

Medical informatics — Messages for patient referral and discharge

ICS 11.020; 35.240.70

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National foreword

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It is being issued in the Draft for Development series of publications and is of a provisional nature due to the limited duration of the European prestandard. It should be applied on this provisional basis, so that information and experience of its practical application may be obtained.

Comments arising from the use of this Draft for Development are requested so that UK experience can be reported to the European organization responsible for its conversion into a European Standard. A review of this publication will be initiated 2 years after its publication by the European organization so that a decision can be taken on its status at the end of its three-year life. The commencement of the review period will be notified by an announcement in *Update Standards*.

According to the replies received by the end of the review period, the responsible BSI Committee will decide whether to support the conversion into a European Standard, to extend the life of the prestandard or to withdraw it. Comments should be sent in writing to the Secretary of BSI Technical Committee IST/35, Medical informatics, at 389 Chiswick High Road, London W4 4AL, giving the document reference and clause number and proposing, where possible, an appropriate revision of the text.

A list of organizations represented on this committee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index”, or by using the “Find” facility of the BSI Standards Electronic Catalogue.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the ENV title page, pages 2 to 125 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

This Draft for Development, having been prepared under the direction of the DISC Board, was published under the authority of the Standards Committee and comes into effect on 15 November 1998

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ISBN 0 580 30525 2

Amendments issued since publication

Amd. No.	Date	Comments

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l'adresse d'un patient à un professionnel de
santé et pour la sortie du patient

Medizinische Informatik — Nachrichten für
Zuweisung und Entlassung von Patienten

This European Prestandard (ENV) was approved by CEN on 1997-02-09 as a prospective standard for provisional application. The period of validity of this ENV is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly, on the question whether the ENV can be converted into an European Standard (EN).

CEN members are required to announce the existence of this ENV in the same way as for an EN and to make the ENV available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the ENV) until the final decision about the possible conversion of the ENV into an EN is reached.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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Foreword

This European Prestandard has been prepared by Technical Committee CEN/TC 251 “*Medical informatics*”, the secretariat of which is held by IBN.

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to announce this European Prestandard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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Introduction

The increased use of data processing and telecommunications capabilities has made possible the interchange of information in machine readable and machine processable formats. As automated interchange of information in healthcare increases, it is essential to provide appropriate information interchange standards.

Computer systems are now used by many healthcare professionals for the storage and processing of information. Healthcare professionals request specialist services from one another by a process commonly called “referral”. The request for a service is usually accompanied by a relevant subset of the information held by the requesting healthcare professional about the referred patient. The recipient of a referral request usually reports on the progress and outcome of the requested service to the requester and to other healthcare professionals involved in the care of the patient. These reports may be made when the requested service is complete (commonly referred to as “discharge”) or at other significant points in the delivery of the requested service. The information that is transferred in the requests and reports passing between healthcare professionals typically forms part of the administrative and clinical record of the patient held by each of the communicating parties. Electronic transfer of these requests and reports reduces the need for manual data entry and the risk of transcription errors. It also results in greater efficiency leading to better healthcare provision. Standards are required to facilitate electronic transfer of requests for and results of the delivery of healthcare services between the many systems currently used.

Implementation of this European Prestandard will therefore:

- a) facilitate the electronic transfer of requests for specialist services from requesting healthcare parties, to healthcare parties providing specialist services;
- b) facilitate the electronic transfer of reports of specialist services from healthcare parties providing specialist services to requesting healthcare parties and to other healthcare parties involved in the care of a patient;
- c) reduce the need for human intervention in information interchange between applications used by specialist service providers and those used by other healthcare parties;
- d) minimise the time and effort required for the introduction of information interchange agreements;
- e) reduce the development effort required by suppliers to allow communication between a wide range of applications in this field;
- f) reduce (in consequence of the foregoing) the cost of information interchange between specialist service providers and parties requesting specialist services.

When implementing information exchange based upon this European Prestandard data protection and secrecy principles must be guaranteed according to the laws actually in force in the different CEN member countries.

The method by which this European Prestandard has been developed is based on the recommendations of the CEN Technical Report “Investigation of Syntaxes for Existing Interchange Formats to be used in Healthcare” (CR 1350:1993), and as extended in the First Working Document produced by PT3-025.

This standard is intended for use by message developers. Its provisions are directly relevant to suppliers of computer systems for use in diagnostic service departments, hospitals, general practices, clinical departments and specialist clinics. Its provisions are also relevant to those planning, specifying, procuring or implementing information systems for use in hospitals, general practices, clinical departments and specialist clinics.

The main normative provisions in this European Prestandard are expressed in clauses 4 and 5 and apply to the General Message Descriptions (GMDs), clause 7.

The symbols used in this Prestandard have the meaning as defined in normative Annex A for the purposes of this Prestandard only. Informative Annex B provides additional explanation to the General Message Descriptions. Informative Annex C gives a number of example scenarios of message use.

A supplementary document to this pr-ENV, called “Generic EDIFACT message implementation guide”, provides in its first chapters the method and conformance information on how the EDIFACT messages meet the requirements of the General Message Descriptions of the pr-ENV.

1 Scope

This European Prestandard specifies general messages for electronic information exchange between computer systems used by healthcare parties requesting specialist services or receiving reports from specialist service departments.

1.2 Examples of requests for healthcare specialty services include:

- referral of a patient from a GP to a hospital clinical specialist;
- referral of a patient for direct entry for an open access procedure;
- referral of a patient for direct entry onto an operation waiting list;
- referral of a patient for emergency hospital admission (acute referral);
- referral of a patient for treatment by a paramedical specialist;
- referrals within a hospital from one specialist to another (tertiary referral);
- referrals between hospitals or GPs and a community health service provider.

1.3 Examples of reports of healthcare specialty services include:

- issue of a report including the planned action and information relating to appointment and patient transport arrangements;
- issue of a preliminary discharge report following a patient's admission to hospital;
- issue of a final discharge report following a patient's admission to hospital;
- issue of report arising from a single out-patient attendance by a patient (this may be considered to include attendance at a daycare facility);
- issue of a report summarising a series of out-patient attendances;
- issue of a report giving information about a patient when no immediate patient contact occurred (for example, to communicate the result of investigations that were not available at the time of an earlier report, or to make suggestions about treatment when no direct treatment occurred);
- notification of a referral by one specialist to another specialist (tertiary referral notification);
- notification of the admission of a patient to hospital;
- notification of the death of a patient in hospital.

1.4 The messages are also applicable to modifications or cancellations of previously issued requests or reports.

1.5 While the messages specified in this European Prestandard may convey clinical and administrative information concerning patients, the way in which this information is treated in this European Prestandard does not constrain the development of future standards for the electronic healthcare record or for other clinical and administrative messages.

1.6 The provisions of this European Prestandard have been validated in the for the purposes described above (see 1.2 to 1.4). However since the messages described in this Prestandard are designed for the general cases of referral to specialist service providers and the subsequent reporting by these providers, the user must decide for themselves whether or not these messages meet their particular requirements. It should be noted that a European Prestandard has been produced for laboratory requests and reports and further Prestandards are being produced for other specific domains. The user should identify whether these messages are more appropriate to their requirements.

1.7 This European Prestandard is not applicable to messages related to healthcare specialist services exchanged between healthcare purchasers and providers principally for the purposes of authorising or expediting payment.

1.8 This European Prestandard excludes graphical or image information that forms part of a request for or report of a specialist healthcare service.

1.9 This European Prestandard does not support positive acknowledgement at the application level nor negative acknowledgement or error indication at the application level.

This supporting document contains message implementation guidelines for the implementable Message Specifications (IMSS). They should be considered an essential component of the IMS providing a generic EDIFACT implementation specification for use in Europe.

Specifically these chapters cover:

- A general description of how the mapping from GMDs to EDIFACT is carried out.
- A structure table indicating how the defined IMSs meet the relationships defined in the GMDs.
- Data tables indicating how the defined IMSs support the objects and attributes of the GMDs

The supporting document is not a constituent part of this pr-ENV.

2 Normative references

This European Prestandard incorporates by dated or undated reference, provisions from other publications. These normative references are cited in the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments and revisions of any of these publications apply to this European Prestandard only when incorporated in it by amendment and revision. For undated references the latest edition of the publication referred to applies.

CR 1350:1993, *Investigation of syntaxes for existing interchange formats to be used in Healthcare*.

ENV 1064:1993, *Medical Informatics — Computerised Electrocardiography Interchange Format*.

ENV 1068:1993, *Medical Informatics — Healthcare information interchange — Registration of coding schemes*.

ENV 1613, *Messages for exchange of laboratory information*.

ISO 639:1988, *Symbols for languages, geographical areas and authorities*.

ISO 646:1991, *Information technology — ISO 7-bit coded character set for information interchange*.

ISO 2382:1987, *Information processing — Vocabulary — Part 4: Organisation of data*.

ISO 3166:1988, *Codes for representation of names of countries*.

ISO 4217:1990, *Codes for the representation of currencies and funds*.

ISO 5281:1977, *Information interchange — Representation of human sexes*.

ISO 6523:1984, *Data interchange — Structure for the identification of organisations*.

ISO 8601:1988, *Data elements and interchange formats — Information interchange — Representation of dates and times*.

ISO 8859:1987, *Information Processing — Registration of graphics characters subrepertoires — Eight-bit single byte coded graphic character sets — Part 1: Latin No 1*.

ISO 9735, *Electronic data interchange for administration, commerce and transport (EDIFACT) — Application level syntax rules*.

3 Definitions and abbreviations

For the purposes of this standard, the following definitions (listed in alphabetical order) apply:

3.1

clinical information

information about a patient, relevant to the health or treatment of that patient, that is recorded by or on behalf of a healthcare professional

NOTE Clinical information about a patient may include information about the patient's environment or about related people where this is relevant.

[prENV 1613]

3.2

code meaning

element within a coded set

EXAMPLE: "Paris Charles-De-Gaulle" which is mapped on to the three-letter abbreviation "CDG" by the coding scheme for three-letter abbreviations of airport names.

[ENV 1068]

3.3

code value

result of applying a coding scheme to a code meaning

EXAMPLE: “CDG” as the representation of “Paris Charles-De-Gaulle” in the coding scheme for three-letter representations of airport names.

[ENV 1068]

[ISO 2382:1987], modified

3.4

coding scheme

collection of rules that maps the elements of one set on to the elements of a second set

[ENV 1068]

[ISO 2382:1987], modified

3.5

domain information model

conceptual model describing common concepts and their relationships for communication parties required to facilitate exchange of information between these parties within a specific domain of healthcare

[prENV 1613]

3.6

general message description

subset of a domain information model prescribing the information content and semantic structure of a message used to meet one or more identified information interchange requirements

NOTE General message descriptions are independent of the syntax used for constructing an actual message. They provide statement of the information interchange requirements in a form that can be implemented using different syntaxes.

[prENV 1613]

3.7

healthcare coding scheme designator

unique permanent identifier of a healthcare coding scheme registered for use in information interchange under the terms of the European Prestandard ENV 1068

[ENV 1068]

3.8

healthcare organisation

organisation responsible for the direct or indirect provision of healthcare services

NOTE A healthcare organisation may be used stand-alone or as a superstructure containing departments and sub-departments.

[prENV 1613]

3.9

healthcare party

organisation or person responsible for the direct or indirect provision of healthcare to an individual, or involved in the provision of healthcare-related services

[prENV 1613]

3.10

healthcare professional

person who is entrusted with the direct or indirect provision of defined healthcare services to a patient or population of patients

EXAMPLE: Primary care physician, consultant, therapist, dentist, nurse, social worker.

[prENV 1613]

3.11

healthcare service

service provided with the intention of directly or indirectly improving the health of the people, populations or animals to whom it is provided

[prENV 1613]

3.12**hierarchical general message description**

a generalised message description presented as a nested hierarchy of related objects rather than as a network of inter-related objects

3.13**implementable message specification**

specification of a general message description in a particular message syntax

[prENV 1613]

3.14**interchange format**

specification of a message type according to a given message syntax, covering the identification of the message type components, their arrangement, representation and interrelationships

[prENV 1613]

3.15**message profile**

specification derived from an implementable message specification by selecting its optional elements, appropriate to the specific business requirements of the communicating parties

[prENV 1613]

3.16**message syntax**

system of rules and definitions specifying the basic component types of messages, their interrelationships and their arrangement

[prENV 1613]

3.17**message type**

an identified, named and structured set of functionally related information which fulfils a specific business purpose

3.18**organisation**

unique framework of authority within which a person or persons act, or are designated to act towards some purpose

NOTE Groupings or subdivisions of an organisation may also be considered as organisations where there is need to identify them for information interchange.

[ISO 6523:1984]

3.19**problem domain**

field under consideration in the modelling process

EXAMPLE: Information interchange in clinical chemistry.

[prENV 1613]

3.20**specialist service report**

report of the treatment of a patient or the response to a request for specialist services for a patient by a healthcare party

3.21**specialist service request**

request to a specialist healthcare service provider to provide healthcare services to a particular patient

3.22**ABBREVIATIONS**

the following abbreviations are used for the terms defined in this European Prestandard

DIM	Domain Information Model
GMD	General Message Description
GP	General Practitioner
HCD	Healthcare Coding scheme Designator
H-GMD	Hierarchical General Message Description
ICD	International Code Description
IMS	Implementable Message Specification

4 Requirements

4.1 Messages for transmission of requests for specialist healthcare services from specialist service requesters to those specialist service providers covered by the scope of this European Prestandard, shall enable electronic interchange of the semantic content defined in the General Message Descriptions for Specialist Service Request Messages in clause 7.

4.2 Messages for transmission of reports issued by those specialist service providers covered by the scope of this European Prestandard to specialist service requesters and other parties to receive copies, shall enable electronic interchange of the semantic content defined in the General Message Descriptions for Specialist Service Report Messages in clause 7.

4.3 Messages for transmission of information about the acceptance or rejection of specialist service requests, and the scheduling and preparation for the delivery of specialist services covered by the scope of this European Prestandard, shall enable electronic interchange of the semantic content defined in the General Message Descriptions for Specialist Service Report messages in clause 7.

4.4 Implementable message specifications (IMS) shall conform to the General Message Descriptions defined in this pr-ENV. They shall support both mandatory and optional objects, attribute groups and attributes as defined in the General Message Descriptions of this pr-ENV. They shall also support the relationships between objects as defined by the General Message Descriptions.

4.5 Implementable message specifications should be expressed in terms of a syntax which is an International Standard except where the healthcare user requirements cannot be met by using such a Standard syntax.

4.6 Unless the syntax in which an IMS is expressed specifically supports the types of relationships shown in the Generalised Message Descriptions, the IMS shall follow the structure of the appropriate hierarchical GMDs in clause 7. The precise order of the objects, attribute groups and attributes shown in the hierarchical GMD need not be followed where an alternative ordering simplifies implementation. However, to conform with this European Prestandard the relationships between objects and the overall nesting structure shall be as shown in the hierarchical GMD.

5 Communication roles and supported services

5.1 General

This clause defines the communication roles which shall comply with the specifications of this European Prestandard when exchanging referral and discharge information. It establishes the relationships between the communication roles and the General Message Descriptions, as well as the relationships amongst the General Message Descriptions (GMDs). Annex C (informative) specifies scenarios based upon which the communication roles, the General Message Descriptions and the supported services are derived.

5.2 Message Groups

The messages defined in this European Prestandard fall into two groups. Each group comprises specific *new*, *modification* and *cancellation* messages. The message groups are defined in Table 1.

Table 1 — Message groups

Group of messages	New message	Modification message	Cancellation message
<i>specialist service request</i>	new specialist service request	specialist service request modification	specialist service request cancellation
<i>specialist service report</i>	new specialist service report	specialist service report modification	specialist service report cancellation

5.3 Communication roles

5.3.1 For each group of messages defined in this European Prestandard there are two key communicating roles: the message originating role and the message receiving role. These roles are assumed by three types of healthcare party specialist service requesters, specialist service providers and copy destinations. A copy destination is a party who is neither the requester of the specialist service nor the provider but who, for any reason, is nominated to receive a copy by the message originator.

5.3.2 A communicating party has a message receiving role in relation to any message that they may receive in which they are referred to as a copy destination.

5.3.3 A single healthcare party may have different roles in relation to different types of messages. For example, a general practitioner may have a specialist service request originating role and a specialist service report receiving role.

5.3.4 A single healthcare party may have different roles in relation to the same type of message. For example, a person who undertakes to carry out examination and treatment of a patient may receive requests for these and may originate requests to other specialist service providers for further tests, second opinion, etc.

5.4 Communication roles and General Message Descriptions

5.4.1 The message types that may be sent and received by a communication party depend upon their communication roles. The following subclauses identify the originating and receiving roles for each of the message types specified in this European Prestandard. The main points are illustrated by Figure 1.

5.4.2 Parties with a specialist service request originating role can send message instances based upon:

- the new specialist service request General Message Description;
- the specialist service request modification General Message Description;
- the specialist service request cancellation General Message Description.

5.4.3 Parties with a specialist service request receiving role can receive message instances based upon:

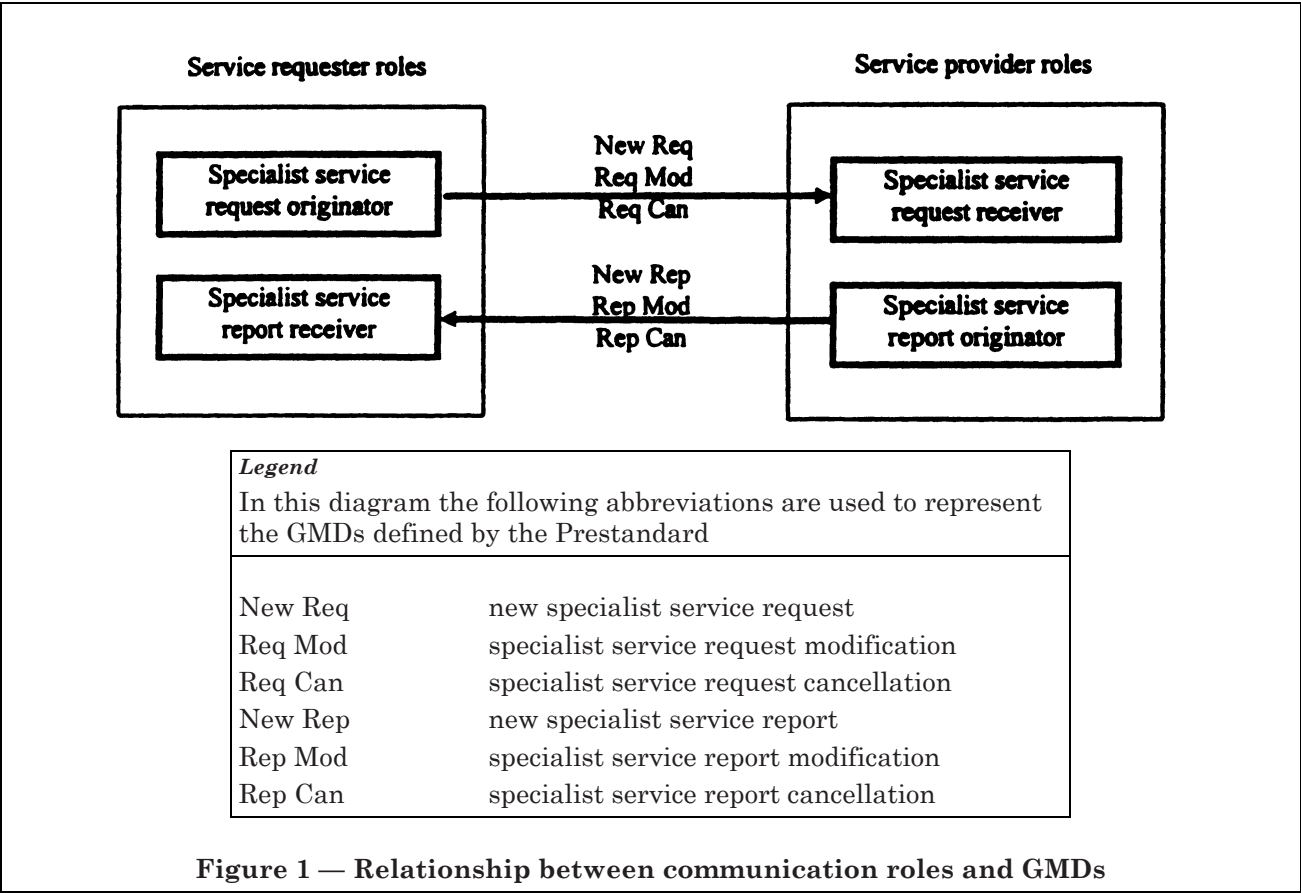
- the new specialist service request General Message Description;
- the specialist service request modification General Message Description;
- the specialist service request cancellation General Message Description.

5.4.4 Parties with a specialist service report originating role can send message instances based upon:

- the new specialist service report General Message Description;
- the specialist service report modification General Message Description;
- the specialist service report cancellation General Message Description.

5.4.5 Parties with a specialist service report receiving role can receive message instances based upon:

- the new specialist service report General Message Description;
- the specialist service report modification General Message Description;
- the specialist service report cancellation General Message Description.



5.5 Communication roles and supported services

5.5.1 The services that shall be supported by a communicating party depend upon their roles in relation to each of the groups of messages specified in this European Prestandard.

5.5.2 The services that shall be supported by a communication party with a message originating role for a group of messages are:

- issue *new* message instances which comply with the appropriate General Message Description and which convey in a complete and exact way the information as intended by the sender and as to be understood by the receiver;
- issue *modification* message instances which comply with the appropriate General Message Description and which convey in a complete and exact way the information as intended by the sender and as to be understood by the receiver;
- issue *cancellation* message instances which comply with the appropriate General Message Description and which convey in a complete and exact way the information as intended by the sender and as to be understood by the receiver;
- issue these message instances in accordance with the message origination rules for these messages (see 5.6).

5.5.3 The services that shall be supported by a communication party with a message receiving role are:

- receive *new* message instances which comply with the appropriate General Message Description and which allow the complete and exact understanding of the information as intended by the requester;
- receive *modification* message instances which comply with the appropriate General Message Description and which allow the complete and exact understanding of the information as intended by the requester;

- receive *cancellation* message instances which comply with the appropriate cancellation General Message Description and which allow the complete and exact understanding of the information as intended by the requester;
- process *modification* and *cancellation* message instances in such a way as to reconcile the *modification* or *cancellation* information with the relevant *new* message instance and any previous *modification* message instances.
- inform the healthcare party with this role about message instances which are not in accordance with the message origination rules (see 5.6).

5.6 Message origination rules

5.6.1 For any of the groups of messages shown in Table 1 the following rules apply. These rules are illustrated by the state transition diagram (see Figure 2).

5.6.2 A message originator may send an instance of the new message GMD to any message receiver at any time, provided that they have not already sent a message, of the same type, with the same identification, to the same message receiver.

5.6.3 A message originator may send an instance of the *cancellation* message GMD to a message receiver, if they have previously sent a *new* message, from one of the groups to which the cancellation message belongs, with the same identification, to the same message receiver. A message originator shall not send an instance of the *cancellation* message GMD to a message receiver, if they have previously sent a *cancellation* message applicable to the same *new* message to the same message receiver.

5.6.4 A message originator may send an instance of the *modification* message GMD to a message receiver, if they have previously sent a *new* message, from the same group, with the same identification, to the same message receiver. A message originator shall not send an instance of the *modification* message GMD to a message receiver, if they have previously sent a *cancellation* message, applicable to the same *new* message, to the same message receiver. Any number of instances of a *modification* messages may be sent in respect of the same instance of a *new* message.

5.6.5 Communicating parties may agree that after a specified period of time, or when activities requested by a messages have been completed, the message should be considered to be closed. This European Prestandard does not specify the rules under which closure of a message should take place. However, once a message is deemed to be closed a message originator shall not send further instances of the *modification* messages, or any instance of the *cancellation* message applicable to the closed message, to the message receiver.

6 Domain information model

6.1 Introduction

6.1.1 The modelling approach

The Domain Information Model (DIM) and the General Message Descriptions (GMDs) were built based on the approach defined by CR 1350 “Investigation of syntaxes for existing interchange formats to be used in Healthcare” and the technique described by P. Coad and E. Yourdon¹⁾. To enhance readability other symbols have been used within the presentation. The models specify subjects, classes and class-&-objects, and relationships between these components. The DIM is presented as a series of diagrams (see 6.2) and as textual descriptions (see 6.3 and 6.4). The attribute layer specification is detailed in the table in clause 7.8.

6.1.2 Diagrammatic presentation of the DIM

The diagrammatic presentation shows the subjects, classes and class-&-objects about which information may need to be conveyed in specialist service request and report messages. The diagrams show the relationships between these components and these shall be interpreted in accordance with the instructions and key to the symbols used given in normative Annex A.

¹⁾ Peter Coad, Edward Yourdon, Object Oriented Analysis, 2nd edition, 1991, Yourdon Press, Prentice Hall Building, Englewood Cliffs, NJ 07632.

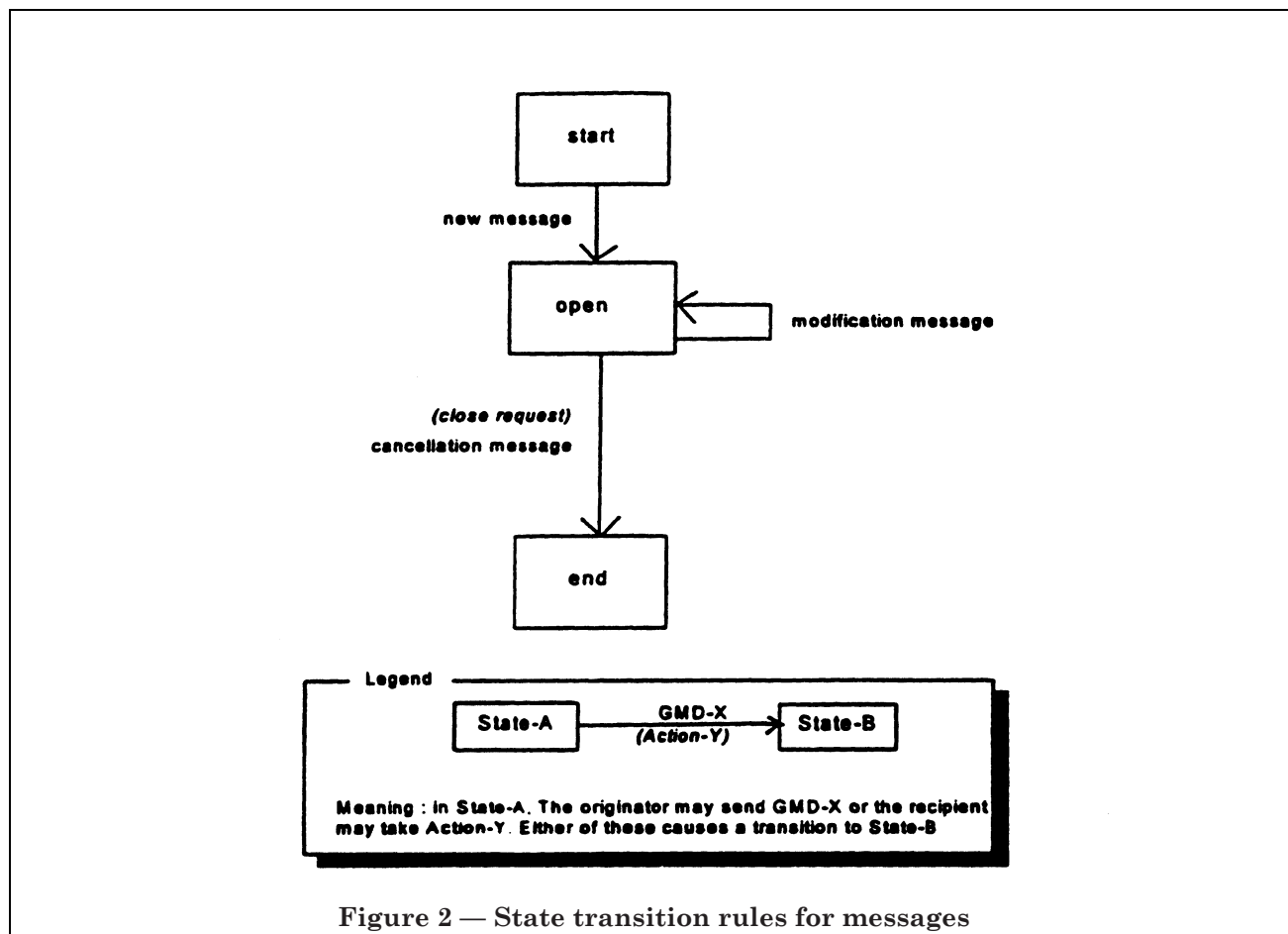


Figure 2 — State transition rules for messages

6.1.3 Textual description of the DIM

The textual description describes each object and details its relationships, attributes and attribute groups. The attributes and attribute groups themselves are described under sub headings within the relevant object description. The data type of each attribute is defined using an abbreviation which shall be interpreted in accordance with the data-type definitions in Table 2.

The attribute layer specification detailed in the table in 7.8 specifies which of the attributes and attribute groups defined in the DIM shall be supported by messages that conform to this European Prestandard.

The descriptions in this section are not formal definitions of ten but are descriptions of items of information required in information interchanges relating to requesting and reporting specialist services. The attributes, relationships and specialisations of the objects described are limited to those that are relevant to messages within the scope of this European Prestandard. Therefore, the model and associated descriptions are not exhaustive representations of the information required by the communicating parties. Other attributes, relationships and specialisations may be required to support the same objects in the context of the information systems used by the communicating parties.

6.1.4 Repetition of DIM components

A requirement for repetition of an object is indicated through the cardinalities of the relationships shown in the diagrammatic representation of the DIM. These relationships are also described under the heading “Relationships” in the textual description of each object.

Repetition of an attribute within an object or attribute group is indicated by the prefix “L-” before the attribute name.

Repetition of an attribute group within an object or within another attribute group is indicated by the prefix “L-” before the attribute group name.

— NOTE: There is a difference between a repeated attribute and an attribute with a one of the “list of” data-types described in Table 2 (i.e. LC, LC/S and LC+S). The use of a “list of” data type means that a list of values may be required to represent a single instance of that attribute. The repetition of an attribute implies that there may be a set of distinct instances of the attribute within an object or attribute group. For example:

— A clinical observation may be expressed using a coding scheme that uses several separate axes to encode a single concept (e.g. topography, aetiology, disease, etc.) and might be further qualified by text. Thus the data-type for the attribute “text value of clinical investigation” (see clinical investigation result item: **6.3.4**) is “list of coded values or string;” (LC/S).

— There may be several separate reasons for making a specialist service request. Each of these may be represented as a combination of a code value and/or free text. Thus the attribute “reason for specialist service request” (see **6.3.30**) is shown as “L-reason for specialist service request” and has the data type “coded value and string” (C+S).

6.2 Domain Information Model diagrams

6.2.1 Specialist service request and report model specialist service request: DIM

This model (see Figure 3) is the top-level model of the DIM. Its components are:

- clinical information item: see 6.3.2;
- event related location: see 6.3.8;
- payment guarantor: see 6.3.19;
- reported specialist service event: see 6.3.23;
- specialist service: see 6.3.25;
- specialist service plan: see 6.3.27;
- specialist service report: see 6.3.29;
- specialist service requester: see 6.3.31;
- copy destination: see 6.3.6;
- patient: see 6.3.15;
- related specialist service provider: see 6.3.22;
- requested specialist service: see 6.3.24;
- specialist service event: see 6.3.26;
- specialist service provider: see 6.3.28;
- specialist service request: see 6.3.30;

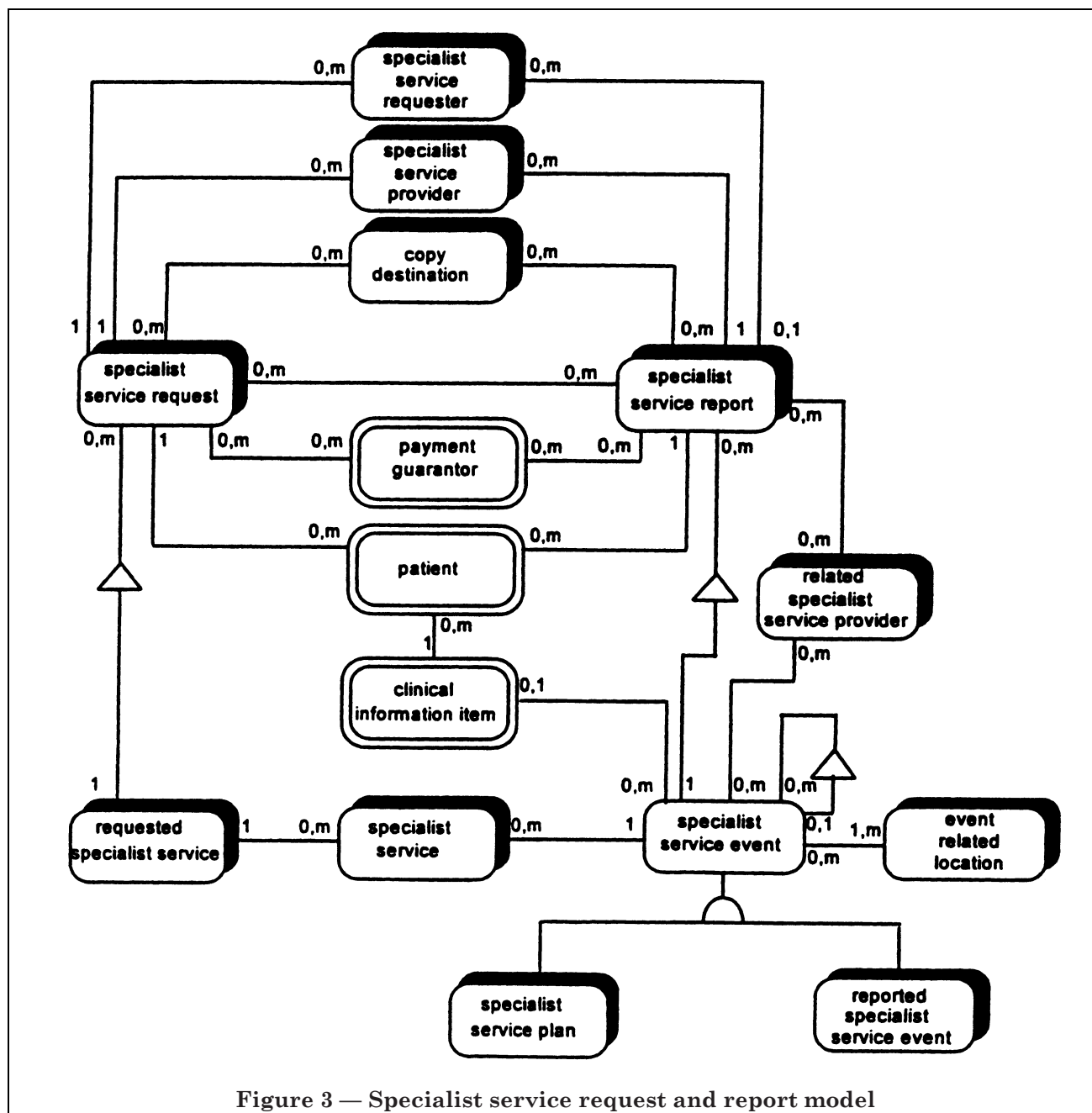


Figure 3 — Specialist service request and report model

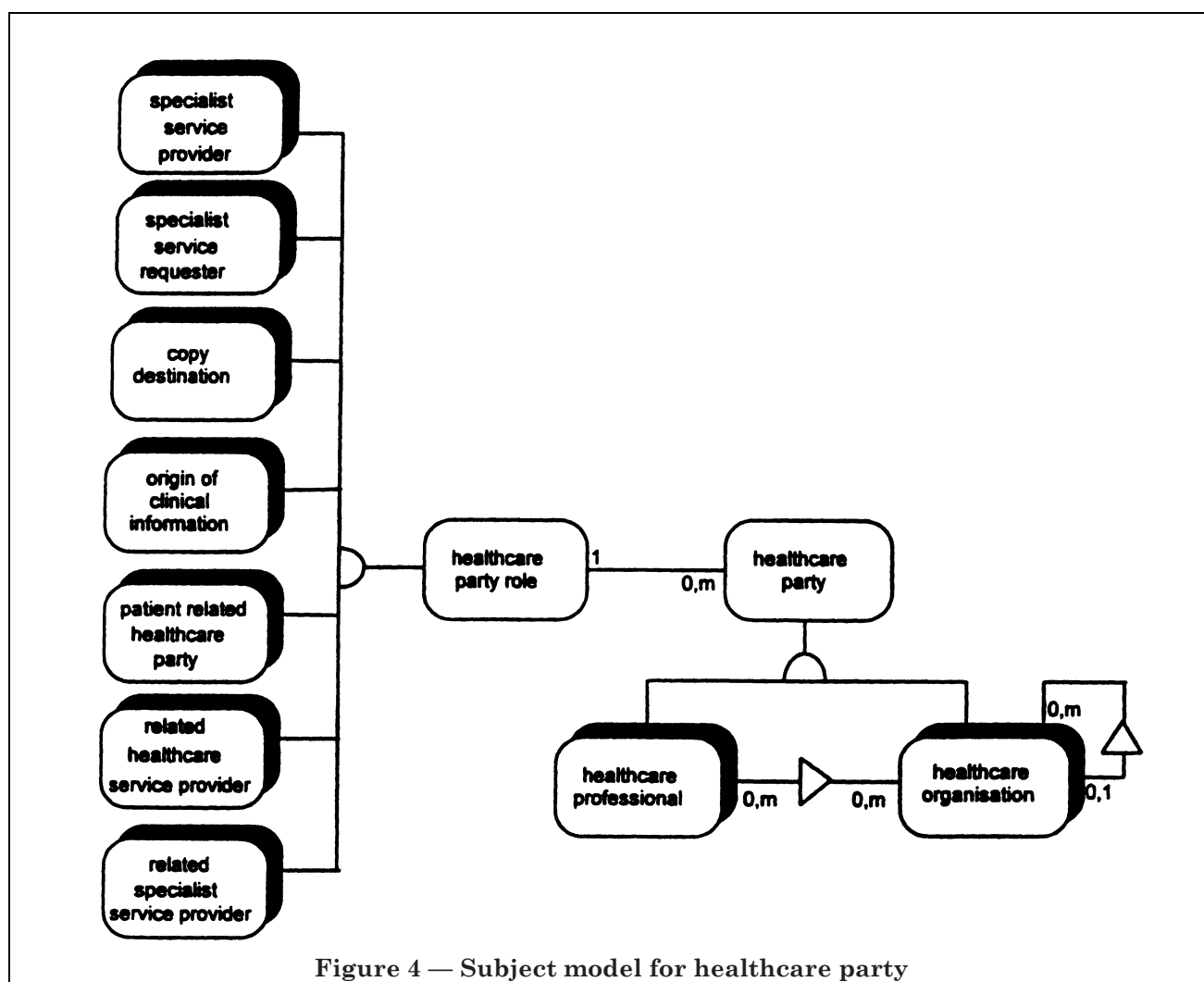
6.2.2 Subject model for healthcare party

This model (see Figure 4) has the following components:

- healthcare organisation: see 6.3.9;
- healthcare party: see 6.3.10;
- healthcare party role: see 6.3.11;
- healthcare professional: see 6.3.12.

The following components are included to express the relationship with the other models:

- copy destination: see 6.3.6;
- origin of clinical information item: see 6.3.14;
- patient related healthcare party: see 6.3.17;
- related healthcare service provider: see 6.3.21;
- related specialist service provider: see 6.3.22;
- specialist service requester: see 6.3.31.



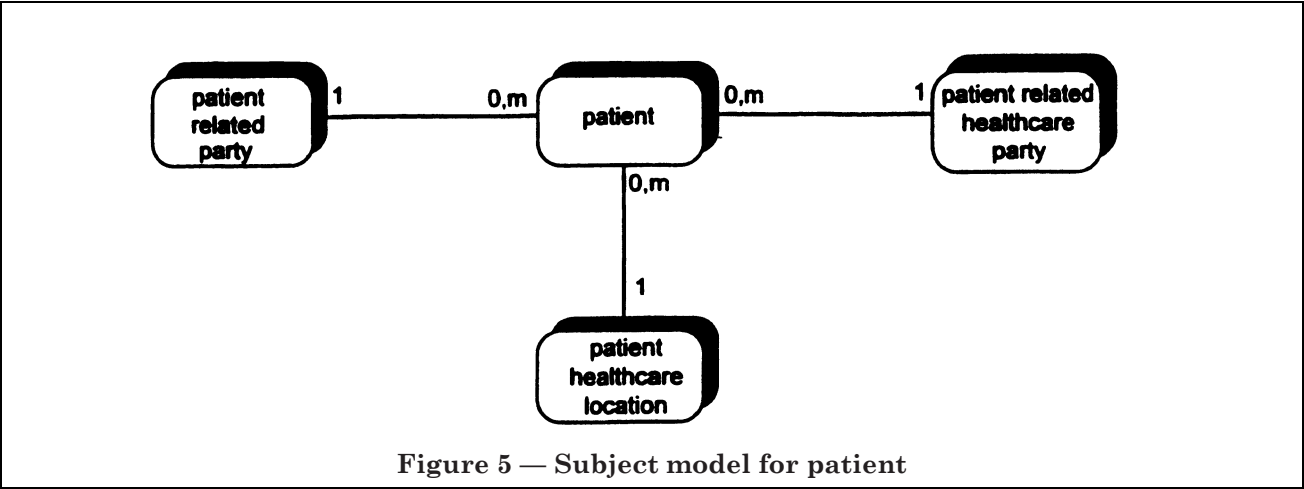
6.2.3 Subject model for patient

This model (see Figure 5) has the following components:

- patient: see 6.3.15;

— patient related healthcare party: see 6.3.17;
- patient healthcare location: see 6.3.16;

— patient related party: see 6.3.18.



6.2.4 Subject model for clinical information item

This model (see Figure 6) has the following components:

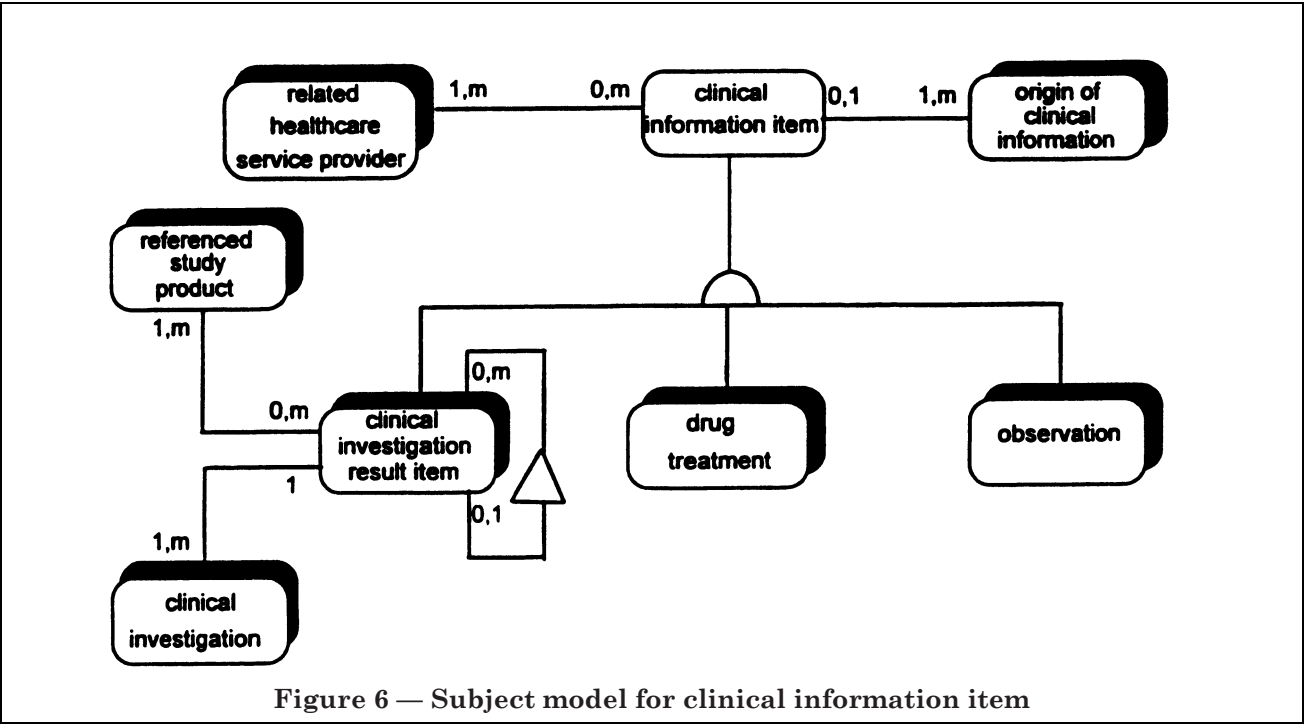
- clinical information item: see 6.3.2;

— clinical investigation: see 6.3.3;
- clinical investigation result item: see 6.3.4;

— drug treatment: see 6.3.7;
- observation — see: 6.3.13;

— origin of clinical information: see 6.3.14;
- referenced study product: see 6.3.20;

— related healthcare service provider: see 6.3.21.



6.2.6 Subject model for payment guarantor

This model (see Figure 7) has the following components:

- contract authorisation: see 6.3.5;
- payment guarantor: see 6.3.19.

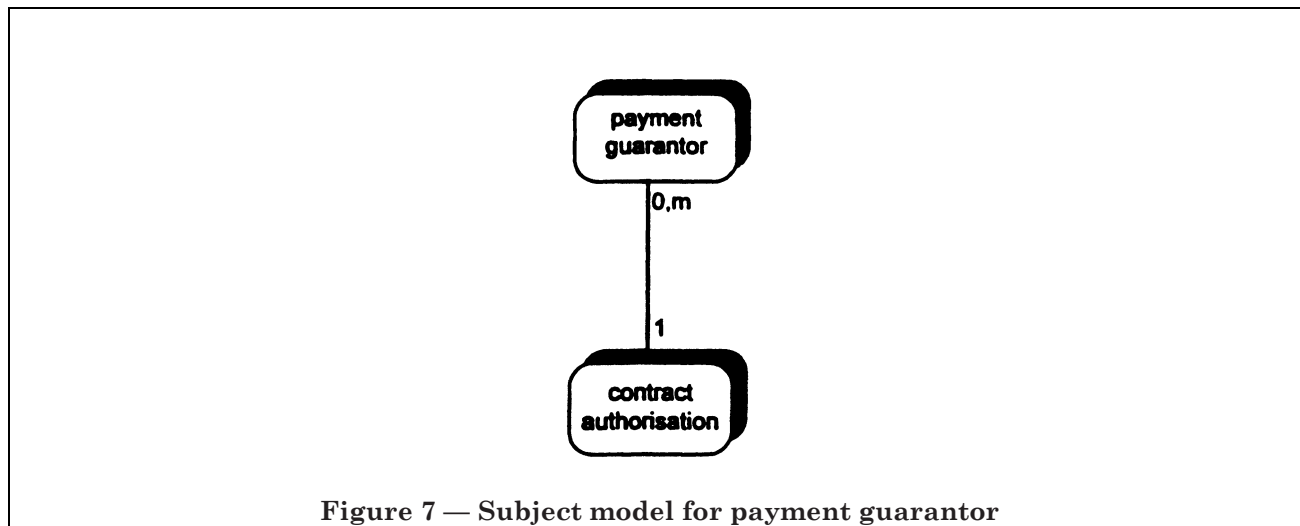


Figure 7 — Subject model for payment guarantor

6.3 Textual description of the objects, their relationships and attributes

6.3.1 General

This description is a complement to the Domain Information Model drawings. The objects are listed in alphabetical order, numbered and underlined. Attributes are grouped under the object to which they belong and are underlined. Attribute groups are printed in *italics and underlined*. Indentation is used to indicate the components of an attribute group. To emphasise the indentation, the names of components of attribute groups are prefixed with “>” and the names of components of an attribute group within another attribute group are prefixed with “>>”. Attribute groups common to several objects are detailed in clause 6.4.

6.3.2 *clinical information item*

Description:

Information about a patient, relevant to the health or treatment of that patient, that is recorded by or on behalf of a healthcare professional.

Note 1:

Clinical information about a patient may include information about the patient’s environment or about related people.

Note 2:

The modelling of this object has been kept generic since other future standards will address more specific requirements.

Example(s):

Family history (e.g. father diabetic), symptoms (e.g. headache), signs (e.g. hepatomegaly), problems (e.g. weight loss or loss of body mass), diagnoses (e.g. thyrotoxicosis, both known and tentative), quantities (e.g. mass, length, body surface area), drugs (e.g. warfarin), diet (e.g. fat free), operative procedures (e.g. pancreatectomy), information given to patient or related persons.

Table 2 — Description of data-types

Data-type	abbreviation	Definition
string	S	A string of characters from the ISO 8859 character sets.
calendar date	CD	String limited to representation of year, month and day (definition according to ISO 8601).
time of calendar date	TOCD	String limited to the representation of the year, month, day, hour, minutes, seconds and local time differential factor.
Boolean	B	A simple type with two distinguished value. Possibilities are true or false (definition according to ISO 8824).
integer	I	A simple type with distinguished values which are the positive and negative whole numbers including zero (definition according to ISO 8824).
real	R	A simple type whose distinguished values are members of the set of real numbers (definition according to ISO 8824).
coded value	C	Compound type consisting of 3 components: ● HCD (Healthcare Coding Scheme Designator as in ENV 1068) or ICD (International Coding Scheme Designator as in ISO 6523): data type string, mandatory component, ● code value: data type string: mandatory component, ● code meaning: data type string, optional component.
coded value or stag.	C/S	Value which may either be represented by a coded value or by a string.
coded value and string	C+S	Value which may be represented by a coded value, or by a string, or by a combination of a coded value and a string. (Note: If both code value and string are included the string qualifies the code value providing finer granularity).
list of coded values	LC	Value which may be represented by a repetition of coded values. As for coded value (Type C), but concatenation of codes may be needed for a single attribute value.
list of coded values or string	LC/S	Value which may be represented by a repetition of coded values or by a string. As for coded value or string (Type C/S), but concatenation of codes may be needed for a single attribute value
list of coded values and string	LC+S	Value which may be represented by a list of coded values, by a string, or by a combination of a list of coded values and a string. As for list of coded values or suing (type C + S), but is used when not all coding schemes are of the required granularity
coded value without code meaning	V	This data type consists of 2 components: ● HCD or ICD: data type string, mandatory component, ● code value: data type string, mandatory component. Coding is required.
Attribute group	AG	Compound data type used to group together a set of logically coherent attributes and/or other attribute groups that are used in specific contexts.
Common attribute group	CAG CAG(A) CAG(La) CAG(Lo) CAG(M) CAG(N) CAG(Tr) CAG(T)	Compound data type used to group together a set of logically coherent attributes, that are used in a common manner in several different contexts. Common attribute group of type <i>address</i> . For a description see 6.4.1 Common attribute group of type <i>language</i> . For a description see 6.4.2 Common attribute group of type <i>location</i> . For a description see 6.4.3 Common attribute group of type <i>monetary details</i> . For a description see 6.4.4 Common attribute group of type <i>person name details</i> . For a description see 6.4.5 Common attribute group of type <i>patient transport</i> . For a description see 6.4.6 Common attribute group of type <i>telecommunication</i> . For a description see 6.4.7

Relationships:

— Instance connection:

Each instance of *clinical information item* is associated (explicitly or implicitly) with one instance of *patient*.

Each instance of *clinical information item* may be associated with zero or one instance of *specialist service event*.

Each instance of *clinical information item* may be associated with zero or one instance of *origin of clinical information*.

Each instance of *clinical information item* may be associated with any number of instances of *related healthcare service provider*.

— Generalisation:

Each instance of *clinical information item* must exist as one of the following specialisations: *clinical investigation result item*, *drug treatment* or *observation*.

Attributes:

date and time of clinical information: Data type: TOCD

— Description: date and (if appropriate) time of the occurrence of a clinically relevant event.

— Note 1: for use when it is not important to indicate a period of applicability for a clinical information item. This may be because a clinical information item indicates a brief event (see examples) or because it indicates a prolonged event whose start and end dates are unknown, uncertain, ill-defined or considered unimportant. Consequently a single date may legitimately be associated with “diabetes mellitus type II” even though this leaves unspecified whether it is the date when the disease process began, when symptoms appeared, when the diagnosis was considered or confirmed, or when medical intervention was considered necessary.

— Note 2: sometimes this date and time is called physiologic date and time.

— Example(s): date and time of: Grand Mal fit, hypoglycaemic coma, total colectomy, blast (explosion) injury, exposure to tuberculosis.

period of clinical information: Data type: AG

— Note: this attribute group consists of the attributes start date and time of a clinical information item and end date and time of a clinical information item.

> start date and time of clinical information: Data type: TOCD

— Description: beginning of a period of applicability of clinical information.

— Note: for use when it is important to convey the continuation of a clinical information item’s applicability over a period of time. If used with a date value in the past and without an end date/time, it indicates continuation to the present time.

— Example(s): start date and time of: epilepsy, diabetes mellitus type I, myoglobinuria, productive cough, thyrotoxicosis, heart failure, warfarin treatment.

> end date and time of clinical information: Data type: TOCD

— Description: end of a period of applicability of a clinical information item.

— Note: may be used without a start date/time if it is the moment when the clinical information ceased to be applicable that is of greatest relevance.

— Example: end date and time of antibiotic treatment.

type of clinical information: Data type: C/S

— Example(s): diagnostic, therapeutic or surgical diagnosis/problem, history, examination/sign, symptom, investigation/investigation procedure, occupation, social.

language of clinical information: Data type: V

— Description: language in which clinical information is expressed.

— Note: as represented by the abbreviations specified in ISO 639.

6.3.3 clinical investigation**Description:**

Information about laboratory, physiological, radiological or other examination that leads to the production of one or more results.

Note:

The information content of this object relates to the general case of an investigation rather than a specific instance of that investigation. This can be viewed as being derived from a master file of possible clinical investigations.

Relationships:

- Instance connection: Each instance of *clinical investigation* is associated with one or more instances of *clinical investigation result item*.

Attributes:

identification of clinical investigation: Data type: C/S

- Description: unique and unambiguous identification of a clinical investigation.
- Note: the identification is of the investigation (such as from a central catalogue of investigations), and not the instance of an investigation in a message.
- Example(s): serum bilirubin concentration, gastroscopy.

L-specification to clinical investigation: Data type: C/S

- Description: coded or plain text description of complimentary information to a clinical investigation.
- Note: this might include specification of the method used to conduct the investigation.

L-comment to clinical investigation: Data type: C/S

6.3.4 *clinical investigation result item*

Description:

Set of information including all essential or useful data relevant to the result of a single clinical investigation.

Note:

A clinical investigation result item is an object which includes all useful information in connection with an investigation result (e.g. numerical value, uncertainty interval, reference limits, status, date and time of result status change, date and time of investigation performed); this object corresponds to what is normally called a “line” on a paper report.

Relationships:

- Specialisation: Each instance of *clinical investigation result item* is a specialisation of an instance of the more general class *clinical information item*.
- Part/Whole of: Each instance of *clinical investigation result item* may be a part of one other instance of *clinical investigation result item*.
- Whole/Part: Each instance of *clinical investigation result item* may consist of any number of other instances of *clinical investigation result item*.
- Instance connection:
 - Each instance of *clinical investigation result item* is associated with one instance of *clinical investigation*.
 - Each instance of *clinical investigation result item* may be associated with any number of instances of *referenced study product*.

Attributes:

service type of clinical investigation result item: Data type: V

- Note 1: to specify unambiguously the action to be performed with the information sent, e.g. when the status of the result has changed.
- Note 2: two types of modification are distinguished by the service type. An extension adds further information but does not otherwise change previous information. A correction indicates that the existing information is corrected or superseded by the supplied information.
- Examples: new, cancel, extend, correct.

identification of clinical investigation result item: Data type: S

- Description: identifier assigned to a clinical investigation result item.
- Note: users of clinical or specialist investigation systems may wish to identify an instance of a clinical investigation result item uniquely and unambiguously.

numerical measurement result: Data type: AG

- Note: this attribute group consists of the attributes arithmetic comparator, numerical value of a measurement result, unit of measurement result.
- > arithmetic comparator: Data type: V
 - Example(s): >, >=, =, <=, <.

- > numerical value of a measurement result: Data type: R
 - Example: 140 when a result is 140 mmol/L.
- > unit of measurement result: Data type: C/S
- uncertainty interval of a measurement result: Data type: AG
 - Description: value range, not statistically based, defining a lower and upper limit between which a measurement result falls.
 - Note 1: is related to precision and detection limits, not to accuracy.
 - Note 2: this attribute group consists of the attributes lower limit of uncertainty interval, upper limit of uncertainty interval and unit of uncertainty interval values.
 - Example: 0 – 10 mg.
- > lower limit of uncertainty interval: Data type: R
- > upper limit of uncertainty interval: Data type: R
- > unit of uncertainty interval values: Data type: C/S
 - Description: chosen reference quantity that may be used in comparing magnitudes of quantities of the same kind.
 - Example: mole (symbol: mol).
- date value of a clinical investigation result item: Data type: TOCD
 - Description: value of a result of an investigation expressed as a date.
 - Example(s): estimated date of obstetric delivery.
- text value of a clinical investigation result item: Data type: LC/S
 - Description: value of a result of an investigation expressed as text or codes.
 - Note: in early implementations and according to specific interchange agreements, this attribute may be used to carry in free style the entire clinical investigation result item value.
- deviating result indicator: Data type: V
 - Description: indicator of degree of deviation from reference values of a measurement result.
- date and time of clinical investigation: Data type: TOCD
 - Note: to indicate the date and time at which the clinical investigation was finished.
- status of clinical investigation result item: Data type: V
 - Example(s): unverified, pending, new, intermediate, modified.
- L-comment to clinical investigation result item: Data type: C/S
 - Note: to cover any kind of free-style comment related to a clinical investigation result item.
- L-reference limit: Data type: AG
 - Note: this attribute group consists of the attribute group, numerical reference limit and of the attributes textual reference limit, reference population definition and type of reference interval.
- > numerical reference limit of quantity: Data type: AG
 - Note: this attribute group consists of the attributes numerical value of lower reference limit of quantity, numerical value of upper reference limit of quantity and unit of numerical reference limit values.
- >> numerical value of lower reference limit: Data type: R
 - Description: value characterising the lower end of a cumulative number fraction distribution of values obtained from a well-defined population by stated statistical means.
 - Note: it is often assumed that the lower reference limit is the 0.025-fractile for the distribution of a healthy population having other relevant properties matching those of the patient (sex, age, race).
- >> numerical value of upper reference limit: Data type: R
 - Description: value characterising the upper end of a cumulative number fraction distribution of values obtained from a well-defined population by stated statistical means.
- >> unit of numerical reference limit values: Data type: C/S
- > textual reference limit of quantity: Data type: LC/S
 - Note: a reference limit may be expressed as a string (e.g. “Between 10 and 20 %”).
 - Example: “> 60 % of B-Glucose” can be a reference limit for a “Sp-Glucose” value.

- > reference population definition: Data type: LC/S
 - Note: to indicate the meaning of the reference limit.
 - Example(s): sex, age, race, smoker/non-smoker, clinical status.
- > type of reference interval: Data type: V
 - Example: therapeutic (in the case of drug-monitoring).

6.3.5 contract authorisation

Description:

Details of the authorisation pertaining to the provision of the healthcare services.

Relationships:

- Instance connection:
 - Each instance of *contract authorisation* must be associated with one instance of *payment guarantor*.

Attributes:

- service agreement type: Data type: V
 - Description: identification of the service agreement or contract type covering this healthcare service provision.
 - Example(s): private insurance, local health authority contract, employee scheme.
- service agreement identification: Data type: S
 - Description: identification of the service agreement or contract covering this healthcare service provision.
- authorisation: Data type: AG
 - Description: details of the authorisation to proceed with the provision of specialist services.
- > date and time of authorisation: Data type: TOCD
- > authorisation number: Data type: S
 - Description: identifier issued by the authoriser.
- > valid until date/time: Data type: TOCD
 - Description: date and time at which authorisation ceases.
- comments to authorisation: Data type: C/S

6.3.6 Copy destination

Description:

Information about a party, other than the specialist service provider or specialist service requester, to which a copy of the specialist service request or report is sent or should be sent.

Relationships:

- Instance connection:
 - Each instance of *copy destination* may be associated with any number of instances of *specialist service request*.
 - Each instance of *copy destination* may be associated with any number of instances of *specialist service report*.
- Specialisation: Each instance of *copy destination* is a specialisation of an instance of the more general class *healthcare party role*.

Attributes:

- L-role of copy destination: Data Type
- > message to which copy destination applies: Data type: C/S
 - Description: an indication whether the copy destination applies to the current message or to a message which may be sent by the recipient of the message.
 - Note 1: in the case of a specialist service request message, a copy destination may be a recipient of a copy of that specialist service request message or an intended recipient of a copy of a specialist service report.
 - Note 2: in the case of a specialist service report, a copy destination is usually a recipient of a copy of that specialist service message.

— Note 3: in the case of cancellation messages the only valid value would be the current message and this attribute is therefore not applicable.

— Example(s): request message, report message(s), report message (final report only).

> intended communication method: Data type: C

— Description: the method of communication by which the specialist service requester suggests or suggested a copy destination should be sent a copy of a message.

— Note: this is applicable to any instance of this attribute group other than those in cancellation messages.

— Example(s): EDI, E-mail, Fax, post, via service requester, via service provider.

> actual communication method: Data type: C

— Description: the method of communication by which a copy destination was (or is being) sent a copy of a message.

— Note: this is applicable only in instances of the attribute group in which the message to which the copy destination applies is the current message.

— Example(s): EDI, E-mail, Fax, post, via service requester, via service provider, none, failed.

6.3.7 drug treatment

Description:

Information about a patient's previous, planned or current treatment with a substance or chemical compound for the prevention, alleviation or treatment of a medical condition.

Relationships:

— Specialisation: Each instance of *drug treatment* is a specialisation of an instance of the more general class *clinical information item*.

Attributes:

drug information status: Data type: V

— Description: information which describes the context of the drug treatment information.

— Example(s): reported (treatment information reported by sender to receiver of the message), prescribed (treatment for which a prescription has been issued to the patient), prescription ceased (pre-existing prescription stopped), dispensed (drug for which a supply has been dispensed to the patient — recognises implicitly that it was also prescribed), recommendation to prescribe (that the colleague receiving the message should prescribe), recommendation to cease (that the colleague receiving the message should cease treatment), patient advised to take, patient advised to cease.

identification of drug: Data type: C/S

— Note 1: this identification may provide either a brand identification or the generic identification of the drug. In addition, it may identify the form of presentation (e.g. tablets, inhaler, patch).

— Note 2: the scope of this attribute includes the possibility of it conveying both drug identification information and form of presentation information since codelists which combine these are in widespread current use. It is expected that in the future this information will be carried in several distinct attribute.

— Example(s): Salbutamol inhaler, salbutamol syrup, Ventolin, paracetamol, warfarin tablets, soluble insulin, lignocaine, dobutamine, gluten-free flour.

L-dosage and administration specification of drug: Data type: LC+S

— Description: information which, together with the drug identification, provides a full specification of the patient's treatment with the drug.

— Note 1: may include one or more of: form of presentation (e.g. tablets, inhaler); route of administration (e.g. oral, sublingual, topical, intravenous injection); unit dose (e.g. 3 tablets, 250 mg, 2 puffs); dosage regime (e.g. one unit dose three times daily, one twice daily and two at night, one before administration trigger, one after administration trigger, one at 10:00 am); maximum permitted daily dose (e.g. 8 unit doses); trigger for administration (e.g. chest pain, meals, exercise); precautions (e.g. stop if indigestion, report any sore throat).

— Note 2: form of presentation not normally included if indicated by the identification of the drug.

— Example(s): 100µg daily (of drug thyroxine), 3 mg in the evening (of drug warfarin tablets), 2 puffs before exercise (of drug salbutamol inhaler) 1 mg patch twice weekly (of drug oestrogen), 80 mg intravenously every 8 h (of drug gentamicin injection), 2 tablets by mouth every four hours as required for pain, with a maximum of eight tablets a day (of drug paracetamol).

intended duration of drug treatment: Data type: AG

— Description: information on the length of time that the party recommending or prescribing the drug intends that it be taken.

> numerical duration of drug treatment: Data type: AG

— Note: this attribute group consists of the attributes numerical value of duration of drug treatment and unit of value of duration of drug treatment.

>> numerical value of duration of drug treatment: Data type: 1

>> unit of value of duration of drug treatment: Data type: V

— Examples: day, week, month, year.

> textual description of intended duration of drug treatment: Data type: C/S

Example(s): short term (no further prescriptions expected after current one expires), intermittent (periods of continuous treatment interspersed by periods of non-treatment), long term (continuing “repeat” prescriptions expected), lifetime (continue indefinitely), continue for 3 months, continue until haemoglobin > 12.

days supply: Data type: I

quantity of drug supplied: Data type: AG

— Note: this attribute group consists of the attributes numerical value of quantity and unit of quantity.

> numerical value of quantity of drug supplied: Data type: R

> unit of quantity of drug supplied: Data type: V

comment to drug treatment: data type: S

Note: to convey any unstructured comment about the patient’s treatment with the drug.

6.3.8 event related location

Description:

Information about a location that is directly related to the associated event, (i.e. the location of the specialist service event, the location immediately prior to a specialist service event, the location immediately subsequent to the specialist service event, the location of a planned specialist service event).

Relationship:

— Instance connection: Each instance of *event related location* is associated with one instance of *specialist service event*.

Attributes:

location role: Data type: V

— Example(s): intended specialist service event location, specialist service event location, source of admission, discharge destination, location prior to transfer of care, location subsequent to transfer of care.

location: Data type: CAG(Lo)

— Description: location of the event.

— Note: this common attribute group is detailed in 6.4.3

start date and time at location: Data type: TOCD

end date and time at location: Data type: TOCD

address: Data type: CAG(A)

— Note: this common attribute group is detailed in 6.4.1

L-telecommunication: Data type: CAG(T)

— Note: this common attribute group is detailed in 6.4.7

healthcare organisation at location: Data type: AG

— Description: the healthcare organisation responsible for provision of services at this healthcare location.

— Note: A healthcare organisation may be used stand-alone or as a superstructure containing departments and sub-departments.

> name of healthcare organisation at location: Data type: S

> type of healthcare organisation: Data type: V

— Example(s): University hospital, private specialist service provider.

> healthcare registration identification: Data type: V

- Description: unique and official identification of a healthcare organisation, in general issued by an authorised organisation such as a governmental or international body.
- > partner agreed identification of healthcare organisation: Data type: S
 - Description: identification of healthcare organisation agreed upon between communication parties.
- > identification of organisation by specialist service requester: Data type: S
- > identification of organisation by specialist service provider: Data type: S

6.3.9 *healthcare organisation*

Description:

Information about the organisation responsible for the direct or indirect provision of healthcare services, or involved in the provision of healthcare related services.

Note:

A healthcare organisation may be used stand-alone or as a superstructure containing departments and sub-departments.

Relationships:

- Specialisation: Each instance of *healthcare organisation* is a specialisation of an instance of the more general class *healthcare party*.
- Whole/Part:
 - Each instance of *healthcare organisation* may consist of any number of instances of *healthcare professional*.
 - Each instance of *healthcare organisation* may consist of any number of instances of other *healthcare organisation*.
- Part/Whole of: Each instance of *healthcare organisation* may be a part of zero or one other instance of *healthcare organisation*.

Attributes:

- name of healthcare organisation: Data type: S
- type of healthcare organisation: Data type: V
 - Example(s): university hospital, private laboratory, GP Practice.

6.3.10 *healthcare party*

Description:

Information about the organisation or person responsible for the direct or indirect provision of healthcare services to an individual, or involved in the provision of healthcare related services.

Note:

May be a person or an organisation or a person within an organisation.

Relationships:

- Instance connection: Each instance of *healthcare party* may be associated with any number of instances of *healthcare party role*.
- Generalisation: Each instance of *healthcare party* exists as one of the following specialisations: *healthcare professional* or *healthcare organisation*.

Attributes:

- partner-agreed identification of healthcare party: Data type: S
 - Description: identification of a healthcare party agreed upon between communication parties.
- healthcare registration identification: Data type: V
 - Description: unique and official identification of a healthcare party, in general issued by an authorised organisation such as a governmental or international body.
- identification of healthcare party by specialist service requester: Data type: S
- identification of healthcare party by specialist service provider: Data type: S
- L-address: Data type: CAG(A)
 - Note: this common attribute group is detailed in 6.4.1.

L-telecommunication: Data type: CAG(T)

— Note: this common attribute group is detailed in 6.4.7.

L-language details: Data type: CAG(La)

— Note: this common attribute group is detailed in 6.4.2.

L-medical specialty of healthcare party: Data type: C/S

— Description: particular subject area or branch of medical science offered by a healthcare party.

6.3.11 *healthcare party role*

Purpose:

The purpose of this object is to associate a healthcare party with a specific role in the context of the information exchange.

Relationships:

— Instance connection: Each instance of *healthcare party role* is associated with one instance of *healthcare party*.

— Generalisation: Each instance of *healthcare party role* exists as one of the following specialisations: *specialist service requester*, *specialist service provider*, *copy destination*, *origin of clinical information*, *patient related healthcare party*, *related healthcare service provider*, *related specialist service provider*.

Attributes:

No specific attributes (see healthcare party).

6.3.12 *healthcare professional*

Description:

Information about the person who is entrusted with the direct or indirect provision of defined healthcare services to a patient or population of patients.

Example(s):

Primary care physician, consultant, therapist, dentist, nurse, social worker.

Relationships:

— Specialisation: Each instance of *healthcare professional* is a specialisation of the more general class *healthcare party*.

— Part/Whole of: Each instance of *healthcare professional* may be a part of any number of instances of *healthcare organisation*.

Attributes:

person name details: Data type: CAG(N)

— Note: this common attribute group is detailed in 6.4.5.

type of healthcare professional: Data type: V

— Example(s): medical doctor, nurse, pharmacist, laboratory worker.

position of healthcare professional: Data type: C/S

— Example(s): head of department, trainee GP, hospital consultant.

L-qualification of healthcare professional: Data type: C/S

— Example(s): M.D., M.Sc.

military rank of healthcare professional: Data type: C/S

— Example(s): captain, major.

6.3.13 *observation*

Description:

Clinical information which is not about drug treatment and does not include the result of an investigation or measurement.

Example(s):

Family history (e.g. father diabetic), symptoms (e.g. headache), signs (e.g. hepatomegaly), problems (e.g. weight loss or loss of body mass), diagnoses (e.g. thyrotoxicosis, both known and tentative), operative procedures (e.g. pancreatectomy), information given to the patient or relative.

Relationships:

- Specialisation: each instance of *observation* is a specialisation of an instance of the more general class *clinical information item*.

Attributes:

observation description: Data type: LC+S

- Example(s): gastric carcinoma, abdominal pain, axillary lymphadenopathy, airline pilot, failure to thrive.

degree of certainty of observation: Data type: C/S

- Description: degree of certainty that the clinical information is correct.
- Note: the requester may wish to mention a serious diagnosis even when it is unlikely that the patient is suffering from it. The specialist can then take this possibility into account when investigating/reporting/commenting.
- Example(s): high, medium, low, proved by anatomic pathology.

L-comment to observation: Data type: C/S

6.3.14 origin of clinical information**Description:**

Information about known source of a clinical information item.

Relationships:

- Instance connection: Each instance of *origin of clinical information* is associated with one or more instances of *clinical information item*.
- Specialisation: Each instance of *origin of clinical information* is a specialisation of an instance of the more general class *healthcare party role*.

Attributes:

date and time of origin of clinical information: Data type: TOCD

- Note: date and time at which the information has been made available by the originator (original record keeper). This date can be different from date and time of clinical information which is the real date and time of occurrence of the event.

6.3.15 patient**Description:**

Information about person receiving, or registered to receive, healthcare services.

Relationships:

- Instance connection:
Each instance of *patient* may be associated with any number of instances of *specialist service request*.
Each instance of *patient* may be associated with any number of instances of *specialist service report*.
Each instance of *patient* may be associated with any number of instances of *clinical information item*.
Each instance of *patient* may be associated with any number of instances of *patient related party*.
Each instance of *patient* may be associated with any number of instances of *patient related healthcare party*.
Each instance of *patient* may be associated with any number of instances of *patient healthcare location*.

Attributes:

official patient identification: Data type: V

- Description: identification of a patient assigned by a national healthcare authority.

partner-agreed patient identification: Data type: S

- Description: identifier used to identify a patient under an agreement between communication parties.

identification of patient by specialist service requester: Data type: S

- Description: identifier assigned by a specialist service requester to a patient.

identification of patient by specialist service provider: Data type: S

— Description: identifier assigned by a specialist service provider to a patient.

L-additional patient identification: Data type: V

— Description: identification of the patient (or of a group to which the patient belongs) derived from applications not related to payment.

— Note: used under a mutual agreement between the specialist service requester and specialist service provider or as defined by a general interchange agreement. The coding scheme used allows to identify the type of the additional patient identification.

person name details: Data type: CAG(N)

— Note: this common attribute group is detailed in 6.4.5.

L-address: Data type: CAG(A)

— Note: this common attribute group is detailed in 6.4.1.

L-telecommunication: Data type: CAG(T)

— Note: this common attribute group is detailed in 6.4.7.

L-alternative person name: Data type: AG

Note: this attribute group consists of the attributes alternative person name type and alternative person name.

> alternative person name type: Data type: V

— Example(s): birth surname, maiden name, alias, preferred name, mother's maiden name.

> alternative person name value: Data type: S

demographic data of patient: Data type: AG

— Note: this attribute group consists of the attributes marital status of patient, religion of patient and nationality of patient.

> marital status of patient: Data type: V

— Example(s): single, married, divorced, widowed.

> religion of patient: Data type: C/S

> nationality of patient: Data type: C/S

basis of entitlement to health services: Data type: C

— Example(s): national, E111 holder, resident of other country with reciprocal rights.

patient administrative sex: Data type: V

— Description: the gender of the patient as recognised by the organisation responsible for administration of healthcare services

— Note 1: in rare cases this may differ from genetic or anatomical gender which may be recorded as clinical information.

— Note 2: represented by the abbreviations specified in ISO 5281.

date and time of birth: Data type: TOCD

— Note: in case the exact date and time is unknown, year only or year + month or year + month + day are sufficient.

date and time of death: Data type: TOCD

— Note: in case the exact date and time is unknown, year only or year + month or year + month + day are sufficient.

L-language details: Data type: CAG(La)

— Description: language(s) spoken or understood.

— Note: this common attribute group is detailed in 6.4.2.

L-patient occupation: Data type: C/S

L-confidentiality constraint on patient data: Data type: C/S

— Description: information that is of relevance in determining the type of patient information which may be shared by staff in the receiving healthcare organisation and the degree/extent to which it may be shared.

— Note: the confidentiality constraints on patient data may also be defined by the patient

— Example: in some countries, the patient's consent must be obtained before computer-held data is transmitted to a third party.

L-precautions relevant to service provider: Data type: AG

— Description: information about the patient that is given to the service provider because of its relevance when providing healthcare services to the patient.

— Note: may include warnings of dangers posed by the patient for the service provider or of circumstances of the patient which may adversely affect the patient if they are not known to the service provider.

> precaution: Data type C + S

— Description: the nature of a precaution of which the requester is informing the service provider.

— Note: this may include statements that a precautionary factor is absent or not known.

— Example(s): violent patient, detention status, infection risk, radioactive, immunologically compromised, amputee, blind, deaf, known to be pregnant, breast feeding, last menstrual period.

> associated date of precaution: Data type: TOCD

— Description: the date on or from which the type of precaution applied.

— Example(s): date of the first day of the last menstrual period.

6.3.16 *patient healthcare location*

Description:

Information about a location that is directly related to the provision of care to a patient.

Note:

Used in request messages to specify where a patient is residing or will reside when the address structure provided in the object Patient is not applicable. In report messages, the healthcare locations that are related to the reported or planned events should be specified using the object "event related location", other locations that are not related to these events may be specified using this object.

Relationship:

— Instance connection: Each instance of *patient healthcare location* is associated with one instance of *patient*.

Attributes:

location role: Data type: V

— Description: type of location where the patient has received or is to receive care, or where the patient was located immediately prior to or immediately subsequent to receiving care.

— Example(s): intended care location, current location.

location: Data type: CAG(Lo)

— Description: location of the patient during a specified period.

— Note: this common attribute group is detailed in 6.4.3

start date and time at location: Data type: TOCD

end date and time at location: Data type: TOCD

address: Data type: CAG(A)

— Note: this common attribute group is detailed in 6.4.1

L-telecommunication: Data type: CAG(T)

— Note: this common attribute group is detailed in 6.4.7

healthcare organisation at location: Data type: AG

— Description: the healthcare organisation responsible for provision of services at this healthcare location.

— Note: A healthcare organisation may be used stand-alone or as a superstructure containing departments and sub-departments.

> name of healthcare organisation at location: Data type: S

> type of healthcare organisation: Data type: V

— Example(s): University hospital, private specialist service provider.

> healthcare registration identification: Data type: V

— Description: unique and official identification of a healthcare organisation, in general issued by an authorised organisation such as a governmental or international body.

- > partner agreed identification of healthcare organisation: Data type: S
 - Description: identification of healthcare organisation agreed upon between communication parties.
- > identification of organisation by specialist service request: Data type: S
- > identification of organisation by specialist service provider: Data type: S

6.3.17 *patient related healthcare party*

Description:

Information about healthcare party who has a role in the provision of healthcare services to an individual patient.

Note 1:

This covers any role in the healthcare of a patient that is not more specifically covered by the other healthcare party roles defined in the DIM.

Note 2:

This concept can refer to a healthcare sub-department, department, organisation or person.

Relationships:

- Instance connection: Each instance of *patient related healthcare party* is associated with one instance of *patient*.
- Specialisation: Each instance of *patient related healthcare party* is a specialisation of the more general class *healthcare party role*.

Attributes:

relationship type of patient related healthcare party: Data type: V

- Description: role of a healthcare party in connection with the provision of healthcare services to the patient.
- Examples: patient's usual GP, patient's registered GP, community nurse.

relationship start date and time: Data type: TOCD

- Description: date and time when the healthcare party commenced the specified role in the care of the patient.

relationship end date and time: Data type: TOCD

- Description: date and time when the healthcare party ceased to have the specified role in the care of the patient.

6.3.18 *patient related party*

Description:

Information about an individual or an organisation that has a role in, or need to informed about, the care of a patient other than as a healthcare party.

Note 1:

If a message needs to refer to any person or organisation other than a healthcare party or the patient they are represented as a patient related party. The relationship may be family (e.g. a parent or spouse), institutional (e.g. a prison officer), employer or incidental (e.g. a friend bringing a patient for an appointment).

Note 2:

The patient's next of kin or contact person are also communicated as a patient related party.

Relationship:

- Instance connection: Each instance of *patient related party* is associated with one instance of *patient*.

Attributes:

official party identification: Data type: V

- Description: identification of a patient related party assigned by a national healthcare authority.

L-additional party identification: Data type: V

- Description: identification of the patient related party (or of a group to which the patient related party belongs) derived from applications not related to payment.
- Note: used under a mutual agreement between the specialist service requested and specialist service provider or as defined by a general interchange agreement. The coding scheme used allows to identify the type of the additional patient related person identification.

relationship type of related party: Data type: V

— Example(s): legal mother, legal father, partner, prison officer, employer, friend.

relationship start date and time: Data type: TOCD

relationship end date and time: Data type: TOCD

person name details: Data type: CAG(N)

— Note: this common attribute group is detailed in 6.4.5.

organisation name details: Data type: S

— Description: identification of the organisation to which the party belongs.

L-address: Data type: CAG(A)

— Note: this common attribute group is detailed in 6.4.1.

L-telecommunication: Data type: CAG(T)

— Note: this common attribute group is detailed in 6.4.7.

patient related person sex: Data type: V

L-patient related person occupation: Data type: C/S

L-language details: Data type: CAG(La)

— Note: this common attribute group is detailed in 6.4.2.

6.3.19 *payment guarantor*

Description:

Information about person or organisation involved that has responsibility for all or part of the costs of the specialist services performed or to be performed.

NOTE :

The payment guarantor may be the patient.

Relationships :

— Instance connection:

Each instance of *payment guarantor* may be associated with any number of instances of *specialist service request*.

Each instance of *payment guarantor* may be associated with any number of instances of *specialist service report*.

Each instance of *payment guarantor* may be associated with any number of instances of *contract authorisation*.

Attributes:

service type of record: Data type: V

— Description: indication of whether the payment guarantor is to be added, deleted or whether the characteristics of the payment guarantor are to be modified.

— Permitted values: add, delete, modify.

payment guarantor type: Data type: C/S

— Note: indicates the role of the payment guarantor in the context of the requested service or specialist service event.

— Example(s): patient, insurance company.

L-payment guarantor identification: Data type: V

— Description: unique identification assigned to the guarantor.

payment guarantor person name: Data type: CAG(N)

— Note: this common attribute group is detailed in 6.4.5

payment guarantor organisation name: Data type: S

payment guarantor address: Data type: CAG(A)

— Note: this common attribute group is detailed in 6.4.1

payment guarantor telecommunication: Data type: CAG(T)

— Note: this common attribute group is detailed in 6.4.7.

payment guarantor contribution: Data type: AG

— Description: information about the financial contribution expected of the patient.

- > percentage of total cost: Data type: R
 - Description: percentage of total cost that is the responsibility of the payment guarantor.
- > daily contribution: Data type: CAG(M)
 - Description: the cash contribution that is the responsibility of the payment guarantor calculated on a daily basis.
 - Note: this common attribute group is detailed in 6.4.4.
- > total contribution: Data type: CAG(M)
 - Description: the total cash contribution that is the responsibility of the payment guarantor.
 - Note: this common attribute group is detailed in 6.4.4.
- > comment to payment guarantor contribution: Data type: C/S

6.3.20 *referenced study product*

Description:

Information about something derived from or to be derived from a patient as part of a clinical investigation.

Purpose:

This class & object allows a record of a clinical investigation result item to refer to a physical or digital record made during an investigation.

Example(s):

An X-ray image, a series of X-ray images, part of an X-ray image (in a digitised form or as a film), an electrocardiograph (ECG) monitor tracing, a twelve lead ECG.

Relationships:

— Instance connection: Each instance of *referenced study product* is associated with one or more instances of *clinical investigation result item*.

Attributes:

study product type: Data type: C/S

— Note: what the study product is.

identification of study product by requester: Data type: S

identification of study product by provider: Data type: S

— Example(s): sample number, X-ray film number.

period of study product acquisition: Data type: AG

> start date and time of acquisition: Data type: TOCD

> end date and time of acquisition: Data type: TOCD

duration of study product acquisition: Data type: AG

> numerical value of duration: Data type: R

> unit of duration: Data type: V

L-reference to related information: Data type: AG

— Description: external reference to information stored in a digital form.

— Note 1: a digital representation of an image such as an X-ray or a signal such as an electrocardiograph may be stored on or transferred between computer systems in a manner that makes it accessible to the sender and recipient of a message. The reference pointer attribute group allows a message to refer to information of this type.

— Note 2: the message has no internal knowledge of the format of the digital information and use of the reference pointers requires that the sender and recipient of the message have a shared understanding of the information types referred to.

> external reference pointer: Data type: S

— Description: unique identifier for the referenced information as assigned by the system/application that stores the data.

— Note: the precise form of expression is determined by the external reference application attribute.

— Example(s): a directory path-name, a database and a uniquely identified record within that database, a uniquely identified instance of an object.

- > external reference application: Data type: S
 - Description: unique identifier of a system and/or application in or through which the externally referenced information is accessible to the recipient of the message.
 - Note: the identifier must be understood unambiguously by the communicating parties.
- > external reference information type: Data type: C
 - Description: a code that identifies the type of information.
 - Note: the coding scheme should include appropriate imaging and signal standards and should be extended to include commonly used proprietary formats and new standards as they emerge.
 - Example(s): X-ray image, electrocardiograph signal etc.
- > external reference indirect pointer: Data type: S
 - Description: a reference to an internal pointer or marker within an external referenced source of information.
 - Note: this attribute can only be used if the information type referenced contains an internal referencing system for annotations. The form of expression depends on the information type referenced.
 - Example(s): A reference to an annotation or marked area of an X-ray film.
- > date and time of related information acquisition: Data type: TOCD

6.3.21 *related healthcare service provider*

Description:

Information about healthcare party (healthcare professional or healthcare organisation) associated with an item of clinical information.

Example(s):

The healthcare worker who registered a result, a subordinate healthcare organisation that reported part of the clinical investigation result items, a healthcare professional who dispensed or administered a drug.

Relationships:

- Instance connection: Each instance of *related healthcare service provider* is associated with one or more instances of *clinical information item*.
- Specialisation: Each instance of *related healthcare service provider* is a specialisation of the more general class *healthcare party role*.

Attributes:

relationship type of related healthcare service provider: Data type: V

- Description: role of a related healthcare service provider in connection with the associated items of clinical information.

6.3.22 *related specialist service provider*

Description:

Information about healthcare party (healthcare professional or healthcare organisation) associated with the provision of specialist services.

Note:

This concept can also refer to a healthcare sub-department, department or organisation, person or a person acting within an organisation.

Example(s):

The consultant in charge of the patient's care during a hospital spell, the consultant who approved the content of the specialist service report.

Relationships:

- Instance connection:
 - Each instance of *related specialist service provider* may be associated with any number of instances of *specialist service report*.
 - Each instance of *related specialist service provider* may be associated with any number of instances of *specialist service event*.