems³

2.3 IEEE Standard:

IEEE 1157.1 Trial Use Standard for Healthcare Information Interchange—Information Modelling (6 June 1994)⁴

2.4 Other Document:

HL-7 v2.2 Data Communication Standard⁵

3. Terminology

3.1 General terms are defined in ANSI X3.172.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *functional domain*—that area of activity that encompasses a given function. (HL-7, v2.2)

3.2.2 *health care domain*—that functional domain encompassing all aspects of the delivery of health care, both preventive and corrective, to patients, and the management of resources enabling that care to be delivered. (HL-7, v2.2)

4. Background

4.1 *Object Representation of RADT Processes*—Guide E 1239 provides the experiential background of the functions in RADT. These functions are common to all systems that deal with patient data. The minimal essential data elements for RADT were identified and characterized partly in Guide E 1239. Table 1 of that guide identifies a logical data structure for the data elements, but it does not relate these elements to constituent “entities” or “objects” in the sense that they are now used in analysis. Entity-relationship modeling is one major technique used (1)⁶ to establish the conceptual “things” and their relationships involved in this overall functional domain. “Objects” (2, 3) is another term for these things, and the object concept involves very specific characteristics associated with a defined object such as encapsulation and inheritance. Common ground exists between entity and object representations of models. However, the object terminology is

³ Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.

⁴ Available from IEEE, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331.

⁵ Available from Health Level Seven, 900 Victors Way, Suite 122, Ann Arbor, MI 48108.

⁶ The boldface numbers in parentheses refer to the list of references at the end of the standard.