



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 healthcare data and information systems engineering or telecommunications standards applied to healthcare 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 Content and Structure of the Electronic Health Record (EHR)²
- E 1633 Specification for Coded Values Used in the Electronic Health Record (EHR)²
- E 1639 Guide for Functional Requirements of Clinical Laboratory Information Management Systems²
- E 1744 Guide for View of Emergency Medical Care in the Computerized Patient Record²

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

F 1629 Guide for Establishing and/or Operating Emergency Medical Services Management Information Systems³

2.2 ANSI Standard:

ANSI X3.172 Dictionary of Information Systems⁴

2.3 IEEE Standard:

IEEE 1157.1 Trial Use Standard for Healthcare Information Interchange—Information Modelling (6 June 1994)⁵

2.4 Other Document:

HL-7 v2.4 Data Communication Standard⁶

3. Terminology

3.1 *Definitions*—General terms are defined in accordance with ANSI X3.172.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *functional domain, n*—that area of activity that encompasses a given function. (HL-7, v2.4)

3.2.2 *healthcare domain, n*—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, v2.4)

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)⁷ to establish the conceptual “things” and their relationships involved in this overall functional

³ *Annual Book of ASTM Standards*, Vol 13.01.

⁴ Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.

⁵ Available from IEEE, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331.

⁶ Available from Health Level Seven, 900 Victors Way, Suite 122, Ann Arbor, MI 48108.

⁷ The boldface numbers in parentheses refer to the list of references at the end of the standard.

TABLE 1 Data Element Datatypes

Type	Standard Tag/ Mnemonic
Name	Name
Number	Num
Code	Code
Datetime	Dtm
Signature	Sig
Text	Text
Quantity	Qty

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 still evolving into a clearly established dictionary associated with object modeling at the analysis (2), design (3), and implementation (3) levels of information systems engineering.

4.1.1 At the analysis level, which is most relevant to implementation-independent standards creation, the static level is first in importance since it identifies the involved objects and their static characteristics, such as definitions, relationships, and inheritance. Subsequently, the service/messages communication properties constitute the second level of importance, because they specify the dynamics of system behavior. However, messages are more difficult to define since system behavior patterns are more complex. This secondary domain also involves the telecommunications aspects that are the focus of other standards bodies. Because of the distributed and networked architectures of the newest systems, telecommunications may be of prime importance in qualifying the definitions of system behavior identified in Guide E 1239. For all of these reasons, it is of special importance to initially establish an object-oriented static model for the RADT functional domain that can be the basis for definitions of healthcare data management and standards setting and serve as a foundation for modeling telecommunications standards.

4.1.2 While this practice was being developed, a joint working group (JWG) on data modeling of the then American National Standards Institute (ANSI) Healthcare Informatics Standards Planning Panel (HISPP), now Health Informatics Standards Board (HISB), began work on a common data model (CDM) for the healthcare information domain. A JWG data modeling convention document (IEEE 1157.1) guides the conventions to be used, and this practice reflects those conventions as they are currently known. It is intended that this practice contribute to establishing the RADT core of the CDM. The exact boundaries of the RADT functional domain have not yet been agreed on formally. The objects included here are those that involve data generally associated with administrative and demographic functions in patient care but that may also be linked with other functional domains involved with health care.

4.2 *Inclusion of Emergency Medical Systems Functions*—This practice also takes note of the recent work of the emergency medical systems (EMS) standards ASTM Subcommittee F30.03.03 on Data Management Systems in defining the pre-hospital and associated emergency room data (Guide F 1629) required for emergency medical service system man-

agement. The hospital and emergency room data are a subset of that identified in Guide E 1384 and is consistent with the statement of Steen and Dick (4) that EMS data are part of the primary record of care. This concept has already been recognized in several state statutes that are part of the implementation of an injury control plan by the Centers for Disease Control (see Guide E 1744). This RADT object model practice extends those data elements already defined in Guide E 1384 by associating them with common RADT objects, as defined here, that form the basis for a predictable system behavior for trauma data. The behavior of clinical data will be defined subsequently in following standards.

4.3 *Relationships to Other Systems*—This practice also identifies those objects in the RADT functional domain that are required by clinical laboratory information management systems (CLIMS) (Guide E 1639), radiology information systems (RIS), and other ancillary systems. This model also forms the core for a basic ambulatory record system, and specialized variants, in support of clinical specialties in medicine and dentistry. The object models for these ancillary and specialized electronic health record (EHR) systems are defined in other standards that constitute the “family of models” that extend the RADT function.

5. Significance and Use

5.1 *RADT Object Model as a Basis for Communication*—The RADT object model is the first model used to create a common library of consistent entities (objects) and their attributes in the terminology of object analytical models as applied to the healthcare domain. These object models can be used to construct and refine standards relating to health care information and its management. Since the RADT object model underpins the design and implementation of specific systems, it provides the framework for establishing the systematics of managing observations made during health care. The observations recorded during health care not only become the basis for managing an individual’s health care by practitioners but are also used for research and resource management. They define the common language for abstracting and codifying observations. The inconsistency and incompleteness of the data recorded in paper records is well known and has been noted by the Institute of Medicine’s study (4). The ability to build the recommended EHR begins with RADT, as noted in Guide E 1239. A more detailed specification of the RADT process and its specific functional domain shall begin with a formal model. Furthermore, following agreement on the initial model, that model shall evolve as knowledge accumulates and the initial view of the healthcare domain extends to other social and psychologic processes that link healthcare with other functional domains of society. The management of lifelong cases of care, such as those of birth defects in newborns, will involve interactions with social work and educational functional domains of experience. It has been recognized for some time (5) that a “healthcare team,” in the broader sense, is involved in dealing with these complex cases. The RADT model is the core to linking these functional domains together in a transparent way. For that reason, the object terminology is used to enable the most global view and vernacular that will

facilitate communication among technical specialties that participate in managing some aspect of health care or that build systems to manage the required information.

5.2 Common Terminology as a Basis for Education—The use of models and their associated terminology implies that education of the healthcare practitioners shall incorporate this view to a significant extent. While a detailed specification of systems requires extensive lexicons of carefully defined terms, a more understandable terminology shall evolve for the process of educating practitioners during their formal education as well as continuing to educate current practitioners concerning how this new technology can be integrated with their existing practices. This challenge has yet to be met, but the objects and modeling concepts presented here are intended to be named with the most intuitive titles in order to promote clear understanding during their use in instruction. Nevertheless, relating these objects and their properties to everyday practice remains a significant challenge, for both the implementors of systems and educators. The perspectives cataloged here can be used in the creation of system documentation and curricula represented in a variety of media.

6. Graphic Representation

6.1 The graphic representation in Figs. 1-4 of the relationships among the objects depicts the static inheritance properties of the constituent objects. These properties and others, such as definitions, are given in tabular form in Section 7. Graphic depiction provides a more comprehensive overview of the global structure of this functional domain, thus enabling the reader to appreciate all of the parts of the model at a glance. This depiction also aids the reader when probing the specific attributes and other properties of the objects given in the tabular section. There are five object groups/subject areas (2), or subaggregates of objects with certain common characteristics. These relationships are more easily understood graphically. The notation is from Coad and Yourdon (2). Two main concepts are involved. The first, represented by separate lines and arrowheads, is the “is a component of” relationship, which implies the parts of a whole. The second concept, represented by a branching tree, is the “is a special case of” relationship, which implies encapsulation of the special attributes that differentiate the individual characteristics of a more general object. The combination of these two relationships permits all of the complexities in the static interrelationships of the

constituent objects comprising the RADT model to be represented. Instance connections are a weaker form of relationship that have not been included in the basic framework for this model. Instance connections show references to master system tables of context-insensitive entities. These same terms appear in the tabular representation. The sequential application of these relationships, visually from the top down in Figs. 1-4, depict the inheritance properties since the objects later in the sequence of the relationships inherit the attributes from those earlier in the sequence. These concepts are all explained by Coad and Yourdon (2).

7. Tabular Representation

7.1 Tables 1 and 2 and Annex A1 provide the detailed attributes of the objects and should be compared with Table 1 of Guide E 1239 and Annex A1 of Guide E 1384, which show the integrated logical structure of the computer-based primary record of care. The latest revision of Guide E 1384 associates each data element with an index that uniquely identifies its segment location in Annex A1 and provides a definition and references its representation. Certain data elements with coded values have their value sets, which are also identified in that specification by its specific index contained in Guide E 1384 and point to Specification E 1633. The definitions, mnemonics, and associated attributes of the objects in the RADT object model are given in Table A1.1 of Annex A1 of this practice. The object mnemonics that are used in the construction of standardized short names for the data elements indexed and characterized in Guide E 1384 are given as attributes in this practice. A standardized short name begins with the object mnemonic and ends with a datatype substring given in Table 1. The object mnemonics are given in Table 2. Each substring begins with a sequence of uppercase letters followed by a sequence of lowercase letters. The beginning object mnemonic and ending datatype substrings are required. These characterizations provide the static properties of the RADT object model. The operational global implications of the dynamic properties of the RADT functional domain will be detailed in future versions of Guide E 1239, while the specific attributes comprising messages involving RADT objects will be specified in other standards, such as Specification E 1238, HL-7 v2.4, IEEE 1157.1, and others. The interrelationship of the objects defined here to other objects in ancillary or specialized

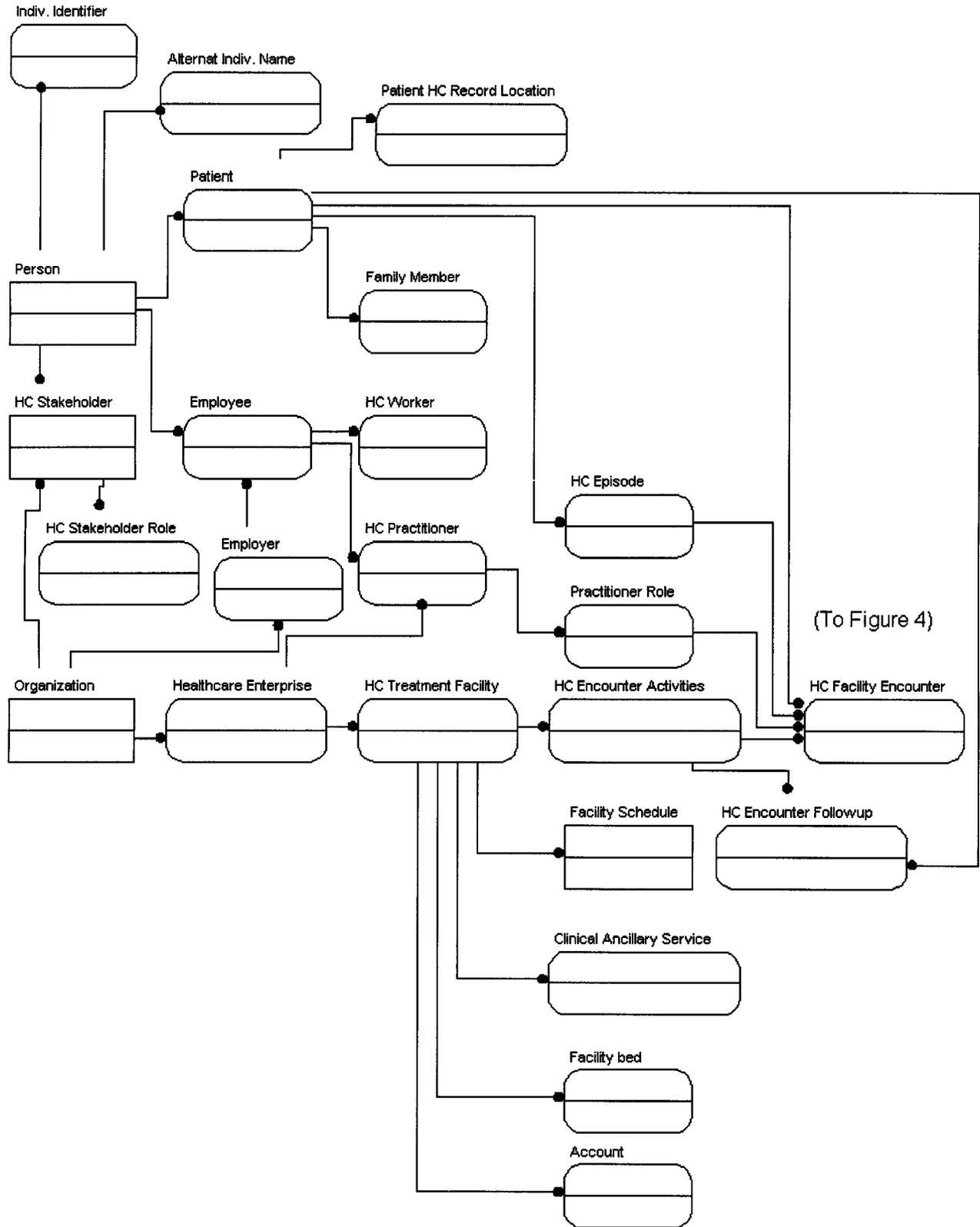


FIG. 1 RADT Object Relationships

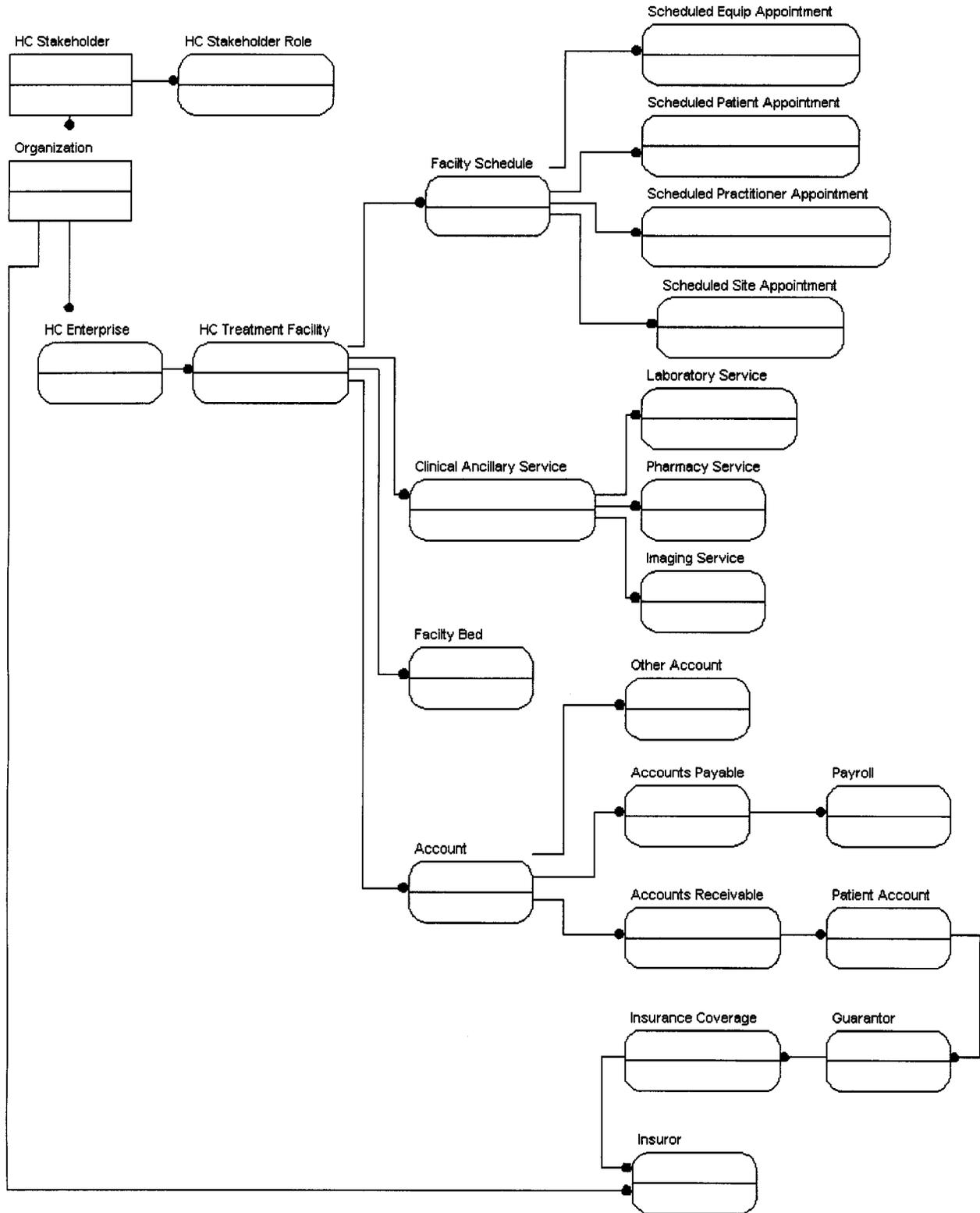


FIG. 2 Fiscal and Facilities Relationships

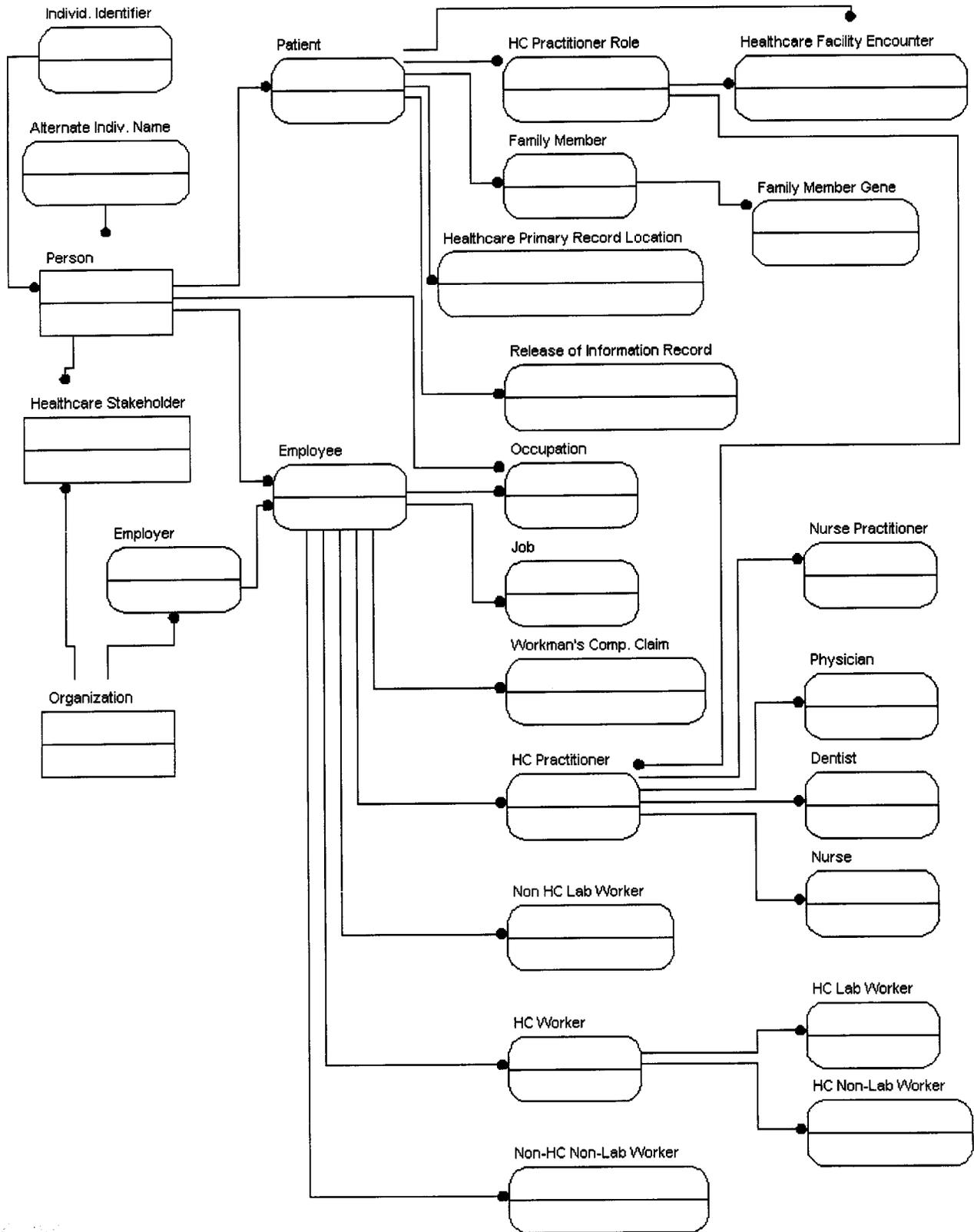


FIG. 3 People and Organization Relationships



FIG. 4 Clinical Activity and Encounter Relationships

EHR systems will be found in the standards focused on those specialty systems, such as Guide E 1639.

TABLE 2 Names of Objects Contained in the RADT Model

Object Name	Tag/Mnemonic
Clinical Activities	
Care agreement	Cagrmnt
Clinical order/service request	Cord
Clinical order result	Cordres
Clinical admission order	CADOrd
Clinical disposition order	CDOrd
Clinical transfer order	CTOrd
Death certificate	Dcert
Emergency room admission	ERAdm
Emergency room activities	ERAct
Emergency room disposition	ERDisp
Facility schedule	FACSch
Healthcare ambulatory visit receipt	HCAVRec
Healthcare ambulatory visit activities	HCAVAct
Healthcare ambulatory visit disposition	HCAVDisp
Healthcare communication encounter	HCCEnc
Healthcare encounter activities	HCEAct
Healthcare encounter followup	HCEFup
Healthcare episode	HCEpi
Healthcare facility encounter	HCFEnc
Healthcare facility encounter activities	HCFEAct
Healthcare facility encounter consult	HCFECon
Healthcare facility encounter disposition	HCFEDisp
Healthcare facility encounter disposition diagnosis	HCFEDispdiag
Healthcare facility encounter disposition health status	HCFEDispthst
Healthcare facility encounter receipt	HCFERec
Healthcare facility encounter receipt diagnosis	HCFERecdiag
Healthcare facility encounter receipt health status	HCFERechthst
Healthcare facility encounter payment source	HCFEPaysrc
Healthcare facility encounter procedure	HCFEProc
Healthcare encounter followup	HCFoll
Healthcare primary record location	HCPriRecLoc
Healthcare registration	HCRReg
Healthcare Registration Change	HCRRegCh
Healthcare visit	HCVis
Inpatient activities	Iact
Inpatient admission	IAdm
Inpatient transfer	Itrns
Inpatient disposition	Idis
Inpatient disposition surgeon	Idissurg
Organ/tissue donor agreement	Urg
Pre-hospital run	PREHosp
Pre-hospital run crew action	PREHosptract
Pre-hospital run equipment	PREHospeq
Pre-hospital run observation	PREHospobs
Research Study agreement	RSCHAgr
Scheduled patient appointment	SCHPIAppt
Scheduled equipment appointment	SCHSEQAppt
Scheduled practitioner appointment	SCHPRAppt
Scheduled site appointment	SCHSITAppt
Facilities	
Healthcare treatment facility	HCTFac
Facility bed	FACBed
Clin/ancillary service	CANSvc
Laboratory organizational service	CLAB
Pharmacy ancillary service	PHARANSvc
Imaging ancillary service	IMANSvc
Fiscal	
Account	Acc
Account payable	ACCPay
Account receivable	ACCRec
Patient account	ACCPt
Other account	ACCOth
Guarantor	Guar
Healthcare claim	HCClm
Insurer	Insr
Insurance coverage	INSCov
Workman's compensation claim	WCCLm
Organization	

TABLE 2 Continued

Object Name	Tag/Mnemonic
Organization	Orgn
Employer/company	Emplr
Healthcare enterprise	HCPrv
Healthcare stakeholder	HCStkh
Healthcare stakeholder role	HCStkhRol
People	
Alternate Individual Name	ALTINam
Person	Pers
Employee/worker	Emply
Family member	FAMMbr
Patient	Pt
Release of information record	REINRcd
Healthcare practitioner	HCPPract
Healthcare practitioner role	HCPPractRole
Healthcare practitioner, physician	HCPPhy
Healthcare practitioner, dentist	HCPDent
Healthcare practitioner, nurse	HCPNur
Healthcare practitioner, nurse practitioner	HCPNPr
Individual Identifier	IndIdentifier
Job	Job
Occupation	Occ
Professional specialty	ProfSpec
Worker, healthcare	WkrHC
Worker, healthcare, nonlab	WkrHCNonLab
Worker, healthcare, lab	WkrHCLab
Worker, nonhealthcare, lab	WkrNonHCLab
Worker, nonhealthcare, nonlab	WkrNonHCNonLab

8. Explanation of Subject Areas

8.1 *People Subject Area*—This group of objects characterizes the properties of individuals in the RADT functional domain. The top level in this hierarchy is the person object. The generic attributes of all persons are contained in that object. The employee/worker object is included because it encapsulates attributes of the employee properties of not only patients but also those of workers in health care, including those generally skilled in addition to those skilled in ancillary as well as practitioner skills, in order to deal with the occupational illness and injury of these workers in an entirely consistent fashion. The guarantor status of each recipient is thus dealt with in a consistent manner, whether or not the individual works for the healthcare organization. The employee/worker object also inherits from the “organization” subject area because he/she works for an “employer.” The “occupation” object is a component multiple attribute of person objects because it is context insensitive, but “job” objects relate to the “employee/worker” object since their attributes are a function of the work environment, tasks, and potential hazards.

8.2 *Fiscal Subject Area*—This subject area characterizes the most basic properties of the claims and benefits properties. It is included to contain those data needed by the practitioners in devising treatment plans that are within the means of the individual as well as those data that characterize the resources allocated to the staff. It is an initial framework for understanding the management of resources within health care.

8.3 *Organization Subject Area*—The objects in this subject area characterize the general properties of organizations and the responsibilities they have for the individuals they employ, including the elected or mandated benefits and workplace health and safety responsibilities. These properties are inherent in healthcare-providing organizations (Healthcare Enterprises), in addition to their clients to whom they provide services. The “organization” object encapsulates the most general attributes

of an organization without employees, while the employer function is represented by the employer object. A healthcare enterprise in the facilities subject area characterizes the highest level business functions of a healthcare organization while Healthcare T is at the facility level treatment facilities.

8.4 *Facilities Subject Area*—This subject area is intended to characterize the properties of each facility and healthcare worksite, both from the contribution to resource management as well as support of care to individual patients at the time of clinical encounters. The inheritance of these attributes into the primary record of care still requires study. The common designation of specialty and subspecialty subunits of a health-care provider (“clinical service”) is dependent on a yet-to-be-agreed-on naming rules convention that would define the special cases and their attendant unique attributes. Some commonality in these designations would aid health service and outcomes research that identify the best recommended services for identified populations and problems.

8.5 *Clinical Activities Subject Area*—This subject area is the important core to all aspects of the primary record of care and the supporting ancillary services. The healthcare facility encounter, and the immediate hierarchy of objects under it that characterize the properties of the range of healthcare settings outlined in Guide E 1384, provides the partitioning of attributes that enable the characterization of all situations of encounter and settings of care. They encapsulate the attributes of such situations and settings that we enumerate currently but do not restrict any further partitioning or identification of new attributes. All encounters have been recognized to have three major phases, with registration review an implicit fourth component and communication situations still assigned provisionally in the hierarchy.

9. Keywords

9.1 electronic health record (EHR); object modeling; registration, admitting, discharge, and transfer (RADT); reservation

ANNEX

(Mandatory Information)

A1. PROPERTIES OF RADT OBJECTS

A1.1 The definitions, mnemonics, and associated attributes of the objects in the RADT object model are given in Table A1.1.

TABLE A1.1 Properties of RADT Objects

General Subject/Object Group: Clinical Activities	
Care Agreement	<p>Object and Class</p> <p>Relationships:</p> <ul style="list-style-type: none"> Is a component of: inpatient admission <p>Inherits from:</p> <ul style="list-style-type: none"> Inpatient admission Healthcare facility encounter Healthcare facility encounter receipt Patient Person Healthcare facility encounter Healthcare enterprise Organization Healthcare stakeholder <p>A legal document detailing the conditions that the patient consents to care during residency in this facility.</p> <p>Attributes:</p> <ul style="list-style-type: none"> consent signed/admit agreement patient rights acknowledgment authority for autopsy release of body to morgue consent for videotp/observ directive to physician organ donor type court-ordered care
02001	
02005	
02010	
02015	
02020	
02030	
02040	
02045	
Clinical Admission Order	<p>Object and Class</p> <p>Relationships:</p> <ul style="list-style-type: none"> Is a special case of: clinical order/service request <p>Inherits from:</p> <ul style="list-style-type: none"> Clinical order/service request Healthcare facil encounter Healthcare facil encounter activities

TABLE A1.1 *Continued*

	<p>Person Patient Healthcare stakeholder Healthcare treatment facility Healthcare enterprise Organization This object characterizes the special properties of the action to induct a patient into a resident status in a healthcare treatment facility. Attributes:</p>
Clinical Disposition Order	<p>Object and Class</p> <p>Relationships: Is a special case of: clinical order/service request Inherits from: Clinical order/service request Person Patient Healthcare facility encounter Healthcare facility encounter activities Healthcare encounter activity Inpatient activities Organization Healthcare provider Healthcare treatment facility Healthcare stakeholder This object characterizes the special properties of the action to release a resident patient from the responsibility of a healthcare treatment facility. Attributes:</p>
Clinical Order Result	<p>Object and Class</p> <p>Relationships: Is a result of: Clinical order/service request Inherits from: Healthcare stakeholder Organization Healthcare enterprise Healthcare treatment facility Healthcare facility encounter activities Clinical order/service request Recorded observation or action that is the direct result of a clinical order/service request Attributes: CLIN order result acknowl datetime CLIN order result shiftcare plan date CLIN order result return flag CLIN order result return status CLIN order result return datetime CLIN order result return acknl by CLIN order result return comment</p>
10001.120 10001.120.01 10001.120.02 10001.120.03 10001.120.04 10001.120.05 10001.120.06	
Clinical Order/Service Request	<p>Class</p> <p>Relationships: Is a component of: emergency room activities Is a component of: healthcare ambulatory visit activities Is a component of: inpatient activities Inherits from: Person Patient Healthcare encounter activity Healthcare treatment facility Healthcare enterprise Organization Healthcare facility encounter Healthcare facility encounter activities Inpatient activities This object encompasses the general properties of a clinical action message, or "clinical order." It characterizes the properties common to all types of clinical orders by identifying the addressee, subject, circumstances, and control properties of the action ordered. It does not include those special properties of the addressee specialty. Attributes: CLIN order ID number CLIN order patient status CLIN order date-time of order CLIN order type CLIN order action</p>
10001 10001.002 10001.009 10001.010 10001.013	

TABLE A1.1 *Continued*

10001.015	CLIN order priority
10001.017	CLIN order pre-admit status
10001.019	CLIN order origin
10001.021	CLIN order parent order
10001.022	CLIN order multiple seq status
10001.023	CLIN order related orders
10001.025	CLIN order user
10001.027	CLIN order user sig
10001.029	CLIN order nurse ID
10001.031	CLIN order nurse sig
10001.033	CLIN order ordering practitioner name
10001.035	CLIN order ordering practitioner sig
10001.037	CLIN order countersigning practitioner name
10001.039	CLIN order countersigning practitioner sig
10001.041	CLIN order nurse sig needed status
10001.043	CLIN order nurse sig needed datetime
10001.045	CLIN order practitioner sig needed status
10001.047	CLIN order practitioner sig needed datetime
10001.049	CLIN order countersig needed status
10001.051	CLIN order countersig needed by datetime
10001.052	CLIN order discontinued by practitioner name
10001.053	CLIN order discontinued practitioner sig
10001.055	CLIN order confirmation recd datetime
10001.057	CLIN order active/pending flag
10001.059	CLIN order active status
10001.061	CLIN order pending status
10001.063	CLIN order inactive status flag
10001.065	CLIN order start status
10001.067	CLIN order execution frequency
10001.069	CLIN order duration of service
10001.071	CLIN order latest status chg datetime
10001.073	CLIN order reactivation datetime
10001.075	CLIN order req fm ancillary
10001.077	CLIN order ancillary activ datetime
10001.079	CLIN order result expectation datetime
10001.081	CLIN order telephone result flag
10001.083	CLIN order telephone to request destination
10001.085	CLIN order request scheduled flag
10001.087	CLIN order requested appt time
10001.089	CLIN order appt type
10001.091	CLIN order appt transport status
10001.093	CLIN order appt status
10001.095	CLIN order assigned appt time
10001.097	CLIN order health service ordered
10001.099	CLIN order principal problem
10001.100	CLIN order full text
10001.102	CLIN order location of service
10001.104	CLIN order freq ordered SVC
10001.106	CLIN order modify status
10001.108	CLIN order modification reason
10001.110	CLIN order non-modify flag
10001.112	CLIN order instructions
10001.114	CLIN order secondary orders
10001.116	CLIN order message
10001.118	CLIN order date-time completed
10001.123	CLIN order date-time order completed
10001.140	CLIN order Q-A warning datetime
10001.140.1	CLIN order Q-A warning text
10001.140.2	CLIN order Q-A warning disposition
10001.140.3	CLIN order Q-A warn override practitioner
10001.140.4	CLIN order Q-A warn authorized by practitioner
10001.140.5	CLIN order Q-A warning override justification
10001.160	CLIN order Q-A review date
10001.160.01	CLIN order Q-A review event type

Clinical Transfer Order	Object and Class
	Relationships:
	Is a special case of: clinical order/service request
	Inherits from:
	Person
	Patient
	Healthcare stakeholder
	Healthcare treatment facility
	Healthcare enterprise
	Organization
	Healthcare facility encounter

TABLE A1.1 Continued

	<p>Healthcare facility encounter activities Inpatient activities Clinical order/service request This object characterizes the special properties of the action to move a resident patient from the responsibility of one organizational component of a healthcare treatment facility to another such component. Attributes:</p>
Death Certificate	<p>Object and Class</p> <p>Relationships: Is a component of: inpatient disposition Is a component of: emergency room disposition Inherits from: Patient Person Healthcare stakeholder The official record of the patient's death. Attributes: date-time of death place of death autopsy done recorder of death date death recorded death certificate no. state death certif recorded cause of death patient's mortuary pref</p>
01220 01225 01227 01230 01235 01240 01245 01250 01255	
Emergency Room Activities	<p>Object and Class</p> <p>Relationships: Is a special case of: healthcare facility encounter activities. Inherits from: Healthcare facility encounter activities Patient Person Healthcare facility encounter Healthcare treatment facility Healthcare provider Organization This object contains data that document the events occurring between admission to the emergency department and disposition therefrom. Attributes: clinical order ID no.</p>
10001	
Emergency Room Admission	<p>Object and Class</p> <p>Relationships: Is a special case of: healthcare facility encounter receipt Inherits from: Healthcare stakeholder Healthcare episode Patient Person Healthcare facility encounter Healthcare facility encounter receipt Healthcare treatment facility Healthcare provider Organization This object characterizes the formal acceptance of responsibility for emergency care of the patient by the emergency department. Its attributes are the special aspects of a healthcare facility encounter receipt that are the special emergency department properties of this acceptance phase. Attributes: date of injury encounter nature of injury encounter mode of injury encounter loc where injured injury circumstances injury sev score E-R/admitting physician time of triage condition at triage date-time trauma surgeon arrived date-time neurosurgeon arrived</p>
14001.A027 14001.A030 14001.A033 14001.A036 14001.A043 14001.A046 14001.A123 14001.B015 14001.B016 14001.B00061. 14001.B00062.	
Emergency Room Disposition	<p>Object and Class</p> <p>Relationships:</p>

TABLE A1.1 Continued

	<p>Is a special case of: healthcare facility encounter disposition</p> <p>Inherits from:</p> <p>Healthcare facility encounter disposition</p> <p>Patient</p> <p>Person</p> <p>Healthcare stakeholder</p> <p>Healthcare facility encounter</p> <p>Healthcare facility encounter disposition</p> <p>Healthcare treatment facility</p> <p>Healthcare enterprise</p> <p>Organization</p> <p>This object characterizes the data that document the outcome of care in the emergency department. The destination and followup of the patient care subsequent to release from the responsibility of the emergency department. If subsequent care is to be regular inpatient care within the facility, the attributes documenting this transfer of responsibility must be consistent with the attributes documenting the inpatient admission object.</p> <p>Attributes:</p>
Facility Schedule	<p>Class</p> <p>Relationships:</p> <p>Is a component of: healthcare treatment facility</p> <p>Inherits from:</p> <p>Healthcare stakeholder</p> <p>Organization</p> <p>Healthcare treatment facility</p> <p>Healthcare enterprise</p> <p>This object characterizes the properties of any healthcare event that will bring together a patient, a practitioner, and a site/equipment for the purposes of a healthcare activity.</p> <p>Attributes:</p>
Healthcare Ambulatory Visit Activities	<p>Object and Class</p> <p>Relationships:</p> <p>Is a special case of: healthcare facility encounter activities</p> <p>Inherits from:</p> <p>Healthcare facility encounter</p> <p>Healthcare facility encounter activities</p> <p>Healthcare stakeholder</p> <p>Healthcare treatment facility</p> <p>Patient</p> <p>Person</p> <p>Healthcare provider</p> <p>Organization</p> <p>This object characterizes the activities surrounding a healthcare facility encounter and healthcare ambulatory visit, including the observations made, procedures conducted, treatments planned, and orders entered.</p> <p>Attributes:</p> <p>CLIN order ID no.</p>
10001.	
Healthcare Ambulatory Visit Disposition	<p>Object and Class</p> <p>Relationships:</p> <p>Is a component of: healthcare facility encounter disposition</p> <p>Inherits from:</p> <p>Healthcare stakeholder</p> <p>Healthcare facility encounter</p> <p>Healthcare facility encounter disposition</p> <p>Healthcare treatment facility</p> <p>Patient</p> <p>Person</p> <p>Healthcare enterprise</p> <p>Organization</p> <p>This object characterizes the concluding actions of a healthcare ambulatory visit by gathering the special properties that summarize the activities or plan the followup actions resulting from the event.</p> <p>Attributes:</p> <p>encounter procedure</p> <p>encounter depart date-time</p> <p>encounter followup action</p> <p>encounter followup status</p> <p>encounter followup target date</p>
14001.F014	
14001.F053	
14001.F056	
14001.F060	
14001.F063	
Healthcare Ambulatory Visit Receipt	<p>Object and Class</p> <p>Relationships:</p> <p>Is a component of: healthcare encounter receipt</p> <p>Inherits from:</p>

TABLE A1.1 *Continued*

14001.A170 14001.A023	<p>Healthcare stakeholder Healthcare facility encounter Healthcare encounter receipt Healthcare treatment facility Patient Person Healthcare provider Organization</p> <p>This object characterizes the circumstances for initiating a healthcare ambulatory visit. Its attributes record the general properties that precipitated the event or surrounded the means by which the patient reached the healthcare facility to receive care.</p> <p>Attributes: encounter/attending physician chief complaint</p>
Healthcare Communication Encounter	Object and Class
10001.	<p>Relationships: Is a component of: healthcare facility encounter Inherits from: Healthcare stakeholder Patient Person Healthcare facility encounter Healthcare treatment facility Healthcare enterprise Organization</p> <p>This object characterizes a patient encounter by means of any communication medium during which the patient and practitioner are not physically in each other's presence or in which the practitioner directly responsible for care of the patient consults or discusses the patient with another practitioner.</p> <p>Attributes: Communication mode code CLIN order ID no.</p>
Healthcare Encounter Activities	Class
Healthcare Encounter Followup	<p>Relationships: Is a component of: healthcare treatment facility Inherits from: Healthcare treatment facility Healthcare provider Organization</p> <p>This object contains the attributes that characterize the general properties of healthcare encounters.</p> <p>Attributes:</p>
01001. 14001.F063. 14001.A001.	<p>Relationships: Is a component of: healthcare encounter activity Inherits from: Healthcare encounter activity Healthcare treatment facility Healthcare provider Organization</p> <p>This object characterizes those attributes general to all healthcare encounter followup activities of all types.</p> <p>Attributes: patient name followup date facility</p>
HealthCare Episode	Object and Class
14001.A0031.	<p>Relationships: is an instance of patient Inherits from: Patient Person</p> <p>Is a series of healthcare facility encounters relating to a single healthcare problem.</p> <p>Attributes: episode ID</p>
Healthcare Facility Encounter	Object and Class
	<p>Relationships: Is a component of: healthcare encounter activity Is a component of: patient Is a component of: healthcare episode</p>

TABLE A1.1 Continued

14001	Inherits from: Healthcare stakeholder Healthcare treatment facility Patient Person Healthcare enterprise Healthcare episode Organization This object contains general data concerning every event between a patient and a practitioner in the healthcare domain. It includes all events that result in an observation being made in the primary record of care for any purpose, including telephonic and consultative conversations between practitioners that have any implications for the patient. Attributes: date-time encounter/admission treatment facility name encounter type encounter ID treatment facility type encounter status encounter security protection encounter reason for visit injury on job datetime of history/examination encounter problem encounter comments expected source of payment episode id age
14001.A001	
14001.A002	
14001.A003	
14001.A013	
14001.A010	
14001.A004	
14001.A016	
14001.A040	
14001.A050	
14001.A053	
14001.A060	
14001.A223	
14001.A0031	
14001.A106	
Healthcare Facility Encounter Activities	Object and Class
	Relationships: Is a component of: healthcare facility encounter Inherits from: Healthcare facility encounter Healthcare encounter activity Healthcare treatment facility Patient Person Healthcare provider Organization This object characterizes the activities of a healthcare facility encounter occurring during all encounters. It includes those attributes general to all encounters and not special to some. Attributes: clinical order ID no.
10001.	
Healthcare Facility Consult	Object and Class
	Relationships: Is a component of: healthcare facility encounter activities Inherits from: Healthcare stakeholder Organization Healthcare enterprise Healthcare treatment facility Healthcare facility encounter Healthcare facility encounter activities characterization of an encounter consultation Attributes: encounter consult service consult date consult text consulting practitioner name
14001.A116	
14001.A116.01	
14001.A116.02	
14001.A116.03	
Healthcare Facility Encounter Procedure	Object and Class
	Relationships: Is a component of: healthcare facility encounter disposition Inherits from: Healthcare stakeholder Organization Healthcare enterprise Healthcare treatment facility Healthcare facility encounter Healthcare facility encounter disposition characterizes the procedural interventions of the encounter Attributes:

TABLE A1.1 *Continued*

14001.F014	encounter procedure
14001.F013	admission operative procedure
14001.F013.01	admission operative procedure date
14001.F013.03	admission operative procedure type
14001.F013.02	admission operative procedure surgeon
Healthcare Facility Encounter Disposition	Object and Class
	Relationships: Is a component of: healthcare facility encounter Inherits from: Patient Person Healthcare facility encounter Healthcare encounter activity Healthcare provider Organization This object characterizes the disposition phase of a healthcare facility encounter. It includes those attributes that characterize dispositions from an encounter in all settings. Attributes: encounter etiology etiology type physician authoriz disposition disposition type dischg./encounter disposition disposition patient instruct. Disposition health status measure name Disposition health status measure total value date-time of disposition note text of note/report
14001.F033	encounter etiology
14001.F033.1.	etiology type
14001.F043	physician authoriz disposition
14001.F046	disposition type
14001.F050	dischg./encounter disposition
14001.F083	disposition patient instruct.
14001.F067	Disposition health status measure name
14001.F068	Disposition health status measure total value
14001.F101	date-time of disposition note
14001.F105	text of note/report
Healthcare Facility Encounter Disposition Health Status	Object and Class
	Relationships: is a component/member of: healthcare facility encounter disposition Inherits from: Healthcare stakeholder Organization Healthcare enterprise Healthcare treatment facility Healthcare facility encounter Healthcare facility encounter disposition component of a total measure of health status and encounter disposition Attributes: Patient disposition health status measure element name Patient disposition health status measure element value
14001.F069.01	Patient disposition health status measure element name
14001.F069.02	Patient disposition health status measure element value
Healthcare Facility Encounter Disposition Diagnosis	Object and Class
	Relationships: is a component/member of: healthcare facility encounter disposition Inherits from: Healthcare stakeholder Organization Healthcare enterprise Healthcare treatment facility Healthcare facility encounter Healthcare facility encounter disposition diagnosis established at the completion of the encounter Attributes: Disposition diagnosis Disposition diagnosis type Disposition diagnosis status Disposition diagnosis text
14001.F030	Disposition diagnosis
14001.F030.01	Disposition diagnosis type
14001.F030.02	Disposition diagnosis status
14001.F030.03	Disposition diagnosis text
Healthcare Facility Encounter Payment Source	Object and Class
	Relationships is a component/member of: healthcare facility encounter receipt Inherits from: Healthcare stakeholder Organization Healthcare enterprise Healthcare treatment facility Healthcare facility encounter Healthcare encounter activities one source from which payment for this healthcare facility encounter will be sought Attributes:

TABLE A1.1 *Continued*

14001.A223	healthcare payment source
14001.A223.01	healthcare payment source type
14001.A223.02	healthcare payment mechanism
14001.A223.03	healthcare payment carrier
<hr/>	
Healthcare Facility Encounter Receipt	Class
<hr/>	
	Relationships:
	Is a component of: healthcare facility encounter
	Inherits from:
	Healthcare encounter activity
	Healthcare facility encounter
	Healthcare treatment facility
	Patient
	Person
	Healthcare stakeholder
	Healthcare enterprise
	Organization
	This object contains data characterizing the receipt component of a healthcare facility encounter in general. It includes all of the attributes that are general to the receipt phase of any encounter and its transition to the activities phase of the encounter.
	Attributes:
14001.A020	encounter PT arrival cond
14001.A021	mode of arrival
14001.A030	Encounter nature of injury
14001.A033	Encounter mode of injury
14001.A043	Injury circumstances
14001.A0036	Encounter location where injured
14001.A154	Patient receipt health status measure name
14001.A156	Patient receipt health status measure total value
14011.A063	admission type
<hr/>	
Healthcare Primary Record of Care Location	Object and Class
<hr/>	
	Relationships:
	Is a component of: patient
	Inherits from:
	Patient
	Person
	Healthcare stakeholder
	Is a physical site where data concerning care received by a patient is stored.
	Attributes:
01027.	record holding location ID
01027.1	date of earliest entry
01027.2	date of latest entry
<hr/>	
Healthcare Registration	Object and Class
<hr/>	
	Relationships:
	Is a component of: healthcare facility encounter
	Is a component of: patient
	Inherits from:
	Healthcare stakeholder
	Healthcare facility encounter
	Healthcare encounter activities
	Healthcare treatment facility
	Patient
	Person
	Healthcare enterprise
	Organization
	This object characterizes the process of recognizing and characterizing the patient to the healthcare system. It includes gathering a demographic data set and other general information, such as permissions for care and resources to support the care that may be planned.
	Attributes:
01197	registration review date
01200	registration informant
01205	registration comment
01210	date record transf to storage
<hr/>	
Healthcare Facility Encounter Receipt Diagnosis	Object and Class
<hr/>	
	Relationships:
	is a component/member of: healthcare facility encounter receipt
	Inherits from:
	Healthcare stakeholder
	Organization
	Healthcare enterprise
	Healthcare treatment facility

TABLE A1.1 *Continued*

14001.A170 14001.A170.01 14001.A170.02 14001.A170.03	Healthcare facility encounter diagnosis established at the beginning of the encounter Attributes: Receipt diagnosis name Receipt diagnosis type Receipt diagnosis status Receipt diagnosis text
Healthcare Facility Encounter Receipt Health Status	Object and Class
14001.A160 14001.A160.01	Relationships: is a component/member of: healthcare facility encounter receipt Inherits from: Healthcare stakeholder Organization Healthcare enterprise Healthcare treatment facility Healthcare facility encounter Healthcare facility encounter receipt characterizes the attributes of health status at the beginning of the encounter Attributes Patient receipt health status measure element name Patient receipt health status measure element value
Healthcare Registration Change	Object and Class
01195 01195.02	Relationships: Is a component of: healthcare facility encounter Is a component of: patient Inherits from: Healthcare stakeholder Healthcare registration Healthcare facility encounter Healthcare encounter activities Healthcare treatment facility Patient Person Healthcare enterprise Organization This object characterizes the process of recognizing the attributes the patient registration in the healthcare system. It includes gathering a demographic data set and other general information, such as permissions for care and resources to support the care that may be planned. Attributes: date registr record updated person initiating/updating
Inpatient Activities	Object and Class
14001.A183 14001.A186 14001.A190 14001.A126 14001.A153 14001.A203 14001.A200 14001.A216 14001.A200 14001.A213	Relationships: Is a special case of: healthcare facility encounter activities Inherits from: Healthcare stakeholder Healthcare facility encounter activities Healthcare facility encounter Healthcare encounter activities Healthcare treatment facility Patient Person Healthcare enterprise Organization This object encapsulates and characterizes the general properties of the activities relating to resident patient care. It excludes those special activities that are represented in component objects. Attributes: admission current PT status admission current PT status datetime admission current prognosis patient current location impairment group datetime notified family/NOK notified by whom datetime chaplain notified ministrations administered notified medical examiner
Inpatient Admission	Object and Class
	Relationships: Is a special case of: healthcare facility encounter receipt

TABLE A1.1 Continued

	<p>Inherits from: Healthcare stakeholder Healthcare facility encounter receipt Healthcare facility encounter Healthcare encounter activity Healthcare treatment facility Patient Person Healthcare enterprise Organization</p> <p>This object characterizes the event of accepting a patient for resident status for the purpose of providing healthcare within the healthcare treatment facility. It includes those attributes that identify the purpose and planned activities during the stay and the condition of the patient on arrival, as well as the actions to be taken at the time of arrival. It may also include those attributes established prior to arrival that will be taken at the moment of arrival. Its authority is provided by a clinical order.</p> <p>Attributes:</p> <ul style="list-style-type: none"> origin facility ID current living arrangement admission authority referral type referring provider private physician name private physician notified admitting hosp type admission hosp register no. admitting service origin SVC ENC/attend. practitioner name E-R/admitting physician admitting room/bed admitting type of accommodation primary nursing therapeutic unit admitting floor warnings admitting records recd personal valuables left indicated surgery admission custodian of personal effects police hold date-time notified police
14001.A022	
14001.A056	
14001.A066	
14001.A070	
14001.A073	
14001.A083	
14001.A093	
14001.A096	
14001.A103	
14001.A110	
14001.A113	
14001.A120	
14001.A123	
14001.A130	
14001.A133	
14001.A136	
14001.A140	
14001.A143	
14001.A146	
14001.A150	
14001.A173	
14001.A195	
14001.A206	
14001.A210	
Inpatient Disposition	Object and Class
	<p>Relationships: Is a special case of: healthcare facility encounter disposition Inherits from: Healthcare facility encounter disposition Healthcare facility encounter Healthcare encounter activity Healthcare treatment facility Patient Person Healthcare enterprise Healthcare stakeholder Organization</p> <p>This object characterizes the conclusion of a resident stay in a healthcare treatment facility. It includes those attributes that summarize the resident event and plan for followup actions to continue the care provided. Its authority results from a clinical order.</p> <p>Attributes:</p> <ul style="list-style-type: none"> date-time of death release of body to morgue discharge datetime time of dep. cond. on dischg. reason for discharge person accompanying patient from facility disposition transport type disposition destination patient signature dischg summ dict date-time total acute care los length of rehab services total ICU days signature/authenticator
01220	
02015	
14001.F040	
14001.F053	
14001.F066	
14001.F070	
14001.F073	
14001.F076	
14001.F080	
14001.F086	
14001.F090	
14001.F093	
14001.F096	
14001.F100	
14001.F110	

TABLE A1.1 *Continued*

14001.F176	discharge total FIM
Inpatient Disposition Surgeon	Object and Class
	Relationships: is a component/member of: inpatient disposition inherits from: Healthcare stakeholder Organization Healthcare enterprise Healthcare treatment facility Healthcare facility encounter Healthcare facility encounter disposition Patient Person characterization of each surgeon participating in the admission Attributes: admission/encounter surgeon admission/encounter surgeon role
14001.F006 14001.F006.1	
Inpatient Transfer	Object and Class
	Relationships: Is a special case of: healthcare facil encounter activity Inherits from: Healthcare facility encounter activity Healthcare facility encounter Healthcare encounter activities Healthcare treatment facility Patient Person Healthcare enterprise Healthcare stakeholder Organization This object characterizes the transfer of responsibility for the care of the patient from one constituent organizational component of a healthcare treatment facility to another such component as a result of a clinical order. Attributes: admission INTRA-FAC XFR date admission INTRA-FAC XFR type admission INTRA-FAC nurs unit admission INTRA-FAC CLIN SVC admission INTRA-FAC RM/BED admission INTRA-FAC diagnosis admission INTRA-FAC provider
14001.A163 14001.A163.01 14001.A163.02 14001.A163.06 14001.A163.10 14001.A163.13 14001.A163.16	
Pre-Hospital Run	Object and Class
	Relationships: Is a component of: emergency room admission Inherits from: Emergency room admission Healthcare facility encounter receipt Healthcare facility encounter Healthcare treatment facility Patient Person Healthcare enterprise Healthcare stakeholder Organization This object contains the attributes characterizing that encounter conductor by emergency service personnel in the field and not within a healthcare treatment facility. It includes all circumstances regarding dispatch of the unit, on-scene activities, transport of the patient, and disposition of the run resulting in transfer of responsibility for care of the patient to the emergency department of the receiving healthcare treatment facility. Attributes: pre-hosp. care narrative incident run number pre-hospital agency ID dispatch number trauma number severity at dispatch severity at arrival on scene pre-hosp datetime call received pre-hosp datetime run dispatched pre-hosp order agency arrived pre-hosp datetime run arrived at scene pre-hosp datetime patient left the scene
14001.B003 14001.B0051 14001.B006 14001.B007 14001.B0071 14001.B004 14001.B005 14001.B0001 14001.B0002 14001.B00031 14001.B0003 14001.B0004	

TABLE A1.1 *Continued*

14001.B0006	pre-hosp datetime unit returned to service
14001.B0005	pre-hosp datetime patient arrived at treatment facility
14001.B0010	pre-hosp scene description
14001.B011	pre-hosp crew ID
14001.B011.1	pre-hosp crew member skill level
14001.B011.2	pre-hosp crew procedure performed
Pre-Hospital Run Equipment	Object and Class
	Relationships: is a component/member of: Pre-Hospital Run Inherits from: Healthcare stakeholder Organization Healthcare enterprise Healthcare treatment facility Healthcare facility encounter Healthcare facility encounter receipt Emergency room admission Pre-Hospital Run Attributes: pre-hospital equipment/procedures pre-hospital procedure date-time
14001.B001	
14001.B001.01	
Pre-Hospital Run Observation	Object and Class
	Relationships: is a component/member of: Pre-Hospital Run Inherits from: Healthcare stakeholder Organization Healthcare enterprise Healthcare treatment facility Healthcare facility encounter Healthcare facility encounter receipt Emergency room admission Pre-Hospital Run Attributes: pre-hospital observation pre-hosp observation value
14001.B012	
14001.B012.01	
Research Study Agreement	Object and Class
	Relationships: Is a component of: healthcare registration Inherits from: Healthcare stakeholder Patient Person A written statement acknowledging participation in care events that are still experimental or are related to scientific interest. Attributes: consent to RSCH participation
02025	
Scheduled Patient Appointment	Object and Class
	Relationships: Is a component of: scheduled appointment Inherits from: Healthcare stakeholder Organization Healthcare treatment facility Scheduled appointment Healthcare enterprise This object characterizes the properties of an event planned for a patient. Its attributes characterize the patient aspects of the event and exclude the general attributes for the scheduled appointment. Attributes: scheduled visit date-time scheduled visit treat facility scheduled visit clinic name scheduled visit provider ID scheduled visit purpose scheduled visit remarks
13001	
13001.01	
13001.03	
13001.05	
13001.07	
13001.09	
Scheduled Equipment Appointment	Object and Class
	Relationships: Is a component of: scheduled appointment Inherits from: Healthcare stakeholder

TABLE A1.1 *Continued*

	<p>Organization Healthcare treatment facility Healthcare enterprise Scheduled appointment This object characterizes the properties of major equipment used in scheduled appointments. Attributes:</p>
Scheduled Practitioner Appointment	<p>Object and Class</p>
13001.09 13001.xx	<p>Relationships: Is a component of: scheduled appointment Inherits from: Healthcare stakeholder Organization Healthcare treatment facility Healthcare enterprise Scheduled appointment Healthcare practitioner This object characterizes the properties of the practitioner component of a healthcare event. Attributes: problem/condition procedure</p>
Scheduled Site Appointment	<p>Object and Class</p>
	<p>Relationships: Is a component of: scheduled appointment Inherits from: Organization Healthcare treatment facility Scheduled appointment This object characterizes the properties of the site component of a healthcare event. It includes equipment and instruments that may be either fixed or portable. The attributes will determine special cases. Attributes:</p>
General Subject/Object Group: Facilities	
CLIN/Ancillary Service	<p>Class</p>
	<p>Relationships: Is a component of: healthcare treatment facility Inherits from: Healthcare stakeholder Organization Healthcare enterprise Healthcare treatment facility This object characterizes the organizational component that is directed and specialized functions such as direct care specialties or supporting indirect specialties for diagnosis or treatment (called ancillary services). It is an included organizational component of the healthcare treatment facility and sponsoring organization. Attributes: clinical/ancillary service identifier clinical/ancillary service name</p>
Facility Bed	<p>Object and Class</p>
	<p>Relationships: Is a component of: healthcare treatment facility Inherits from: Organization Healthcare stakeholder Healthcare treatment facility Healthcare enterprise This object characterizes the hostelry properties of a healthcare treatment facility. It includes those attributes that characterize the general residence properties of the patient's stay in the facility. Attributes:</p>
HealthCare Treatment Facility	<p>Object and Class</p>
	<p>Relationships: Is a component of: healthcare provider Inherits from: Healthcare stakeholder Organization Healthcare enterprise</p>

TABLE A1.1 *Continued*

04001.07 04001 04001.05	<p>This object characterizes the properties of a location that is used for any aspect of providing healthcare to patients. It includes those properties that are general to the function of the facility and excludes those properties that characterize the hostelry or residence properties of the facility. It may include those attributes that are used for both resident and nonresident patients.</p> <p>Attributes: Treatment facility identifier Treatment facility name Treatment facility type</p>
Imaging Ancillary Service	<p>Object and Class</p> <p>Relationships: Is a special case of: CLIN/ancillary service Inherits from: Healthcare stakeholder Organization Healthcare treatment facility Healthcare enterprise CLIN/ancillary service</p> <p>This object characterizes the special clinical service that produces images of patients by means of special techniques such as X-ray, NMR, PET, ultrasound, radioisotopes, or other methods intended to reveal some aspect of body function. It includes those attributes unique to that clinical service and excludes attributes included in the CLIN/ancillary service object.</p> <p>Attributes:</p>
Laboratory Ancillary Service	<p>Object and Class</p> <p>Relationships: Is a special case of: CLIN/ancillary service Inherits from: Healthcare stakeholder Organization Healthcare treatment facility Healthcare enterprise Clinical/ancillary service</p> <p>This object characterizes the properties of the clinical laboratory and that clinical service which offers all laboratory-based diagnostic services to the practitioner. It includes only those attributes unique to that function and excludes those general attributes common to all clinical or ancillary services.</p> <p>Attributes:</p>
Pharmacy Ancillary Service	<p>Object and Class</p> <p>Relationships: Is a special case of: CLIN/ancillary service Inherits from: Healthcare stakeholder Organization Healthcare treatment facility Healthcare enterprise Clinical/ancillary service</p> <p>This object characterizes the properties of that organizational entity that provides therapeutic medications to patients and services within a healthcare organization. It includes those attributes unique to the various functions involved in procuring, dispensing, and accounting for the use of therapeutic substances and devices within the organization but excludes those attributes common to all or most such clinical or ancillary services.</p> <p>Attributes:</p>
General Subject/Object Group: Fiscal	
Account	<p>Object and Class</p> <p>Relationships: Is a component of: healthcare provider Inherits from: Healthcare stakeholder Organization Healthcare enterprise Healthcare treatment facility Clin/ancillary service</p> <p>This object contains the general identifying data concerning a financial record on an entity in the healthcare domain. Such data are common to all financial records.</p> <p>Attributes: account identifier</p>
Account Payable	Object and Class

TABLE A1.1 Continued

	<p>Relationships: Is a special case of: account Inherits from: Account Organization Healthcare enterprise Healthcare treatment facility Healthcare stakeholder This object characterizes the financial record regarding payments from the laboratory. It excludes properties not specific to the payment process. Attributes:</p>
Account Receivable	Object and Class
	<p>Relationships: Is a special case of: account Inherits from: Account Organization Healthcare enterprise Healthcare treatment facility Healthcare stakeholder This object characterizes monies to be received in payment for services rendered. Attributes: billing account no.</p>
Guarantor	Object and Class
	<p>Relationships: Is a component of: patient account Inherits from: Account Account receivable Patient account Organization Healthcare enterprise Healthcare stakeholder This object characterizes those individuals who will guarantee payment for health services rendered to a patient by a healthcare provider as opposed to those guarantees provided by a third-party payor or insurer. Attributes:</p>
Healthcare Claim	Object and Class
	<p>Relationships: Is a component of: inpatient disposition Is a component of: healthcare visit disposition Is a component of: emergency room disposition Inherits from: Emergency room disposition Inpatient disposition Healthcare visit disposition Healthcare ambulatory visit Healthcare inpatient encounter Healthcare emergency room encounter Healthcare facility encounter Patient Person Healthcare encounter activities Healthcare treatment facility Healthcare stakeholder Healthcare enterprise Organization This record of services during a healthcare encounter that is believed to be payable under established insurance coverage. Attributes: insurance claim date insurance claim ID</p>
03005 03005.02	
Insurance Coverage	Object and Class
	<p>Relationships: Is a component of: insurer Is a component of: guarantor Inherits from: Healthcare stakeholder Organization Insurer Guarantor</p>

TABLE A1.1 Continued

<p>03010 03010.02 03010.04 03010.06 03010.08 03010.10 03010.12</p>	<p>Patient account Account receivable Account This object characterizes the provisions of the agreement between the insurer and the patient relating to the situations under which the insurer will pay the healthcare charges incurred by the patient. Attributes: insurance type group plan ID primary payment source primary payment class insurance group no. insurance ID no. principal payment sponsor address of princ spun payor priority</p>
<p>Insurer</p>	<p>Object and Class Relationships: Is a component of: patient account Inherits from: Healthcare Stakeholder Organization This object characterizes the guarantees for payment for health services that are provided by third-party payors as a result of insurance coverage. This object contains the properties of the insuring organization. Attributes:</p>
<p>Other Account</p>	<p>Object and Class Relationships: Is a special case of: account Inherits from: Healthcare stakeholder Organization Healthcare enterprise Account Attributes:</p>
<p>Patient Account</p>	<p>Object and Class Relationships: Is a special case of: account receivable Inherits from: Organization Healthcare stakeholder Healthcare enterprise Account Account receivable This object characterizes the properties of a special account that records the charges for healthcare services rendered to an individual patient. It excludes those attributes that characterize all accounts generally. Attributes: billing account no. Medicare no. Medicare to yr Medicare A effective date Medicare B effective date Medicaid no.</p>
<p>Workman's Compensation Claim</p>	<p>Object and Class Relationships: Is a component of: employer/company Inherits from: Healthcare stakeholder Organization Employer/company A record of the facts relating to on-the-job injury or illness. Attributes: worker's compensation claim date worker's compensation claim ID</p>
<p>General Subject/Object Group: Organization</p>	
<p>Employer/Company</p>	<p>Object and Class Relationships: Is a special case of: organization Inherits from:</p>

TABLE A1.1 Continued

01075 01077 01080	Healthcare stakeholder Organization This object characterizes those aspects of an organization that involve its responsibilities and benefits deriving from having individuals work formally for the organization for pay. Attributes: present employer name work address work (business) phone
Organization	Object and Class Relationships: Inherits from: Healthcare stakeholder This object contains general data on any social entity that is organized for any purpose relating to a societal function. It includes those organizations offering services in the healthcare domain and those organizations consuming or supporting such services, such as insurers, suppliers, manufacturers, etc. It excludes those nonbusiness entities that are related solely to individuals and have no implications for the healthcare domain. Attributes:
Healthcare Enterprise	Object and Class Relationships: Is a special case of: organization Inherits from: Healthcare stakeholder Organization This object is a business entity that delivers healthcare services. It may also be a practitioner, which is a separate object containing data on the professional attributes of the provider/practitioner relationship. This object, however, contains only those attributes relating to the business function of a practitioner's practice. Attributes: provider/practitioner name provider address provider type provider ID no. provider ID agency
04001 04001.03 04001.05 04001.07 04001.07.01	Object and Class Relationships: Inherits from: This object is a business entity that delivers healthcare services. It may also be a practitioner, which is a separate object containing data on the professional attributes of the provider/practitioner relationship. This object, however, contains only those attributes relating to the business function of a practitioner's practice. Attributes: Stakeholder identifier
Healthcare Stakeholder Role	Object and Class Relationships: is a component/member of: Healthcare stakeholder Inherits from: Healthcare stakeholder characterizes the role of the stakeholder in a particular healthcare process Attributes: Healthcare stakeholder role code Organization This object is an entity that has a healthcare role. It may be a person or an organization Attributes: Stakeholder role identifier Date stakeholder role began Date stakeholder role ended
General Subject/Object Group: People	
Alternate Individual Name	Object and Class Relationships: is a component/member of person Inherits from: Healthcare stakeholder Person characterizes additional names for a person Attributes: Individual alternate Name
01010	

TABLE A1.1 *Continued*

01010.1	Individual alternate Name end date
01010.2	Individual alternate Name start date
01010.3	Individual alternate Name usage
Employee/Worker	Object and Class
	<p>Relationships:</p> <p>Is a component of: person</p> <p>Is a component of: employer/company</p> <p>Is a component of: laboratory work station</p> <p>Inherits from:</p> <p>Healthcare stakeholder</p> <p>Person</p> <p>Employer/company</p> <p>Organization</p> <p>This object characterizes those individuals who formally work for, and are paid for their work by, an organization. Being formally employed confers certain benefits and responsibilities on both the employee and the employer. The properties that characterize those aspects of an individual reside in this object.</p> <p>Attributes:</p>
Family Member	Object and Class
	<p>Relationships:</p> <p>Is a component of: patient</p> <p>Inherits from:</p> <p>Healthcare stakeholder</p> <p>Person</p> <p>Patient</p> <p>This object contains those attributes of a patient's family members, including parents and all ancestors and their characteristics, that relate to care of the patient. This includes the ability to render or assist in care and the known causes of death and major health problems of ancestors, and it includes the profile of the known genes possessed by those family members or ancestors. These attributes are not inclusive and may be extended in the future when the need for additional attributes can be justified. The inherited characteristics of family members and ancestors is highly confidential and must be protected from to any but those who have the highest priority need-to-know.</p> <p>Attributes:</p>
01090	family member name
01090.02	family member SSAN
01090.03	family member relationship
01090.05	family member male parent
01090.07	family member female parent
01090.09	family member spouse
01090.11	family member sex
01090.13	family member DOB
01090.15	family member date of death
01090.17	family member head of household status
01090.19	family member primary caregiver status
01090.21	family member location
01090.23	family member occupation
01090.25	family member major diagnosis/cause of death
Family Member Gene	Object and Class
	<p>Relationships:</p> <p>Is a component of: Family Member</p> <p>Inherits from:</p> <p>Healthcare stakeholder</p> <p>Person</p> <p>Patient</p> <p>Family Member</p> <p>This object contains those attributes of a patient's family members' genes. The inherited characteristics of family members and ancestors is highly confidential and must be protected from to any but those who have the highest priority need-to-know.</p> <p>Attributes:</p>
01090.27	family member inherited gene ID
01090.27.01	family member gene expression
01090.27.02	family member gene EXP extent
Healthcare Practitioner	Object and Class
	<p>Relationships:</p> <p>Is a special case of: employee/worker</p> <p>Is a component of: healthcare treatment facility</p> <p>Inherits from:</p> <p>Healthcare stakeholder</p> <p>Person</p>

TABLE A1.1 Continued

	<p>Organization Employee/worker Healthcare enterprise Healthcare treatment facility This object contains those attributes of a person that characterize the individual's role in delivering healthcare services, either directly or indirectly, to patients. It includes those individuals having some professional education, competence, and certification, or licensing attesting to competence to engage in such activity. It excludes healthcare workers, who are those individuals not possessing such special competence, but not those practitioners who, at some time, are engaged in a nonpractitioner role. Practitioners are categorized with respect to their level of responsibility and their area of specialty. Attributes:</p>
04001.10	practitioner name
04001.12	practitioner SSAN
04001.15	practitioner's universal ID no.
04001.20	practitioner's profession
04001.25	practitioner's address
04001.30	practitioner's phone
04001.35	practitioner license no.
04001.40	practitioner license state
04001.50	practitioner specialty
04001.60	practitioner signature
Healthcare Practitioner Role	Object and Class
	<p>Relationships: Is a component of: healthcare practitioner Inherits from: Healthcare stakeholder Person Organization Employee/worker Healthcare enterprise Healthcare practitioner Patient This object contains those attributes of a person that characterize the individual's role in delivering healthcare services, either directly or indirectly, to a patient. Attributes:</p>
04001.45	practitioner current role
04001.45.01	date practitioner role began
04001.45.02	date practitioner role ended
Individual Identifier	Object and Class
	<p>Relationships: is a component/member of: person Inherits from: Healthcare stakeholder Person surrogate unique token identifying the person Attributes:</p>
01015	individual identifier
01015.4	individual identifier end date
01015.3	individual identifier start date
01015.1	individual identifier issuing organization
01015.5	individual identifier status
01015.2	individual identifier type
Worker, Healthcare	Object and Class
	<p>Relationships: Is a component of: healthcare enterprise Is a special case of: employee/worker Inherits from: Healthcare stakeholder Organization Employee/worker Healthcare enterprise Healthcare treatment facility Person This object characterizes those individuals who are not practitioners but who work in healthcare settings. These individuals also are employees and inherit properties from the employer. Attributes:</p>
Worker, Healthcare, Laboratory	Object and Class
	Relationships:

TABLE A1.1 Continued

	<p>is a special case of: worker, healthcare Inherits from: Healthcare stakeholder Organization Healthcare enterprise Employee/worker Person Healthcare treatment facility characterizes those workers who work in healthcare laboratories Attributes:</p>
Healthcare Practitioner, Dentist	<p>Object and Class</p> <hr/> <p>Relationships: Is a special case of: healthcare practitioner Inherits from: Healthcare stakeholder Organization Employee/worker Healthcare enterprise Healthcare treatment facility Person Healthcare practitioner This object is characterized by the attributes concerned with the education, training, and licensing of dentists as special cases of practitioners. Attributes:</p>
Healthcare Practitioner, Nurse	<p>Object and Class</p> <hr/> <p>Relationships: Is a special case of: healthcare practitioner Inherits from: Healthcare stakeholder Organization Employee/worker Healthcare enterprise Healthcare treatment facility Person Healthcare practitioner This object is characterized by the attributes concerned with the education, training, and licensing of nursing personnel at all levels. It includes all aspects of general nursing but excludes those aspects of nursing specialties. Attributes:</p>
Healthcare Practitioner, Nurse Practitioner	<p>Object and Class</p> <hr/> <p>Relationships: Is a special case of: healthcare practitioner Is a special case of: healthcare practitioner, nurse Inherits from: Healthcare stakeholder Organization Employee/worker Healthcare enterprise Healthcare treatment facility Person Healthcare practitioner This object is characterized by those attributes that concern the special education, training, or licensing of nursing personnel that provide the competence to provide limited primary care. Attributes:</p>
Healthcare Practitioner, Physician	<p>Object and Class</p> <hr/> <p>Relationships: Healthcare practitioner Inherits from: Healthcare stakeholder Organization Employee/worker Healthcare provider Healthcare treatment facility Person Healthcare practitioner A physician object is characterized by the attributes concerned with the education, training, and licensing of physicians and osteopaths as special cases of practitioners. Attributes:</p>
Worker, Healthcare, Non-laboratory	<p>Object and Class</p>

TABLE A1.1 Continued

	<p>Relationships: is a special case of: worker, healthcare inherits from: Healthcare stakeholder Organization Healthcare enterprise Employee/worker Healthcare treatment facility Person characterizes a person and employee of an organization who works in nonlaboratory parts of a healthcare enterprise Attributes:</p>
Worker, Non-healthcare, Laboratory	Object and Class
	<p>Relationships: is special case of: Employee/worker Inherits from: Healthcare stakeholder Organization Healthcare enterprise Employee/worker Person an individual worker not in healthcare and in the laboratory Attributes:</p>
Job	Object and Class
	<p>Relationships: Is a component of: employee/worker Inherits from: Healthcare stakeholder Organization Employer/worker This object characterizes the work that an individual does for an employer/company and an organization. The properties of a job are the general activities and responsibilities of the work assigned. Attributes: job start date job employer job full/parttime status job status job title job code job classification job employee number job process/activity job termination date job comments job work activity job protective equip job stressors exposed to</p>
08070 08070.01 08070.03 08070.05 08070.07 08070.09 08070.11 08070.13 08070.15 08070.17 08070.19 08070.21 08070.23 08070.25	
Occupation	Object and Class
	<p>Relationships: Is a component of: employee/worker Inherits from: Healthcare stakeholder Organization Employee/worker Employer/company Person This object characterizes the general nature of a person's work skills, education combined with a generally recognized generic requirement of employers. The properties of an occupation reflect the skills and preparation for a general domain of jobs without necessarily being specific for any one job. Attributes: current work status occupation previous occupations date completed occupation</p>
01062 01065 01065.1 01065.2	
Patient	Object and Class
	<p>Relationships: Is a component of: person Is a component of: employer/company Inherits from: Healthcare stakeholder</p>

TABLE A1.1 Continued

	Person
	Employer/company
	Organization
	This object characterizes the special properties of an individual that surround the process of seeking healthcare from a practitioner. It excludes the general properties of the individual found in the person object.
	Attributes:
01007	adopted?
01015	patient no.
01016	universal patient health no.
01025	archive data
01030	location of chart
01035	multiple birth marker
01037	birth order
01047	religion
01050	military SVC/veteran status
01058	patient's language
01062	current work status
01087	number in household
01090	family member name
01110	emerg. Cont. (rel/fr.)
01112	emerg. Cont. relat.
01120	patient guardian name
01125	patient guardian address
01130	patient guardian status
01135	LNOK name
01137	LNOK relationship
01140	LNOK address
01142	LNOK home phone
01145	LNOK business phone
01005	parental marital status
01058	interpreter REQ
01067	current vocational status
01070	previous occupations
01070.01	date completed occupation
01085	usual living arrangement
01115	emerg. CONT. address
01117	emerg. CONT. H. phone
01119	emerg. CONT. B. phone
01150	R/L handed?
01155	color eyes
01160	color hair
01165	blood type
01175	build
01185	patient record activity status
01190	confidentiality protection
01262	clergyman's name
01265	clergyman's address
01267	clergyman's phone
01170	height
01180	weight
Person	Object and Class
	Relationships:
	Inherits from:
	Healthcare stakeholder
	This object contains data common to all human beings identified within the healthcare domain.
	Attributes:
01001	person's name
01002	previously registered name
01010	alias
01020	SSAN
01032	date-time of birth
01033	birthplace
01040	sex
01042	race
01045	ethnic group
01052	marital status
01055	citizenship status
01060	educational level
01065	current occupation
01075	present employer name
01077	work address
01080	work (business) phone
01095	person's permanent address

TABLE A1.1 *Continued*

01097	person's county/CEN tract
01099	foreign residency
01100	home phone
01105	person's temporary address
<hr/>	
Professional Specialty	<p>Relationships: is a component/member of: Healthcare Practitioner Inherits from: Healthcare stakeholder Organization Healthcare enterprise Healthcare treatment facility Employee/worker Person Healthcare practitioner This object characterizes the specialization of each healthcare practitioner</p> <p>Attributes: professional specialty identifier professional specialty name certifying professional society</p>
<hr/>	
Release of Information Record	<p>Relationships: is a component/member of: Patient Inherits from: Healthcare stakeholder Patient Person This object characterizes the properties of each release of information from the primary record of care.</p> <p>Attributes: release of info record action datetime type of record action rel of info type of info rel of info person releasing rel of info released to rel of info purpose person authorizing release</p>
02100	
02100.02	
02100.04	
02100.06	
02100.08	
02100.10	
02100.12	

REFERENCES

- (1) Chen, P. P. S., *ACM Transactions on Database Systems-1*, March 1976, p. 1.
- (2) Coad, P., and Yourdon, E., *Object-Oriented Analysis*, Yourdon Press, New York, NY, 1991.
- (3) Rumbaugh, J., Blaha, M., Dremerlani, W., Eddy, F., and Lorenzen, W., *Object-Oriented Modelling and Design*, Prentice Hall, New York, NY, 1991.
- (4) Steen, E., and Dick, R., *Computer Based Patient Records, a Technology Essential for Health Care*, NAS Press, Washington, DC, 1991.
- (5) Waters, K., and Murphy, G. F., *Medical Records and Health Information*, 2nd Ed., Aspen, Gaithersburg, MD, 1993.

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