# HL7 Reference Information Model

## Contents

<table>
<thead>
<tr>
<th>Number</th>
<th>Section Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction</td>
</tr>
<tr>
<td>2</td>
<td>Subjects</td>
</tr>
<tr>
<td></td>
<td>2.1 RIM_Acts</td>
</tr>
<tr>
<td></td>
<td>2.1.1 RIM_ClinicalActs</td>
</tr>
<tr>
<td></td>
<td>2.1.2 RIM_FinancialActs</td>
</tr>
<tr>
<td></td>
<td>2.2 RIM_Communication_infrastructure</td>
</tr>
<tr>
<td></td>
<td>2.2.1 RIM_Message_control</td>
</tr>
<tr>
<td></td>
<td>2.2.2 RIM_Structured_documents</td>
</tr>
<tr>
<td></td>
<td>2.3 RIM_Entities</td>
</tr>
<tr>
<td></td>
<td>2.4 RIM_Roles</td>
</tr>
<tr>
<td></td>
<td>2.5 RIM_unassigned</td>
</tr>
<tr>
<td>3</td>
<td>Classes</td>
</tr>
<tr>
<td></td>
<td>3.1 Access</td>
</tr>
<tr>
<td></td>
<td>3.2 Act</td>
</tr>
<tr>
<td></td>
<td>3.3 Act_context</td>
</tr>
<tr>
<td></td>
<td>3.4 Act_relationship</td>
</tr>
<tr>
<td></td>
<td>3.5 Assigned_practitioner</td>
</tr>
<tr>
<td></td>
<td>3.6 Billing_information_item</td>
</tr>
<tr>
<td></td>
<td>3.7 Certified_practitioner</td>
</tr>
<tr>
<td></td>
<td>3.8 Champus_coverage</td>
</tr>
<tr>
<td></td>
<td>3.9 Clinical_document</td>
</tr>
<tr>
<td></td>
<td>3.10 Consent</td>
</tr>
<tr>
<td></td>
<td>3.11 Container</td>
</tr>
<tr>
<td></td>
<td>3.12 Device</td>
</tr>
<tr>
<td></td>
<td>3.13 Diagnostic_image</td>
</tr>
<tr>
<td></td>
<td>3.14 Diagnostic_related_group_definition</td>
</tr>
<tr>
<td></td>
<td>3.15 Diet</td>
</tr>
<tr>
<td></td>
<td>3.16 Document_service</td>
</tr>
<tr>
<td></td>
<td>3.17 Employee</td>
</tr>
<tr>
<td></td>
<td>3.18 Encounter_drg</td>
</tr>
<tr>
<td></td>
<td>3.19 Entity</td>
</tr>
</tbody>
</table>
3.20 Financial_act
3.21 Financial_transaction
3.22 Guarantor
3.23 Guarantor_contract
3.24 Healthcare_benefit_coverage_item
3.25 Healthcare_benefit_product_policy
3.26 Imaging_modality
3.27 Inpatient_encounter
3.28 Insurance_certification
3.29 Language_ability
3.30 Living_subject
3.31 Manufactured_material
3.32 Material
3.33 Non_Person_living_subject
3.34 Observation
3.35 Organization
3.36 Outbreak
3.37 Participation
3.38 Patient
3.39 Patient_billing_account
3.40 Patient_encounter
3.41 Person
3.42 Person_Language
3.43 Place
3.44 Preauthorization
3.45 Procedure
3.46 Public_health_case
3.47 Qualified_practitioner
3.48 Referral
3.49 Relationship_link
3.50 Role
3.51 Scheduled_resource
3.52 Slot_occupant
3.53 Substance_administration
3.54 Supply
3.55 Transportation
3.56 Unmapped_financial_classes
3.57 Working_list
3.58 Acknowledgement
3.59 Attention_line
3.60 Batch
3.61 Character_data
3.62 Clinical_document_body
3.63 Coded_entry 83
3.64 Content 84
3.65 Element_response_control 84
3.66 Element_sort_control 84
3.67 Entry 85
3.68 File_of_batch 85
3.69 Link 87
3.70 Link_html 87
3.71 List 87
3.72 List_item 88
3.73 Local_attr 88
3.74 Local_markup 88
3.75 Message 89
3.76 Message_interaction 91
3.77 Paragraph 91
3.78 Query 92
3.79 Query_ack 93
3.80 Query_by_parameter 93
3.81 Query_by_selection 94
3.82 Query_interaction_continuation 94
3.83 Query_message_interaction 94
3.84 Query_spec_message_type 94
3.85 Response_control 95
3.86 Response_field 95
3.87 Section 96
3.88 Selection_criteria 96
3.89 Structure 97
3.90 Table 97
3.91 Table_cell 98
3.92 Table_column 99
3.93 Table_column_group 99
3.94 Table_column_structure 99
3.95 Table_data_cell 99
3.96 Table_header_cell 99
3.97 Table_row 100
3.98 Table_row_group 100
3.99 Table_row_structure 100
3.100 Table_structure 100
3.101 Tabular_row_data 101
3.102 TBL_response_control 101
3.103 TBL_sort_control 101
3.104 Unstructured_blob 102

4 Associations 103
1 Introduction to: HL7 Reference Information Model

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Identifications:

Model identifier: RIM_0101
Version: V 0-101
Release date: 4/6/2001
Organization: Health Level Seven

Description of HL7 Reference Information Model:

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This model reflects changes from the RIM Harmonization Meeting held March 23, 2001 in Indianapolis, IN.
Technical corrections have not been applied.

This release of the RIM is being made available to HL7 members and facilitators for review. Technical corrections should be forwarded to Karen Van Hentenryck (Karenvan@HL7.org) on or before April 18, 2001.

Comments on this model should be addressed to the co-chairs of the Methodology and Modeling Committee and/or sent to the M&M e-mail list at mnm@lists.hl7.org
2 Subject areas in: HL7 Reference Information Model

RIM_Acts  RIM_Entities  RIM_unassigned
RIM_Communication_infrastructure  RIM_Roles

2.1 RIM_Acts (in base model)

A collection of subject areas related to patient encounters and patient services

RIM_Acts contains subject areas:
- RIM_Clinical_acts
- RIM_Financial_acts

2.1.1 RIM_Clinical_acts (in RIM_Acts)

RIM_Clinical_acts contains classes:
- Act
- Act_context
- Act_relationship
- Clinical_document
- Consent
- Diagnostic_image
- Diet
- Document_service
- Encounter_drg
- Inpatient_encounter
- Observation
- Outbreak
- Referral
- Supply
- Substance_administration
- Participant
- Transportation
- Working_list
- Public_health_case
- Diagnosis
- Observation
- Supply
- Substance_administration
- Procedure

2.1.2 RIM_Financial_acts (in RIM_Acts)

RIM_Financial_acts contains classes:
- Billing_information_item
- Champus_coverage
- Diagnostic_related_group_definition
- Financial_act
- Financial_transaction
- Guarantor_contract
- Healthcare_benefit_coverage_item
- Healthcare_benefit_product_policy
- Insurance_certification
- Patient_billing_account
- Unmapped_financial_classes
- Query
- Query_ack
- Query_by_parameter
- Query_by_selection
- Query_interaction_continuation
- Tabular_row_data
- TBL_response_control

2.2 RIM_Communication_infrastructure (in base model)

RIM_Communication_infrastructure contains subject areas:
- RIM_Message_control
- RIM_Structured_documents

2.2.1 RIM_Message_control (in RIM_Communication_infrastructure)

A collection of classes related to the technical definition and control of messages in HL7.

RIM_Message_control contains classes:
- Acknowledgement
- Attention_line
- Batch
- Element_response_control
- Element_sort_control
- File_of_batch
- Message_interaction
- Query
- Query_ack
- Query_by_parameter
- Query_by_selection
- Query_interaction_continuation
- Query_spec_message_type
- Response_control
- Response_field
- Selection_criteria
- Tabular_row_data
- TBL_response_control
2.2.2 RIM_Structured_documents (in RIM_Communication_infrastructure)

RIM_Structured_documents contains classes:

- Character_data
- Clinical_document_body
- Coded_entry
- Content
- Entry
- Link
- Link_html
- List
- List_item
- Local_attr
- Local_markup
- Paragraph
- Section
- Structure
- Table
- Table_cell
- Table_column
- Table_row
- Table_row_group
- Table_row_structure
- Table_structure
- Table_column_structure
- Table_data_cell
- Table_header_cell
- Table_row_group
- Table_row_structure
- Unstructured_blob

2.3 RIM_Entities (in base model)

A collection of subject areas related to healthcare stakeholders.

RIM_Entities contains classes:

- Container
- Device
- Entity
- Imaging_modality
- Language_ability
- Living_subject
- Manufactured_material
- Material
- Non_Person_living_subject
- Person
- Person_Language
- Place
- Organization

2.4 RIM_Roles (in base model)

A collection of subject areas related to the financial aspects of Healthcare.

RIM_Roles contains classes:

- Access
- Assigned_practitioner
- Certified_practitioner
- Employee
- Guarantor
- Patient
- Qualified_practitioner
- Relationship_link
- Role
- Scheduled_resource
- Slot_occupant

2.5 RIM_unassigned (in base model)

RIM_unassigned contains classes:

- Clinical_document
- Device
- Diagnostic_image
- Guarantor
- Imaging_modality
- Message_interaction
- Observation
- Query
- Query_ack
- Query_message_interaction
- Structure
- Table_structure
- Table_interaction_continuation
3 Classes in: HL7 Reference Information Model

3.1 Class: Access (in RIM_Roles)

Attributes of Access:

- approach_site_cd
- gauge_qty
- target_site_cd

Access is specialization of: Role

Description of Access:
A role played by a Device when the Device is used to administer therapeutic agents (medication and vital elements) into the body, or to drain material (e.g., exudate, pus, urine, air, blood) out of the body. Typically an Access_device is a catheter or cannulainserted into a compartment of the body.

Therefore, target_body_site_cd and entry_site_cd are attributes of the Access_device. Note that the Access_device role primarily exists in order to describe material actually deployed as an access, and not so much the fresh material as it comes from the manufacturer. For example, in supply ordering a box of catheters from a distributor, it is not necessary to use the Access_device role class, since the material attributes will usually suffice to describe and identify the product for the order. But the Access_device role is used to communicate about the maintenance, intake/outflow, and due replacement of tubes and drains.

Devices in the role of an Access_device are typically used in intake/outflow observations, and in medication routing instructions. Microbiologic observations on the material itself or on fluids coming out of a drain, are also common.

OpenIssue: Can Entities other than Devices assume the role of Access_device? If so, perhaps the class is better named Access_material.

Attributes of Access:

3.1.1 Access.approach_site_cd : CD (0..1)

Vocabulary domain: <<unassigned>> (CWE)

Specifies the anatomic site where the line or drain first enters the body. For example in a arteria pulmonalis catheter targets a pulmonary artery but the access approach site is typically the vena carotis interna at the neck, or the vena subclavia at the fossa subclavia.

The coding system is the same as for Procedure.access_site_cd, indeed the Access.approach_site_cd has been copied from the Procedure class into the Access role class. The value of the Access.approach_site_cd should be identical to the value of the Procedure.approach_site_cd of an associated access placement procedure. This attribute is used if such an associated access placement procedure is not communicated. Since accesses are typically placed for a considerable period of time and since the access is used as a resource of many services, the access approach site becomes an important identifying attribute of the access itself.

3.1.2 Access.gauge_qty : PQ (0..1)

The gauge of an access is a measure for the inner diameter of the tube (the lumen.) Typically catheter gauge is measured in terms of units not seen elsewhere. Those units are defined in the Unified Code for Units of Measure.

3.1.3 Access.target_site_cd : CD (0..1)

Vocabulary domain: <<unassigned>> (CWE)

This is the anatomical target site of the access, i.e., the body compartment into which material is administered or from which it is drained. For example, a pulmonary artery catheter will have the target site arteria pulmonalis with or without a known laterality.
The coding system is the same as for Procedure.target_site_cd, indeed the Access.target_site_cd has been copied from the Procedure class into the Access role class. The value of the Access.target_site_cd should be identical to the value of the Procedure.target_site_cd of an associated access placement procedure. This attribute is used if such an associated access placement procedure is not communicated. Since accesses are typically placed for a considerable period of time and since the access is used as a resource of many services, the target site becomes an important identifying attribute of the access itself. The target site is an important information that determine what kinds of substances may or may not administered (e.g., special care to avoid medication injections into an arterial access.)

3.2 Class: Act (in RIM_ClinicalActs)

Attributes of Act:
- activity_time
- availability_dttm
- cd
- class_cd
- confidentiality_cd
- effective_time
- id
- independent_ind
- interruptible_ind
- mood_cd
- priority_cd
- status_cd
- txt
- max_repeat_nmr

Associations of Act:
- originates_in_context_of :: (0..*)Act_context :: provides_context_for :: (1..*)
- is_source_for :: (0..*)Act_relationship :: has_source :: (1..1)
- is_target_for :: (0..*)Act_relationship :: has_target :: (1..1)
- has :: (0..*)Participation :: for :: (1..1)

Act generalizes:
- Act_context
- Consent
- Financial_act
- Observation
- Patient_encounter
- Procedure
- Referral
- Supply
- Transportation
- Working_list
- Substance_administration

Description of Act:
An act is an intentional action in the business domain of HL7. Healthcare (and any profession or business) is constituted of intentional actions. An Act instance is a record of such an intentional action. The terms "act", "action", and "activity" are all used interchangeably, but Act has been selected as the name of this class.

Any intentional action can exist in different "moods" (See Unified Service Action Model (USAM 2.7) for a complete description of "mood"). For example, the mood of an action can tell whether the action actually occurred (Act.mood="event"), was ordered (Act.mood="order"), serves as a criteria to trigger further actions (Act.mood="event criterion"), defines the action, and more. (See the ActMood domain table in HL7 Vocabulary Domain Listings for the complete set of defined Act moods.) An Act instance represents an action in one and only one such mood. Thus, act events, orders, criteria, and definitions are all represented by an instance of Act.

Any instance of an Act assumes one and only one mood and will not change its mood along its life cycle. The moods definition, intent, order, event, etc. seem to specify a life cycle of an activity and thus seem like state changes. However, the actors of these different moods are different, and so is the data different. It is important to keep track of those differences (variances) in business processes. Therefore, the mood of an Act instance is static and not part of the state, not part of the life cycle. The progression of the idea of an act towards actualization (i.e., the progression from defined, through planned and ordered, to being performed) is called "business cycle" to distinguish it from the "life cycle" of a single act instance. Related Act instances that form such a "business cycle" are linked through the Act_relationship class (See also USAM 2.7).

Examples for acts in health care are: a clinical test, an assessment of health condition (such as problems and diagnoses), the setting of healthcare goals, the performance of treatment services (such as medication, surgery, physical and psychological therapy), assisting, monitoring or attending, training and education services to patients and their next of kin, and notary services (such as advanced directives or living will).
Acts have participants, which can be actors or targets (See USAM 2.7 for a complete description of "actor" and "target"). Examples of actors are nurses, doctors, family members, notary publics, and service organizations -- every person or organization that is capable of independent decisions and can thus be responsible (and liable) for the actions performed.

Target participants in an act may include the patient, the patient's spouse, family, or community, a specimen drawn from the patient or from any object of interest. As patients do play active roles in their own healthcare, the patient can be both an active participant and a target participant at the same time (self-administered or reflexive services.)

An act can have multiple active participants and multiple target participants, their specific role being distinguished in the "type_cd" of the respective instance of the Participation class. In particular, an act involving coordination of care may involve two or more active participants -- playing different roles -- who interact on behalf of a patient, family, or aggregate in the role of target participant. For example, a nurse (active participant) calls Meals on Wheels (active participant) on behalf of the patient (target participant).

An act includes the "results", "answers" or informational "procedure products" gained during the act. In this model, "results" do not exist without an act, and every clinical result, including those results gained accidentally, is gleaned via an act. In other moods, such as "definition", "goal", and "criterion", the results are the possible results, the expected or aimed-for results, or the tested-for results.

Attributes of Act:

3.2.1 Act.activity_time : GTS (0..1)

This is the time when the action happened, is ordered or scheduled to happen, or when it can possibly happen (depending on the mood of the Service object.)

When used with procedures and other events, this is the total time of activity including preparation and clean-up actions. Thus it may be longer than the effective time of the same act, which is the period during which the procedure actually takes place.

The timing of actions is a very important concept that is explained in greater detail in USAMP-II part A, Section 2.5.3.

| FT1^4^00358^Transaction Date | DRG^2^00769^DRG Assigned Date/Time |

3.2.2 Act.availability_dttm : GTS (0..1)

For HL7 messaging, the Service.availability_dttm will be set according to the sender system. If the receiver system records the received information as new, it may set its own recording time to the time it received this information, rather than to the time specified by the information sender.

The Service.availability_dttm is an inert attribute with respect to the mood code. This means, it is the recording time of the service object regardless of its mood.

Rationale: A database that records a separate time stamp for both valid time and transaction time is called a bi-temporal database. Bi-temporal databases allow reconstructing at any time what users of the database actually could have known, versus what the state of the world was at that time. For example, one might record that a patient had a right-ventricular myocardial infarction effective three hours ago, but we may only know about this unusual condition a few minutes ago. Thus, any interventions from three hours ago until a few minutes ago may have assumed a usual left-ventricular infarction, which can explain why these interventions may not have been appropriate in light of the more recent knowledge about the prior state. However, the transaction time (or recording time) may vary from system to system.

3.2.3 Act.cd : CD (0..1)

Vocabulary domain: <<unassigned>> (CWE)
A code specifying the kind of action (e.g. physical examination, serum potassium, patient encounter, financial transaction, etc.). The Act.cd specifies the act conceptually using a code from one of several, typically external, coding systems depending on the class of act, such as observations (LOINC), procedures (e.g., SNOMED), medication treatments (e.g., UMLS), etc.

Open Issue: for administrative acts, this code should actually be used, even though many administrative acts might be specified by Act.class_cd (e.g., encounter). However, sometimes we find further classifying codes (e.g., encounter class code) that can be appropriately mapped to the act code.

### 3.2.4 **Act.class_cd : CS (0..1)**

**Vocabulary domain: ActClass (CWE)**

A code specifying on a high, technical, and tightly controlled level the kind of act. This code is similar in nature as the names of the classes derived from act in a refined message information model (R-MIM.)

### 3.2.5 **Act.confidentiality_cd : SET<CV> (0..*)**

**Vocabulary domain: Confidentiality (CWE)**

This is a code that limits the disclosure of information about this service.

Confidentiality policies may vary from institution to institution and not all systems are capable of abiding by all details of the confidentiality policies enumerated in the vocabulary domains suggested in the above table. However, these are the items that are being used in some institutions and which implementers may want to consider supporting.

It is important to note that good confidentiality of the medical record cannot be achieved through confidentiality codes only to filter out individual record items to certain types of users. There are two important problems with per-item confidentiality: one is inference and the other is the danger of holding back information that may be critical in a certain care situation. Inference means that filtered sensitive information can still be assumed given the other information not filtered. The simplest form of inference is that even the existence of a test order for an HIV Western Blot test or a T4/T8 lymphocyte count is a strong indication for an existing HIV infection, even if the results are not known. Very often, diagnoses can be inferred from medication, such as zidovudine for treatment of HIV infections. The problem of hiding individual items becomes especially difficult with current medications, since the continuing administration of the medication must be assured.

Aggregations of data should assume the privacy level of the most private action in the aggregation.

### 3.2.6 **Act.effective_time : GTS (0..1)**

The time at which the action focuses. This attribute is also known as the "primary" time (Arden Syntax) or the "biologically relevant time" (HL7 v2.x). While this attribute is of type GTS very often it will be a simple time range (IVL<TS>) or even a simple time stamp (which is all compatible with GTS.)

This attribute is distinguished from activity time.
infinity (a specific null value for numbers.) See the discussion on service plans in the USAM 2.7 specification, part A, on how specifically this is used.

3.2.11 **Act.mood_cd** : **CS** (1..1) Mandatory

Vocabulary domain: ActMood (CNE)

Webster's dictionary defines mood as a "distinction of form [...] of a verb to express whether the action or state it denotes is conceived as fact or in some other manner (as command, possibility, or wish)"). This definition of mood can be directly applied to the USAM model, where the action (in natural language) may be conceived as an event that happened (fact), an ordered service (command), a possible service (master), and a goal (wish) of health care. One of the "infinitive" moods is used for describing potential acts that can have actual services associated with them. Common use of the infinitive mood is for dictionary entries (so called "master service") and all "knowledge" links (e.g., possible reason, cause, manifestation, etc.) Other special infinitives are "goal" and "trigger" mood. A goal describes a wish for a certain outcome (typically an observation) to be achieved in the future. An observation in goal mood is not actually made, thus is an infinitive. Goals are evaluated later. Triggers are service descriptions that can match actual services (like a query.) When a trigger matches, it enables, suggests, or demands the associated action to be performed. Triggers are most often used to fully describe PRN medication orders, but can serve to build reminder systems too.

3.2.12 **Act.priority_cd** : **SET<CV>** (0..*) Mandatory

Vocabulary domain: ActPriority (CWE)

This attribute encodes the urgency under which the act is to be scheduled and performed, or was performed. This attribute is used in orders to indicate the ordered priority. It is also used in the service event documentation to indicate the actual priority used to perform the act, which is used to determine the charge. In master service definitions it indicates the available priorities.

| PV1^4^00134^Admission Type |
| PV2^25^00726^Visit Priority Code |

3.2.13 **Act.status_cd** : **CS** (0..1)

Vocabulary domain: <unassigned> (CWE)

The state of the action. For example, suspended, active, completed, cancelled, aborted.

OpenIssue: Shouldn’t the allowable states be added as an ActStatus vocab domain?

| IN1^32^00457^Billing Status |
| IN3^23^00524^Second Opinion Status |
| IN3^24^00525^Second Opinion Documentation Received |
| PV2^16^00717^Purge Status Code |
| PV2^24^00725^Patient Status Code |

3.2.14 **Act.txt** : **ED** (0..1)

The description of an act is a piece of free text or multimedia data that describes the act in all necessary detail. There is no restriction on length or content imposed on the Act.txt attribute. However, the content of the description is not considered part of the functional information communicated between systems. Descriptions are meant to be shown to interested human individuals. All information relevant for automated functions must be communicated using the proper attributes and associated objects. As with any attribute of the Act class, the meaning of the Act.txt attribute is subject to the Act.mood_cd. For act definitions, the description can contain textbook-like information about that act. For act orders, the description will contain particular instructions pertaining only to that order. Filler order systems must show the description field to a performing...
Description of Act_relationship:
The Act_relationship class is a recursive associative class with two associations to the Act class, one named "source" the other named "target". Consider every Act_relationship instance an arrow with a point (headed to the target) and a butt (coming from the source.) For each relationship type, the functions (or roles) of source and target Act are different. In principle the assignment of functions (roles) to each side of the relationship "arrow" is completely arbitrary. However since , The relationships associated with an Act are considered properties of the source act object. That means that the originator of the information reported in an act object is not only responsible for the attribute values of that object, but also for all its outgoing relationships.

The rule of attribution is that all act relationships are attributed to the responsible actor of the Act at the source of the Act_relationship (the "source act").

With this recursive act relationship one can group actions into "batteries," e.g., LYTES, CHEM12, or CBC, where multiple routine laboratory tests are ordered as a group. Some groupings, such as CHEM12, appear more arbitrary; others, such as blood pressure, seem to naturally consist of systolic and diastolic pressure.

Acts may also be grouped longitudinally, in a sequence of sub-actions to form temporal and conditional (non-temporal) action paths (e.g., care plan, critical path, clinical trials, drug treatment protocols).

Acts may be explicitly timed, and may be conditioned on the status or outcome of previous actions. Concurrent collections of acts allow expressing logical branches as well as parallel tasks (tasks carried out at the same time.) These constructs can be organized in multiple layers of nesting, to fully support workflow management.

The Act_relationship class is not only used to construct action plans but also to represent clinical reasoning or judgments about action relationships. Prior actions can be linked as the reasons for more recent actions. Supporting evidence can be linked with current clinical hypotheses. Problem lists and other networks of related judgments about clinical events are represented by the Act_relationship link too.

The Act_relationship.type_cd identifies the meaning and purpose of every Act_relationship instance. For a more detailed description of Act_relationship, see USAM 2.7.

Attributes of Act_relationship:

3.4.1 Act_relationship.checkpoint_cd : CS (0..1)

Vocabulary domain: ActRelationshipCheckpoint (CNE)
Indicates when associated pre-conditions are to be tested.

3.4.2 Act_relationship.conjunction_cd : CS (0..1)

Vocabulary domain: RelationshipConjunction (CNE)
In a bundle of precondition or outcome relationships, this code indicates the logical conjunctions of the criteria.

3.4.3 Act_relationship.inversion_ind : BL (0..1)

The inversion indicator is used when the meaning of Act_relationship_type_cd must be reversed. For example, we define a relationship type reason to express the reason for an action as in:

a) "A cholecystectomy was performed because of symptomatic cholelithiasis without signs for cholecystitis." (cholecystectomy has-reason cholelithiasis)

This statement of rationale is attributed to the responsible performer of the cholecystectomy. Now consider the following statement:

b) "The finding of symptomatic gall stones (cholelithiasis) with no signs of acute cholecystitis suggests a cholecystectomy."

While sentence a) declares a reason for an action, sentence b) suggests an action. Reason and suggestion links
used to represent sequences of actions in execution plans.

The ordering may be total or partial. A total ordering exists if every relationship in a relationship bundle has a distinct sequence number. (A relationship "bundle" is a sub-set of the relationships originating in the same act instance and usually having the same relationship type). If, however, some relationships in the bundle share the same sequence number, we have a partial ordering. In such a case the acts with the same sequence number are concurrent.

3.4.9 *Act_relationship.split_cd*: CS (0..1)

**Vocabulary domain:** ActRelationshipSplit (CNE)

When an activity plan has a branch (indicated through multiple steps with the same item number) the split code specifies how branches are selected for execution.

3.4.10 *Act_relationship.type_cd*: CS (0..1)

**Vocabulary domain:** ActRelationship (CNE)

Determines the meaning of a relationship between two Acts. Each of its values implies specific constraints to what kinds of Act objects can be related and in which way. Refer to the USAM specification document for defined act relationship types and examples of their use.

3.5 **Class:** Assigned_practitioner *(in RIM_Roles)*

Attributes of Assigned_practitioner:

- *position_cd* primary_care_ind

Assigned_practitioner is specialization of: Role

**Attributes of Assigned_practitioner:**

3.5.1 *Assigned_practitioner.position_cd*: CV (0..1)

**Vocabulary domain:** <<unassigned>> (CWE)

3.5.2 *Assigned_practitioner.primary_care_ind*: BL (0..1)

An indication that the healthcare practitioner is a primary care provider.

3.6 **Class:** Billing_information_item *(in RIM_Financial_acts)*

Attributes of Billing_information_item:

- condition_cd occurrence_span_from_dttm value_amt
- occurrence_cd occurrence_span_thru_dttm value_cd
- occurrence_dttm quantity_nbr
- occurrence_span_cd quantity_type_cd

Billing_information_item is specialization of: Unmapped_financial_classes

Description of Billing_information_item:

Billing account information particular to the national uniform billing form. In the United States, this information is used for claim production to receive payment for healthcare services provided.

**Attributes of Billing_information_item:**
3.6.6 **Billing_information_item.occurrence_span_thru_dttm : TS (0..1)**

The end date of the event depicted in occurrence span code.

ExtRef: This information is reported on UB92 FL 36.

| UB1^15^00544^PSRO/UR Approved Stay-To (89) |
| UB1^19^00548^Occur Span End Date (33) |
| UB2^8^00560^Occurrence Span Code/Dates (36) |

3.6.7 **Billing_information_item.quantity_nbr : REAL (0..1)**

A quantitative value on a bill. The value is qualified by quantity type code.

ExtRef: The quantity of covered days, non-covered days, and co-insurance days are reported on UB92 FL 7, 8, and 9.

| UB1^3^00532^Blood Furnished-Pints Of (40) |
| UB1^4^00533^Blood Replaced-Pints (41) |
| UB1^5^00534^Blood Not Replaced-Pints(42) |
| UB1^6^00535^Co-Insurance Days (25) |
| UB1^8^00537^Covered Days (23) |
| UB1^9^00538^Non Covered Days (24) |
| UB1^11^00540^Number Of Grace Days (90) |
| UB2^2^00554^Co-Insurance Days (9) |
| UB2^4^00556^Covered Days (7) |
| UB2^5^00557^Non-Covered Days (8) |
| UB2^17^00815^Special Visit Count |

3.6.8 **Billing_information_item.quantity_type_cd : CV (0..1)**

**Vocabulary domain: <<unassigned>> (CWE)**

A code qualifying the quantity amount information on a bill (e.g., Blood furnished, blood not replaced, blood replaced, coinsurance day, covered day, non-covered day, grace day, special visit, . . .).

3.6.9 **Billing_information_item.value_amt : REAL (0..1)**

A value amount qualified by value code.

EXTREF: This information is reported on UB92 FL 39-41.

| UB1^10^00539^Value Amount & Code (46-49) |
| UB2^6^00558^Value Amount & Code |

3.6.10 **Billing_information_item.value_cd : CE (0..1)**

**Vocabulary domain: <<unassigned>> (CWE)**

A code qualifying the billing information value amount.

EXTREF: This information is reported on UB92 FL 39-41.
3.8.2 Champus_coverage.non_avail_cert_on_file_ind : BL (0..1)

A indication as to whether the champus non-avail certification is on file.

| IN2^18^00489^Champus Non-Avail Cert on File |

3.8.3 Champus_coverage.retirement_dttm : TS (0..1)

The date of retirement for the person covered by Champus.

| IN2^17^00488^Champus Retire Date |

3.8.4 Champus_coverage.station_id : II (0..1)

The identifier of the Champus station.

| IN2^13^00484^Champus Station |

3.9 Class: Clinical_document (in RIM_Clinical_acts)

Attributes of Clinical_document:

local_id

Associations of Clinical_document:

contains :: (1..1)Structure :: is_contained_in :: (0..1)

Description of Clinical_document:

A clinical document contains Observations and Acts and has the following characteristics: (1) Persistence - A clinical document continues to exist in an unaltered state, for a time period defined by local and regulatory requirements; (2) Stewardship - A clinical document is maintained by a person or organization entrusted with its care; (3) Potential for authentication - A clinical document is an assemblage of information that is intended to be legally authenticated; (4) Wholeness - Authentication of a clinical document applies to the whole and does not apply to portions of the document without the full context of the document; (5) Human readability - A clinical document is human readable.

Attributes of Clinical_document:

3.9.1 Clinical_document.local_id : ST (0..1)

An optional identifier which must be unique within the document.

3.10 Class: Consent (in RIM_Clinical_acts)

Consent is specialization of: Act

Description of Consent:

The Consent class represents informed consents and all similar medico-legal transactions between the patient (or his legal guardian) and the provider. Examples are informed consent for surgical procedures, informed consent for clinical trials, advanced beneficiary notice, against medical advice decline from service, release of information agreement, etc.

The details of consents vary. Often an institution has a number of different consent forms for various purposes, including reminding the physician about the topics to mention. Such forms also include patient education material. In electronic medical record communication, consents thus are information entities [use a different
OpenIssue: Code appears to be undefined. This attribute will be dropped if we do not get in a half-way complete concept repertoire by September 2000.

3.11.4 **Container.capacity_qty : PQ** (0..1)

From NCCLS, a geometric property of the container.

OpenIssue: How do we know that we do not need to describe other arbitrary properties of containers? If we do, how do we do that?

3.11.5 **Container.diameter_qty : PQ** (0..1)

From NCCLS, a geometric property of the container.

OpenIssue: How do we know that we do not need to describe other arbitrary properties of containers? If we do, how do we do that?

3.11.6 **Container.height_qty : PQ** (0..1)

From NCCLS, a geometric property of the contained.

OpenIssue: How do we know that we do not need to describe other arbitrary properties of containers? If we do, how do we do that?

3.11.7 **Container.separator_type_cd : CD** (0..1)

**Vocabulary domain:** <<unassigned>> (CWE)

From NCCLS, the kind of separator material.

OpenIssue: How do we know that we do not need to describe other arbitrary properties of containers? If we do, how do we do that?

OpenIssue: Needs a vocabulary domain.

3.12 **Class: Device** *(in RIM_Entities)*

Attributes of Device:
- alert_level_cd
- local_remote_control_state_cd
- software_nm
- last_calibration_dttm
- manufacturer_model_nm

Device generalizes:
- Imaging_modality

Device is specialization of: **Manufactured_material**

Description of Device:
A device is anything used in an activity without being substantially changed through that activity. This includes durable (reusable) medical equipment as well as disposable equipment.

There are a few device concepts defined by HL7 version 2.3 which are suggested for use in HL7 v2.3 as Material.type_cd values if the material is a device of one of the defined kinds and if it is not otherwise specified. See USAMP documentation, Table 38.

Table 38: Devices commonly used to administer medication (from HL7 v2.3 table 0164) Value Description Value Description AP Applicator IVS IV Soluset BT Buretrol MI Metered Inhaler HL Heparin Lock NEB Nebulizer IPPB IPPB PCA PCA Pump IVP IVP Pump

OpenIssue: Currently there are no attributes of device that would not also be applicable to any kind of material.
Attributes of Diagnostic_related_group_definition:
- base_rate_qty
- operating_reimbursement_qty
- trim_high_day_qty
- capital_reimbursement_qty
- reimbursement_qty
- trim_low_day_qty
- cost_weight_qty
- standard_day_qty
- major_diagnostic_category_cd
- standard_total_charge_qty

Associations of Diagnostic_related_group_definition:
- defines :: (0..*)Encounter_drg :: is_defined_by :: (1..1)

Diagnostic_related_group_definition is specialization of: Financial_act

Description of Diagnostic_related_group_definition:
A broad categorization, based upon included procedures and diagnoses, that applies to a Healthcare event as a whole. Used for grouping and evaluating Healthcare encounters with respect to duration of care and cost.

Attributes of Diagnostic_related_group_definition:

3.14.1 Diagnostic_related_group_definition.base_rate_qty : MO (0..1)

<see FIN2301:DRG_Master_File>
OpenIssue: Please provide definition.

3.14.2 Diagnostic_related_group_definition.capital_reimbursement_qty : MO (0..1)

<see FIN2301:DRG_Master_File>
OpenIssue: Please provide definition.

3.14.3 Diagnostic_related_group_definition.cost_weight_qty : MO (0..1)

<see FIN2301:DRG_Master_File>
OpenIssue: Please provide definition.

3.14.4 Diagnostic_related_group_definition.major_diagnostic_category_cd : CE (0..1)

Vocabulary domain: <<unassigned>> (CWE)
<see FIN2301:DRG_Master_File>
OpenIssue: Please provide definition.

3.14.5 Diagnostic_related_group_definition.operating_reimbursement_qty : MO (0..1)

<see FIN2301:DRG_Master_File>
OpenIssue: Please provide a definition.

3.14.6 Diagnostic_related_group_definition.reimbursement_qty : MO (0..1)

<see FIN2301:DRG_Master_File>
OpenIssue: Please provide a definition.

3.14.7 Diagnostic_related_group_definition.standard_day_qty : PQ (0..1)
Attributes of Document_service:

- **change_reason_cd**: CV (0..1)
  - Vocabulary domain: <<unassigned>> (CWE)
  - A code depicting the reason for a change (e.g., creation, update, deletion).

- **completion_cd**: CV (0..1)
  - Vocabulary domain: DocumentCompletion (CWE)
  - A code depicting the completion status of a report (e.g., incomplete, authenticated, legally authenticated).

- **copy_dttm**: TS (0..1)
  - Time a document is released (i.e., copied or sent to a display device) from a document management system that maintains revision control over the document. Once valued, cannot be changed. Intent of this attribute is to give the viewer of the document some notion as to how long the document has been out of the safe context of its document management system.

- **set_id**: II (0..1)
  - A report identifier that remains constant across all document revisions that derive from a common original document. An original report is the first version of a report. It gets a new unique value for Document_service.id, a new value for document_service.set_id, and has the value of document_service.version_nbr set to equal "1". An addendum is an appendage to an existing report that contains supplemental information. The appendage is itself an original report. The parent report being appended is referenced via an act_relationship, with ct_relationship.type_cd set to equal "APND" (for "appends"). The parent report being appended remains in place and its content and status are unaltered. A replacement report replaces an existing report. The replacement report gets a new unique value for Document_service.id, uses the same value for document_service.set_id as the parent report being replaced, and increments the value of document_service.version_nbr by 1. The state of the parent report being replaced should become "superceded" explicitly by another message, but is still retained in the system for historical reference.

- **storage_cd**: CV (0..1)
  - Vocabulary domain: DocumentStorage (CWE)
  - A code depicting the storage status (e.g., active, archived, purged) of a report.

- **version_nbr**: INT (0..1)
  - Version number is an integer starting at '1' and incrementing by 1. The first instance or original report should always be valued as '1'. The version number value must be incremented by one when a report is replaced, but can also be incremented more often to meet local requirements.

Document_service is specialization of: **Act_context**

Description of Document_service:
Specialization of Act to add the characteristics unique to document management services.

3.16.1 **Document_service.change_reason_cd**: CV (0..1)

Vocabulary domain: <<unassigned>> (CWE)

3.16.2 **Document_service.completion_cd**: CV (0..1)

Vocabulary domain: DocumentCompletion (CWE)

A code depicting the completion status of a report (e.g., incomplete, authenticated, legally authenticated).

OpenIssue: Many of the domain values overlap with values of service.status_cd. Other values are derivable from service.text and associated actors and their roles. Therefore we may ultimately not need this attribute.

3.16.3 **Document_service.copy_dttm**: TS (0..1)

Time a document is released (i.e., copied or sent to a display device) from a document management system that maintains revision control over the document. Once valued, cannot be changed. Intent of this attribute is to give the viewer of the document some notion as to how long the document has been out of the safe context of its document management system.

3.16.4 **Document_service.set_id**: II (0..1)

A report identifier that remains constant across all document revisions that derive from a common original document. An original report is the first version of a report. It gets a new unique value for Document_service.id, a new value for document_service.set_id, and has the value of document_service.version_nbr set to equal "1". An addendum is an appendage to an existing report that contains supplemental information. The appendage is itself an original report. The parent report being appended is referenced via an act_relationship, with ct_relationship.type_cd set to equal "APND" (for "appends"). The parent report being appended remains in place and its content and status are unaltered. A replacement report replaces an existing report. The replacement report gets a new unique value for Document_service.id, uses the same value for document_service.set_id as the parent report being replaced, and increments the value of document_service.version_nbr by 1. The state of the parent report being replaced should become "superceded" explicitly by another message, but is still retained in the system for historical reference.

3.16.5 **Document_service.storage_cd**: CV (0..1)

Vocabulary domain: DocumentStorage (CWE)

A code depicting the storage status (e.g., active, archived, purged) of a report.

3.16.6 **Document_service.version_nbr**: INT (0..1)

Version number is an integer starting at '1' and incrementing by 1. The first instance or original report should always be valued as '1'. The version number value must be incremented by one when a report is replaced, but can also be incremented more often to meet local requirements.
3.17.5 **Employee.protective_equipment_txt : ED (0..1)**

Protective equipment needed for the job performed by the employee for the employer. For example, safety glasses, hard hat.

3.17.6 **Employee.salary_qty : MO (0..1)**

The salary amount paid by the employer to the employee.

OpenIssue: Is this the amount paid per the value specified in salary_type_cd?

3.17.7 **Employee.salary_type_cd : CV (0..1)**

**Vocabulary domain: <<unassigned>> (CWE)**

A code categorizing the calculation method used by the employer to compute the employee's salary. For example, hourly, annual, commission.

3.18 Class: **Encounter_drg** *(in RIM.ClinicalActs)*

Attributes of **Encounter_drg**:

| approval_ind | desc | outlier_days_nbr |
| confidential_ind | grouper_review_cd | outlier_reimbursement_qty |
| cost_outlier_qty | grouper_version_id | outlier_type_cd |

Associations of **Encounter_drg**:

- **is_defined_by ** :: (1..1) **Diagnostic_related_group_definition :: defines ::** (0..*)

Description of **Encounter_drg**:

A detailed categorization, based upon included procedures and diagnoses, that applies to the encounter.

OpenIssue: 1) This description does not appropriately appear to fit with the actual meaning of the class itself and is internally inconsistent. 2) The meaning of this class is ambiguous based upon its instance connections and attributes.

Attributes of **Encounter_drg**:

3.18.1 **Encounter_drg.approval_ind : BL (0..1)**

An indication that the DRG assignment has been or has not been approved by a reviewing entity.

3.18.2 **Encounter_drg.confidential_ind : BL (0..1)**

An indication as to whether the DRG assigned to this encounter contains a confidential diagnosis.
Vocabulary domain: <<unassigned>> (CWE)

A code depicting the type of outlier (day, cost) associated with the encounter DRG.

Rationale: This is the v2.3 reference

OpenIssue: This attribute and the attribute outlier_reimbursement_amt do not work together. Either this is the outlier_reimbursement_type_cd or the definition of outlier_reimbursement should be changed to correspond to the definition of outlier_days_amt.

| DG1^11^00385^Outlier Type |
| DRG^5^00385^Outlier Type |

### 3.19 Class: Entity (in RIM_Entities)

Attributes of Entity:

- cd: id
- class_cd: importance_status_txt
- desc: nm
- determiner_cd: telecom
d

Associations of Entity:

- shall_receive :: (0..*)Message :: has_recipient :: (1..*)
- sends :: (0..*)Message :: has_sender :: (1..1)
- scopes :: (0..*)Role :: isScopedBy :: (0..1)
- plays :: (0..*)Role :: played_by :: (1..1)

Entity generalizes:

- Living_subject
- Organization
- Material
- Place

Description of Entity:

Entities are physical things or organizations and groupings of physical things. A physical thing is anything that has extent in space, and has mass. This hierarchy encompasses human beings, organizations, living organisms, devices, pharmaceutical substances, etc. This does not include events/acts/actions, the definition of things, the roles which things can play (e.g. patient, provider), nor the relationships among things.

Rationale: Participants in acts MUST be roles of entities. Subjects of physical acts MAY be roles of entities, however not everything that an act is focused on must be an entity (e.g., when treating a human patient, the human patient is an entity, but solving a problem or thinking about an issue does NOT make the problem or the issue an entity.)

OpenIssue: Rational may belong in a different part of the model.

**Attributes of Entity:**

#### 3.19.1 Entity.cd : CE (0..1)

**Vocabulary domain: <<unassigned>> (CWE)**

This is the main classifying attribute of the Entity class and all of its subclasses. This code indicates what kind of Entity is meant using a code from one of several coding systems depending on the class of entities, such as living subjects (typed by animal and plant taxonomies), chemical substance (e.g., IUPAC code), organizations, insurance company, government agency, hospital, park, lake, syringe, etc. Note that the entity type code may be so fine grained that some types may only have one known instance. Types with an extension
3.19.7 Entity.nm : SET<EN> (0..*)

A name of the entity in the context of the Entity.type_cd attribute.

3.19.8 Entity.qty : SET<PQ> (0..*)

Specifies the quantity of the given entity in coordination with the determiner_cd. For individual instances of Entities, the qty is 1. For a group of individual members, the qty is the number of individual members in the group. For an instance portion of a substance, the qty specifies the amount of that substance comprised by that portion. For an undetermined substance (kind) the qty serves two purposes at the same time: (a) it provides a means of relations between quantities specific for that substance, and (b) it is a reference quantity for the specification of ingredients or components.

In all cases, the qty is an extensive "amount" kind of quantity (e.g., number, length, volume, mass, surface are, energy, etc.) Note that most relative or fractional quantities are not amounts, in particular, mass fraction, substance concentration, mass ratios, percentages, etc. are not extensive quantities and are prohibited values for this attribute. The following table lists those extensive quantities that should typically be used for this attribute.

<table>
<thead>
<tr>
<th>Kind of quantity</th>
<th>Typical Unit</th>
<th>Forms</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>1</td>
<td>solid</td>
<td>Material that is large enough that is can be counted (&quot;eaches&quot;)</td>
</tr>
<tr>
<td>Mass</td>
<td>1 g</td>
<td>liquid, solid</td>
<td>Tissue chemical substances, food.</td>
</tr>
<tr>
<td>Amount of substance</td>
<td>1 mol</td>
<td>all</td>
<td>chemical substances, small particles.</td>
</tr>
<tr>
<td>Volume</td>
<td>1 L</td>
<td>liquid, gas</td>
<td>chemical substances in liquid and gas state, amorphous tissue.</td>
</tr>
<tr>
<td>Length</td>
<td>1 m</td>
<td>solid</td>
<td>long material measured in length, e.g., tape, pipes, hose, etc.</td>
</tr>
<tr>
<td>Area</td>
<td>1 m²</td>
<td>flat</td>
<td>material measured in area, e.g., covers, foils, etc.</td>
</tr>
<tr>
<td>Energy</td>
<td>1 J</td>
<td>solid, liquid</td>
<td>chemical substances, especially food.</td>
</tr>
<tr>
<td>Catalytic amount</td>
<td>1 kat, 1 U, 1 i.U.</td>
<td>all</td>
<td>enzymes and other chemical substances having catalytic activity.</td>
</tr>
<tr>
<td>Radioactivity</td>
<td>1 Bq, 1 Ci</td>
<td>all</td>
<td>radioactive substances.</td>
</tr>
<tr>
<td>Reaction equivalent</td>
<td>1 Eq</td>
<td>all</td>
<td>ionized chemical substances measured through titration; deprecated, use proper amount of substance instead.</td>
</tr>
</tbody>
</table>

Absolute quantities are specified directly as values of this attribute. For example, as a determined instance, 1 person is Person.qty = 1; a group of 5 people is Person.qty = 5; 1 tablet is Material.qty = 1; 30 tablets is Material.qty = 30; 1 mg of Glucose is Material.qty = 1 mg; and 50 mg of Glucose is Material.qty = 50 mg.

With undetermined kinds, the qty is but a reference quantity for the specification of the proportion of ingredients or components (e.g. through a has-part, has-ingredient, or has-content relationship.) For example, a kind of group with 60% females is Person(qty = 100) has-part Person(qty = 60; sex = female). Amoxicillin 500 mg per tablet is Material(Tablet, qty = 1) has-ingredient Material(Amoxicillin, qty = 500 mg). Glucose 50% (D5W) is Material(D5W, qty = 1 kg) has-ingredient Material(Glucose, qty = 50 g).

Material-specific quantity relations are expressed using the fact that the data type of this attribute is a set of physical quantity (SET<PQ>). If more than one qty value are specified in this set, each element in this set is considered to specify the same amount of the material. For example, for one liter of water one could use the set {1 L, 1 kg, 55.56 mol} to specify the volume, mass, and amount of substance for the same amount of water, this is equivalent with specifying the mass density (volumic mass 1 kg/L) and the molar mass (18 g/mol). For Glucose one could specify {180 g, 1 mol} according to the molar mass (180 g/mol).

OpenIssue: Needs data type: suggest set<PQ>

3.19.9 Entity.risk_cd : CE (0..1)

Vocabulary domain: MaterialDanger (CWE)

A code indicating the existence of a risk or hazard associated with the Entity.

3.19.10 Entity.status_cd : CS (0..1)

Vocabulary domain: <<unassigned>> (CWE)

The status_cd tracks the state of the Entity's state-transition model. This is typically a rather trivial state-transition model.
Vocabulary domain: <<unassigned>> (CWE)
A code depicting the reason for the action.
OpenIssue: Need example codes.

| PV1^29^00159^Transfer to Bad Debt Code |
| PV1^34^00164^Delete Account Indicator |
| IN3^17^00518^Appeal Reason |

3.20.3 Financial_act.status_dttm : TS (0..1)
The effective date of the status.
OpenIssue: This likely to represent a whole set of attribution for change of state.

| PV1^30^00160^Transfer to Bad Debt Date |
| PV1^35^00165^Delete Account Date |
| PV2^17^00718^Purge Status Date |

3.21 Class: Financial_transaction (in RIM_Financial_acts)
Attributes of Financial_transaction:

| extended_qty | posting_dttm | unit_cost_qty |
| fee_schedule_cd | qty | unit_qty |
| insurance_qty | transaction_batch_id |

Financial_transaction is specialization of: Financial_act
Description of Financial_transaction:
A charge, credit, or adjustment to charges in a patient's billing account.

Attributes of Financial_transaction:

3.21.1 Financial_transaction.extended_qty : MO (0..1)
The transaction amount derived from multiplying the unit amount by the number of units.
OpenIssue: Note this is a derived attribute as described. Is MnM OK with this?

| FT1^11^00365^Transaction Amount - Extended |

3.21.2 Financial_transaction.fee_schedule_cd : CE (0..1)
Vocabulary domain: <<unassigned>> (CWE)
A code depicting the fee schedule used for this financial transaction.

| FT1^17^00370^Fee Schedule |

3.21.3 Financial_transaction.insurance_qty : MO (0..1)
The double role-based association between a party in the role of guarantor and an organization in the role of healthcare provider.

**Attributes of Guarantor:**

3.22.1 **Guarantor.credit_rating_cd : CV (0..1)**

**Vocabulary domain: <<unassigned>> (CWE)**

A code depicting the credit rating (e.g., excellent, good, fair, questionable, poor).

| PV1^23^00153^Credit Rating |
| GT1^23^00774^Guarantor Credit Rating Code |

3.23 **Class: Guarantor_contract (in RIM_Financial_accts)**

Attributes of Guarantor_contract:

- billing_hold_ind
- contract_duration_cd
- interest_rate_nbr
- billing_media_cd
- contract_type_cd
- periodic_payment_qty
- charge_adjustment_cd
- effective_tmr
- priority_ranking_cd

Associations of Guarantor_contract:

- has_coverage_affirmed_by :: (0..*)Insurance_certification
- affirms_insurance_coverage_for :: (1..1)

Guarantor_contract is specialization of: Unmapped_financial_classes

Description of Guarantor_contract:

A contract held by a stakeholder which specifies the financial responsibility of the stakeholder for a patient billing account.

**Attributes of Guarantor_contract:**

3.23.1 **Guarantor_contract.billing_hold_ind : BL (0..1)**

A indicator used to determine whether or not a system should suppress printing of the guarantor's bills.

| GT1^22^00773^Guarantor Billing Hold Flag |

3.23.2 **Guarantor_contract.billing_media_cd : CE (0..1)**

**Vocabulary domain: <<unassigned>> (CWE)**

A code depicting the allowable mediums for billing under this guarantor contract.

| PV2^32^00733^Billing Media Code |

3.23.3 **Guarantor_contract.charge_adjustment_cd : CE (0..1)**

**Vocabulary domain: <<unassigned>> (CWE)**

A code depicting which adjustments should be made to this guarantor's charges.

Attributes of Healthcare_benefit_coverage_item:

<table>
<thead>
<tr>
<th>attribute</th>
<th>type</th>
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<td>BL (0..1)</td>
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<td>quantity_qualifier_cd</td>
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<tr>
<td>time_period_qualifier_cd</td>
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</table>

Healthcare_benefit_coverage_item is specialization of: Financial_act

Description of Healthcare_benefit_coverage_item:

The specification of the amount of financial coverage for a healthcare service or category of services. Example 1: physician office visit - 100% coverage, no co-pay in network, $15 co-pay out of network. Example 2: inpatient semi-private room rate @ 100%. Stop-loss of $2,000 per inpatient stay. Outpatient coverage: 80% with out-of-pocket limit of $2,000 per year. Note: each of the above examples would require more than one instance of this class to express.

Rationale: This class allows clinical and financial systems to communicate with payor systems regarding financial responsibility.

OpenIssue: Should this Class be 'masterized'? Is it *really* per patient, or per-plan, or associated in some other way?

Attributes of Healthcare_benefit_coverage_item:

3.24.1 Healthcare_benefit_coverage_item.assertion_cd : CE (0..1)

Vocabulary domain: <<unassigned>> (CWE)

A code depicting the nature of the coverage assertion (e.g. covered, excluded, coinsurance, co-pay, out-of-pocket/stop-loss, excluded, deductible, approval required, second opinion required). For example, when specifying physician office visit - 100% coverage, it indicates "coverage"; when specifying dental crowns excluded, it indicates "excluded"; when specifying psychiatric outpatient - subject to approval by Managed Care Gatekeeper, it indicates "approval required".


3.24.2 Healthcare_benefit_coverage_item.authorization_ind : BL (0..1)

3.24.8 Healthcare_benefit_coverage_item.policy_source_cd : CE (0..1)

Vocabulary domain: <<unassigned>> (CWE)

A code indicating how the policy information was obtained.

OpenIssue: This attribute may be deleted in the future; it is similar to Healthcare_benefit_product.eligibility source code. OpenIssue: Amplify definition. Need examples, explanation.

Rationale: Attribute is related to coverage.

3.24.9 Healthcare_benefit_coverage_item.qty : REAL (0..1)

The amount of the coverage assertion. For example, when specifying psychiatric coverage limitation - 50 outpatient visits per year, it would have the value 50; when specifying physician office visit-$15 co-pay out-of-network, it would have the value 15. The unit of measure is specified by the quantity_qualifier_cd.


| IN1^33^00458^Lifetime Reserve Days | IN1^34^00459^Delay Before L. R. Day | IN1^37^00462^Policy Deductible | IN1^39^00464^Policy Limit - Days | IN2^21^00492^Blood Deductible | IN2^28^00499^Room Coverage Type/Amount | IN2^29^00500^Policy Type/Amount | IN2^30^00501^Daily Deductible |

3.24.10 Healthcare_benefit_coverage_item.quantity_qualifier_cd : CE (0..1)

Vocabulary domain: <<unassigned>> (CWE)

A code specifying the type of units conveyed by the qty attribute. For example, when specifying psychiatric coverage limitation - 50 outpatient visits per year, the quantity would be 50 and the quantity qualifier code would be outpatient visits; when specifying inpatient stop-loss of $2000 per inpatient stay, the quantity would be 2000 and the quantity qualifier code would be dollars.


| IN1^33^00458^Lifetime Reserve Days | IN1^34^00459^Delay Before L. R. Day | IN1^37^00462^Policy Deductible | IN1^39^00464^Policy Limit - Days | IN2^21^00492^Blood Deductible | IN2^28^00499^Room Coverage Type/Amount | IN2^29^00500^Policy Type/Amount | IN2^30^00501^Daily Deductible |

3.24.11 Healthcare_benefit_coverage_item.range_high_qty : PQ (0..1)

The maximum range amount. For example, when specifying dental coverage, orthodontics covered with 50% coinsurance for ages 8-15 years, this would have the value 15.
3.25 Class: Healthcare_benefit_product_policy (in RIM_Financial_acts)

Attributes of Healthcare_benefit_product_policy:

<table>
<thead>
<tr>
<th>access_protocol_desc</th>
<th>benefit_product_type_cd</th>
<th>group_benefit_ind</th>
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<td>agreement_type_cd</td>
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<td>mail_claim_party_cd</td>
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<td>cob_priority_nbr</td>
<td>policy_category_cd</td>
</tr>
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<td>benefit_product_desc</td>
<td>combine_baby_bill_ind</td>
<td>release_information_cd</td>
</tr>
<tr>
<td>benefit_product_nm</td>
<td>coverage_type_cd</td>
<td>status_cd</td>
</tr>
</tbody>
</table>

Healthcare_benefit_product_policy generalizes:

Champus_coverage

Healthcare_benefit_product_policy is specialization of: Financial_act

Description of Healthcare_benefit_product_policy:

Either a healthcare product that can be purchased (as a single package) from an insurer or an individual healthcare policy as it applies to an individual.

Attributes of Healthcare_benefit_product_policy:

3.25.1 Healthcare_benefit_product_policy.access_protocol_desc : ED (0..1)

Description of the access protocol for designated services, for example, prior to elective surgery call (999) 999-9999.

3.25.2 Healthcare_benefit_product_policy.agreement_type_cd : CE (0..1)

Vocabulary domain: <<unassigned>> (CWE)

A code serving as an additional refinement of an insurance plan. (e.g., standard, unified, maternity, . . .).

3.25.3 Healthcare_benefit_product_policy.assignment_of_benefits_ind : BL (0..1)

An indication as to whether the insured agreed to assign the insurance benefits to the healthcare provider.

ExtRef: This information is reported on UB92 FL 53.

3.25.4 Healthcare_benefit_product_policy.benefit_product_desc : ED (0..1)

A description of the healthcare benefit. For example, Healthpol-Plus is a health insurance offering of xyz company that offers additional vision and dental benefits over the standard Healthpol product.

Rationale: Clarify attribute name and definition.

OpenIssue: PAFM needs to continue to work on this definition since it is still too fuzzy. Need additional explicit examples. Committee will continue to work on definition and consult with Information Management.
3.25.11 Healthcare_benefit_product_policy.groupBenefitInd : BL (0..1)
A indication as to whether the healthcare coverage is a group contract.

3.25.12 Healthcare_benefit_product_policy.mailClaimPartyCd : CE (0..1)
Vocabulary domain: <<unassigned>> (CWE)
A code indicating the party to which the claim should be mailed (e.g., employer, guarantor, insurance company, patient, . . .).

3.25.13 Healthcare_benefit_product_policy.policyCategoryCd : CE (0..1)
Vocabulary domain: <<unassigned>> (CWE)
The policy category code (e.g., ANC-ancillary, MMD-major medical)

3.25.14 Healthcare_benefit_product_policy.releaseInformationCd : CE (0..1)
Vocabulary domain: <<unassigned>> (CWE)
A code describing what information, if any, a provider can release about a patient.
OpenIssue: Need example codes or codes set.
ExtRef: This information is reported on UB92 FL 52.

3.25.15 Healthcare_benefit_product_policy.statusCd : CS (0..1)
Vocabulary domain: <<unassigned>> (CWE)
A code depicting the status of the healthcare product.
OpenIssue: The x-ref 00487^Champus Status needs to be moved to a different class, currently under consideration. In 2.x, this referred to UB82 codes indicative active, deceased, or retired for claims.

3.26 Class: Imaging_modality (in RIM_Entities)
Attributes of Imaging_modality:
    pixel_intensity_relationship_cv pixel_padding_qty spacial_resolution_qty
Imaging_modality is specialization of: Device
Description of Imaging_modality:
Class to contain unique attributes of diagnostic imaging equipment.
3.28.1 Insurance_certification.certification_duration_qty : PQ (0..1)

A count of the number of days for which this certification is valid.

| IN3^11^00512^Days |

3.28.2 Insurance_certification.effective_tmr : IVL<TS> (0..1)

The date range during which this certification is effective.

| IN3^6^00507^Certification Date/Time |
| IN3^9^00510^Certification Begin Date |

3.28.3 Insurance_certification.id : II (0..1)

A unique identifier for the certification assigned by the certification agency.

| IN3^2^00503^Certification Number |

3.28.4 Insurance_certification.insurance_verification_dttm : TS (0..1)

The data and time the insurance coverage was verified.

| IN1^29^00454^Verification Date/Time |

3.28.5 Insurance_certification.modification_dttm : TS (0..1)

The date/time that the certification was modified.

| IN3^7^00508^Certification Modify Date/Time |

3.28.6 Insurance_certification.non_concur_cd : CE (0..1)

Vocabulary domain: <<unassigned>> (CWE)

A code depicting the reason or kind of denied request.

OpenIssue: Need code examples (#55).

| IN3^12^00513^Non-Concur Code/Description |

3.28.7 Insurance_certification.non_concur_effective_dttm : TS (0..1)

The date of the non-concurrence classification.

| IN3^13^00514^Non-Concur Effective Date/Time |

3.28.8 Insurance_certification.penalty_qty : MO (0..1)
Multiple birth indicator

Living subject generalizes:

- Non_Person_living_subject
- Person

Living subject is specialization of: Entity

Description of Living subject:
An organism or complex animal, alive or not. Instances of this class encompass mammals, birds, fishes, bacteria, parasites, fungi and viruses. Person is a specialization of this class.

Attributes of Living subject:

3.30.1 Living_subject.administrative_gender_cd : CE (0..1)

Vocabulary domain: AdministrativeGender (CWE)
A code depicting the gender (sex) of a person (e.g., female, male). This code is used for administrative purposes.

ExtRef: This information is reported on UB FL 15.

| NK1^15^00111^Sex |
| PID^8^00111^Sex |
| STF^5^00111^Sex |
| GT1^9^00413^Guarantor Sex |
| IN1^43^00468^Insured's Sex |

3.30.2 Living_subject.birth_dttm : TS (0..1)

The date and time of a living subject's birth or hatching.

3.30.3 Living_subject.birth_order_nbr : INT (0..1)

For newborn living subjects in a multiple birth, the order in which this living subject was born.

| PID^25^00128^Birth Order |

3.30.4 Living_subject.deceased_dttm : TS (0..1)

The date and time that a living subject's death occurred.

3.30.5 Living_subject.deceased_ind : BL (0..1)

An indication that the subject is dead.

3.30.6 Living_subject.multiple_birth_ind : BL (0..1)

A indication as to whether the living subject is part of a multiple birth.

| PID^24^00127^Multiple Birth Indicator |

3.30.7 Living_subject.organ_donor_ind : BL (0..1)
The time interval a certain Material is in existence. The high boundary of this interval is the expiration date if it is defined for the Material. An expiration date does not always have a "day" component; therefore, such a date may be transmitted as YYYYMM.

3.32.2 Material.form_cd : CV (0..1)

Vocabulary domain: <<unassigned>> (CWE)

This is a classifier describing the form of the material. This includes the typical state of matter (solid, liquid, gas) and, for therapeutic substances, the dose form.

OpenIssue: Vocabulary domain should include, but is broader than, the DoseForm domain.

3.32.3 Material.handling_cd : CE (0..1)

Vocabulary domain: MaterialHandling (CWE)

A code to describe how the Material needs to be handled to avoid damage. Examples include: Keep at room temperature; Keep frozen below 0 C; Keep in a dry environment; Keep upright, do not turn upside down.

3.33 Class: Non_Person_living_subject (in RIM_Entities)

Attributes of Non_Person_living_subject:

- breed_cd
- gender_status_cd
- strain_txt
- euthanasia_ind
- production_class_cd
- taxonomic_classification_cd

Non_Person_living_subject is specialization of: Living_subject

Description of Non_Person_living_subject:

A non-human living subject.

Attributes of Non_Person_living_subject:

3.33.1 Non_Person_living_subject.breed_cd : CE (0..1)

Vocabulary domain: <<unassigned>> (CWE)

A code representing the breed of the living subject.

3.33.2 Non_Person_living_subject.euthanasia_ind : BL (0..1)

An indication that the living subject was euthanized.

3.33.3 Non_Person_living_subject.gender_status_cd : CE (0..1)

Vocabulary domain: GenderStatus (CWE)

A code indicating the whether the reproductive organs of Non_person_living_subject have been surgically removed.

3.33.4 Non_Person_living_subject.production_class_cd : CE (0..1)

Vocabulary domain: LivingSubjectProductionClass (CWE)

A code indicating the primary use for which the living subject was bred or grown.
3.34.2 Observation.interpretation_cd : SET<CS> (0..*)

Vocabulary domain: ActInterpretation (CWE)

This attribute allows for a very rough interpretation of the course or outcome of a service action. This is sometimes called "abnormal flags", however, the judgement of normalcy is just one of the common rough interpretations, and is often not relevant. For example, for the observation of a pathologic condition, it doesn't make sense to state the normalcy, since pathologic conditions are never considered "normal."

3.34.3 Observation.method_cd : SET<CV> (0..*)

Vocabulary domain: <<unassigned>> (CWE)

For any Observation there may be several different methods to achieve by and large the same result, but may be important to know when interpreting a report more thoroughly (e.g., blood pressure method; arterial puncture vs. Riva-Rocci, sitting vs. supine position, etc.) Method concepts can be "pre-coordinated" in the Observation.type_cd, so that there is never an option to select different methods. There are so many possible methods which all depend heavily on certain kinds of services, so that defining a vocabulary domain of all methods is difficult.

However, a code system might be designed such that it specifies a set of available methods for each defined service concept. Thus, a user ordering a service could select one of several variances of the service by means of the method code. Available method variances may also be defined in a master service catalog for each defined service. In service definition records (Observation.mood_cd = DEF) the method_cd attribute is a set of all available method codes that a user may select while ordering, or expect while receiving results.

3.34.4 Observation.target_site_cd : SET<CD> (0..*)

Vocabulary domain: <<unassigned>> (CWE)

The anatomical site or system that is the focus of the observation, if applicable. Most observation target sites are implied by the observation code and definition. For example, "heart murmur" always has the heart as target. This attribute is used when the observation target site needs to be refined, to distinguish right and left etc.

If the subject of the Observation is something other than a human patient or animal, the attribute is used analogously to specify a structural landmark of the thing where the act focuses. For example, if the subject is a lake, the site could be inflow and outflow, etc. If the subject is a lymphatic node, "hilus," "periphery," etc. would still be valid target sites.

3.34.5 Observation.value : ANY (0..1)

The result value of an observation action. As was true with HL7 v2, this value can be of any data type. However, there are clearly more or less reasonable choices of data types as indicated below.

Kind of observation :: Data type ::Notes

(1) Quantitative measurements :: PQ ::Physical quantity (real number with unit.) This is the most usual choice. Note that numeric values must not be communicated as a simple character string (ST.)

(2) Titer (e.g., 1:64) and other ratios (e.g. 1 out of 1000) :: RTO :: A ratio of two integer numbers (e.g., 1:128.) Sometimes by local conventions titers are reported as just the denominator (e.g., 32 instead of 1/32) Such conventions are confusing and should not be followed in HL7 messages.

(3) Index (number without unit) :: REAL :: When a quantity does not have a proper unit, one can just send the number as a real number. Alternatively one can use a PQ with a dimensionless unit (e.g., 1 or %). An integer number should only be sent when the measurement is by definition an integer, which is an extremely rare case and then is most likely an ordinal (see below.)

(4) Ranges (e.g., < 3; 12-20) :: IVL<PQ> :: Interval of physical quantity. Note that sometimes such intervals
The standard industry class code of the organization.

**3.36 Class: Outbreak** *(in RIM_Clinical_acts)*

Attributes of Outbreak:

```
  tmr
```

Outbreak is specialization of: **Public_health_case**

Description of Outbreak:
An Outbreak is a Public_health_case where the occurrence in a community or region of cases of an illness in excess of those normally expected. The designation of an outbreak implies that a public health assessment of causality or at least of relatedness among cases has taken place. An outbreak is considered to be a special type of public health case (where a case, in this instance, may include many affected individuals), and may not simply be an aggregate of multiple cases although an outbreak may also be designated as an aggregate of multiple individual public health cases.

**Attributes of Outbreak:**

**3.36.1 Outbreak.tmr : IVL<TS> (0..1)**

The period of time during which the outbreak takes place. The date on which an outbreak starts is the earliest date of onset among the cases assigned to the outbreak, and its ending date is the last date of onset among the cases assigned to the outbreak.

OpenIssue: Needs additional thought. Consider that this is already available.

**3.37 Class: Participation** *(in RIM_Clinical_acts)*

Attributes of Participation:

```
  awareness_cd       note_text       tmr
  encounter_accommodation_cd  signature_cd  type_cd
  function_cd       signature_txt
  mode_cd           status_cd
```

Associations of Participation:

```
  for :: (1..1)Act :: has :: (0..*)
    has_as_participant :: (1..1)Role :: participates_in :: (0..*)
```

Description of Participation:
Participation defines how an Entity, in a particular Role, functions during the scope of an Act. Participation is limited to the scope of the Act, as opposed to Role, which defines the competency of an Entity irrespective of any Act. Note that a particular Entity in a particular Role can participate in an Act in many ways. Thus, a Person in the Role of Individual_healthcare_practitioner, can participate in a Patient_encounter as an a rounding physician or as an attending physician.

All people, things and locations involved in an Act (or for scheduling purposes "all resources of an activity") are associated with the Act as either actors or targets. Actors are mostly professional provider personnel, but also the patient (for self-administered services,) or a proxy (e.g. next of kin.) Actors can participate in an action in different ways. For example, primary surgeon, assistant surgeon, sterile nurse, and nurse assistant are all actors in a surgical procedure, who are more or less immediately involved in the action. However, payers, supervisors, provider organizations (e.g., "MicroLab") and their delegates may be actors too, even though they might not be individual persons who have their "hands on" the action. The patient himself is a performing actor in self-care procedures (e.g. fingerstick blood glucose, insulin injection, etc.) The people and organizations that can be actors of a service action are capable of and accountable for their independent decisions. Capability of independent decision and accountable usually applies only to persons under the law, including both organizations and natural (human) persons. The notion of multiple actors, each with a specific Participation.type_cd (and possibly a Participation.function_cd), touches and partially overlaps the Role.type_cd
and (c) anesthesist. These three actors really perform different tasks, which can be represented as three related services: (a) the consent, (b) the surgery proper, and (c) the anesthesia service in parallel to the surgery. If we used the sub-services, the consenter, surgeon and anesthesist could simply be of actor type "performer." Thus the more sub-services we use, the fewer different actor types need to be distinguished, and the fewer sub-services we use, the more distinct actor types we need.

Note that the perception of a task as "atomic" or "composite" (of sub-tasks) depends on local business rules and may differ from department to department. In principle, every task can be thought of as being a composite of sub-tasks. We thus say that actions are "fractal." The paradigmatic example of the fractal nature of activities is a "robotic arm" doing some simple action as reaching for a tool in front of it. The seemingly simple activity of the robotic arm decomposes into complex control and coordination procedures and movements, action of separate motors and switches, etc. (We sometimes use the key-phrase "robotic arm discussion" to recall the fractal nature of actions, since this example has been brought up over and over again, independently by different people.)

As a rule of thumb, sub-tasks should be considered instead of multiple actors when each sub-task requires special scheduling, or billing, or if overall responsibilities for the sub-tasks are different. In most cases, however, human resources are scheduled by teams (instead of individuals,) billing tends to lump many sub-tasks together into one position, and overall responsibility often rests with one attending physician, chief nurse, or head of department. This model allows both the multi-actor and the multi-service approach to represent the business reality, with a slight bias towards “lumping” minor sub-activities into the overall service.

Attributes of Participation:

3.37.1 Participation.awareness_cd : CV (0..1)

Vocabulary domain: TargetAwareness (CWE)

Indicates whether the associated patient or family member is aware of the service, and especially of the observation made. For example, a patient (or his next family members) may not be aware of a malignancy diagnosis, the patient and family may be aware at different times, and some patients may go through a phase of denial.

3.37.2 Participation.encounter_accommodation_cd : CV (0..1)

Vocabulary domain: <<unassigned>> (CWE)

A code depicting the type of accommodation associated with this patient encounter (e.g., private, semi-private) during the period of time the encounter was associated with the specific Place.

3.37.3 Participation.function_cd : CD (0..1)

Vocabulary domain: ParticipationFunction (CWE)

This attribute describes the business function of a Participant in more detail. It can accommodate the huge variety and nuances of functions that Participants may perform in the service. The number and kinds of functions applicable depends on the special kind of service. E.g., each operation and method may require a different number of assistant surgeons or nurses.

3.37.4 Participation.mode_cd : CV (0..1)

Vocabulary domain: <<unassigned>> (CWE)

A code specifying how the participant is involved in the act, e.g., as physically present, over the telephone, or in written communication. Particularly for author (originator) participants this is used to specify whether the information represented by the act was initially provided verbally, (hand)written, or electronically.
3.38 Class: Patient (in RIM_Roles)

Attributes of Patient:
- confidentiality_constraint_cd
- very_important_person_cd

Patient is specialization of: Role

Description of Patient:
A relationship between a Living_subject in the Role of patient and a Healthcare_provider, typically established for the provision of healthcare services to the patient by the provider.

OpenIssue: * Refer to PAFM for business rules and appropriate code sets.

Attributes of Patient:

3.38.1 Patient.confidentiality_constraint_cd : CV (0..1)

Vocabulary domain: Confidentiality (CWE)
A code depicting the nature of publicity protections in place for this patient.

| GT1^38^00743^Publicity Indicator |
| IN2^36^00743^Publicity Indicator |
| NK1^22^00743^Publicity Indicator |
| PD1^11^00743^Publicity Indicator |
| GT1^39^00744^Protection Indicator |
| IN2^37^00744^Protection Indicator |
| NK1^23^00744^Protection Indicator |
| PD1^12^00744^Protection Indicator |

3.38.2 Patient.very_important_person_cd : CV (0..1)

Vocabulary domain: <<unassigned>> (CWE)
An indication of the person's VIP type, for example, board member, diplomat, etc..

| PV1^16^00146^VIP Indicator |

3.39 Class: Patient_billing_account (in RIM_Financial_acts)

Attributes of Patient_billing_account:
- adjustment_cd
- bad_debt_recovery_qty
- bad_debt_transfer_qty
- certification_required_ind
- current_unpaid_balance_qty
- expected_insurance_plan_qty
- expected_payment_source_cd
- notice_of_admission_dttm
- notice_of_admission_ind
- patient_financial_class_cd
- price_schedule_id
- report_of_eligibility_dttm
- retention_ind
- separate_bill_ind
- signature_on_file_dttm
- special_program_cd
- stoploss_limit_ind
- suspend_charges_ind
- total_adjustment_qty
- total_charge_qty
- total_payment_qty

Patient_billing_account is specialization of: Financial_act

Description of Patient_billing_account:
The date a notice of admission was sent.

| IN1^24^00449^Notice of Admission Date |

**3.39.9 Patient_billing_account.notice_of_admission_ind : BL (0..1)**

A indicator documenting whether the insurance company requires a written notice of admission.

| IN1^23^00448^Notice of Admission Flag |

**3.39.10 Patient_billing_account.patient_financial_class_cd : CV (0..1)**

Vocabulary domain: <<unassigned>> (CWE)

A code depicting a category for the source of payment.

OpenIssue: Need examples values.

| PV1^20^00150^Financial Class |

**3.39.11 Patient_billing_account.price_schedule_id : II (0..1)**

A reference to the unique identifier of the price schedule to be used for charges in the patient billing account.

| PV1^21^00151^Charge Price Indicator |

**3.39.12 Patient_billing_account.report_of_eligibility_dttm : TS (0..1)**

The date a report of eligibility was received.

**3.39.13 Patient_billing_account.retention_ind : BL (0..1)**

A indicator to control the purge of the patient billing account and related data.

**3.39.14 Patient_billing_account.separate_bill_ind : BL (0..1)**

An indication as to whether the baby in a delivery patient stay should be billed separately.

Rationale: The attribute description (an indication as to whether the baby in a delivery patient stay should be billed directly) indicates the correct class.

| PD1^9^00761^Separate Bill |

**3.39.15 Patient_billing_account.signature_on_file_dttm : TS (0..1)**

The date authorization to bill was obtained.

| PV2^28^00729^Signature on File Date |

**3.39.16 Patient_billing_account.special_program_cd : CV (0..1)**
is_authorized_by :: (0..1)Preauthorization :: authorizes :: (1..1)
utilizes :: (0..*)Transportation :: is_utilized_during :: (1..1)

Patient_encounter generalizes:
  Inpatient_encounter

Patient_encounter is specialization of: Act

Description of Patient_encounter:
An interaction between a patient and healthcare participant(s) for the purpose of providing patient service(s) or assessing the health status of a patient. For example, outpatient visit to multiple departments, home health support (including physical therapy), inpatient hospital stay, emergency room visit, field visit (e.g., traffic accident), office visit, occupational therapy, telephone call.

OpenIssue: States of patient encounter (#234).

Attributes of Patient_encounter:

3.40.1 Patient_encounter.accident_cd : CV (0..1)

Vocabulary domain: EncounterAccident (CWE)

3.40.2 Patient_encounter.acuity_level_cd : CV (0..1)

Vocabulary domain: <<unassigned>> (CWE)
A code depicting the acuity (complexity of patient care, resource intensiveness of the patient care) of a patient's medical condition upon arrival. Values may be derived from formal acuity coding schemes such as RBS.

OpenIssue: PAFM and PC must work together on defining the concept of severity in the model.

3.40.3 Patient_encounter.admission_source_cd : CV (0..1)

Vocabulary domain: AdmissionSource (CWE)
The source of the referral for a patient encounter.

3.40.4 Patient_encounter.birth_encounter_ind : BL (0..1)
A indication that the Living_subject was born during this Patient_encounter.

| PV2^36^00737^Newborn Baby Indicator |

3.40.5 Patient_encounter.discharge_disposition_cd : CV (0..1)

Vocabulary domain: <<unassigned>> (CWE)
A code depicting the actual disposition of the patient at the time of discharge (e.g., discharged to home, expired, against medical advice, etc.).

Rationale: Clarification of definition

| PV1^36^00166^Discharge Disposition |

3.40.6 Patient_encounter.practice_setting_cd : CV (0..1)
3.40.13 **Patient_encounter.valuables_location_desc : ED** (0..1)

Descriptive text identifying where valuables of patient is located.

| PV2^6^00186^Patient Valuables Location |

### 3.41 Class: Person *(in RIM_Entities)*

**Attributes of Person:**

- addr
- ambulatory_status_cd
- disability_cd
- education_level_cd
- ethnic_group_cd
- living_arrangement_cd
- marital_status_cd
- religious_affiliation_cd
- special_accommodation_cd
- race_cd

**Associations of Person:**

```
communicates_in :: (0..*)Person_Language :: is_communicated_by :: (1..1)
```

Person is specialization of: Living_subject

Description of Person:
An individual human being.

### 3.41.1 Person.addr : SET<AD> (0..*)

The address(es) of a Person.

| PID^11^00114^Patient Address |
| PID^12^00115^County Code |
| NK1^4^00193^Address |
| GT1^5^00409^Guarantor Address |
| GT1^17^00421^Guarantor Employer Address |
| IN1^5^00430^Insurance Company Address |
| IN1^19^00444^Insured's Address |
| IN1^44^00469^Insured's Employer Address |
| OM1^28^00613^Address of Outside Site(s) |

### 3.41.2 Person.ambulatory_status_cd : CV (0..1)

**Vocabulary domain:** <<unassigned>> (CWE)

Identifies the person's transient state of mobility or factors which impact their state of mobility, e.g., ambulates with assistive devices, wheelchair-bound, bed-bound, etc.

OpenIssue: Verify that permanent vs. transient conditions are handled as separate attributes. Note that the presence of this attribute brings up to question the entire issue of observations and metaobservations made by non-clinicians for non-clinical purposes.
3.41.7 Person.marital_status_cd : CV (0..1)

Vocabulary domain: <<unassigned>> (CWE)

A code indicating the married or similar partnership status of a person, e.g., married, separated, divorced, widowed, common-law marriage.

This information is reported on UB FL 16

OpenIssue: It is not clear what the temporal values are and whether or not items such as divorced/married are mutually exclusive.

OpenIssue: Probably competing existing code schemes.

3.41.8 Person.race_cd : CE (0..1)

Vocabulary domain: <<unassigned>> (CWE)

A code depicting the race of a person.

OpenIssue: Need example values.

3.41.9 Person.religious_affiliation_cd : CV (0..1)

Vocabulary domain: <<unassigned>> (CWE)

A person's religious preference.

OpenIssue: Need example values.

3.41.10 Person.special_accommodation_cd : SET<CV> (0..*)
other focuses of epidemiological events.)

Attributes of Place:

3.43.1 Place.addr : AD (0..1)

The address of this place.

| RXD^13^00299^Deliver-to Location | RXE^8^00299^Deliver-to Location | RXG^11^00299^Deliver-to Location | RXO^8^00299^Deliver-to Location | RXA^11^00353^Administered-at Location | LOC^5^00948^Location Address | RXD^13^01303^Dispense-to Location | RXG^11^01303^Dispense-to Location |

3.43.2 Place.directions_txt : ED (0..1)

A free text note that carries information related to a site that is useful for entities accessing that site. It could include directions for finding the site when address information is inadequate, GPS information is not available, and/or the entity accessing the site cannot make direct use of the GPS information. It could also include information useful to people visiting the location. E.g., "Last house on the right", "If owner not present, check whereabouts with neighbour down the road".

EXTREF: PHCDM-02.01.04.01

3.43.3 Place.gps_txt : ST (0..1)

GPS coordinates of the place.

OpenIssue: This is really the GPS coordinates, and needs a different data type to capture the integers. Also, it needs a description.

3.43.4 Place.position_txt : ED (0..1)

A set of codes that locates the site within a mapping scheme. For example, map coordinates for US Geological Survey maps.

3.44 Class: Preauthorization (in RIM_Clinical_acts)

Attributes of Preauthorization:

<table>
<thead>
<tr>
<th>authorized_encounters_qty</th>
<th>issued_dttm</th>
<th>status_cd</th>
</tr>
</thead>
<tbody>
<tr>
<td>authorized_period_begin_tmr</td>
<td>requested_dttm</td>
<td>status_change_dttm</td>
</tr>
<tr>
<td>id</td>
<td>restriction_desc</td>
<td></td>
</tr>
</tbody>
</table>

Associations of Preauthorization:

| authorizes :: (1..1)Patient_encounter :: is_authorized_by :: (0..1) |

Preauthorization is specialization of: Unmapped_financial_classes

Description of Preauthorization:

An authorization for patient services by a third party prior to the delivery of the patient service.

Attributes of Preauthorization:
3.45.1 **Procedure**.approach_site_cd : SET<CD> (0..*)

**Vocabulary domain: <<unassigned>> (CWE)**

The anatomical site or system through which the procedure reaches its target (see target_site_cd.) For example, a Nephrectomy can have a trans-abdominal or a primarily retroperitoneal approach; an arteria pulmonalis catheter targets a pulmonary artery but the approach site is typically the vena carotis interna or the vena subclavia, at the neck or the fossa subclavia respectively. For non-invasive procedures, e.g., accupuncture, the approach site is the punctured area of the skin.

If the subject of the Act is something other than a human patient or animal, the attribute is used analogously to specify a structural landmark of the thing where the act focuses.

Some approach sites can also be "pre-coordinated" in the Service definition, so that there is never an option to select different body sites. The same information structure can handle both the pre-coordinated and the post-coordinated approach.

3.45.2 **Procedure**.method_cd : SET<CV> (0..*)

**Vocabulary domain: <<unassigned>> (CWE)**

For any Procedure there may be several different methods to achieve by and large the same result, but may be important to know when interpreting a report more thoroughly (e.g., cholecystectomy: open vs. laparoscopic) Method concepts can be "pre-coordinated" in the Act definition. There are many possible methods, which all depend heavily on the particular kind of Procedure, so that defining a vocabulary domain of all methods is difficult. However, a code system might be designed such that it specifies a set of available methods for each defined Procedure concept. Thus, a user ordering a Procedure could select one of several variances of the act by means of the method code. Available method variances may also be defined in a master service catalog for each defined Procedure. In service definition records (Act.mood_cd = DEF) the method_cd attribute is a set of all available method codes that a user may select while ordering, or expect while receiving results.

3.45.3 **Procedure**.target_site_cd : SET<CD> (0..*)

**Vocabulary domain: <<unassigned>> (CWE)**

The anatomical site or system that is the focus of the procedure. For example, a Nephrectomy's target site is the right or left kidney; an arteria pulmonalis catheter targets a pulmonary artery. For non-invasive procedures, e.g., accupuncture, the target site is the organ/system that is sought to be influenced (e.g., "the liver").

If the subject of the Act is something other than a human patient or animal, the attribute is used analogously to specify a structural landmark of the thing where the act focuses.

Some target sites can also be "pre-coordinated" in the Service definition, so that there is never an option to select different body sites. The same information structure can handle both the pre-coordinated and the post-coordinated approach.

3.46 **Class**: Public_health_case *(in RIM_Clinical_acts)*

**Attributes of Public_health_case**: detection_method_cd disease_imported_cd transmission_mode_cd

Public_health_case generalizes: Outbreak

Public_health_case is specialization of: Observation

**Description of Public_health_case**: A public health case is an Observation representing a condition or event that has a specific significance for public health. Typically it involves an instance or instances of a reportable infectious disease or other condition.
Vocabulary domain: <<unassigned>> (CWE)

The fellowship field of a physician.

OpenIssue: Need example codes. Need to reconcile with specialty_cd of Healthcare_provider.

3.47.2 Qualified_practitioner.residency_field_cd : CE (0..1)

Vocabulary domain: <<unassigned>> (CWE)

The physician residency code.

OpenIssue: Need example codes for this attribute.

3.48 Class: Referral (in RIM_Clinical_acts)

Attributes of Referral:

<table>
<thead>
<tr>
<th>authorized_visits_qty</th>
<th>desc</th>
<th>reason_txt</th>
</tr>
</thead>
</table>

Referral is specialization of: Act

Description of Referral:
An introduction of a patient from a source caregiver to a target caregiver or provider institution, typically for the purpose of obtaining the target caregiver's assessment and treatment recommendations. A referral may authorize a specified quantity of a particular kind or level of service. A referral may also simply be a recommendation or introduction. OpenIssue: What is the distinction between the reason_txt and the desc attributes? Their descriptions do not reveal the difference, nor does the class description.

Attributes of Referral:

3.48.1 Referral.authorized_visits_qty : REAL (0..1)

The number of authorized referral visits.

OpenIssue: Unclear what this attribute does, how it is used, and whether it belongs here. Authorized_visits_qty sounds more like a property of a health coverage.

3.48.2 Referral.desc : ED (0..1)

Free form text describing the referral.

OpenIssue: These attributes seem to overlap with features and functionality inherited from the Service class. Notably Referral.desc is identical to Service.txt and Referral.reason_txt is either also in Service.txt or represented through -- possibly coded -- associated Services (e.g., observations).

3.48.3 Referral.reason_txt : ED (0..1)

Free form text providing the reason for the referral.

OpenIssue: These attributes seem to overlap with features and functionality inherited from the Service class. Notably Referral.desc is identical to Service.txt and Referral.reason_txt is either also in Service.txt or represented through -- possibly coded -- associated Services (e.g., observations).

3.49 Class: Relationship_link (in RIM_Roles)

Attributes of Relationship_link:

<table>
<thead>
<tr>
<th>effective_tmr</th>
<th>type_cd</th>
</tr>
</thead>
</table>

HL7 Reference Information Model V 0-101 (4/6/2001)
3.50.2 **Role.cd : CE (0..1)**  

**Vocabulary domain: <<unassigned>> (CWE)**  

The "rich" code for Roles

3.50.3 **Role.certificate_txt : ED (0..1)**  

A certificate for the relationship between the two entities. The certificate subject is the Entity at the target end of the Relationship, the certificate issuer is the Entity at the source end of the Relationship. The issuer certifies for his relationship to the target. For example, an employer can certify for his employee, an insurance can certify for his enrollee, a health authority for its licensee, a school for its graduate, etc.

The certificate can be represented in many different ways, either inline or by reference, according to the ED data type. Typical cases are:

1) Paper-based certificate: the ED data type may refer to some document or file that can be retrieved through an electronic interface to a hardcopy archive.

2) Electronic certificate: this attribute can represent virtually any electronic certification scheme, such as, an electronically (incl. digitally) signed electronic text document.

3) Digital certificate (public key certificate): in particular, this attribute can represent digital certificates, as an inline data block or by reference to such data. The certificate data block would be constructed in accordance to a digital certificate standard, such as X509, SPKI, PGP, etc.

Note: for self-signed digital certificates both source and target of the relationship instance would be the same object instance (the relationship would be cyclic.)

3.50.4 **Role.class_cd : CS (0..1) Mandatory**  

**Vocabulary domain: RoleClass (CS)**  

A code specifying on a high, technical, and tightly controlled level the kind of role. This code is similar in nature as the names of the classes derived from Role in a refined message information model (R-MIM.)

3.50.5 **Role.effective_tmr : IVL<TS> (0..1)**  

The time span during which the Entity assumes this Role.

3.50.6 **Role.id : SET<II> (0..*)**  

The same piece of material may be given different identifiers by different responsible parties. For example, a manufacturer may assign a manufacturer id, a distributor may assign a catalog number, etc. All those identifiers can in principle occur under the Material.id attribute, i.e., as a property of the material itself. However, this attribute allows to make the scope of the id more clear, i.e. it helps to easily distinguish a specific
3.51 Class: **Scheduled_resource** *(in RIM_Roles)*

Attributes of Scheduled_resource:

- **slot_size_increment_qty**

Scheduled_resource is specialization of: **Role**

Description of Scheduled_resource:

A Schedule is a Role_relationship between a source Entity that can provide resources and a target Entity that can use the provided resources. The Schedule represents time slots of the source Entity that are or can be used by the target Entity. One Entity may have multiple Schedules.

**Attributes of Scheduled_resource:**

3.51.1 **Scheduled_resource.slot_size_increment_qty** : **PQ** *(0..1)*

Duration for a single schedulable unit in a schedule for a resource.

OpenIssue: Not sure what this means.

3.52 Class: **Slot_occupant** *(in RIM_Roles)*

Attributes of Slot_occupant:

- **time_slot**

Slot_occupant is specialization of: **Role**

Description of Slot_occupant:

A specific time interval of a Schedule, that can be tentative, scheduled, or blocked to prevent use.

OpenIssue: A booked resource_slot is a relationship between a patient and a provider, and a resource_slot is part of a schedule, which is a relationship between a provider and the entity that has the authority to fill the providers schedule. Therefore, resource_slot should be both a type of Role_relationship, and should use the existing "has_parts :: (0..n) Role_relationship :: is_part_of :: (0..1)" to associate with the relevant Schedule.

**Attributes of Slot_occupant:**
on the dose_check_qty may be different or, most likely, the attribute would not be used at all. In any case this
dose_check_qty attribute must not be used to carry any functional information.

3.53.3 Substance_administration.dose_qty : PQ (0..1)

The dose_qty is the amount of the therapeutic agent or other substance given at one administration event. This
attribute can be used alone or in combination with a strength. In theory, for medications provided to patients,
a physician’s prescription could suffice with just the dose specification. For example, if Azythromycin is to
be given at 80 mg once a day for three days, there is no need to specify a strength. The pharmacist can figure
out the right preparation given what is available in stock or on the marketplace. When the pharmacist dispenses
a particular preparation with a particular strength and packet size from a particular manufacturer, etc., this
detail should be communicated using the Material class.

3.53.4 Substance_administration.form_cd : CD (0..1)

Vocabulary domain: DoseForm (CWE)
The physical form in which the substance is delivered. For therapeutic medications, examples include tablet,
capsule, suppository, and solution. For environmental interventions, such as chlorination of the water supply,
examples might include liquid or tablets.

OpenIssue: This field must have a mandatory HL7 table for interoperability purpose. Such a table could cover
at least 90% of all cases.

3.53.5 Substance_administration.rate_qty : PQ (0..1)

With continuously divisible dose forms (e.g., liquids, gases) a dose rate can be specified. The
Pharmacotherapy.rate_qty is specified as a physical quantity in time (a duration.) Hence, the rate_qty is really
the denominator of the dose rate (the dose_qty is the numerator). For example, if a Ringer's solution is to be
given at 100 mL/hour i.v., the dose_qty would be 100 mL and the rate_qty would be 1 h. Note that there is
no difference in the actual values of dose_qty and rate_qty as long as the quotient of both has the same value.
In this example, we could just as well specify dose_qty as 50 mL and rate_qty as 30 min, or 200 mL and 2 h
or any other combination where the quotient equals 100 mL/h.

Note that in principle one could again suffice with just the dose_qty attribute specifying the rate right in that
one attribute (e.g., dose_qty = 100 mL/h.) However this practice is not allowed. Systems that implement the
semantics of units according to the Unified Code for Units of Measure would have no problem noting the fact
that a dose_qty is really a rate. Other system however will have difficulties to tell an at-once dose from a dose
rate from just looking at the units. If a system wishes to deal only with a single quantity describing the dosage,
it can always calculate such a quantity as real_dose_qty = dose_qty x strength_qty / rate_qty.

3.53.6 Substance_administration.route_cd : CD (0..1)

Vocabulary domain: MedAdministrationRoute (CWE)
The route by which the medication is administered. Medication route - when the medication is delivered to a
living patient - is similar to an anatomic body site through which the therapeutic agent is incorporated or
otherwise applied to the body (body_site_cd). It is an open issue whether a specialized route_cd could be
replaced by a general anatomic site code. The typical routes are per os (PO), sublingual (SL), rectal (PR), per
inhalationem (IH), ophthalnic (OP), nasal (NS), otic (OT), vaginal (VG), intra-dermal (ID), subcutaneous
(SC), intra-venous (IV), and intra-cardial (IC). However, there are other routes and there are many variations
as to how to access a specific route. For instance, an oral administration with the patient swallowing will
usually have the same effect as if the same substance is given through a gastric tube. A more systematic
approach to break down the route into components such as site of primary entry (e.g. oral, nasal), site/system
of substance uptake (e.g. gastrointestinal, bronchial, nasal mucosa), method (e.g., swallow, inhale), and device
(e.g., gastric tube, tracheal tube) should be considered. When the medication is delivered to an environmental
site, or a location, the route code indicates a site on its "body".

3.53.7 Substance_administration.substitution_cd : CV (0..1)
Unmapped_financial_classes is specialization of: Financial_act
Description of Unmapped_financial_classes:
OpenIssue: The specializations of this class need to be harmonized in January 2001.

3.57 Class: Working_list (in RIM_Clinical_acts)

Attributes of Working_list:

owner_level_cd

Working_list is specialization of: Act
Description of Working_list:
Working_list collects a dynamic list of individual instances of Act via Act_relationship which reflects the need of an individual worker, team of workers, or an organization to manage lists of acts for many different clinical and administrative reasons. Examples of working lists include problem lists, goal lists, allergy lists, and to-do lists.

OpenIssue: The name is too generic. This needs to be harmonized with Scheduling.

Attributes of Working_list:

3.57.1 Working_list.ownership_level_cd : CV (0..1)

Vocabulary domain: <<unassigned>> (CWE)
Ownership_level_cd indicates the category of representation for the personnel managing the list, whether personal, team or organization. Other values may be added as needed by an organization.

3.58 Class: Acknowledgement (in RIM_Message_control)

Attributes of Acknowledgement:

error_detail_cd note_txt
expected_sequence_nbr type_cd

Associations of Acknowledgement:

acknowledges :: (1..1)Message :: has :: (1..*)
occurs_with :: (1..1)Message :: has_occurrence :: (0..1)

Description of Acknowledgement:
The Acknowledgement class contains information sent when acknowledging another message.

Attributes of Acknowledgement:

3.58.1 Acknowledgement.error_detail_cd : CV (0..1)

Vocabulary domain: MessageCondition (CWE)
This attribute allows for a coded error type.

| MSA^6^00023^Error Condition |

3.58.2 Acknowledgement.expected_sequence_nbr : INT (0..1)

This attribute is used in the sequence number protocol.
Description of Batch:
The Batch class is to specify a message which is a collection of HL7 V3 messages. This class is a placeholder for future specification work by the Control/Query TC.

OpenIssue

Attributes of Batch:

3.60.1 Batch.batch_comment : SET<ST> (0..*)
This attribute is available to capture comments related to the batch.

| BHS^10^00090^Batch Comment |
| BTS^2^00090^Batch Comment |

3.60.2 Batch.batch_totals : SET<INT> (0..*)
The batch total. It is possible that more than a single batch total exists.

| BTS^3^00095^Batch Totals |

3.60.3 Batch.control_id : II (0..1)
This attribute uniquely identifies a particular batch.

| BHS^11^00091^Batch Control ID |

3.60.4 Batch.creation_dttm : TS (0..1)
This attribute contains the date/time that the sending application created the batch.

| BHS^7^00087^Batch Creation Date/Time |

3.60.5 Batch.message_count : INT (0..1)
This attribute contains the count of individual messages contained within the batch.

| BTS^1^00093^Batch Message Count |

3.60.6 Batch.name : ST (0..1)
This attribute is used by the application processing the batch.

| BHS^9^00089^Batch Name/ID/Type |

3.60.7 Batch.receiving_application_id : II (0..1)
This attribute uniquely identifies the receiving application of the batch.
The coded_entry enables the insertion of codes from HL7-recognized coding schemes into clinical documents.

**Attributes of Coded_entry:**

3.63.1 **Coded_entry.id : II (0..1)**

A globally unique identifier of this coded entry.

3.63.2 **Coded_entry.value : CD (0..1)**

The code for this coded entry.

3.64 **Class: Content (in RIM_Structured_documents)**

Content is specialization of: Entry

Description of Content:
Content is an entry which can nest recursively, which enables wrapping a string of plain text down to as small a chunk as desired. These content entries elements can serve as anchors, to be referenced as the original text that supports the use of a code.

3.65 **Class: Element_response_control (in RIM_Message_control)**

Attributes of Element_response_control:

    name

Associations of Element_response_control:

    has :: (0..*)Element_sort_control :: is_for :: (1..1)

Element_response_control is specialization of: Response_control

Description of Element_response_control:
This class holds the specification of a RIM element response to a query specification.

**Attributes of Element_response_control:**

3.65.1 **Element_response_control.name : SET<CV> (0..*)**

Identifies the groups of elements that occur in a TC specified Query_response_message_type. It is assumed that names will be defined for aggregate element groups in the RIM that TC’s will include in query response specifications.

3.66 **Class: Element_sort_control (in RIM_Message_control)**

Attributes of Element_sort_control:

    direction element_name

Associations of Element_sort_control:

    is_for :: (1..1)Element_response_control :: has :: (0..*)

Description of Element_sort_control:
Holds specification of sort order for an element response mode to a query.

**Attributes of Element_sort_control:**

3.66.1 **Element_sort_control.direction : CV (0..1)**
3.68.2 File_of_batch.creation_dttm : TS (0..1)
This attribute contains the date/time that the sending application created the file.

| File Creation Date/Time |

3.68.3 File_of_batch.file_batch_count : INT (0..1)
This attribute contains the number of batches contained in this file.

| File Batch Count |

3.68.4 File_of_batch.file_comment : SET<ST> (0..*)
This attribute is a text field for comment that is not further specified.

| File Trailer Comment |

3.68.5 File_of_batch.name : ST (0..1)
This attribute is used by the application processing the file.

| File Name/ID |

3.68.6 File_of_batch.receiving_application_id : II (0..1)
This attribute uniquely identifies the receiving application of the file.

| File Receiving Application |

3.68.7 File_of_batch.reference_control_id : II (0..1)
This attribute indicates the control identifier of the file when it was originally transmitted.

| Reference File Control ID |

3.68.8 File_of_batch.security : ST (0..1)
This attribute is specified for applications to implement security features for a file of a group of HL7 batches. Its use is not further specified at this time.

| File Security |

3.68.9 File_of_batch.sending_application_id : II (0..1)
This attribute uniquely identifies the sending application of the file.

| File Sending Facility |
3.71 List.type_cd : CS (0..1)

Vocabulary domain: ListType (CWE)

The list_type attribute specifies whether the list is ordered or unordered. Use an ordered list when the ordering of list items is meaningful.

3.72 Class: List_item (in RIM_Structured_documents)

List_item is specialization of: Structure

Description of List_item:
A list item occurs within a list, and can contain nested structures and entries as well as an optional caption.

3.73 Class: Local_attr (in RIM_Structured_documents)

Attributes of Local_attr:
   name           value

Local_attr is specialization of: Entry

Description of Local_attr:
A component used to map local semantics into the exchange standard when local semantics have not yet been standardized.

Attributes of Local_attr:

3.73.1 Local_attr.name : ST (0..1)

The name of the local attribute.

3.73.2 Local_attr.value : ST (0..1)

The value of the local attribute.

3.74 Class: Local_markup (in RIM_Structured_documents)

Attributes of Local_markup:
   descriptor   ignore_cd    render

Local_markup is specialization of: Entry

Description of Local_markup:
A component used to map local semantics into the exchange standard when local semantics have not yet been standardized.

Attributes of Local_markup:

3.74.1 Local_markup.descriptor : ST (0..1)

The descriptor attribute describes the element, and the value can be drawn from a local vocabulary domain.

3.74.2 Local_markup.ignore_cd : CS (0..1)

Vocabulary domain: LocalMarkupIgnore (CWE)
3.75.3 Message.id : SET<II> (0..*)
Unique identifier of message.

3.75.4 Message.interaction_id : II (0..1)
The interaction identifier is a reference to the unique information interchange derived from the V3 MDF for specifying a message.
OpenIssue: This may be better modeled as an association to the class Interaction (in the meta-model). It is possible that this may supply the type code for the message, or we may need an additional attribute to carry the type code.

3.75.5 Message.processing_cd : CV (0..1)
Vocabulary domain: ProcessingID (CWE)
This attribute defines whether the message is part of a production, training, or debugging system. In HL7 Version 2.x, the values for this id were drawn from HL7 table 0103.

3.75.6 Message.processing_mode_cd : CV (0..1)
Vocabulary domain: ProcessingMode (CWE)
This attribute defines whether the message is being sent in current processing, archive mode, initial load mode, restore from archive mode, etc. In HL7 version 2.x the values for this code were drawn from HL7 table 0207. Recommended V3 datatype is CV.

3.75.7 Message.profile_id : SET<OID> (0..*)
The message profile identifier allows a given implementation to explicitly state how it varies from the standard message definition.

3.75.8 Message.receiving_application_id : SET<II> (0..*)
Unique identifier of receiving application of message.
OpenIssue: The elements of this attribute are semantically "paired" with the has_recipient (1,n)::Stakeholder association, which isn't properly express in this model.

3.75.9 Message.reply_to_com : TEL (0..1)
This attribute allows a URL to define the address to which the message reply should be directed.
3.78 **Class: Query** *(in RIM_Message_control)*

Attributes of Query:

- `execution_and_delivery_time`: TS (0..1)
- `modify_indicator`: CV (0..1)
- `message_query_name`: CV (0..1)
- `query_tag`: II (0..1)
- `priority`: CV (0..1)

Associations of Query:

- `occurs_with :: ((1..*))Query_message_interaction :: has :: (0..1)`
- `has :: (1..1)Response_control :: is_for :: (1..1)`

Query generalizes:

- `Query_by_parameter`  `Query_by_selection`

Description of Query:

This class contains the specification of all HL7 Version 3 queries. Attributes common to all queries appear in this class specification.

**Attributes of Query:**

3.78.1 **Query.execution_and_delivery_time** : TS (0..1)

Specifies the time the response is to be returned.

3.78.2 **Query.message_query_name** : CV (0..1)

This attribute is the name of the query as defined by a function-specific chapters of this specification or by an implementation specific agreement. There is a one to one correspondence with a conformance statement for this query name. The query name is an identifier for this conformance statement. The HL7 standard will maintain a table of the standard queries as specified by an HL7 technical committee. Implementation specific queries will extend this table.

3.78.3 **Query.modify_indicator** : CV (0..1)

**Vocabulary domain: ModifyIndicator ()**

Indicates whether the subscription to a query is new or is being modified. Reference HL7 Table 0395 - Modify indicator for valid values.

3.78.4 **Query.priority** : CV (0..1)

**Vocabulary domain: QueryPriority ()**

Identifies the time fram in which the response is expected. Reference HL7 Table 0091 - Query priority.

3.78.5 **Query.query_tag** : II (0..1)

This attribute may be valued by the initiating application to identify the query. It is intended to be used to match response messages to the originating query.

| EQL^1^00696^Query Tag |
| ERQ^1^00696^Query Tag |
| QAK^1^00696^Query Tag |
| SPR^1^00696^Query Tag |
| VTQ^1^00696^Query Tag |
Description of Query_by_parameter:
This class contains the definition of a Query by Parameter, an HL7 query format proposed to replace the QRD/QRF query format. The query format is considered a closed query because a data server specifies a fixed list of parameters published in a query conformance statement.

3.81 Class: Query_by_selection (in RIM_Message_control)

Associations of Query_by_selection:
  contains :: (1..*)Selection_criteria :: applies_to :: (1..1)

Query_by_selection is specialization of: Query

Description of Query_by_selection:
This class contains the definition of a Query by Selection. This is an HL7 query in which a request can specify any or all of the variables offered by a data server and may additionally specify any permissible operators and values for each variable as published in a query conformance statement. This query format is considered an open query because it allows a selection specification against a published data base schema.

3.82 Class: Query_interaction_continuation (in RIM_Message_control)

Attributes of Query_interaction_continuation:
  continuation_ptr

Associations of Query_interaction_continuation:
  occurs_with :: (1..1)Query_message_interaction :: has :: (0..1)

Description of Query_interaction_continuation:
This class maintains the state information required at the application level to control the logical continuation of a query response.

Attributes of Query_interaction_continuation:

3.82.1 Query_interaction_continuation.continuation_ptr : ST (0..1)

Attribute containing a logical continuation state for a data serving application. Recommended data type is ST.

3.83 Class: Query_message_interaction (in RIM_Message_control)

Associations of Query_message_interaction:
  has :: (0..1)Query :: occurs_with :: (1..*)
  has :: (0..1)Query_ack :: occurs_with :: (1..1)
  has :: (0..1)Query_interaction_continuation :: occurs_with :: (1..1)

Query_message_interaction is specialization of: Message_interaction

Description of Query_message_interaction:
This abstract class is used to gather the parts of a message interaction that are specific to a query message interaction.

3.84 Class: Query_spec_message_type (in RIM_Message_control)

Associations of Query_spec_message_type:
  applies_to :: (1..1)Query_by_parameter :: contains :: (1..1)

Description of Query_spec_message_type:
This abstract class represents TC or HL7 implementor-specified elements from the RIM that are to be assigned
Identifies the content in column of a virtual table. For RIM content this is the element name of the corresponding attribute.

| RDF^2^00702^Column Description |

### 3.86.3 Response_field.length : INT (0..1)

Identifies maximum width for this column in virtual table response.

| RDF^2^00702^Column Description |

### 3.87 Class: Section (in RIM_Structured_documents)

Section is specialization of: Structure

Description of Section:
A document structure that can contain a caption, and can contain nested structures.

### 3.88 Class: Selection_criteria (in RIM_Message_control)

Attributes of Selection_criteria:

<table>
<thead>
<tr>
<th>name</th>
<th>relational_operator_cd</th>
</tr>
</thead>
<tbody>
<tr>
<td>relational_conjunction_cd</td>
<td>value</td>
</tr>
</tbody>
</table>

Associations of Selection_criteria:

- applies_to :: ([1..1])
- Query_by_selection :: contains :: ([1..*])
- is_father_to :: ([0..*])
- Selection_criteria :: is_son_of :: ([0..1])

Description of Selection_criteria:
This class expresses the semantics of query selection criteria as a "where" clause in a structured query language.

#### Attributes of Selection_criteria:

### 3.88.1 Selection_criteria.name : ST (0..1)

Identifies RIM element as subject of selection criteria evaluation.

### 3.88.2 Selection_criteria.relational_conjunction_cd : CV (0..1)

**Vocabulary domain: ServiceRelationshipConjunction (CWE)**

When more than one criteria is to be applied in the evaluation of candidate instances, a conjunction is supplied to identify how to relate an additional criteria. Reference HL7 Table 0210 - Relational conjunction for valid values.

| VTQ^5^00700^Selection Criteria |

### 3.88.3 Selection_criteria.relational_operator_cd : CV (0..1)

**Vocabulary domain: RelationalOperator (CWE)**

Identifies common relational operators used in selection criteria. Reference HL7 Table 0209 - Relational operator for suggested values.
3.90.3 **Table.cellspacing** : ST (0..1)

This attribute is part of the XHTML table model.

3.90.4 **Table.frame** : CS (0..1)

**Vocabulary domain:** TableFrame ()

This attribute is part of the XHTML table model.

3.90.5 **Table.rules** : CS (0..1)

**Vocabulary domain:** TableRules ()

This attribute is part of the XHTML table model.

3.90.6 **Table.summary** : ST (0..1)

This attribute is part of the XHTML table model.

3.90.7 **Table.width** : ST (0..1)

This attribute is part of the XHTML table model.

3.91 **Class:** **Table_cell** *(in RIM_Structured_documents)*

Attributes of **Table_cell**:

<table>
<thead>
<tr>
<th>abbr</th>
<th>colspan</th>
<th>rowspan</th>
</tr>
</thead>
<tbody>
<tr>
<td>axis</td>
<td>headers</td>
<td>scope</td>
</tr>
</tbody>
</table>

**Table_cell** generalizes:

| Table_data_cell | Table_header_cell |

**Table_cell** is specialization of: **Table_structure**

**Description of **Table_cell**:**

A cell in a table.

**Attributes of **Table_cell**:**

3.91.1 **Table_cell.abbr** : ST (0..1)

This attribute is part of the XHTML table model.

3.91.2 **Table_cell.axis** : ST (0..1)

This attribute is part of the XHTML table model.

3.91.3 **Table_cell.colspan** : INT (0..1)

This attribute is part of the XHTML model.

3.91.4 **Table_cell.headers** : SET<ED> (0..*)

This attribute is part of the XHTML table model.
Table_header_cell is specialization of: Table_cell
Description of Table_header_cell:
A table header cell.

**3.97 Class: Table_row** *(in RIM_Structured_documents)*

Table_row is specialization of: Table_row_structure
Description of Table_row:
A row in a table.

**3.98 Class: Table_row_group** *(in RIM_Structured_documents)*

Attributes of Table_row_group:
- **type_cd**

Table_row_group is specialization of: Table_row_structure
Description of Table_row_group:
A group of table rows.

**Attributes of Table_row_group:**

**3.98.1 Table_row_group.type_cd : CS (0..1)**

Vocabulary domain: TableRowGroupType (CWE)
Specificies whether this is a header, footer, or body row group.

**3.99 Class: Table_row_structure** *(in RIM_Structured_documents)*

Table_row_structure generalizes:
- Table_row
- Table_row_group

Table_row_structure is specialization of: Table_structure
Description of Table_row_structure:
A table row or row group.

**3.100 Class: Table_structure** *(in RIM_Structured_documents)*

Attributes of Table_structure:
- **char halign valign**
- **charoff local_id**

Table_structure generalizes:
- Table_cell
- Table_column_structure
- Table_row_structure

Table_structure is specialization of: Structure
Description of Table_structure:
A table structure is either a column structure, a row structure, or a table cell.

**Attributes of Table_structure:**
3.103.1 TBL_sort_control.direction : CV (0..1)

Vocabulary domain: Sequencing ()

Specifies sequence of sort order. Refer to HL7 Table 0390 - Sequencing for valid values.

3.103.2 TBL_sort_control.name : ST (0..1)

Identifies column of virtual table of query response.

3.104 Class: Unstructured_blob (in RIM_Structured_documents)

Attributes of Unstructured_blob:

value

Unstructured_blob is specialization of: Entry

Description of Unstructured_blob:

The unstructured blob is used to represent an unstructured document body (meaning, a document body that does not have a standardized internal structure).

Attributes of Unstructured_blob:

3.104.1 Unstructured_blob.value : ED (0..1)

The unstructured blob is stored in this field.
4.18 (0..1) Message_interaction :: is_communicated_as :: (0..*) Message :: has_payload

Message_interactions are the payloads of Messages. This is navigable in one direction only from Message to Message_interaction.

OpenIssue: Examine the symetry between the way messages and documents relate to the RIM including the way messages.

4.19 (0..*) Participation :: for :: (1..1) Act :: has

4.20 (0..*) Participation :: has_as_participant :: (1..1) Role :: participates_in

4.21 (1..1) Patient_encounter :: is_authorized_by :: (0..1) Preauthorization :: authorizes

4.22 (1..1) Person :: communicates_in :: (0..*) Person_Language :: is_communicated_by

4.23 (1..1) Query :: has :: (1..1) Response_control :: is_for

Specifies relationship between Response_control and an instance of a Query class.

4.24 (1..1) Query_ack :: has_response :: (0..*) Tabular_row_data :: is_response_with

Specifies relationship between a Query_ack and Tabular_row_data, which represents a virtual table response of a query conformance statement.

4.25 (1..1) Query_by_parameter :: contains :: (1..1) Query_spec_message_type :: applies_to

Specifies relationship between Query_by_parameter and an instance of a Query_spec_message_type.

4.26 (1..1) Query_by_selection :: contains :: (1..*) Selection_criteria :: applies_to

Specifies relationship between Query_by_selection and the Selection_criteria classes.

4.27 (0..1) Query_interaction_continuation :: occurs_with :: (1..1) Query_message_interaction :: has

4.28 (1..*) Query_message_interaction :: has :: (0..1) Query :: occurs_with

4.29 (1..1) Query_message_interaction :: has :: (0..1) Query_ack :: occurs_with

4.30 (0..*) Relationship_link :: has_as_target :: (1..1) Role :: is_target_for

4.31 (0..*) Relationship_link :: has_source :: (1..1) Role :: is_source_of

4.32 (0..*) Response_field :: returns_to :: (1..1) TBL_response_control :: has

Specifies relationship between TBL_response_control and an instance of Response_field.

4.33 (0..*) Role :: is_scoped_by :: (0..1) Entity :: scopes

4.34 (0..*) Role :: played_by :: (1..1) Entity :: plays