

UDC

Descriptors

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English Version

Health Informatics

Electronic Healthcare Record Communication - Messages for the exchange of information

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This document is a Second Interim Report (INR-2)
It has been released for widespread comment by
members of CEN TC251 WGI and other
interested parties prior to revision and
conversion of this to a formal
First Working Document (FWD)

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It was drafted by CEN/TC 251/PT29

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PRIMARY DEADLINE FOR COMMENT

1st SEPTEMBER 1998 (1998-09-01)

EXTENDED DEADLINE FOR COMMENTS

15th SEPTEMBER 1998 (1998-09-15)

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Please note that comments after 1 September may
not be included in the revised document but any
proposed response/changes will
be noted in the disposition of comments

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CEN

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

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Central Secretariat: Rue de Stassart 36, B-1050 Brussels, Belgium

SECOND INTERIM REPORT FOREWORD

- 5 This SECOND INTERIM REPORT has been prepared under the direction of the European Committee for Standardisation (CEN) and is being submitted for comment by members of CEN/TC 251 WI "Medical Informatics - Models and Communication" and other interested parties.

The preparation of this Prestandard is being undertaken by Project Team 29 of CEN TC251 supported by the European Commission and European Free Trade Association under voucher BC/CEN.97/23.1.1.

- 10 This release of the Report is submitted to the CEN TC251 WGI and other interested parties as a basis for comment. The primary deadline for receipt of comments on this draft is 1 September 1998. The Project Team will endeavour to take due account of all comments received by that date when preparing the next version, which will be submitted to CEN TC251 WGI for formal approval as a First Working Document at the meeting in October 1998. As the comment period extends over the summer period an extended deadline for comments of 15 September 1998 will also apply. The
- 15 Project Team may not have sufficient time to take account of comment received after 1 September when preparing the next draft. However, comments received between 1 September and 15 September will be considered when preparing a disposition of comments for circulation to WGI prior to the October meeting. This disposition of comments will indicate any additional changes proposed by the Project Team in response to later comments.

- 20 Please note there will be a further commenting period after production of a further draft following the October meeting of WGI. However, the intention is that major issues raised by members of TC251 WGI should be dealt with during the current comment period. The comment period later this year is intended as a forum for wider comment on a document which by then should have achieved a good measure of consensus within the Working Group.

- 25 The document includes extensive hypertext links (particularly in clause 6). These are intended to aid review of the complex inter-relations between various elements of information. These links are currently only supported in the Word 97 version. To avoid distortion of the printed copy the usual underlines associated with hyperlinks have been removed from this version. Links can be accessed from blue italic text and from visible cross-references in the text.

CHANGE NOTES

- 30 This version represents a major revision from the Interim Report (INR) accepted by CEN TC251 Working Group meeting in May 1998. The changes in structure of the document make detailed change notes difficult or impossible to draft. However, the substance of some of the classes within the proposed messages have not changed, there have been only minor changes to the introduction and scope sections.

The main changes in content are:

1. The EHCR root and EHCR item group subsystems.
- 35 2. The introduction of the "Link" subsystem to group together all issues related to references between EHCR components.
3. A proposed method for supporting view record item complexes in the message using links.
4. Improved alignment with PT26 proposals of naming architectural entities (however the definitions in this draft remain tentative and subject to review and revision in liaison with PT26)
5. Further development of the "record item" and "record item element".
- 40 6. A distinction between normative and informative structured record item elements to produce a more flexible mechanism for structuring clusters of information.
7. Specific provisions for adding community defined record element types and for enterprise extensions to the overall EHCR structure.
8. New and updated material on scenarios and user requirements.
- 45 9. Introduction of GMDs with formally expressed normative requirements for compliant messages.
10. Improved alignment with PT28 (distribution rules) including an explicit use of the DR link reference specified in the latest PT28 draft.
11. Further refinement of the use of "safety critical modifiers" as developed in liaison with PT27 (term list).

Commenting on this document

The Project Team welcome comments on all aspects of this document.

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Comments may be sent in any format, but comments in electronic form as a plain text E-mail or in Microsoft Word (any version) are preferred. Comments in electronic form may be sent attached to e-mail or on diskette.

Please include the following information with your comments:

Title: "Comments on CEN TC251/PT29 - INR"

State your name, address, phone number, fax number and e-mail for response and possible clarification.

State whether the comments represent the view of a named organisation or a personal view.

Classify each comment as one of the following categories:

MAJOR	Serious disagreement with the approach taken or the terms of this European Prestandard.
MINOR	Minor disagreement with the approach taken or the terms of this European Prestandard. This indicates something which one feels needs discussion.
SUGGEST	Suggestion for improvement, which does not arise from any disagreement with the approach.
QUERY	Uncertain of meaning or lack of clarity.
TYPO	Technical, grammatical or typographical errors.

Comments should be separated and numbered and preferably grouped by topic or clauses.

Comments should arrive before 1998-09-01 in order to be considered by the Project Team before producing the next draft. However, comments received up to 1998-09-15 will be taken into account in the disposition of comments document.

The next version of this document for widespread circulation will be available in late September 1998. Interim updates and other related material may be available for viewing and/or downloading from the web; please check the following URL for the latest information:

www.clinical-info.co.uk

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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 standards.

5 A combination of the following four factors provide the motivation for this particular Prestandard:

- Computer systems are used for the storage and processing of healthcare record information in many hospitals, clinical departments and doctors offices. The information stored and processed by these systems includes details of medical history, investigation results, clinical findings, diagnoses and treatments.
- 10 • When healthcare professionals provide care to an individual patient they often need access to healthcare record information to inform their decisions and to enable them to offer high quality healthcare. In some circumstances, access to relevant and accurate information may be essential to the safe delivery of healthcare services. In other cases, inability to access necessary clinical information leads to repeated investigation with consequent delay, inconvenience and expense.
- 15 • Many patients are cared for by two or more professionals using different information systems. Population mobility means that in any one year healthcare professionals can expect at least 5% of their patients to move and thus to require their future care to be handed over to another professional. Even while living in one place, travel related to work and holidays and out-of-hours locum arrangements lead to circumstances in which different healthcare professionals provide care to the same patient.
- 20 • Current practice meets the need for communication of healthcare record information by a variety of means. Most of these are either paper-based or idiosyncratic and unstructured. Therefore, users of electronic healthcare record systems are unable to exchange healthcare record information in forms that are readily accessible to users of other systems.

25 As a result of these factors there is an urgent need for a standard set of messages that can enable the electronic transfer of healthcare record information between heterogeneous clinical information systems. These messages need to address the needs and capabilities of currently used healthcare record systems. They should also take account of the more sophisticated requirements of future systems.

Implementation of the messages specified by this European Prestandard will:

- a) facilitate the transfer of electronic healthcare records or parts of these records;
- b) enable the communication of requests for transfer of electronic healthcare records;
- 30 c) reduce the need for human intervention to manually duplicate entries in different healthcare record systems;
- d) minimise the time and effort required for the introduction of information interchange agreements that support the exchange of electronic healthcare record information;
- e) reduce the development effort required by suppliers to allow their systems to communicate with a wide range of other electronic healthcare record systems;
- 35 f) reduce the cost of information interchange between clinical information systems.

When implementing information exchange based on this European Prestandard, data security services including confidentiality provisions must be ensured according to the laws actually in force in the different CEN member countries. Other European Prestandards currently under development are addressing the technical issues relating to meeting this requirement.

40 The method by which this European Prestandard has been developed is based on the recommendations of the CEN Report on Medical informatics - Methodology for the development of healthcare messages (CR 12587 :1996). However, in accord with the decisions of CEN TC251 WGI, a different modelling technique has been used. This is a subset of the Unified Modelling Language (UML) as documented in Annex A.

45 This Prestandard is intended for use by message developers. Its provisions are directly relevant to suppliers of computer systems for use in 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 departments, hospitals, general practices, clinical departments and specialist clinics.

1. Scope

This Prestandard specifies messages that enable exchange of electronic healthcare record information between healthcare parties responsible for the provision of clinical care to an individual patient. These messages allow information from an electronic healthcare record held by one health professional to be sent to another health professional.

The messages specified by this Prestandard can be used to convey:

- a complete copy of a patient's record as stored in one information system;
- parts of a patient's record that form a logically sound extract or summary of that record;
- parts of a patient's record used for updating a parallel record on another system.

The primary purpose of the exchanges supported by these messages is to support the provision of care to individual patients. The availability of consistent, continuing clinical care, when and where it is needed, requires appropriate and unambiguous communication between clinical professionals. The messages specified by this Prestandard are designed to meet this requirement by enabling users of different clinical information systems to exchange electronic healthcare record information. Implementation of these messages will therefore assist the maintenance of timely and appropriate patient records.

This Prestandard considers two distinct properties of electronic health record communication.

a) Readability

Communication of information in a form that can be rendered human-readable by the receiving system. If the exchange of electronic healthcare record information is to support individual patient care, clinicians using the receiving system need to be able to read and understand the transferred information.

b) Processability

Communication of information that can be incorporated into a record held by the receiving system in a way that enables it to be processed and retrieved as an integral part of that record. The benefits of electronic healthcare records include retrieval and processing for decision support, audit and research. If these benefits are to be fully realised, systems need to be able to process received information in a way that, while recognising the source of that information, is otherwise consistent with processing of locally recorded information.

The Prestandard specifies messages that permit exchange of electronic health record information with different levels of structure. The least structured level is sufficient to enable any receiving system to render the information in a human-readable form. The more structured levels enable information to be transferred in a manner that facilitates subsequent retrieval and processing.

The ability of communicating systems to achieve a particular level of interoperability by using these messages depends on:

- the compatibility of the structures in which the systems store patient records;
- the mappability of different forms of representation used by those systems (e.g. languages, terminologies and coding schemes);
- the level of trust between the communicating parties.

These factors will therefore determine how the messages specified by this Prestandard are used.

This Prestandard takes account of the following issues related to the confidentiality, source and status of the transferred information.

- *Distribution* – The messages include provisions for referencing distribution rules (in the manner specified in the current draft of CEN TC251/PT28). These distribution rules are intended to govern subsequent distribution of information. These rules may be applied to the entire message or to individual components within the message. This Prestandard does not mandate a particular mechanism for the enforcement of distribution rules.
- *Attribution* – The messages support communication of attribution details regarding the originator and time of origin of information. Attribution information, including digital signatures, may be applied to the entire message or to individual components within the message. This Prestandard does not mandate a particular mechanism for secure verification of digital attribution information. However, the algorithm specified in ENV12388 should be used, unless the communicating parties agree to use an alternative Prestandard.

- *Integration* – The messages support the communication of information in a way that allows receiving systems to distinguish new information from information that they have already received.

Specific security requirements and the mechanisms to be used to meet these requirements are outside the scope of this Prestandard. Implementors of the messages specified by this Prestandard should ensure that the security mechanisms used satisfy national and international legislation, user requirements and ethical guidance.

The messages specified by this Prestandard are general in nature. They meet the requirements for transferring electronic health care record information in a manner appropriate to a wide-variety of situations covering all clinical professions and specialties. However, to maximise the processability of communicated information for particular purposes, a specific profile of the messages specified in this Prestandard may be required. A profiles may restrict the degrees of freedom inherent in the general message and may specify additional types of record item that can be used within a communicating community.

The development of this Prestandard has been based on the principles stated in the European Prestandard on Electronic Healthcare Record Architecture (ENV 12265). However, this does not preclude the use of this message for communications between systems that do not conform to that Prestandard.

The messages specified by this Prestandard are primarily aimed at conveying textual (character-based) information between systems. The messages also provide for references to binary objects, which may form part of an EHR. However, the Prestandard does not specify the format of such binary objects, nor does it specify the methods by which they shall be communicated or made available to a receiving system.

The messages specified in this Prestandard are not designed for communication of explicit requests for services or reports of services. However, if the substance of the report can be best communicated as an extract of the EHR, communicating parties may choose to use this message for that purpose.

The messages specified by this Prestandard are not designed for communication with intermittently connected devices such as patient data cards or personal digital assistants. However, due account has been taken of the relevant Prestandard covering this domain (ENV12018).

These messages are not validated for the exchange of EHR information for other purposes such as administration, resource allocation, research or quality monitoring.

2. Normative References

This European Prestandard incorporates by dated or undated references, 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 they are incorporated in it by amendment and revision. For undated references the latest edition of the publication referred to, applies.

	ISO/IEC 7826-1	Information technology – General structure for the interchange of code values – Part 1: Identification of coding schemes
10	ISO/IEC 7826-2	Information technology – General structure for the interchange of code values – Part 2: Registration of coding schemes
	ISO 2382-4:1987	Information processing - Vocabulary Part 4: Organisation of data
	ISO 5281:1977	Information interchange - Representation of human sexes
	ISO 639:1988	Symbols for languages, geographical areas and authorities
	ENV 1613 :1995	Medical informatics - Messages for exchange of laboratory information
15	ENV 12265	Medical informatics - Electronic healthcare record architecture
	CR 12587 :1996	CEN Report: Medical informatics - Methodology for the development of healthcare messages
	ENV 12018 :1997	Medical informatics - Identification, administrative, and common clinical data structure for Intermittently Connected Devices used in healthcare (including machine readable cards)
20	ENV 12537-1 :1997	Medical informatics - Registration of information objects used for EDI in healthcare - Part 1: The Register
	ENV 12537-2 :1997	Medical informatics - Registration of information objects used for EDI in healthcare - Part 2: Procedures for the registration of information objects used for electronic data interchange (EDI) in healthcare
25	ENV 12538 :1997	Medical informatics - Messages for patient referral and discharge
	ENV 12539 :1997	Medical informatics - Request and report messages for diagnostic service departments
	ENV 12612 :1997	Medical informatics - Messages for the exchange of healthcare administrative information
	ENV 12381 :1996	Medical informatics - Time standards for healthcare specific problems
	ENV 12435	Medical informatics - Expression of the results of measurements in health sciences
30	ENV 12388 :1996	Medical informatics - Algorithm for Digital Signature Services in Health Care

3. Definitions

#EDITORIAL NOTE DEFINITIONS RELATED TO ARCHITECTURAL COMPONENTS REMAIN TENTATIVE FOR FURTHER DISCUSSION WITH CEN TC251 PT26 (extended EHCR architecture).

For the purpose of this European Prestandard, the following definitions apply:

- 5 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 or animals where this is relevant.

- 3.2 **code meaning** : Element within a coded set.

- 10 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.

- 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.

- 15 3.4 **coding scheme** : Collection of rules that maps the elements of one set on to the elements of a second set.

- 3.5 **domain information model; DIM** : 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.

NOTE : In this Prestandard the abbreviation DIM is used.

- 20 3.6 **electronic health care record ; EHCR** : health care record in computer readable format.

- 3.7 **electronic health care record component ; EHCR component** : a part of an electronic health care record that is identifiable for the purposes of referencing and revision.

NOTE : This Prestandard specifies four distinct types of EHCR component for use in EHCR messages. These are record items, original record item complexes, view record item complexes and the EHCR root.

- 25 3.8 **electronic health care record root ; EHCR root** : an EHCR component representing the entirety of a patient's electronic health care record or that part of it contained within a particular instance of an EHCR message.

- 3.9 **electronic health care record system ; EHCR system**: system for recording, retrieving and manipulating information in electronic healthcare records.

- 30 3.10 **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.

NOTES

1: 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.

- 35 2: In this Prestandard the abbreviation GMD is used.

- 3.11 **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.

- 3.12 **healthcare organisation** : Organisation responsible for the direct or indirect provision of healthcare services to a subject, or involved in the provision of healthcare related services such as environmental measurement results.

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

3.13 **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 such as environmental measurement results.

3.14 **healthcare professional** : Person who is entrusted with the direct or indirect provision of defined healthcare services to a subject or population of subjects.

5 EXAMPLES : Primary care physician, dentist, nurse, social worker, veterinary surgeon.

3.15 **health care record** : repository of information regarding the health of a subject of care.

3.16 **health care record architecture** : principles on which the logical structure of healthcare records are based.

3.17 **health care service** : Service provided with the intention of directly or indirectly improving the health of the people, populations or animals to whom it is provided.

10 3.18 **implementable message specification** : Specification of a general message description in a particular message syntax.

NOTE : In this Prestandard the abbreviation IMS is used.

3.19 **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.

15 3.20 **message profile** : Specification derived from an implementable message specification by selecting its optional elements, appropriate to the specific business requirements of the communicating parties.

3.21 **message syntax** : System of rules and definitions specifying the basic component types of messages, their interrelationships and their arrangement.

20 3.22 **message type** : An identified, named and structured set of functionally related information which fulfils a specific business purpose.

3.23 **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.

25 3.24 **original record item complex; ORIC** : electronic healthcare record component representing an aggregation of other components based on the time or context within which it was originally recorded or adopted as part of the EHCR.

3.25 **record item; RI** : electronic healthcare record component containing a single record item element.

3.26 **record item element; RIE** : a unit of information that cannot be subdivided without losing its meaning.

30 NOTES

1. An RIE is only meaningful when linked to the patient as part of a record item.

2. The normative provisions of this Prestandard specify six types of record item elements. Four further types, are suggested in Informative Annex B. Communicating parties may also specify and use additional record item element types.

35 3.27 **transmitted message** : Message instance created in a message syntax in alignment with a particular message profile and therefore in full conformance with the relevant general message description and implementable message specification.

3.28 **view record item complex; VRIC** : electronic healthcare record component representing an aggregation of other components arranged in a manner other than originally recorded or adopted as part of the EHCR.

3.29 Abbreviations

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

	DIM	Domain Information Model
	EHCR	Electronic Health Care Record
5	GMD	General Message Description
	GP	General Practitioner
	HCP	Healthcare Party
	HGMD	Hierarchical General Message Description
	ICSI	International Coding Scheme Identifier
10	IMS	Implementable Message Specification
	MIG	Message Implementation Guide
	ORIC	Original Record Item Complex
	RI	Record Item
	RIE	Record Item Element
15	UML	Unified Modelling Language
	VRIC	View Record Item Complex

4. Communication roles

4.1 General

- 5 This clause defines the communication roles compliant to the specifications of this European Prestandard when exchanging electronic healthcare record. It establishes the relationships between the communication roles and the General Message Descriptions (GMDs), as well as the relationships between the messages defined by the GMDs.

4.2 Communication roles

- 10 The following messages are defined in this Prestandard:

- Request EHCR message;
- Provide EHCR message;
- Reject request for EHCR message;
- Accept EHCR message;

- 15 For each of these messages there are two primary communication roles:

- The message originator role (the sender)
- The message destination role (the intended recipient)

- 20 In respect of any one set of related EHCR messages these roles will usually both be played by healthcare parties with a direct role in the care of the patient. Rather than considering the role in respect of a particular message, this Prestandard refers to healthcare parties according to the roles played in a set of related messages. These roles are:

- The EHCR source – the current holder of EHCR information that is requested, transferred or acknowledged.
- The EHCR destination – the requester or recipient of the EHCR.

- 25 These roles are interchangeable. Thus the EHCR source in relation to one set of messages may be the EHCR source in respect of another message or set of messages.

Other roles may be played by other healthcare parties acting as forwarding agents, clearing houses or as trusted third parties validating or authenticating the source of an EHCR related message.

Communicating party (actor no.)	Originating role	Destination role	Messages	To actor no.	From actor no.
1. Healthcare party acting as EHCR source	X		Provide EHCR message Reject request for EHCR message	2,3	
		X	Request EHCR message Accept EHCR message		2,3
2. Healthcare party acting as EHCR destination	X		Request EHCR message Accept EHCR message	1,3	
		X	Provide EHCR message Reject request for EHCR message		1,3
3. Healthcare party acting as EHCR intermediary (clearing house or forwarding agent)	X		Provide EHCR message Reject request for EHCR message Request EHCR message Accept EHCR message	1,2	
		X	Provide EHCR message Reject request for EHCR message Request EHCR message Accept EHCR message		1,2

Table 1: Associations between Communicating parties, Communicating party roles and messages

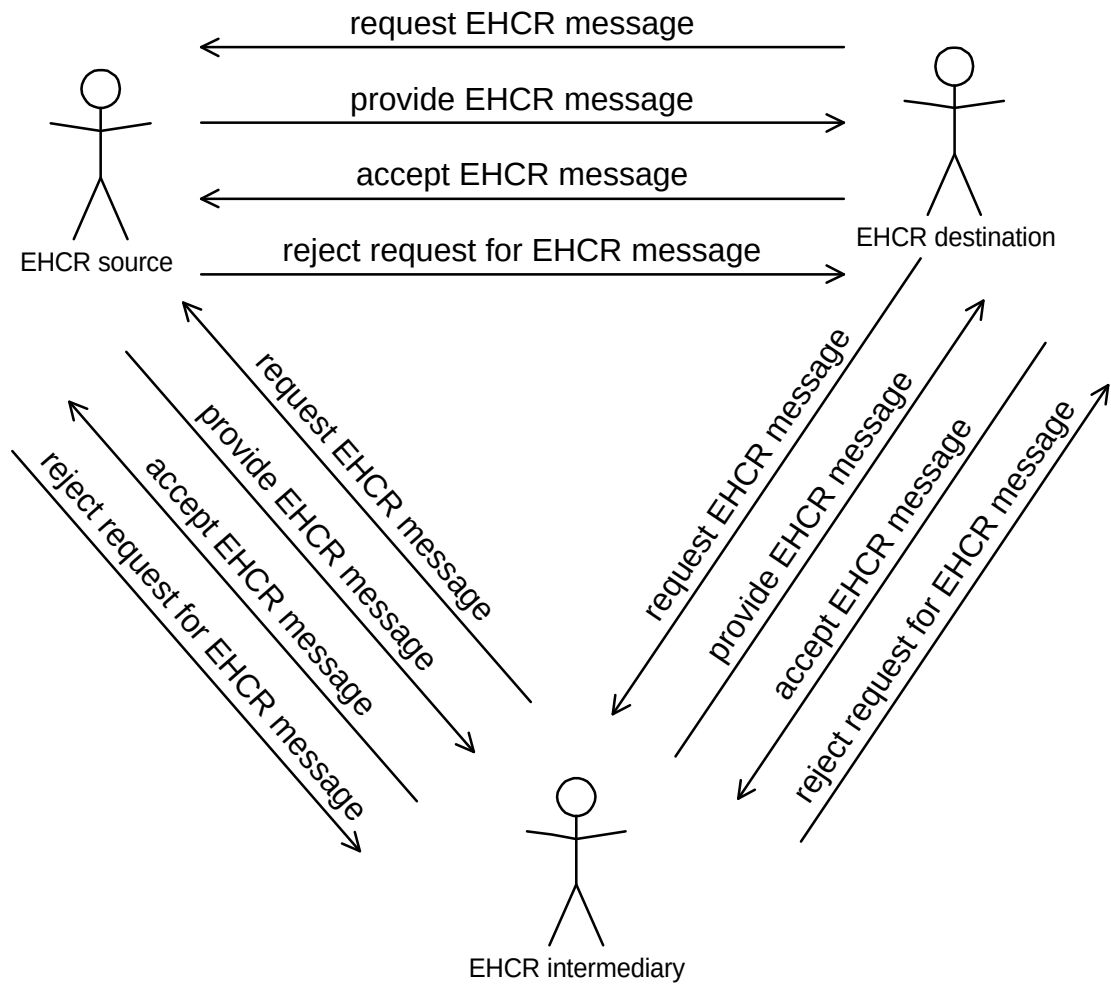


Figure 1. Illustration of EHCR message communications and communication roles

5. Communication Requirements and Scenarios

5.1 Introduction

This clause outlines the main EHCR communication requirements supported by use of these messages.

The requirements are identified as part of several general scenarios outlined in this clause. However, these scenarios do not form an exhaustive list of circumstances in which these messages are applicable.

The clause outlines each scenario in a general manner followed by illustrative examples and a summary of the main communication requirements arising from the scenario. Each communication requirement is related to an instance of a specific message. The messages referred to are specified by this Prestandard or have already been adopted as part of previously published Prestandards.

Each scenario involves the transfer of EHCR related information in one or more directions between two or more healthcare parties. Figure 2 shows the general sequence of use of the messages. However, some scenarios use only one or two of the messages shown in this figure. Also as noted in the previous clause the communicating parties may have different roles at different stages in a communication scenario. For this reason subsequent illustrations in this clause refer to the communicating parties as Party A and Party B rather than using the role name.

The diagrams in this section follow the general notation of Unified Modelling Language sequence diagrams. Time is represented by the vertical axis. The parties are represented by dotted lifeline. While a party has a role in relations to the patient the lifeline is overlaid by a hollow rectangle. Lines between the parties indicate the flow of messages.

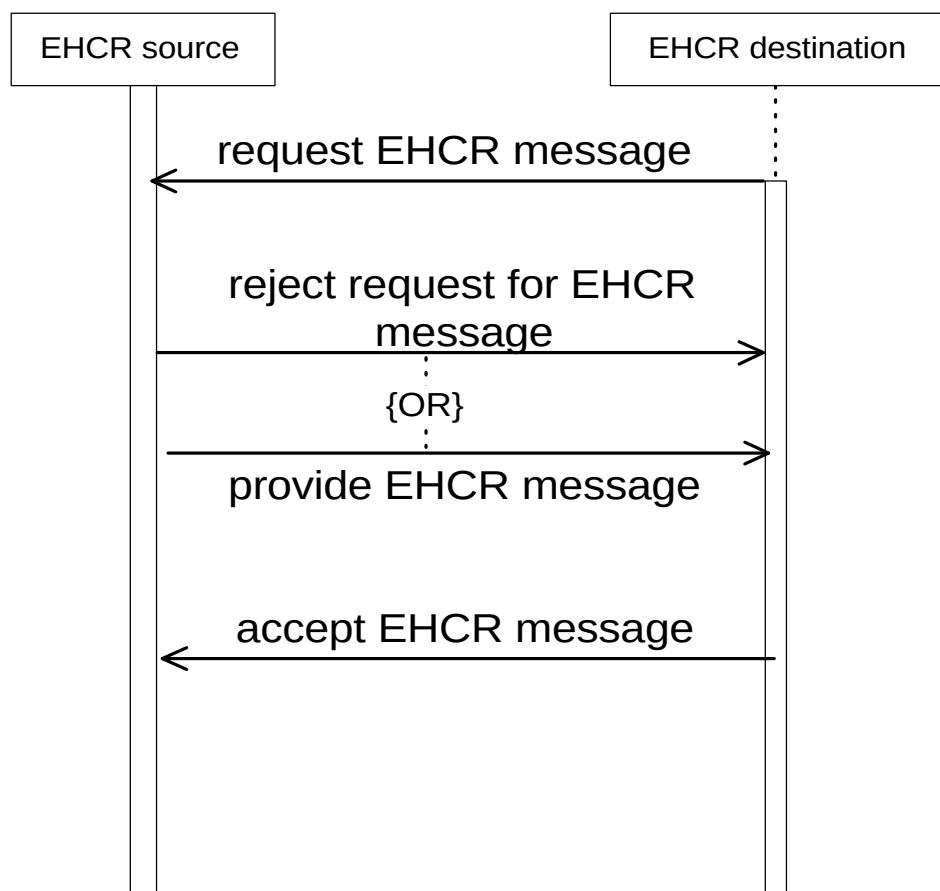


Figure 2. General sequence of messages

5.2 Transfer initiated by an EHCR source

5.2.1 Scenario outline

Party A becomes aware that for some reason a patient will in future seek the healthcare services previously provided by **Party A** from **Party B**.

- 5 • **Party A** hands over their clinical responsibility for the patient to **Party B**.
- **Party A** does not expect to have continuing clinical responsibility for the care of the patient.
- **Party B** assumes a continuing responsibility for the care of the patient.

Examples

- 10 • A patient informs their GP that they are moving to another area. The GP hands over care of a patient to a colleague in the area to which the patient is moving.
- A specialist is retiring or leaving a clinic and makes arrangements for the future care of his patients.
- A patient chooses to change the healthcare professional that they consult for a particular service. The patient informs the current provider of this service that they wish care to be transferred. The current provider transfers the EHCR to the new provider.

15 5.2.2 Communication requirements and use of messages

Party A provides **Party B** with complete or summarised EHCR information about the patient and indicates that they wish **Party B** to take over responsibility for the patient.

- **Party A** (an *EHCR source*) sends a *provide EHCR message* to **Party B** (an *EHCR destination*).

20 **Party B** may respond to the by informing **Party A** that they have received the information provided and have either accepted or rejected responsibility for the care of the patient.

- **Party B** (an *EHCR destination*) sends an *accept EHCR message* to **Party A** (an *EHCR source*).

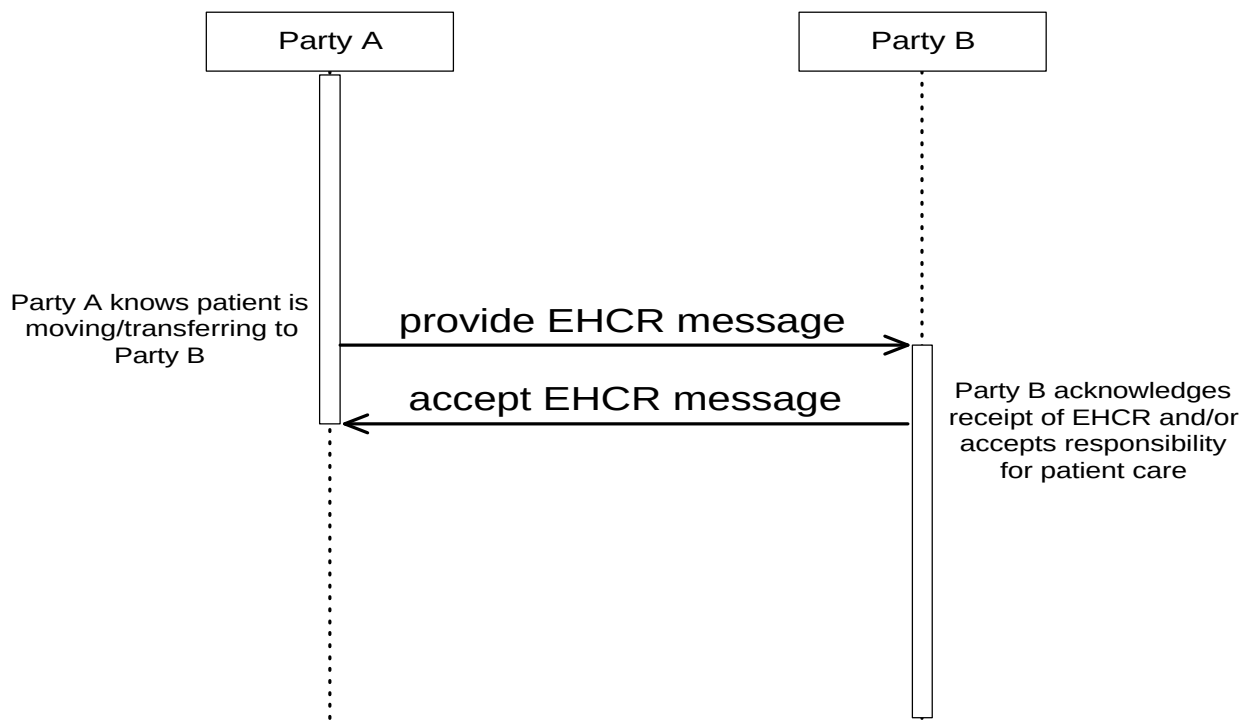


Figure 3. Patient transfer initiated by an EHCR source

5.3 Transfer of care initiated by an EHCR destination

5.3.1 Scenario outline

A patient, currently cared for by **Party A**, requests **Party B** to provide a continuing healthcare service.

- **Party B** takes over clinical responsibility for the patient from **Party A**.
- **Party A** does not have continuing clinical responsibility for the care of the patient.
- **Party B** assumes a continuing responsibility for the care of the patient.

Examples

- A patient consults or registers with a new GP after moving to another area.
- A patient chooses to change the specialist or clinic that they attend.

5.3.2 Communication requirements and use of messages

Party B requests **Party A** to provide a complete or summarised EHCR for the patient.

- **Party B** (an *EHCR destination*) sends a *request EHCR message* to **Party A** (an *EHCR source*).

Party A may accept or reject the request for the EHCR.

If the request is accepted, **Party A** provides **Party B** with complete or summarised EHCR information about the patient.

- **Party A** (an *EHCR source*) sends a *provide EHCR message* to **Party B** (an *EHCR destination*).

If the request is rejected, **Party A** informs **Party B** of this decision.

- **Party A** (an *EHCR source*) sends a *reject request for EHCR message* to **Party B** (an *EHCR destination*).

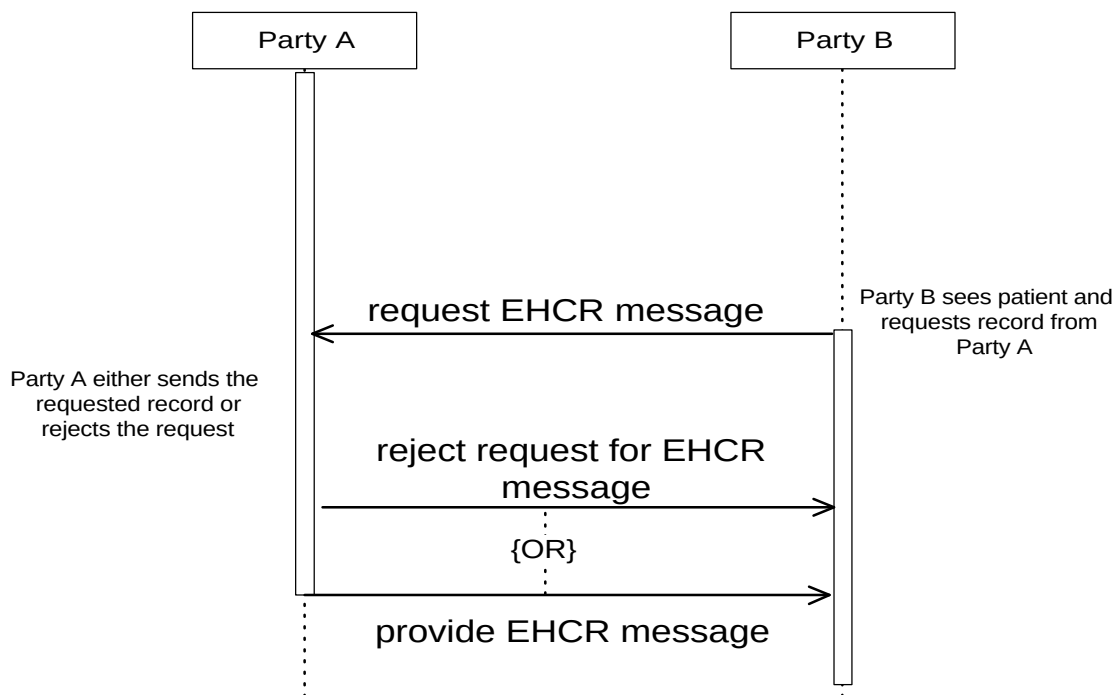


Figure 4. Transfer of care initiated by an EHCR destination

5.4 Provision of a temporary services without a request from the EHCR source

5.4.1 Scenario outline

A patient, usually cared for by **Party A**, requests **Party B** to provide a service of limited duration.

- **Party B** performs the service for the patient.
- **Party A** resumes clinical responsibility for the care of the patient.
- **Party B** does not expect to play a further role in the future care of the patient.

Examples

- A patient attends an Accident Emergency department at a hospital.
- A patient self-refers to a particular specialist in accordance with the normal practice in a particular country of region.
- A patient requires healthcare services while out of their home area.
- A patient requires urgent healthcare services out of the normal office hours of their doctor.
- A patient consults another GP (in countries where patients may see more than one GP).

5.4.2 Communication requirements and use of messages

Party B may decide that they need EHCR information from **Party A** in order to perform the service. In this case, **Party B** requests **Party A** to provide a complete or summarised EHCR for the patient.

- **Party B** (an *EHCR destination*) sends a *request EHCR message* to **Party A** (an *EHCR source*).

Party A may accept or reject the request for the EHCR.

If the request is accepted, **Party A** provides **Party B** with complete or summarised EHCR information about the patient.

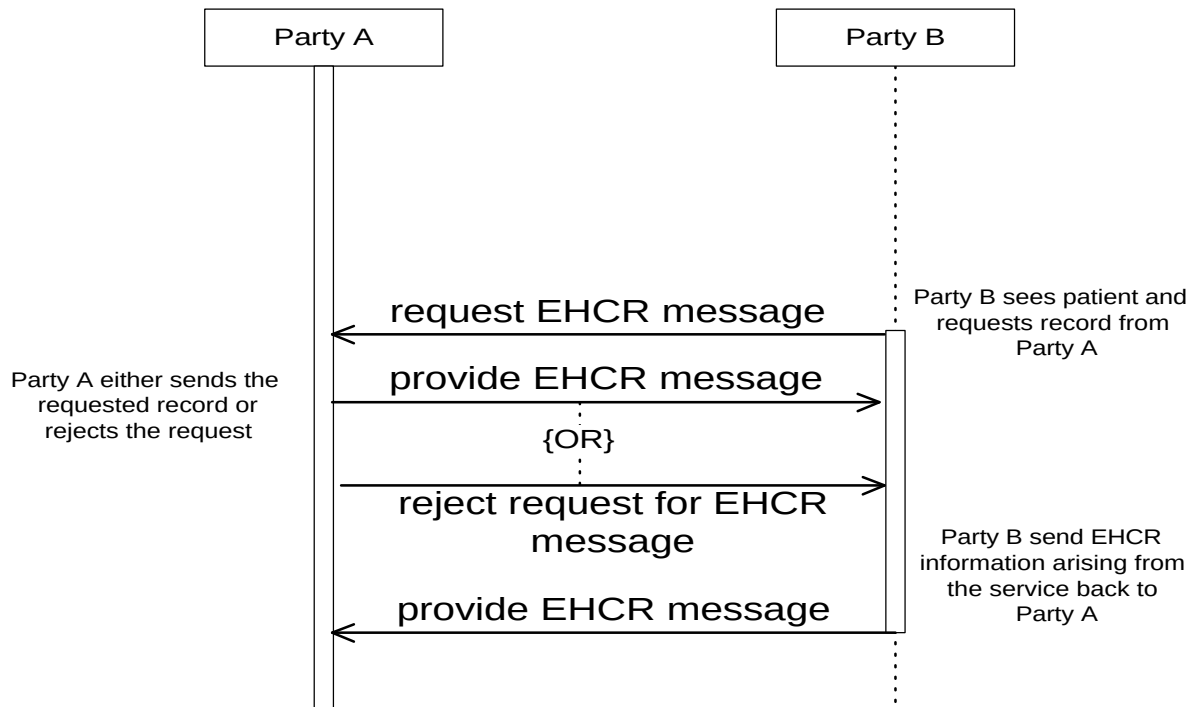
- **Party A** (an *EHCR source*) sends a *provide EHCR message* to **Party B** (an *EHCR destination*).

If the request is rejected, **Party A** informs **Party B** of this decision.

- **Party A** (an *EHCR source*) sends a *reject request for EHCR message* to **Party B** (an *EHCR destination*).

When the service has been performed **Party B** may send the EHCR information recorded while performing the service to **Party A**. The communication roles of the parties are now reversed.

- **Party B** (an *EHCR source*) sends a *provide EHCR message* to **Party A** (an *EHCR destination*).

**Figure 5. Service provision without a request**

5.5 Provision of a temporary services following a request from the EHCR source

5.5.1 Scenario outline

A patient, usually cared for by **Party A**, receives a service of limited duration from **Party B** at the request of **Party A**.

- **Party A** requests the service from **Party B**.
- **Party B** performs the service for the patient.
- **Party A** resumes or retains clinical responsibility for the care of the patient.
- **Party B** does not expect to play a further role in the future care of the patient.

Examples

- A GP refers a patient to a specialist.
- A specialist involves a therapist in a particular aspect of a patients care.

5.5.2 Communication requirements and use of messages

Party A requests **Party B** to provide a service and may provide a copy or summary of the EHCR as part of this request. This may be done using the *specialist service request message* specified by ENV 12538 or using the *provide EHCR message*.

- **Party A** (an *EHCR source*) sends a *provide EHCR message* to **Party B** (an *EHCR destination*).

When the service has been performed **Party B** may send the EHCR information recorded while performing the service to **Party A**. This may be done using the *specialist service report message* specified by ENV 12538 or using the *provide EHCR message*. If the *provide EHCR message* is used, the communication roles are reversed.

- **Party B** (an *EHCR source*) sends a *provide EHCR message* to **Party A** (an *EHCR destination*).

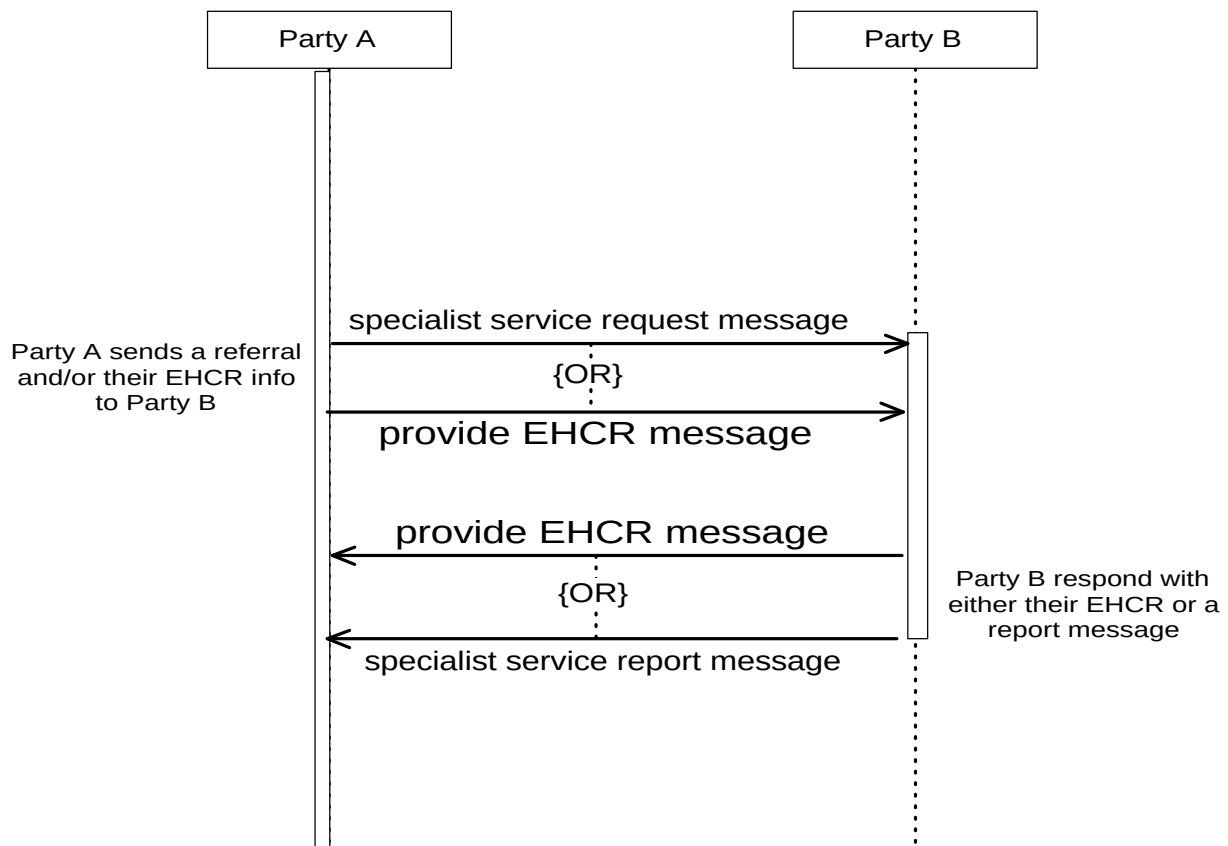


Figure 6. Service provision following a request

5.6 Provision of continuing care by two or more parties

5.6.1 Scenario outline

- **Party A** is providing care to a patient and requests **Party B** to become involved in providing for a particular aspect of that patient's care.
- 5 • **Party A's** general responsibility for the care of the patient continues. However, a specific part of that responsibility is shared with **Party B** while a series of services are provided.
- **Party B** usually sees the patient two or more times while providing the requested service.
- During the period during which **Party B** is sharing responsibility, **Party A** may also see the patient one or more times.

10 Examples

- GP and diabetic specialist providing care to a diabetic patient.
- GP and Midwife and/or Obstetrician providing antenatal care.

5.6.2 Communication requirements and use of messages

- 15 **Party A** requests **Party B** to provide a service and may provide a copy or summary of the EHCR as part of this request. This may be done using the *specialist service request message* specified by ENV 12538 or using the *provide EHCR message*.

- **Party A** (an *EHCR source*) sends a *provide EHCR message* to **Party B** (an *EHCR destination*).

After the initial contact the patient, **Party B** may send the EHCR information recorded during that contact to **Party A**.

- **Party B** (an *EHCR source*) sends a *provide EHCR message* to **Party A** (an *EHCR destination*).

- 20 After each subsequent consultation, or other interaction with the EHCR, **Party A** sends an update of the EHCR information recorded during that contact to **Party B**.

- **Party A** (an *EHCR source*) sends a *provide EHCR message* to **Party B** (an *EHCR destination*).

After each subsequent consultation, or other interaction with the EHCR, **Party B** sends an update of the EHCR information recorded during that contact to **Party A**.

- 25 • **Party B** (an *EHCR source*) sends a *provide EHCR message* to **Party A** (an *EHCR destination*).

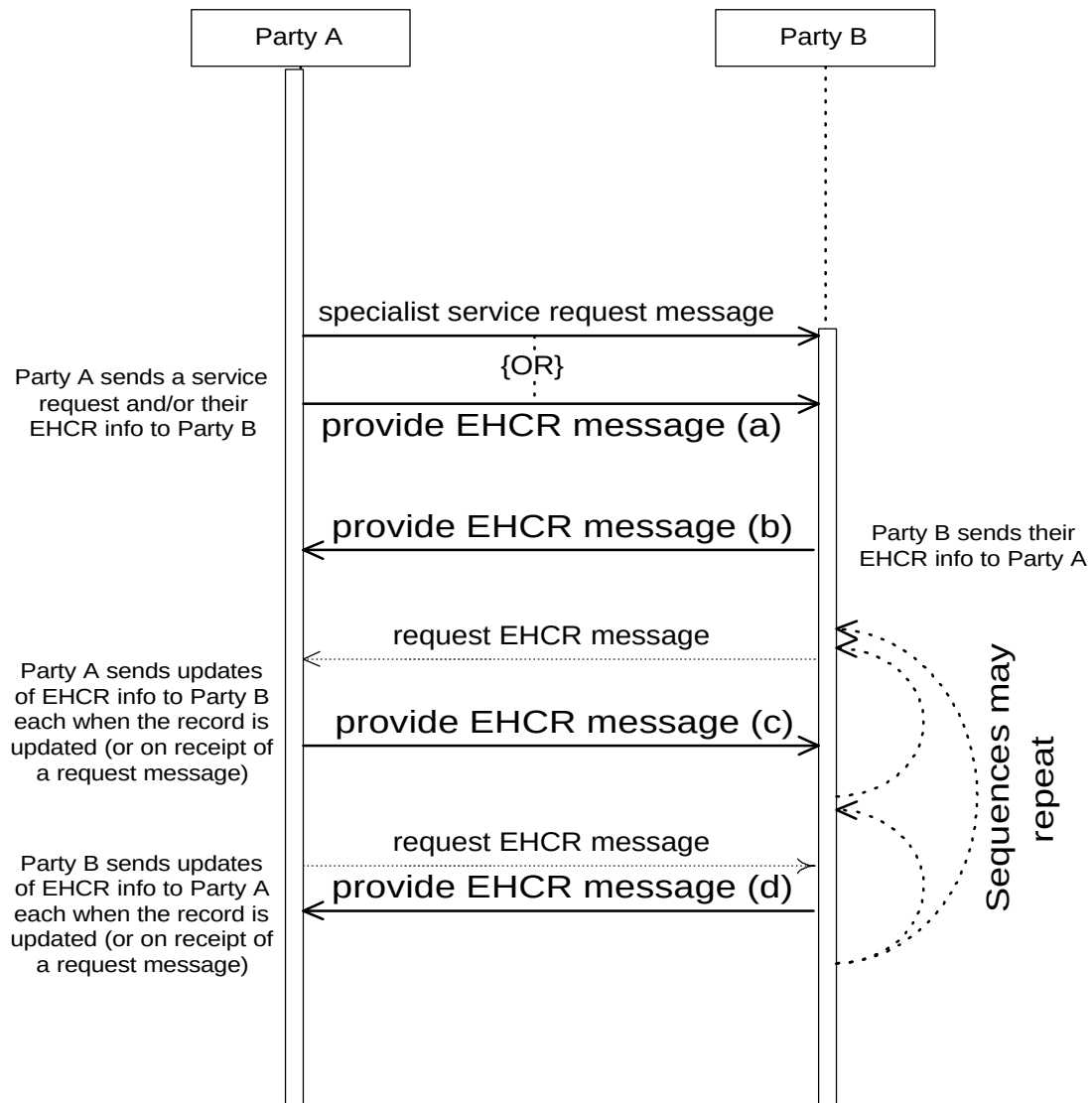
An alternative to the unsolicited transfers of updates described here is for the update to be explicitly requested.

If an update is required by **Party A**.

- **Party A** (an *EHCR destination*) sends a *request EHCR message* to **Party B** (an *EHCR source*).
- **Party B** (an *EHCR source*) responds by sending a *provide EHCR message* to **Party A** (an *EHCR destination*).

- 30 If an update is required by **Party B**.

- **Party B** (an *EHCR destination*) sends a *request EHCR message* to **Party A** (an *EHCR source*).
- **Party A** (an *EHCR source*) responds by sending a *provide EHCR message* to **Party B** (an *EHCR destination*).

**Figure 7. Continuing care by two parties**

5.7 Scenarios involving a third party

5.7.1 Description

Some scenarios may involve a third party (party C). Party C may act as a clearing-house where parties are not sure to whom they should send requests (see 7.4.2) or EHR information (see 7.4.3). Party C may also act as a Trusted Third Party either confirming that a requested is authorised to receive EHR information (see 7.4.4) or authenticating the source of the EHR information (see 7.4.5).

5.7.2 Indirect communication initiated by the recipient

Case

- Party B wishes to receive EHR information but does not know who holds this information

Action

- Party B sends the *Request EHR message* to party C.
- Party C establishes the location of a party who holds relevant EHR information.
- Party C forwards the *Request EHR message* to party A.
- Party A responds by sending a *Provide EHR message* or a *Reject Request for EHR message* either directly to party B or to party C as an intermediary.
- If party C is used as an intermediary then the message received from party A is forwarded by party C to party B.

5.7.3 Indirect communication initiated by the sender

Case

- Party A is aware that another party will require EHR information but is not aware of the identity of that party.
- Party C acts as a clearing-house.

Action

- Party A sends a *Provide EHR message* to party C.
- Party C retains the record acting as a clearing-house.
- Party B sends a *Request EHR message* to party C.
- Party C checks whether the relevant *Provide EHR message* has been received and also checks that party B is authorised to receive this message.
- Party C either forwards the *Provide EHR message* to party B or generates and sends an appropriate *Reject Request for EHR message* to party B

The second part of this scenario is superficially similar to the direct request scenario (see 7.3.2). However, there are two important differences in requirements. The first is that the *Provide EHR message* must identify its origin (party A) as well as the intermediary. The second is that the intermediary may need to be aware of the distribution rules applied at the point of origin in order to determine whether party B is authorised to receive the *Provide EHR message*. The messages provide allow this information to be conveyed but the security mechanisms for enforcing these provisions are outside the scope of this Prestandard.

5.7.4 Confirming the entitlement of a requester to EHR Information

If the *Request EHR message* is used between two parties with an existing relationship of trust it may be sufficient for the request message to confirm its source and authenticity (for example using a digital signature). However, in the case of transfers within a wider community, the holder of the EHR (party A) may need to check the status of the requester (party B) before responding to a request. This check may be done using various mechanisms that are outside the scope of this Prestandard. However, some of the possible mechanisms impose additional requirements on the message.

- The *Request EHR message* may need to convey a reference to a third party (party C) recognised by party A as being authorised to vouch for the status of party B.
- The *Request EHR message* may need to convey information that allows it to be routed via a third party (party C) responsible for logging and checking the validity of requests before forwarding valid requests to party A.

- The *Request EHR message* may need to convey a password or key provided by the patient to party **B**, which is recognised by party **A** as indicating authorisation by that patient for the EHR to be provided.
- The *Provide EHR message* may need to be capable of being sent without recognisable identification information. This "unidentified" EHR may then be recombined with the appropriate identification information provided by a recognised third party who is able to provide a link between the information in this message and the appropriate patient.

5.7.5 Authenticity of origin of EHR Information

If the *Provide EHR message* is used between two parties with an existing relationship of trust it may be sufficient for the message to confirm its source and authenticity (for example using a digital signature). However, in the case of transfers within a wider community, the recipient (party **B**) may need to check the status of the sender (party **A**) before accepting the validity of the EHR information provided. This check may be done using various mechanisms that are outside the scope of this Prestandard. However, some of the possible mechanisms impose additional requirements on the message.

- The *Provide EHR message* may need to convey a reference to a third party (party **C**) recognised by party **B** as being authorised to vouch for the status of party **A**.
- The *Provide EHR message* may need to convey information that allows it to be routed via a third party (party **C**). The third party only forwards the message if it recognises the status of party **A**.

6. Requirements and General Message Descriptions

6.1 Introduction to the GMDs

6.1.1. This clause specifies the normative requirements for messages that comply with this Prestandard. These requirements are expressed as General Message Descriptions (GMDs) specified in textual descriptions supported by hierarchical diagrams. Clause 7 describes the composition of all classes and attributes required to support these GMDs. These class descriptions are illustrated with diagrams of the domain information model on which the messages are based. Messages which comply with this Prestandard shall support the structures illustrated by the GMD diagrams in this clause and the detailed content described in clause 7 in respect of each of the elements referred to in this clause. Messages that comply with this Prestandard need not support other relationships shown in the domain model diagrams in clause 7.

6.1.2. The requirements expressed in the textual descriptions incorporate by reference the relevant class descriptions in Clause 7. A reference to a class description implies a requirement to fully support the listed attributes of that class, including those that are further decomposed by references to further class and sub-class descriptions.

6.1.3. The diagrammatic representation of the GMDs shows the hierarchical decomposition of each message into its main classes. The depth of the hierarchy shown in the diagrams has been limited to highlight the main points. Therefore, as with the textual descriptions, the detailed content of each of the classes shown is incorporated by reference to the relevant description in Clause 7. However, wherever a branch of the hierarchy is shown in an expanded form all its direct descendants are included. Thus some of the boxes in these diagrams represent attributes rather than classes. In these cases, the cross-reference is omitted and the description of the attribute can be found by following the reference to the class of which the attribute is a member.

6.1.4. The text descriptions in this clause include phrases such as "*the ... message shall contain an optional instance*". The meaning of these is that practical implementation of messages that comply with this Prestandards are required to include appropriate provision for the specified information. However, this Prestandard does not require the user of such a message to populate these attributes in each instance of the message. In practice, the use of some of these optional attributes may be constrained by rules agreed with communicating communities while others may depend a variety of factors including availability of relevant information, capabilities of communicating applications and the needs or preferences of users.

6.2 Request EHCR Message Requirements

6.2.1. The *request EHCR message* (7.3.7) should be used to request all or part of the EHCR for a single specified patient. Its structure is described below and illustrated in Figure 8.

6.2.2. The *request EHCR message* shall include one mandatory instance of the class *message identification* (7.9.16). This identifies the message and records its date and time of issue.

6.2.3. The *request EHCR message* shall include one mandatory instance of *general message information* (7.9.7). This includes indications of urgency and of the need for acknowledgement by the recipient. It also includes an optional indication of the language of the message and optional comments from the sender.

6.2.4. The *request EHCR message* shall include one mandatory instance of *EHCR destination* (7.2.1). This is used to identify the sender of the message.

6.2.5. The *request EHCR message* shall include one mandatory instance of *EHCR source* (7.2.3). This is used to identify the intended recipient of the message.

6.2.6. The *request EHCR message* shall include multiple optional instances of *EHCR intermediary* (7.2.2). Each of these may be used to identify a communicating party (other than the sender and recipient) and to indicate their role in the communication of this message or the intended response to this message.

6.2.7. The *request EHCR message* shall include one mandatory instance of *patient matching information* (7.5.5). This contains optional components including identification numbers, names, addresses, sex and date of birth. At least one of these optional components shall be present in any instance of the message.

6.2.8. The *request EHCR message* shall include one mandatory instance of *specification of requested EHCR information*. This component is a *specification of EHCR information* (7.9.24). It contains an indication of whether the EHCR request applies to the entire record, a date limited subset of the record, a summary or an update to a previously communicated record. This specification may also indicate the language in which the EHCR is requested and the nature of the EHCR enterprise environment requesting the information. Identification of the EHCR enterprise may enable the *EHCR source* to determine the types of *EHCR enterprise item* (7.5.1) that the *EHCR destination* is able to process.

6.2.9. The *request EHCR message* shall include one optional instance of the attribute *reason for request* to inform the *EHCR source* about the nature of the request.

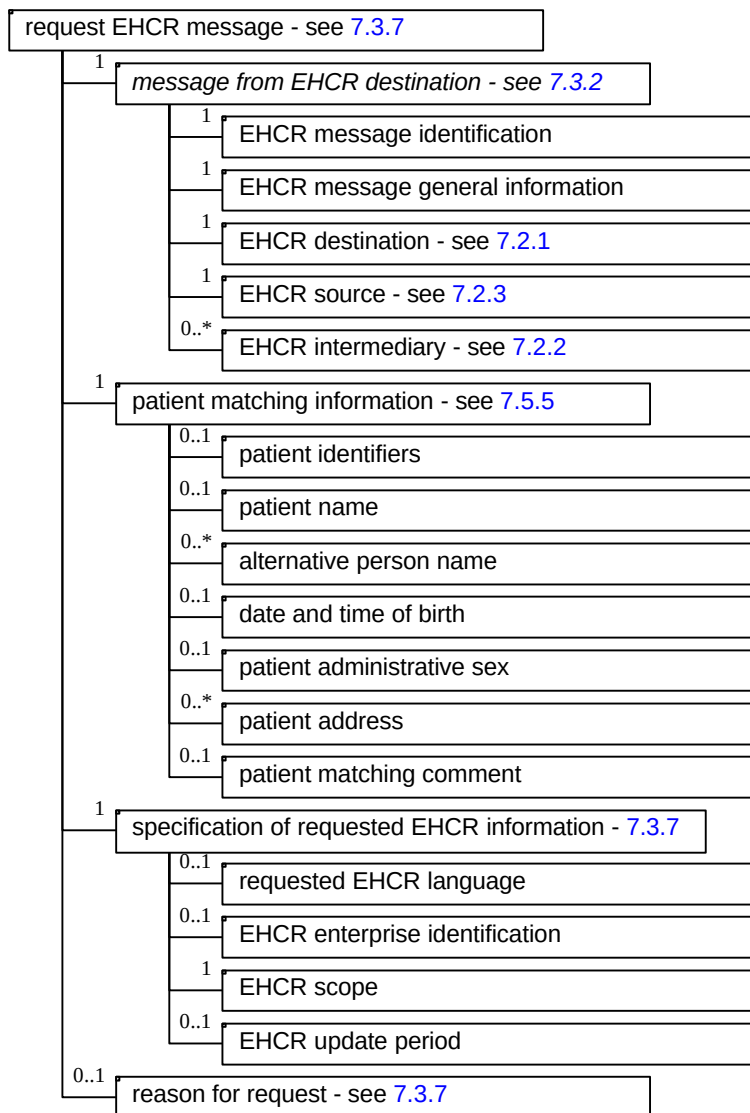


Figure 8. GMD of the Request EHCR Message

6.3 Provide EHR Message

6.3.1. The *provide EHCR message* (7.3.5) may be used to communicate all or part of a single patient's EHCR: in response to:

- a *request EHCR message* (7.3.7);
- a request conveyed by other means (i.e. a verbal or written request).

without a specific preceding request:

- as part of the regular sharing of information between healthcare parties involved in the care of the same patient;
- when the *EHCR source* is aware of a likely future requirement for another healthcare party to have access to a particular patient record;
- as part of the process of transferring a patient to the care of another healthcare party.

The structure of this message is described below. Figure 9 illustrates the overall structure and Figure 10 provides a more detailed illustration of the components used to convey EHCR information within the message.

6.3.2. The *provide EHCR message* shall include one mandatory instance of the class *message identification* (7.9.16). This identifies the message and records its date and time of issue.

6.3.3. The *provide EHCR message* shall include one mandatory instance of *general message information* (7.9.7). This includes indications of urgency and of the need for acknowledgement by the recipient. It also includes an optional indication of the language of the message and optional comments from the sender.

6.3.4. The *provide EHCR message* shall include one mandatory instance of *EHCR destination* (7.2.1). This is used to identify the intended recipient of the message.

6.3.5. The *provide EHCR message* shall include one mandatory instance of *EHCR source* (7.2.3). This is used to identify the sender of the message.

6.3.6. The *provide EHCR message* shall include multiple optional instances of *EHCR intermediary* (7.2.2). Each of these may be used to identify a communicating party (other than the sender and recipient) and to indicate their role in the communication of this message.

6.3.7. The *provide EHCR message* shall include one optional instance of reference to request EHCR message. This is an instance of the class *message reference* (7.9.17). It refers to the *request EHCR message* (7.3.7) to which this message is a response.

6.3.8. The *provide EHCR message* shall include one mandatory instance of specification of requested EHCR information. This component is a *specification of EHCR information* (7.9.24). It contains an indication of whether the EHCR information provided is the entire record, a date limited subset of the record, a summary or an update to a previously communicated record. This specification may also indicate the language in which the EHCR is provided and the nature of the EHCR enterprise environment from which the information originates. Identification of the EHCR enterprise may indicate the types of *EHCR enterprise item* (7.5.1) that may be present in the message.

6.3.9. The *provide EHCR message* shall include one mandatory instance of *EHCR root* (7.5.2). This shall contain the EHCR information conveyed by the message in the structure specified in 6.5.

6.4 Description of the EHCR components within the message

6.4.1. EHCR information in the *provide EHCR message* is represented by several of types of components that share a common generalised structure. The abstract class *EHCR component* (7.4.3) defines these common structural elements.

6.4.2. Each *EHCR component* shall contain one mandatory instance of the class *component identification* (7.4.1). This provides a unique identification of the component within a specified scope.

6.4.3. Each *EHCR component* shall contain one mandatory instance of the attribute *EHCR component status* that indicates whether the component is current or has been replaced by a subsequent revision.

6.4.4. Each *EHCR component* shall contain two optional instances of *component revision link* (7.8.1). One of these links is used to refer to an earlier version, which is revised by this component. The other link is used to refer to a more recent revision, which replaces the content of this component.

6.4.5. Each *EHCR component* shall contain one optional instance of the attribute *EHCR component name*, which may be used to indicate the role of the component as part of the EHCR.

6.4.6. Each *EHCR component* shall contain one optional instance of *origin of EHCR component* (7.4.4). This identifies the author of the information and the date and time of recording. If the *origin of EHCR component* is absent from an *EHCR component*, the origin is inherited from the *EHCR component* of which the component is a part.

6.4.7. Each *EHCR component* shall contain several optional instances of *related healthcare party* (7.4.6). These may be used to identify other healthcare parties related to or referenced by the information within the component.

6.4.8. Each *EHCR component* shall contain several optional instances of *distribution rule reference* (7.4.2). These refer to distribution rules that the *EHCR source* (or the *origin of EHCR component*) has applied to constrain further distribution of or access to this information. (## NOTE Distribution rules are currently being standardised by CEN TC251 PT28 and the *distribution rule reference* maps directly to the DRLinkReference specified in the current draft produced by PT28 ##).

6.5 Description of the EHCR root component within the message

6.5.1. The *EHCR root* is a specialisation of the abstract class *EHCR component* (7.4.3). Therefore each instance of *EHCR root* shall include instances of the attributes of *EHCR component* as specified in 6.4.

6.5.2. The *EHCR root* shall include one mandatory instance of *patient matching information* (7.5.5). This shall contain optional components including identification numbers, names, addresses, sex and date of birth. At least one of these optional components shall be present in any instance of the message.

6.5.3. The *EHCR root* shall include several optional instances of *original record item complex*. These components provide the primary hierarchy of the EHCR and their structure is specified in 6.6.

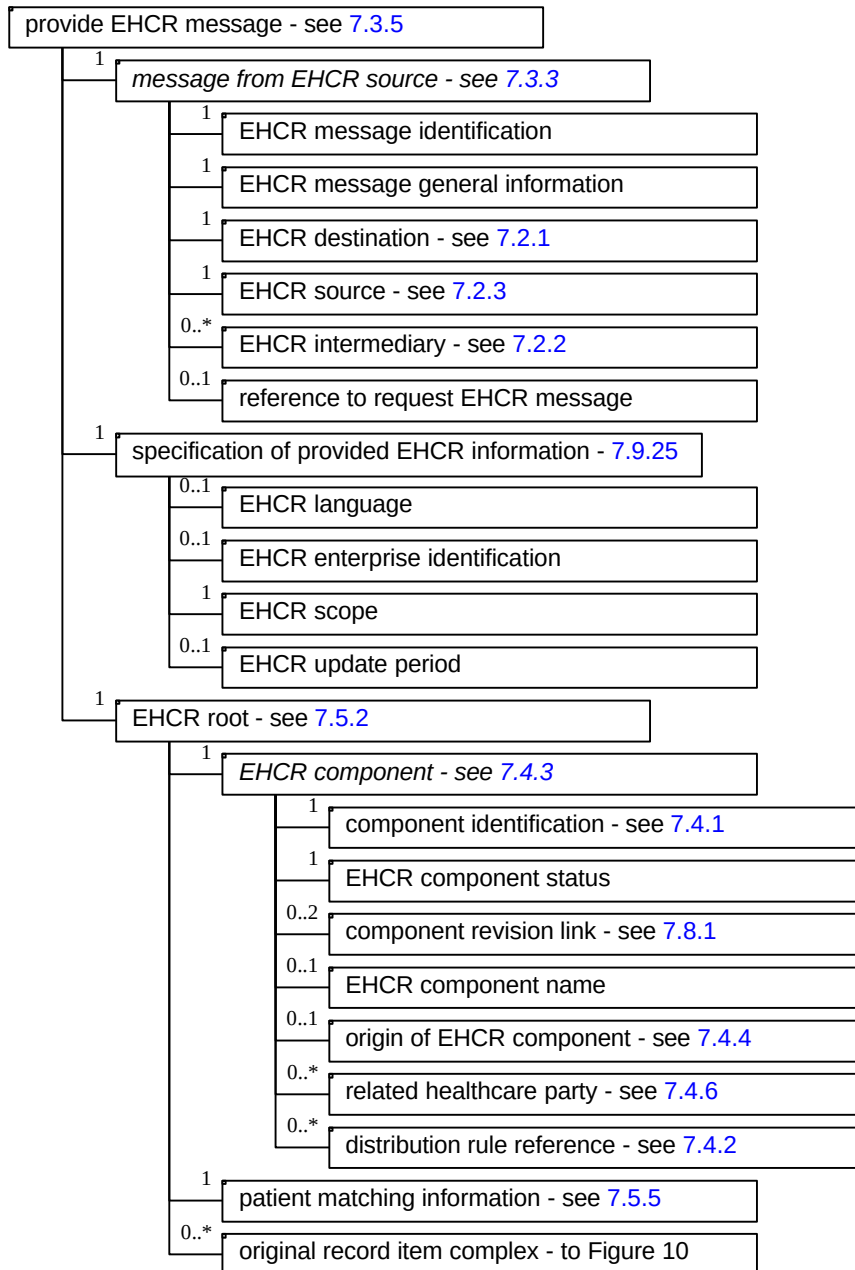


Figure 9. GMD of the Provide EHCR Message (part 1)

6.6 Description of the original record item complex within the message

6.6.1. The *original record item complex* (7.5.4) is a specialisation of the abstract class *EHCR component* (7.4.3). Therefore each instance of *original record item complex* shall include instances of the attributes of *EHCR component* as specified in 6.4.

6.6.2. Each *original record item complex* shall contain one optional instance of each of the following *subject of information modifier*, *knowing mode modifier* and *certainty modifier*. Each of these modifiers shall support a limited list of values that apply safety critical contextual modifiers to all members of the *original record item complex*. These modifiers can be supplemented by other means of specifying context using *ORIC members*. The purpose of these restricted modifiers is to ensure that safety critical information is not lost when mapping between heterogeneous coding schemes and structures.

6.6.3. Each *original record item complex* shall contain several optional instances of *ORIC member*. *ORIC members* contain the information content of the *original record item complex* and their structure is specified in 6.6.4.

6.6.4 Description of the ORIC member within the message

6.6.5. Each *ORIC member* shall contain one mandatory *ORIC member role* attribute. This specifies the role that the content plays in relation to an *original record item complex*. There are three possible roles:

- Standard content – EHCR components that represent the content of part of the EHCR.
- Context for content – EHCR components that provide contextual information that applies to all other members of this *original record item complex*.
- Narrative text view of content – A *record item* (7.6.8) containing plain text representing the combined meaning of all the other members of this *original record item complex*. This is used to enable receiving systems that are unable to process more detailed structural components to produce a humanly readable rendering of the information received.

6.6.6. Each *ORIC member* shall contain one optional *ORIC member order* attribute. This attribute may be used to specify the order of *ORIC members* within an *original record item complex*.

6.6.7. Each *ORIC member* may contain one optional *EHCR enterprise item* (7.5.1). Sub-types of this class that may be defined by an enterprise to convey information in structures that are not supported by the standard components of the *provide EHCR message*.

6.6.8. Each *ORIC member* shall contain a mandatory instance of one and only one of a choice of three content types. The content types that shall be supported are:

- *original record item complex* – another hierarchical level within the EHCR (see 6.6)
- *view record item complex* – a point of reference for alternative views of the EHCR (see 6.7).
- *record item* – the EHCR component that contains the individual elements of information that form part of the EHCR (see 6.8)

6.7 Description of the view record item complex within the message

6.7.1. The *view record item complex* (7.5.6) is a specialisation of the abstract class *EHCR component* (7.4.3). Therefore each instance of *view record item complex* shall include instances of the attributes of *EHCR component* as specified in 6.4.

6.7.2. The representation of a *view record item complex* within the *provide EHCR message* contains no additional attributes. Members of a *view record item complex* are linked to the view by *record items* containing *link RIE* (7.6.4). The *link RIE* includes a pointer to the view and another pointer to the member or members. The links can be used to add to or otherwise amend an existing view.

Editorial note: The EHCR architecture (CEN TC251 PT26) may specify other ways of representing VRICs within an EHCR system. The mechanism specified here is one of four options considered for communicating these structures between systems. Our analysis suggests that this is the most flexible method for communication and is compatible with any architectural solution. The alternative methods considered include: links within the view, duplication of components in each view to which they belong and links from members of a view to the views to which they belong. Each of these has merits in particular circumstances. However, if any one of these was implemented in the message it

would place more restrictions on system design than the proposed method. A combination of two or more methods would also be possible but increases the degrees of freedom and thus the complexity of receiving and interpreting this information.

6.8 Description of the record item within the message

6.8.1. The *record item* (7.6.8) is a specialisation of the abstract class *EHCR component* (7.4.3). Therefore each instance of *original record item complex* shall include instances of the attributes of *EHCR component* as specified in 6.4.

6.8.2. Each *record item* shall contain safety context modifiers indicating whether the content of the information is expressed in the negative, as a statement of uncertainty or as a statement of something that should be avoided. Each of these attributes shall support a limited list of values that apply safety critical contextual modifiers to the content of *record item*. These attributes may be supplemented by other means of specifying context using at the *original record item complex* level. The purpose of these restricted modifiers is to ensure that safety critical information is not lost or inverted interpretation mapping between heterogeneous coding schemes and structures.

6.8.3. Each *record item* shall include a mandatory instance of the *record item element type* attribute and an optional instance of the *record element type reference* attribute. These shall be set in a manner that indicates the type of *record item element* (7.6.9) that forms the content of the *record item*. The permissible values of *record item element type* are defined in 7.6.8 and these cover the *record item element* types defined in this Prestandard. The *record element type reference* attribute is used to refer to additional types of *record item element* defined within a communicating community.

6.8.4. Each *record item* shall include one mandatory instance of the of a *record item element* of one of the types specified in this Prestandard or of a type agreed by communicating parties.

6.8.5. All implementations of the messages specified by this Prestandard shall support the following mandatory types of *record item element* as specified in the referenced normative clauses:

- *plain text RIE* (7.6.6)
- *structured text and code RIE* (7.6.10)
- *quantifiable observation RIE* (7.6.7)
- *physical entity reference RIE* (7.6.5)
- *external data reference RIE* (7.6.3)
- *link RIE* (7.6.4)
- *demographic details RIE* (7.6.2)

6.8.6. When implementing the messages specified by this Prestandard consideration should be given to supporting the following additional types of *record item element* as specified in the referenced clauses of Informative Annex B:

- *patient related party RIE* (B.5)
- *event RIE* (B.2)
- *medication RIE* (B.4)
- *healthcare administrative RIE* (B.3)

6.8.7. Those involved in implementing the messages specified by this Prestandard may specify additional *community defined RIEs* (7.6.1) for use within a communicating community. These additional types of *record item element* should be defined using the sub-classes and data types specified in this Prestandard. To facilitate future extension of communicating communities the specification of *community defined RIEs* should follow a documentary form similar to that used in this Prestandard.

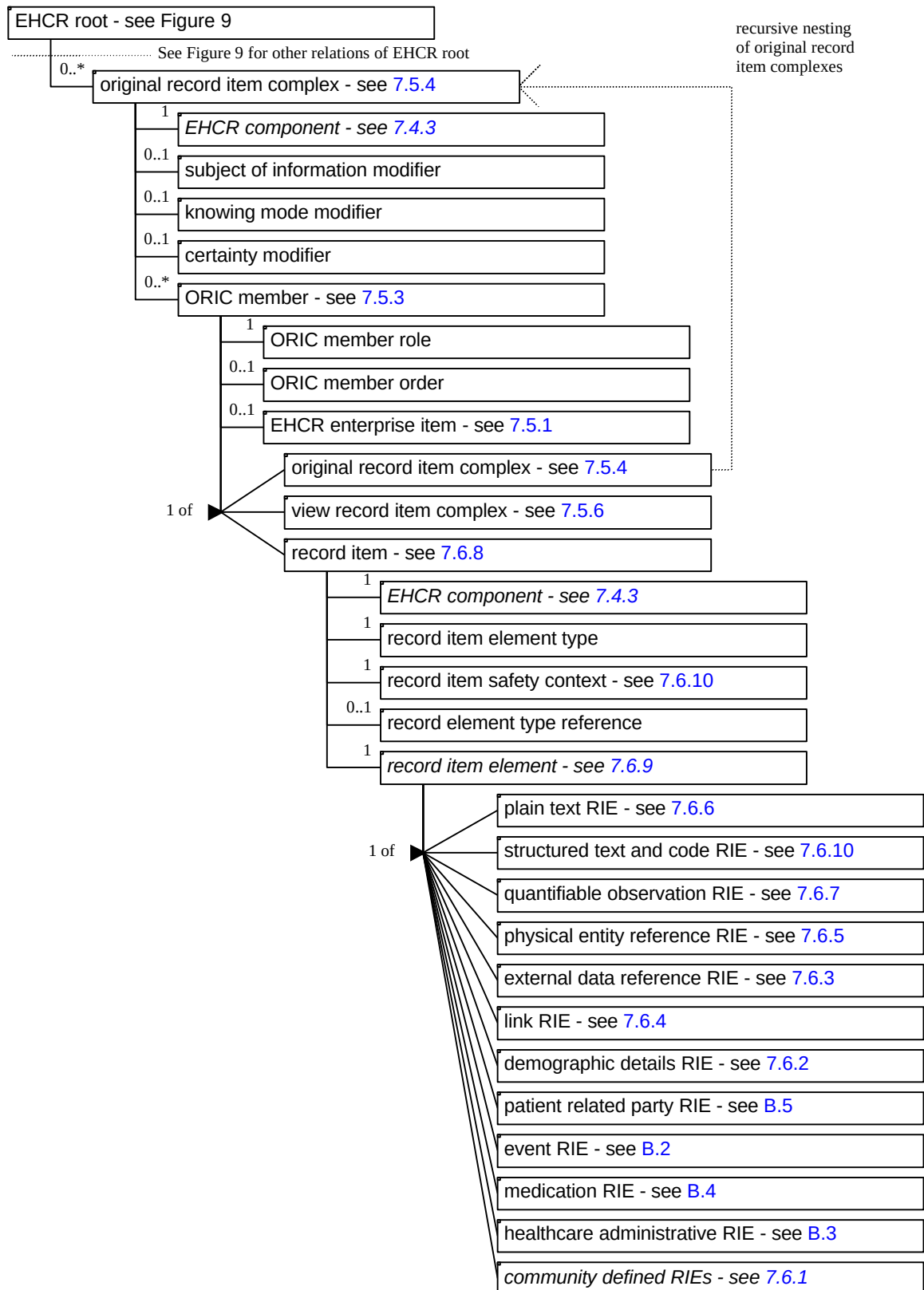


Figure 10. GMD of the Provide EHCR Message (part 2)

6.9 Reject Request for EHCR Message

6.9.1. The *reject request for EHCR message* (7.3.6) should be used to respond to a *request EHCR message* (7.3.7) if the *EHCR source* is unwilling or unable to provide the requested EHCR information. Its structure is described below and illustrated in Figure 11.

6.9.2. The *reject request for EHCR message* shall include one mandatory instance of the class *message identification* (7.9.16). This identifies the message and records its date and time of issue.

6.9.3. The *reject request for EHCR message* shall include one mandatory instance of *general message information* (7.9.7). This includes indications of urgency and of the need for acknowledgement by the recipient. It also includes an optional indication of the language of the message and optional comments from the sender.

6.9.4. The *reject request for EHCR message* shall include one mandatory instance of *EHCR destination* (7.2.1). This is used to identify the intended recipient of the message.

6.9.5. The *reject request for EHCR message* shall include one mandatory instance of *EHCR source* (7.2.3). This is used to identify the sender of the message.

6.9.6. The *reject request for EHCR message* shall include multiple optional instances of *EHCR intermediary* (7.2.2). Each of these may be used to identify a communicating party (other than the sender and recipient) and to indicate their role in the communication of this message.

6.9.7. The *reject request for EHCR message* shall include one optional instance of *reference to request EHCR message*. This is an instance of the class *message reference* (7.9.17). It refers to the *request EHCR message* (7.3.7) to which this message is a response.

6.9.8. The *reject request for EHCR message* shall include one mandatory instance of *patient matching information* (7.5.5). This shall contain optional components including identification numbers, names, addresses, sex and date of birth. At least one of these optional components shall be present in any instance of the message.

6.9.9. The *reject request for EHCR message* shall include one optional instance of the attribute *reason for rejection of request* to inform the *EHCR destination* about the reason for rejection of their request.

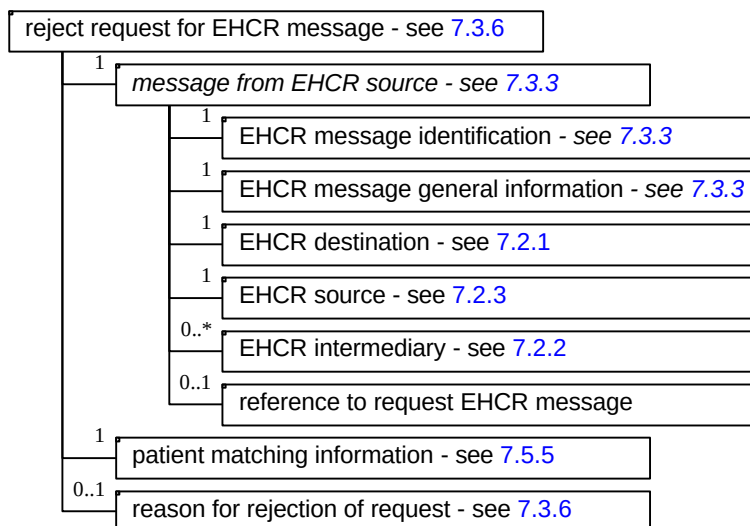


Figure 11. GMD of the Reject Request for EHCR Message

6.10 Accept EHCR Message

6.10.1. The *accept EHCR message* (7.3.1) should be used to respond to a *provide EHCR message* (7.3.5) if the *EHCR source* required confirmation of acceptance of either the EHCR information sent or any clinical responsibilities transferred with the record. Its structure is described below and illustrated in Figure 12.

6.10.2. The *accept EHCR message* shall include one mandatory instance of the class *message identification* (7.9.16). This identifies the message and records its date and time of issue.

6.10.3. The *accept EHCR message* shall include one mandatory instance of *general message information* (7.9.7). This includes indications of urgency and of the need for acknowledgement by the recipient. It also includes an optional indication of the language of the message and optional comments from the sender.

6.10.4. The *accept EHCR message* shall include one mandatory instance of *EHCR destination* (7.2.1). This is used to identify the sender of the message.

6.10.5. The *accept EHCR message* shall include one mandatory instance of *EHCR source* (7.2.3). This is used to identify the intended recipient of the message.

6.10.6. The *accept EHCR message* shall include multiple optional instances of *EHCR intermediary* (7.2.2). Each of these may be used to identify a communicating party (other than the sender and recipient) and to indicate their role in the communication of this message.

6.10.7. The *accept EHCR message* shall include one mandatory instance of *patient matching information* (7.5.5). This shall contain optional components including identification numbers, names, addresses, sex and date of birth. At least one of these optional components shall be present in any instance of the message.

6.10.8. The *accept EHCR message* shall include one optional instance of the attribute *acceptance status* to inform the *EHCR source* about the nature or basis of acceptance of the EHCR information and/or any clinical responsibilities transferred with the record.

6.10.9. The *accept EHCR message* shall include one optional instance of *reference to provide EHCR message*. This is an instance of the class *message reference* (7.9.17). It refers to the *provide EHCR message* (7.3.5) to which this message is a response.

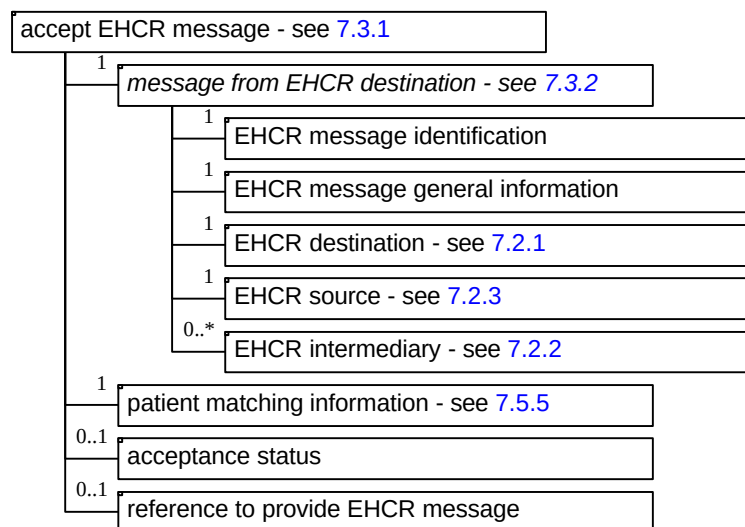


Figure 12. GMD of the Accept EHCR Message

7. Domain Information Model and Attribute Descriptions

7.1 Introduction and Top Level Model

7.1.1. This clause contains formal textual specifications of the classes used in the messages in Clause 5. These specifications form part of the normative elements of this Prestandard. However, the diagrams that accompany them are for illustrative purposes only. While conformance with the entire DIM may facilitate implementation of the messages, this is not a requirement for conformance.

7.1.2. The modelling method used is based on the Unified Modelling Language (UML). Informative Annex A provides a brief summary of the elements of UML used in the diagrams and this should be adequate to enable these illustrations to be understood.

7.1.3. The description of the Domain Information Model (DIM) is divided into seven subsystems. These divisions and the relationships between them are illustrated in Figure 13. The divisions made between subsystems are to some extent arbitrary. These divisions are made mainly to aid the clarity and organisation of the documentation and in particular the diagrammatic representations of the DIM.

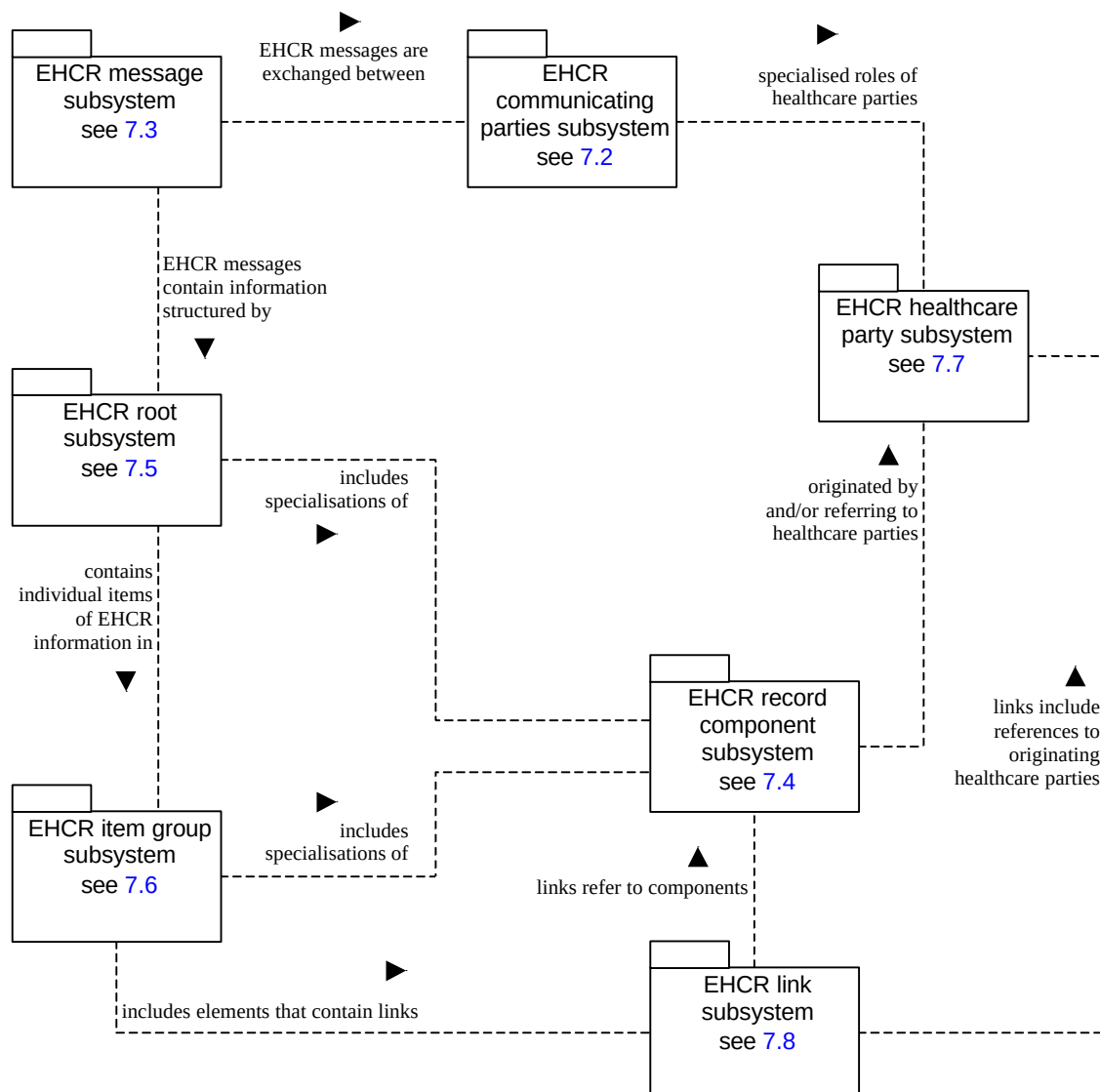


Figure 13. Domain Model - EHCR Message Top Level

7.2 EHCR communicating parties subsystem

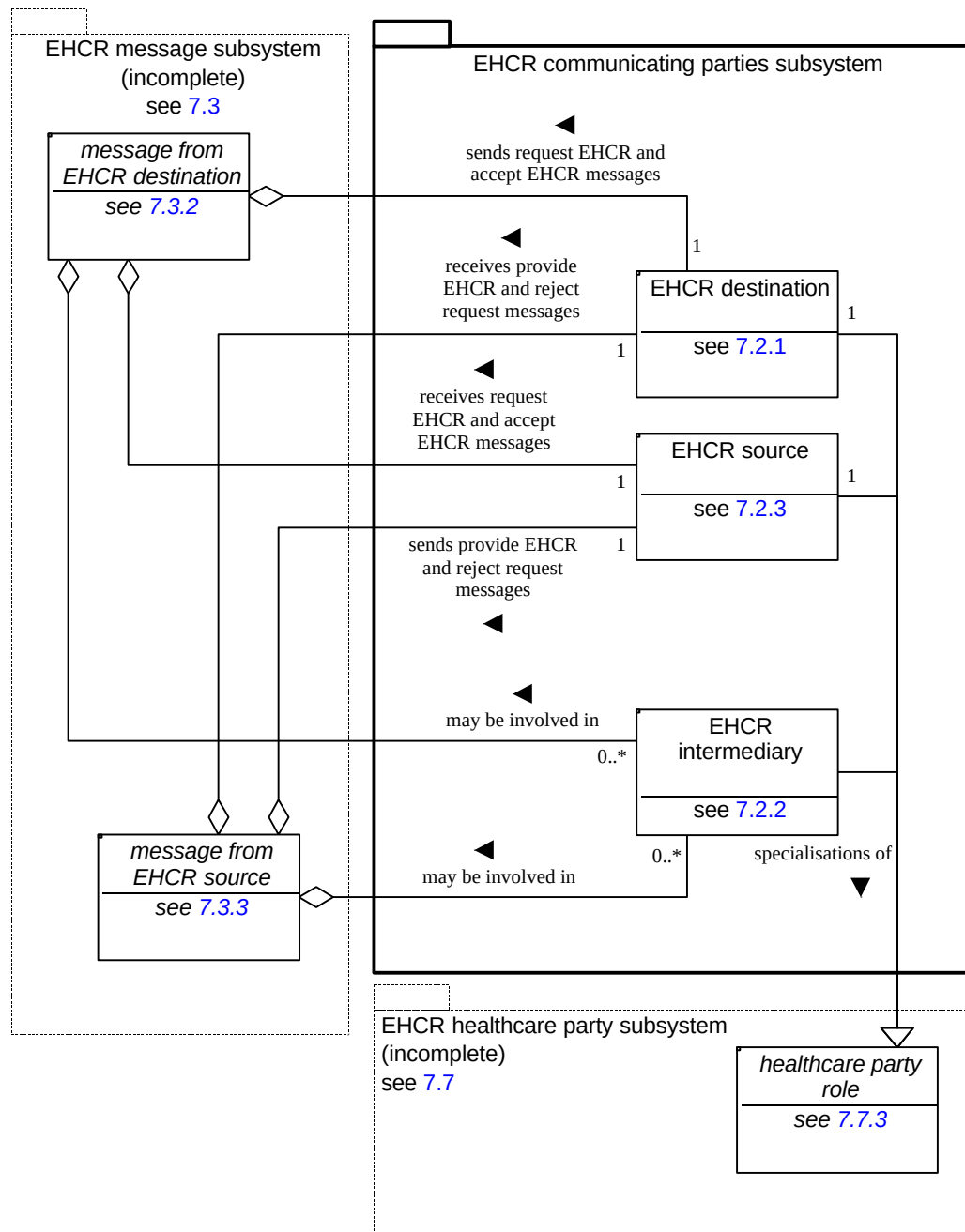


Figure 14. Domain Model - EHCR Communicating Parties Subsystem

7.2.1 EHCR destination

Type: class

Specialisation of: healthcare party role (7.7.3)

Description: A *healthcare party* that requests or receives EHCR information from another *healthcare party* (an *EHCR source*).

Part of

An EHCR destination receives any number of *messages from EHCR source* (7.3.3)

An EHCR destination sends any number of *messages from EHCR destination* (7.3.2)

Attributes		
Attributes of generalisation	healthcare party role (7.7.3)	

7.2.2 EHCR intermediary

Type: class

Specialisation of: healthcare party role (7.7.3)

Description: A *healthcare party* other than the *EHCR source* or *EHCR destination* that is involved in the communication of EHCR information.

Note: An EHCR intermediary may act as a forwarding agent for messages that request or provide EHCR information.

An EHCR intermediary may be a Trusted Third Party that confirms that:

- the *EHCR destination* is entitled to receive a particular *provide EHCR message*.
- the *EHCR source* is qualified and/or registered to provide EHCR information.

Part of

An EHCR intermediary may have a role in communication of any number of *messages from EHCR source* (7.3.3)

An EHCR intermediary may have a role in communication of any number of *messages from EHCR destination* (7.3.2)

Attributes		
Attributes of generalisation	healthcare party role (7.7.3)	
EHCR intermediary role	Type: E [Enumerated]	1
<i>Description:</i> The role of the EHCR intermediary in a particular transfer. <i>Values:</i> 0. Clearing-house or routing agent conveying a <i>request EHCR message</i> to an <i>EHCR source</i>. 1. Clearing-house or routing agent conveying a <i>provide EHCR message</i> from an <i>EHCR source</i> to an <i>EHCR destination</i> or nominated in a <i>request EHCR message</i> to convey the requested <i>provide EHCR message</i>. 2. Authorising body or TTP able to verify that the <i>EHCR destination</i> is entitled to receive a <i>provide EHCR message</i>. 3. Authorising body or TTP able to verify that the <i>EHCR source</i> is qualified or registered to send a <i>provide EHCR message</i>. 4. A party able to provide supporting information to identify the patient to who an anonymous <i>provide EHCR message</i> refers. 5+. Other roles specified by agreement between communicating parties.		

7.2.3 EHCR source

Type: class

Specialisation of: healthcare party role (7.7.3)

5 **Description:** A *healthcare party* to whom a request for EHCR information is submitted or from who this information is received.

Part of

An EHCR source sends any number of *messages from EHCR source* (7.3.3)

An EHCR source receives any number of *messages from EHCR destination* (7.3.2)

Attributes		
Attributes of generalisation	healthcare party role (7.7.3)	

7.3 EHCR message subsystem

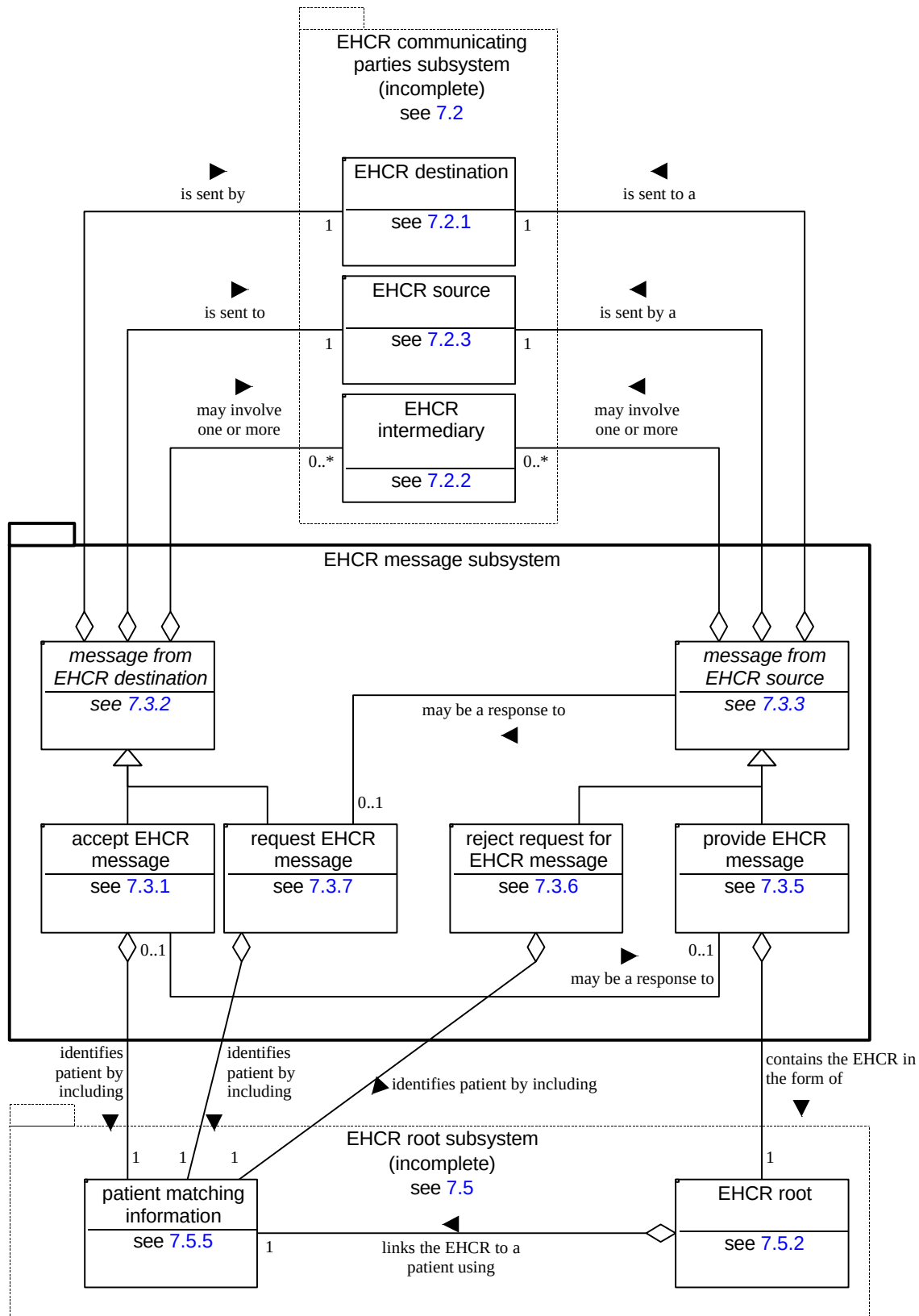


Figure 15. Domain Model - EHCR Message Subsystem

7.3.1 accept EHCR message**Type: message****Specialisation of: message from EHCR destination (7.3.2)****Description:** A message used to indicate that an *healthcare party* has received a *provide EHCR message*.

- 5 **Note:** According to the way in which communicating parties interact, the accept EHCR message may notify the *EHCR source* that the *EHCR destination* has assumed full or partial clinical responsibility for the patient who was the subject of the *provide EHCR message*. However, this message is not intended to undertake or replace any administrative or contractual exchange required to support transfer of responsibility.

Associations

- 10 An accept EHCR message may be a response to a *provide EHCR message* (7.3.5)

Components

An accept EHCR message accepts the EHCR for a patient identified by *patient matching information* (7.5.5)

Attributes		
Attributes of generalisation	message from EHCR destination (7.3.2)	
Patient matching information (7.5.5)	Type: class	1
<i>Description:</i> Information provided for the purpose of matching a EHCR or an EHCR related message to a uniquely identified individual patient.		
Acceptance status	Type: C/S [Code or String] (7.10.2)	0 or 1
<i>Description:</i> Indication of whether the <i>EHCR destination</i> has accepted the <i>provide EHCR message</i> . <i>Note:</i> If an appropriate agreement exists between the communicating parties, this attribute may also be used to indicate whether the <i>EHCR destination</i> accepts responsibility for all or part of the patient's future clinical care.		
reference to provide EHCR message	Type: message reference (7.9.17)	0 or 1

7.3.2 message from EHCR destination

- 15 **Type: class**

Description: An abstract class representing the attributes and relationships common to all messages sent by an *EHCR destination* to an *EHCR source*.**Note:** This is an abstract class. It is only instantiated as instances of one of its specialisations.**Specialisations**

- 20 A message from EHCR destination is specialised as a *request EHCR message* (7.3.7) or an *accept EHCR message* (7.3.1)

Components

A message from EHCR destination is sent by an *EHCR destination* (7.2.1)

A message from EHCR destination is sent to an *EHCR source* (7.2.3)

- 25 A message from EHCR destination may involve one or more *EHCR intermediaries* (7.2.2)

Attributes		
EHCR message identification	Type: message identification (7.9.16)	1
<i>Description:</i> An identification of the message. This consists of an identifier allocated by the originator and the date and time of issue of the message.		
EHCR message general information	Type: general message information (7.9.7)	1
<i>Description:</i> Information common to all EHCR messages. This includes general comments as specific indications of urgency, acknowledgement request and the language of the message.		
EHCR destination (7.2.1)	Type: class	1
<i>Description:</i> A <i>healthcare party</i> that requests or receives EHCR information from another <i>healthcare party</i> (an <i>EHCR source</i>).		

EHCR source (7.2.3)	Type: class	1
<i>Description:</i> A healthcare party to whom a request for EHCR information is submitted or from who this information is received.		
EHCR intermediary (7.2.2)	Type: class	0 or many
<i>Description:</i> A healthcare party other than the EHCR source or EHCR destination that is involved in the communication of EHCR information.		

7.3.3 **message from EHCR source**

Type: class

Description: An abstract class representing the attributes and relationships common to all messages sent by an [EHCR source](#) to an [EHCR destination](#).

5 **Note:** This is an abstract class. It is only instantiated as instances of one of its specialisations.

Specialisations

A message from EHCR source is specialised as a [provide EHCR message](#) (7.3.5) or a [reject request for EHCR message](#) (7.3.6)

Associations

10 A message from EHCR source may be a response to a [request EHCR message](#) (7.3.7)

Components

A message from EHCR source is sent to a [EHCR destination](#) (7.2.1)

A message from EHCR source is sent by a [EHCR source](#) (7.2.3)

A message from EHCR source may involve one or more [EHCR intermediaries](#) (7.2.2)

Attributes		
EHCR message identification	Type: message identification (7.9.16)	1
<i>Description:</i> An identification of the message. This consists of an identifier allocated by the originator and the date and time of issue of the message.		
EHCR message general information	Type: general message information (7.9.7)	1
<i>Description:</i> Information common to all EHCR messages. This includes general comments as specific indications of urgency, acknowledgement request and the language of the message.		
EHCR destination (7.2.1)	Type: class	1
<i>Description:</i> A healthcare party that requests or receives EHCR information from another healthcare party (an EHCR source).		
EHCR source (7.2.3)	Type: class	1
<i>Description:</i> A healthcare party to whom a request for EHCR information is submitted or from who this information is received.		
EHCR intermediary (7.2.2)	Type: class	0 or many
<i>Description:</i> A healthcare party other than the EHCR source or EHCR destination that is involved in the communication of EHCR information.		
Reference to request EHCR message	Type: message reference (7.9.17)	0 or 1

15 7.3.4 **originator of referenced message**

Type: class

Specialisation of: healthcare party role (7.7.3)

Attributes		
Attributes of generalisation	healthcare party role (7.7.3)	

7.3.5 provide EHCR message**Type:** message**Specialisation of:** message from EHCR source (7.3.3)**Description:** A message used to convey all or part of the information in an EHCR from one *healthcare party* to another *healthcare party*.**Associations**A provide EHCR message may be related to an *accept EHCR message* (7.3.1)**Components**A provide EHCR message contains the EHCR in the form of an *EHCR root* (7.5.2)

Attributes		
Attributes of generalisation	message from EHCR source (7.3.3)	
Specification of provided EHCR information	Type: specification of EHCR information (7.9.24)	1
<i>Description:</i> A specification of the language and completeness of content of the EHCR information provided. The specification may also include an identification of the nature of the originating enterprise environment and this may indicate the form of any structural extensions within the EHCR information provided.		
EHCR root (7.5.2)	Type: class	1
<i>Description:</i> An <i>EHCR component</i> that represents the entire EHCR content of the message.		

7.3.6 reject request for EHCR message**Type:** message**Specialisation of:** message from EHCR source (7.3.3)**Description:** A message that indicates that the sender is declining to send all or part of an EHCR in response to a *request EHCR message*.**Note:** A request may be rejected for various different reasons. These include the following:

- the party from whom the record was requested does not hold an EHCR for the patient.
- the EHCR does not hold the information requested
- the EHCR or the requested information cannot be divulged due to confidentiality constraints imposed by the patient, by legislation or by ethical guidelines.

ComponentsA reject request for EHCR message rejects a request for the EHCR of a patient identified by *patient matching information* (7.5.5)

Attributes		
Attributes of generalisation	message from EHCR source (7.3.3)	
patient matching information (7.5.5)	Type: class	1
<i>Description:</i> Information provided for the purpose of matching a EHCR or an EHCR related message to a uniquely identified individual patient.		
reason for rejection of request	Type: C/S [Code or String] (7.10.2)	0 or 1
<i>Description:</i> An indication of the reason for rejecting a request for the EHCR.		

7.3.7 request EHCR message**Type:** message**Specialisation of:** message from EHCR destination (7.3.2)**Description:** A message used to request that all or part of the EHCR held by a *healthcare party* is sent to another *healthcare party*.**Associations**A request EHCR message may be related to any number of *messages from EHCR source* (7.3.3)**Components**A request EHCR message requests the EHCR for a patient identified by *patient matching information* (7.5.5)

Attributes		
Attributes of generalisation	message from EHCR destination (7.3.2)	
patient matching information (7.5.5)	Type: class	1
<i>Description:</i> Information provided for the purpose of matching a EHCR or an EHCR related message to a uniquely identified individual patient.		
specification of requested EHCR information	Type: specification of EHCR information (7.9.24)	1
<i>Description:</i> A specification of the language and completeness of content of the EHCR information requested. The specification may also include an identification of the nature of the requesting enterprise environment and this may indicate the ability of the <i>EHCR destination</i> to process any structural extensions which the <i>EHCR source</i> may include in the response..		
reason for request	Type: C+S [Code+String] (7.10.3)	0 or 1
<i>Description:</i> An indication of the reason for requesting the EHCR.		

The diagram illustrates the structure of the EHCR record component subsystem and its relationships with other subsystems. The main subsystem, **EHCR record component subsystem**, contains the following components and relationships:

- EHCR component** (see 7.4.3) is the central component, which is specialized by the **EHCR root** (see 7.5.2) and the **original record item complex** (see 7.5.4).
- EHCR component** is identified by **component identification** (see 7.4.1) (1 to 1 relationship).
- EHCR component** may refer to **related healthcare party** (see 7.4.6) (0..* to 1 relationship).
- EHCR component** may refer to **originating healthcare party** (see 7.4.5) (0..* to 1 relationship).
- EHCR component** may include time and origin (indicated by a hollow triangle).
- EHCR component** may be subject to rules indicated by **distribution rule reference** (see 7.4.2) (0..* to 1 relationship).
- EHCR component** may refer to preceding and subsequent revisions (indicated by a hollow triangle).
- EHCR component** may be referred to by **EHCR item group subsystem** (incomplete) (see 7.6) (indicated by a hollow triangle).
- EHCR component** includes **origin of EHCR component** (see 7.4.4) (1 to 1 relationship).
- origin of EHCR component** includes **author** (1 to 1 relationship).
- origin of EHCR component** includes **related healthcare party** (1 to 1 relationship).
- origin of EHCR component** includes **originating healthcare party** (1 to 1 relationship).
- origin of EHCR component** may refer to preceding and subsequent revisions (indicated by a hollow triangle).
- origin of EHCR component** may be referred to by **EHCR item group subsystem** (incomplete) (see 7.6) (indicated by a hollow triangle).
- origin of EHCR component** may be referred to by **EHCR link subsystem** (incomplete) (see 7.8) (indicated by a hollow triangle).
- origin of EHCR component** may be referred to by **EHCR healthcare party subsystem** (incomplete) (see 7.7) (indicated by a hollow triangle).

The **EHCR link subsystem** (incomplete) (see 7.8) contains the following components and relationships:

- EHCR component reference** (see 7.8.2) is specialized by **component revision link** (see 7.8.1) (1 to 1 relationship).
- EHCR component reference** is identified by **component identification** (see 7.4.1) (1 to 1 relationship).
- EHCR component reference** may be referred to by **EHCR item group subsystem** (incomplete) (see 7.6) (indicated by a hollow triangle).
- EHCR component reference** may be referred to by **EHCR healthcare party subsystem** (incomplete) (see 7.7) (indicated by a hollow triangle).

The **EHCR healthcare party subsystem** (incomplete) (see 7.7) contains the following components and relationships:

- healthcare party role** (see 7.7.3) is a specialization of **related healthcare party** (see 7.4.6) (1 to 1 relationship).
- healthcare party role** may be referred to by **EHCR item group subsystem** (incomplete) (see 7.6) (indicated by a hollow triangle).
- healthcare party role** may be referred to by **EHCR link subsystem** (incomplete) (see 7.8) (indicated by a hollow triangle).

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7.4.1 component identification**Type:** class**Description:** A unique identification of an *EHCR component*.**Note:** Includes the Unique instance identifier attribute (ENV 12265 clause 4.6.2) and an indication of the scope in which the identifier is unique.**Part of**A component identification identifies an *EHCR component* (7.4.3)**Associations**A component identification may be referred to by any number of *EHCR component references* (7.8.2)

Attributes		
EHCR component identifier	Type: S [String]	1
<i>Description:</i> This identification shall uniquely identify an instance of an <i>EHCR component</i> from all other instances belonging to the same record. The scope within which this identification is unique may be limited as indicated by the attribute "scope of object identifier". <i>Note:</i> Equivalent to ENV 12265 clause 4.6.2 Unique instance identifier attribute.		
scope of EHCR component identifier	Type: E [Enumerated]	1
<i>Description:</i> An indication of whether the identifier is unique within this message or a globally unique identifier within the EHCR held by its originator <i>Note:</i> The identification of the object should be unique within the scope of the EHCR held by the originator. However, systems that do not support identification of record components in a manner compatible with ENV12265 may use this attribute to indicate that the identifier is unique within a more limited scope. <i>Values:</i> 0. Unique within message 1. Unique within originator's EHCR for this patient 2. Unique within originator's system		

7.4.2 distribution rule reference**Type:** class**Description:** A class that includes a reference to distribution rules applicable to distribution of the *EHCR component*.**Note:** At present this class contains only one attribute. However, the representation of this reference as part of a class is retained to make the link to the Distribution Rules work of CEN TC251 PT28 explicit in the model and to minimise the impact of changes to accommodate any subsequent revisions of the Distribution Rules draft.**Part of**A distribution rule reference applies a distribution rule to an *EHCR component* (7.4.3)

Attributes		
Distribution rule link reference	Type: S [String]	1
<i>Description:</i> A reference to a distribution rule using the format specified in the proposed Prestandard on "Health Informatics - Electronic Healthcare Record Communication - Distribution Rules" (CEN TC251 PT28). <i>Note:</i> This attribute is based on the attribute "DRLinkReference" in draft 0.9 of the PT28 document dated 1998-06-27.		

7.4.3 EHCR component

Type: class

Description: An abstract class representing the attributes and relationships common to the components from which the EHCR is built. These include the *EHCR root*, *original record item complex*, *view record item complex* and *record item*.

Note: This is an abstract class. Therefore it is only instantiated as instances of one of its specialisations.

Specialisations

An EHCR component is specialised as an *EHCR root* (7.5.2), an *original record item complex* (7.5.4), a *view record item complex* (7.5.6) or a *record item* (7.6.8)

Components

An EHCR component is identified by a *component identification* (7.4.1)

An EHCR component may indicate the preceding and subsequent revisions using up to two *component revision links* (7.8.1)

An EHCR component refers to its author and time of origin using an *origin of EHCR component* (7.4.4)

An EHCR component may refer to any number of *related healthcare parties* (7.4.6)

An EHCR component may be subject to rules indicated by any number of *distribution rule references* (7.4.2)

Attributes		
Component identification (7.4.1)	Type: class	1
<i>Description:</i> A unique identification of an EHCR component.		
EHCR component status	Type: E [Enumerated]	1
<i>Description:</i> Indication of whether the EHCR component is the current valid version or has been superseded. <i>Note:</i> This indicates the status according to the <i>EHCR source</i> . Other information in the message and in the EHCR component may need to be checked to confirm that the <i>EHCR destination</i> does not hold a more recently revised version. <i>Values:</i> 0. New 1. Revised 2. Superseded by revision 3. Superseded by deletion		
component revision link (7.8.1)	Type: class	0 to 2
<i>Description:</i> A unique identification of either an earlier version of an EHCR component that is to be revised or a subsequent version which updated the current EHCR component.		
EHCR component name	Type: C [Coded] (7.10.1)	0 or 1
<i>Description:</i> The name of the EHCR component. This identifies the role of the component. <i>Note:</i> Equivalent to ENV12265 clause 4.6.3 Name.		
origin of EHCR component (7.4.4)	Type: class	0 or 1
<i>Description:</i> Identifies the origin an EHCR component. This includes the <i>healthcare party</i> who recorded this EHCR component on the system on which it originated and the date and time at which it was recorded.		
related healthcare party (7.4.6)	Type: class	0 or many
<i>Description:</i> Information about a <i>healthcare party</i> that has a role in relation to an EHCR component other than as the originator of that EHCR component.		
distribution rule reference (7.4.2)	Type: class	0 or many
<i>Description:</i> A class that includes a reference to distribution rules applicable to distribution of the EHCR component.		

7.4.4 origin of EHCR component**Type:** class**Description:** Identifies the origin an *EHCR component*. This includes the *healthcare party* who recorded this *EHCR component* on the system on which it originated and the date and time at which it was recorded.5 **Note:** Includes the Recording healthcare agent attribute (ENV12265 clause 4.6.8) and the recording date and time attribute (ENV12265 clause 4.6.7).**Part of**An origin of EHCR component is part of an *EHCR component* (7.4.3)**Components**10 An origin of EHCR component includes the author as an *originating healthcare party* (7.4.5)

Attributes		
Originating healthcare party (7.4.5)	Type: class	1
<i>Description:</i> An attribute identifying the <i>healthcare party</i> that added the <i>EHCR component</i> to the record.		
Recording date and time	Type: TOCD [Time+Date]	1
<i>Description:</i> Date and time on which the record or <i>EHCR component</i> was created and/or included in the record.		
<i>Note:</i> Equivalent to ENV12265 clause 4.6.7 recording date and time attribute.		

7.4.5 originating healthcare party**Type:** class**Specialisation of:** healthcare party role (7.7.3)**Description:** An attribute identifying the *healthcare party* that added the *EHCR component* to the record.15 **Note:** Equivalent to ENV12265 clause 4.6.8 Recording healthcare agent attribute.**Part of**An originating healthcare party is part of an *origin of EHCR component* (7.4.4)

Attributes		
Attributes of generalisation	healthcare party role (7.7.3)	

7.4.6 related healthcare party**Type:** class20 **Specialisation of:** healthcare party role (7.7.3)**Description:** Information about a *healthcare party* that has a role in relation to an *EHCR component* other than as the originator of that *EHCR component*.25 **Note:** related healthcare party (old) provides a mechanisms for referring to healthcare parties with other roles related to the information recorded in the *EHCR component*. These roles include the Responsible Healthcare Agent (ENV12265 clause 4.6.9)**Part of**A related healthcare party may be referred to by any number of *EHCR components* (7.4.3)

Attributes		
Attributes of generalisation	healthcare party role (7.7.3)	
Relationship type of related healthcare party	Type: V [Codes Value] (7.10.6)	1
<i>Description:</i> Indication of the relationship between an item in the EHCR and the related healthcare party.		

7.5 EHCR root subsystem

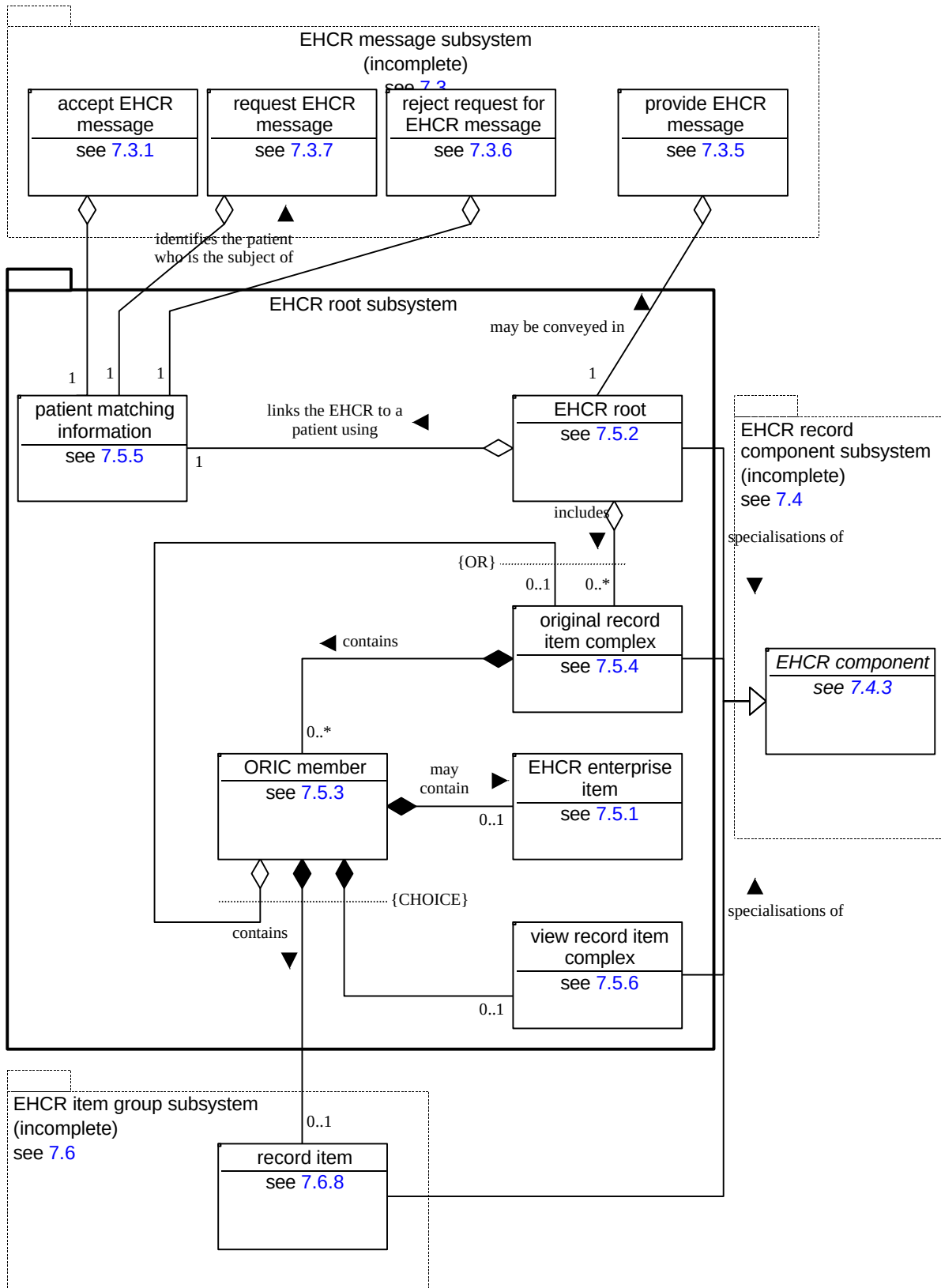


Figure 17. Domain Model - EHCR Root Subsystem

7.5.1 EHCR enterprise item**Type: class**

Description: A class containing data in a format defined by the identified enterprise. The data content may replace or supplement the standard content of an *ORIC member*.

5 **Note:** The enterprise environment is defined by an organisation recognised by a communicating community as having a legitimate requirement to define extensions to the standard structure of this message.

The enterprise may define rules about the manner in which particular types of enterprise data are identified and structured. The enterprise may also define whether a particular type of enterprise data replaces or supplements the standard content of the *ORIC member*.

10 **Example(s):** An EHCR system supplier.

A healthcare organisation with responsibility for determining national requirements for EHCR information exchange.

Part of

An EHCR enterprise item may be part of any number of *ORIC members* (7.5.3)

Attributes		
EHCR enterprise identification	Type: C [Coded] (7.10.1)	1
<i>Description:</i> An indication of the enterprise environment applicable to a message or to an EHCR enterprise item within a message. <i>Note:</i> Used in the <i>request EHCR message</i> to indicate the enterprise capabilities of the <i>EHCR destination</i> . Used in the <i>provide EHCR message</i> to indicate the source of reference for EHCR enterprise items in the message.		
enterprise data	Type: [defined by enterprise] (7.10.7)	1
<i>Description:</i> Data in a format defined by the identified enterprise. <i>Note:</i> The enterprise may define rules about the manner in which particular types of enterprise data are identified and structured. Where appropriate components and elements defined within this Prestandard should be used as the building blocks for enterprise extensions.		

15 **7.5.2 EHCR root**

Type: class**Specialisation of: EHCR component (7.4.3)**

Description: An *EHCR component* that represents the entire EHCR content of the message.

20 **Note:** A *provide EHCR message* contains one and only one EHCR root whether it contains the entire EHCR, a summary of the EHCR or an update to a previously communicated EHCR.

The simplest instance of a message based on this standard consists of a EHCR root class containing one *original record item complex* which itself contains a single *ORIC member* with the ORIC member role "Narrative Text". In this simplistic version of the message the *record item* within the *ORIC member* contains a plain text version of all the EHCR information to be communicated.

25 **Part of**

An EHCR root is conveyed in a *provide EHCR message* (7.3.5)

Components

An EHCR root links the EHCR to a patient using *patient matching information* (7.5.5)

An EHCR root may include any number of *original record item complexes* (7.5.4)

Attributes		
Attributes of generalisation	EHCR component (7.4.3)	
patient matching information (7.5.5)	Type: class	1
<i>Description:</i> Information provided for the purpose of matching a EHCR or an EHCR related message to a uniquely identified individual patient.		

original record item complex (7.5.4)	Type: class	0 or many
<i>Description:</i> An <i>EHCR component</i> that groups together other <i>EHCR components</i> in a manner that attributes the origin of those components. The original record item complex also provides for attribution and tracing of modifications using the EHCR component revision reference.		

7.5.3 ORIC member

Type: class

Description: ORIC members provides information about the relationship between an *original record item complex* and its constituent *EHCR components*. Each ORIC member contains one *EHCR component*, an indication of the role and order of that *EHCR component* within the *original record item complex*.

The ORIC member may also include an optional EHCR enterprise component.

The *EHCR component* within an ORIC member may be a *record items*, another *original record item complexes* or a *view record item complexes*.

Note: The roles of ORIC members determine whether they are the main content of the *original record item complex*, contextual qualification to the content or the *original record item complex*, or a plain narrative text describing the entire content of the *original record item complex* of which this ORIC member is a member..

Part of

An ORIC member contains a descendant of an *original record item complex* (7.5.4)

Components

An ORIC member may include an *EHCR enterprise item* (7.5.1)

An ORIC member contains either an *original record item complex* (7.5.4), a *view record item complex* (7.5.6) or a *record item* (7.6.8)

Attributes		
ORIC member role	Type: V [Codes Value] (7.10.6)	1
<i>Description:</i> The role of the ORIC member within the ORIC. <i>Note:</i> Specific rules apply to each member role value. 1. Standard content - the member shall be an ORIC, RI or VRIC that contains information conforming to this Prestandard. Content members may be ordered but otherwise are treated. 2. Context for content - the member shall be an ORIC or RI that contains information conforming to this Prestandard. The content of the member shall be information that sets the context of the information contained by all content members of the same ORIC. 3. Narrative text - the member shall be a Record Item that contain a single instance of the plain text RIE. The plain text RIE shall be a textual rendering of the content of the ORIC which is human-readable. There may only be one Narrative Text member in an ORIC. The objective of Narrative Text members is to provide a readable account of the ORIC contents for users of systems unable to process the more detailed structural layer. Narrative text members shall not be used to add to or qualify other information within the ORIC. <i>Values:</i> 0. Standard content. 1. Context for content. 2. Narrative text view of content.		
ORIC member order	Type: I [Integer]	0 or 1
<i>Description:</i> A number representing the order of a member within the ORIC. <i>Note:</i> If enterprise specific alternative view or additions are provided using ORIC member roles 4 and 5, the member order shall also be used to represent the linkage between standard content members and enterprise specific extensions.		
EHCR enterprise item (7.5.1)	Type: class	0 or 1
<i>Description:</i> A class containing data in a format defined by the identified enterprise. The data content may replace or supplement the standard content of an ORIC member.		

Choice of		1
	original record item complex (7.5.4)	Type: class
<i>Description:</i> An <i>EHCR component</i> that groups together other <i>EHCR components</i> in a manner that attributes the origin of those components. The original record item complex also provides for attribution and tracing of modifications using the EHCR component revision reference.		
	view record item complex (7.5.6)	Type: class
<i>Description:</i> An <i>EHCR component</i> that enables a particular view of the EHCR to be represented in the message. The view record item complex (VRIC) differs from the ORIC in that its content is not determined by the time and source of origin of its members,		
	record item (7.6.8)	Type: class
<i>Description:</i> A record item is the <i>EHCR component</i> that represents the smallest structural unit into which the content of the EHCR can be broken down without losing its meaning. The record item is used to aggregate information that cannot be safely disaggregated.		

7.5.4 original record item complex

Type: class

Specialisation of: EHCR component (7.4.3)

Description: An *EHCR component* that groups together other *EHCR components* in a manner that attributes the origin of those components. The original record item complex also provides for attribution and tracing of modifications using the EHCR component revision reference.

Note: The original record item complexes in a *provide EHCR message* form a hierarchy with a single axis linking each *EHCR component* to the *EHCR root*.

If the attributes of an original record item complex are omitted the values of the parent are inherited by that original record item complex. Thus most attributes are optional within any instance but attributes values should be specified explicitly at a levels in the hierarchical tree where the appropriate values change.

If an original record item complex contains *ORIC members* with the ORIC member role set as "Context for content", the context values are also inherited by lower levels in the original record item complex hierarchy.

Part of

An original record item complex may be part of an *ORIC member* (7.5.3)

An original record item complex may be part of an *EHCR root* (7.5.2)

Components

An original record item complex may include any number of *ORIC members* (7.5.3)

Attributes		
Attributes of generalisation	EHCR component (7.4.3)	
subject of information modifier	Type: E [Enumerated]	0 or 1
<i>Description:</i> An indication of whether the associated item of information applies directly to the patient or applies to someone else such as a member of their family, a contact of or another related person. <i>Example(s):</i> Family history of diabetes. Recent contact with meningitis. <i>Values:</i> 0. Patient 1. Child of patient 2. Foetus of patient 3. Brother 4. Sister 5. Partner (husband/wife/etc) 6. Other family member 7. Other carer 8. Employer 9. Other contact 10. Donor of organ		

knowing mode modifier	Type: E [Enumerated]	0 or 1
<i>Description:</i> An indication of whether the information was derived from direct observation by the person recording it, or is based on an assessment of available evidence, or is based on information provided by the patient, a family member or another third party. <i>Example(s):</i> Patient reports that they suffer from a stomach ulcer but the person recording this is not aware of any direct clinical evidence for this. <i>Values:</i> 0. Observed or carried out by author 1. Based on analysis/opinion of author 2. Reported by another healthcare professional 3. Reported by patient 4. Reported by family member 5. Reported by another party		
certainty modifier	Type: E [Enumerated]	0 or 1
<i>Description:</i> Indication of the degree of certainty that the author of the record has asserted about a particular piece of information. <i>Note:</i> This modifier is not intended as a substitute for more detailed representation of degrees of certainty. It is included to limit the risk of serious misinterpretation following communication between heterogeneous systems. <i>Example(s):</i> Possible inferior myocardial infarction. <i>Values:</i> 0. False 1. Uncertain 2. True		
Life cycle modifier	Type: E [Enumerated]	0 or 1
<i>Description:</i> Indication of whether the content of the complex refers to observations that refer to the past, the present or the future. <i>Note:</i> This modifier is not intended as a substitute for more detailed representation of the progress of planned activities. It is included to limit the risk of serious misinterpretation following communication between heterogeneous systems. This is of particular importance in distinguishing things that have happened or have been observed from plans or targets. <i>Example(s):</i> Planned hip replacement, Target blood pressure, Need for meals on meals. <i>Values:</i> 0. Past 1. Current 2. Future		
ORIC member (7.5.3)	Type: class	0 or many
<i>Description:</i> ORIC members provides information about the relationship between an original record item complex and its constituent <i>EHCR components</i>. Each ORIC member contains one <i>EHCR component</i>, an indication of the role and order of that <i>EHCR component</i> within the original record item complex. The ORIC member may also include an optional EHCR enterprise component. The <i>EHCR component</i> within an ORIC member may be a <i>record items</i>, another original record item complexes or a <i>view record item complexes</i>.		

7.5.5 patient matching information

Type: class

Description: Information provided for the purpose of matching a EHCR or an EHCR related message to a uniquely identified individual patient.

Note: This class includes patient identifiers, names and other supporting information. All the attributes are optional but at least one element shall be included in any instance of this class.

Part of

Patient matching information identifies the subject of an [accept EHCR message](#) (7.3.1)

Patient matching information identifies the subject of a [request EHCR message](#) (7.3.7)

Patient matching information identifies the subject of an [EHCR root](#) (7.5.2)

Patient matching information identifies the subject of a [reject request for EHCR message](#) (7.3.6)

5

Attributes		
patient identifiers	Type: party identifiers (7.9.20)	0 or 1
<i>Description:</i> A set of one or more party identifiers used to identify the patient. <i>Note:</i> Each identifier is qualified to indicate the identification scheme from which it is derived.		
patient name	Type: person name details (7.9.22)	0 or 1
<i>Description:</i> The name of the patient. <i>Note:</i> This includes the type of name and period of validity as well as an option for use of either structured or unstructured names.		
alternative person name	Type: person name details (7.9.22)	0 or many
<i>Note:</i> This attribute group consists of the attributes alternative person name type and alternative person name value.		
date and time of birth	Type: TOCD [Time+Date]	0 or 1
<i>Note:</i> In case the exact date and time is unknown, year only or year + month or year + month + day are sufficient.		
patient administrative sex	Type: V [Codes Value] (7.10.6)	0 or 1
<i>Description:</i> The gender of the patient as recognised by the organisation responsible for administration of healthcare services. <i>Note:</i> In rare cases this may differ from genetic or anatomical gender which may be recorded as clinical information. Represented by the abbreviations specified in ISO 5281.		
patient address	Type: address (7.9.2)	0 or many
<i>Description:</i> The address or address of a patient. Each address contains an address type and a period of validity which can be used to specify former addresses, temporary addresses and to distinguish between home and work addresses.		
patient matching comment	Type: S [String]	0 or 1
<i>Description:</i> Comments or other information that the sender believes may assist the intended recipient to match the message to a particular patient.		

7.5.6 view record item complex

Type: class

Specialisation of: EHCR component (7.4.3)

Description: An [EHCR component](#) that enables a particular view of the EHCR to be represented in the message. The view record item complex (VRIC) differs from the ORIC in that its content is not determined by the time and source of origin of its members,

Note: Within the message the members of a view are communicated using [link RIEs](#) rather than as part of the view record item complex. This mechanism allows components to be added to a view without changing the components themselves or the view record item complex. Each [link RIE](#) is itself a [record item](#) and therefore attribution of origin and modification is taken care of by the general provisions for [EHCR components](#).

Part of

A view record item complex is part of an [ORIC member](#) (7.5.3)

Attributes		
Attributes of generalisation	EHCR component (7.4.3)	

7.6 EHCR item group subsystem

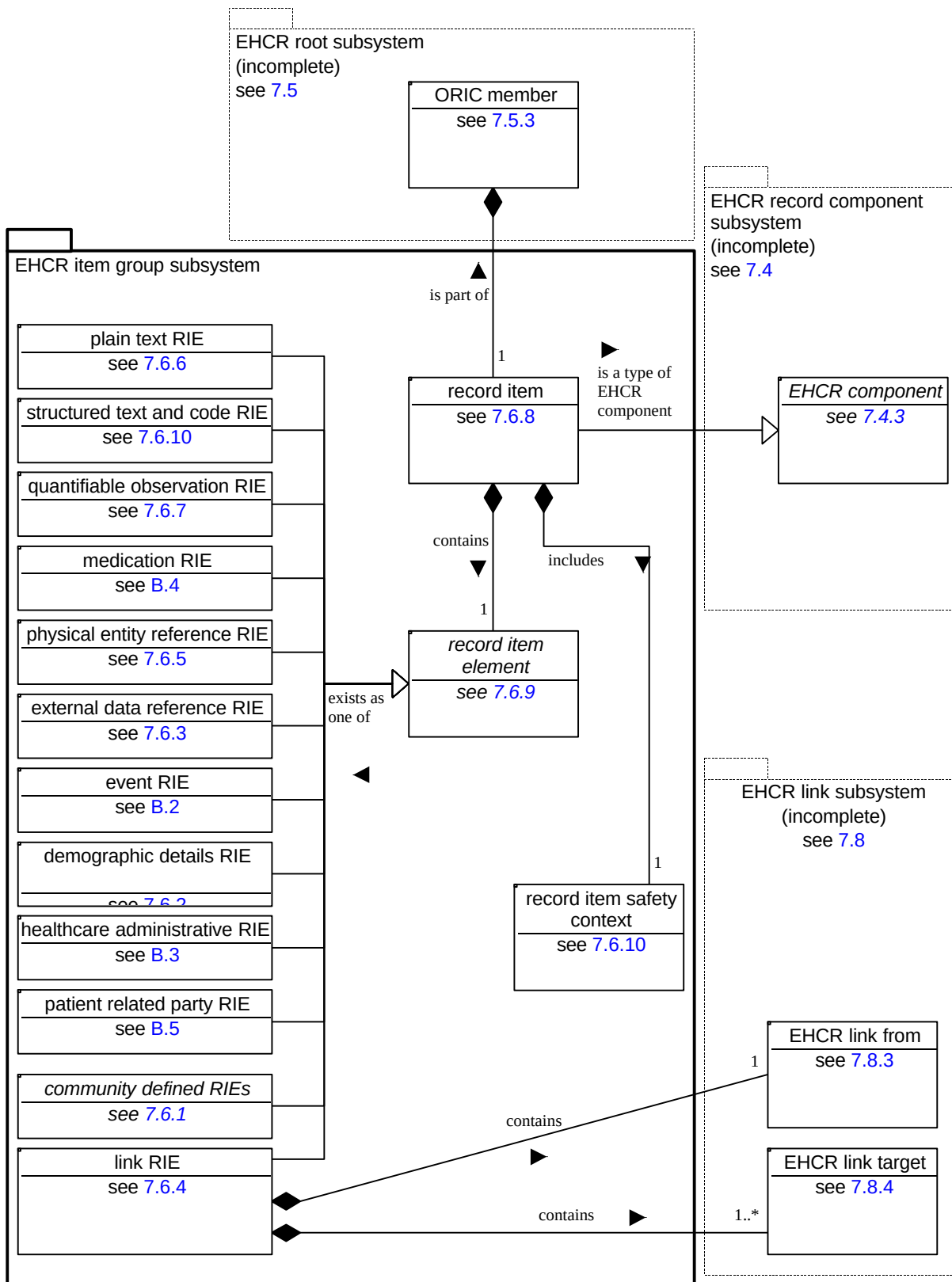


Figure 18. Domain Model - EHCR Item Group Subsystem

7.6.1 community defined RIEs**Type:** class**Specialisation of:** record item element (7.6.9)**Description:** This abstract class is represents the optional extension of the EHCR message with RIEs defined for use between members of a particular communicating community.**7.6.2 demographic details RIE****Type:** class**Specialisation of:** record item element (7.6.9)**Description:** Demographic Information about a person. Includes name, date of birth, sex, address, telecommunication.

Attributes		
patient identifiers	Type: party identifiers (7.9.20)	1
<i>Description:</i> A set of one or more <i>party identifiers</i> used to identify the patient. <i>Note:</i> Each <i>identifier</i> is qualified to indicate the identification scheme from which it is derived.		
patient name	Type: person name details (7.9.22)	1
<i>Description:</i> The name of the patient. <i>Note:</i> This includes the type of name and period of validity as well as an option for use of either structured or unstructured names.		
alternative person name	Type: person name details (7.9.22)	0 or many
<i>Note:</i> This attribute group consists of the attributes alternative person name type and alternative person name value.		
date and time of birth	Type: TOCD [Time+Date]	0 or 1
<i>Note:</i> In case the exact date and time is unknown, year only or year + month or year + month + day are sufficient.		
patient administrative sex	Type: V [Codes Value] (7.10.6)	0 or 1
<i>Description:</i> The gender of the patient as recognised by the organisation responsible for administration of healthcare services. <i>Note:</i> In rare cases this may differ from genetic or anatomical gender which may be recorded as clinical information. Represented by the abbreviations specified in ISO 5281.		
patient address	Type: address (7.9.2)	0 or many
<i>Description:</i> The address or address of a patient. Each address contains an address type and a period of validity, which can be used to specify former addresses, temporary addresses and to distinguish between home and work addresses.		
patient telecommunication	Type: telecommunication (7.9.28)	0 or many

7.6.3 external data reference RIE

Type: class

Specialisation of: record item element (7.6.9)

Description: External reference to information stored in a digital form.

- 5 **Note:** 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. 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.

Attributes		
EHCR external information identifier	Type: identifier (7.9.8)	1
<i>Description:</i> A unique identifier applied to an item or collection externally referenced digital information..		
EHCR external information type	Type: C/S [Code or String] (7.10.2)	1
<i>Description:</i> The general type of EHCR external information.		
external reference pointer	Type: S [String]	1
<i>Description:</i> Unique identifier for the referenced information as assigned by the system/application that stores the data. <i>Note:</i> The precise form of expression is determined by the external reference application attribute. <i>Example(s):</i> A directory path-name and file-name, a database and a uniquely identified record within that database, a uniquely identified instance of an object.		
external reference application	Type: S [String]	0 or 1
<i>Description:</i> Unique identifier of a system and/or application in or through which the externally referenced information is accessible to the recipient of a message. <i>Note:</i> The <i>identifier</i> should be understood unambiguously by the communicating parties.		
external reference information type	Type: C [Coded] (7.10.1)	1
<i>Description:</i> A code that represents the type of information. <i>Note:</i> 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. <i>Example(s):</i> X-ray image, electrocardiograph signal etc.		
external reference indirect pointer	Type: S [String]	0 or 1
<i>Description:</i> A reference to an internal pointer or marker within an external referenced source of information. <i>Note:</i> 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. <i>Example(s):</i> A reference to an annotation or marked area of an X-ray film. A diagnostic result item may refer to an analysed object which itself refers to a specific annotations or set of annotations in a diagram. This is illustrated by figure ##REF in informative Annex C.		
date and time of related information acquisition	Type: TOCD [Time+Date]	0 or 1

7.6.4 link RIE**Type:** class**Specialisation of:** record item element (7.6.9)**Description:** A *record item element* that links together two *EHCR components*.

- 5 **Note:** The link RIE contains references to the two *EHCR components* to be linked and an indication of the type of link. As part of a *record item element* each link RIE is itself a part of an *EHCR component* which contains details of the time and author of the link.

ComponentsA link RIE contains an *EHCR link from* (7.8.3)

- 10 A link RIE contains one or more *EHCR link targets* (7.8.4)

Attributes		
EHCR link type	Type: V [Codes Value] (7.10.6)	1
<i>Description:</i> The type of link to the referenced EHCR component. <i>Note:</i> The link type may be directional. (## may be changed from coded to Enumerated data type following further discussion ##). <i>Values:</i> 0. Addition to a view (link from refers to the view and target refers to members of the view). 1. Suggested deletion from a view. 2. Cause of (link from component is cause of target component(s)) 3. Result of 4. Before 5. During 6. After ... (to be extended and refined in consultation with CEN TC251 PT27 EHCR Communication Term List).		
EHCR link from (7.8.3)	Type: class	1
<i>Description:</i> A reference to the <i>EHCR component</i> from which the link is to be made.		
EHCR link target (7.8.4)	Type: class	1 or many
<i>Description:</i> A reference to the <i>EHCR component(s)</i> to which the link applies.		

7.6.5 physical entity reference RIE**Type:** class**Specialisation of:** record item element (7.6.9)

- 15 **Description:** A reference to a physical entity such as a paper file, a sample, a film or tracing.

Attributes		
EHCR physical entity nature	Type: C/S [Code or String] (7.10.2)	1
<i>Description:</i> The nature of the referenced physical entity.		
EHCR physical entity identifier	Type: identifier (7.9.8)	0 or 1
<i>Description:</i> An identifier applied to a physical entity that is related to the EHCR.		
EHCR physical entity location	Type: location details (7.9.10)	0 or 1
<i>Description:</i> The current location of the referenced physical entity.		
EHCR external information type	Type: C/S [Code or String] (7.10.2)	1
<i>Description:</i> The general type of EHCR external information.		

7.6.6 plain text RIE**Type:** class**Specialisation of:** record item element (7.6.9)**Description:** A *record item element* that consists of plain text. The text may optionally be preceded be divided into sections each with a separately specified text heading.**Note:** The main difference between this and the plain text RIE is that the information in a the plain text RIE is only suitable for human interpretation and should not be subject to automated processing. In contrast, *structured text and code RIE* is suitable for structured searches and retrieval of data.Where necessary a plain text RIE may be used to provide narrative text describing the content of an *original record item complex* which may contain structured information which cannot be fully interpreted by the receiving system.

Attributes		
plain text block	Type: text blocks with heading (7.9.29)	1

7.6.7 quantifiable observation RIE**Type:** class**Specialisation of:** record item element (7.6.9)**Description:** Set of information including all essential or useful data relevant to the result of a single EHCR investigation.**Note:** An quantifiable observation RIE comprises one numeric, textual or coded representation of a result. It also includes additional data that is essential to the interpretation of the result including: the status of the result, relevant dates and times, units of measurement and designation of the coding scheme from which code values in the result item are derived.

Attributes		
comment to quantifiable observation	Type: C/S [Code or String] (7.10.2)	0 or many
<i>Note:</i> To cover any kind of free-style comment related to a clinical investigation result item.		
measurable quantity of observation	Type: measurable quantity (7.9.12)	1
Choice of		1
	numerical result of observation	Type: measurement with comparator (7.9.15)
<i>Description:</i> An observation or investigation result expressed as a numeric value with units and an optional mathematical comparator.		
	numerical range result of observation	Type: measurement range (7.9.14)
<i>Description:</i> An observation or investigation result expressed as a numeric range with units.		
	date value of observation	Type: TOCD [Time+Date]
Description: An observation or investigation result expressed as a date. <i>Example(s):</i> Estimated date of obstetric delivery.		
	text value of EHCR investigation result item	Type: LC/S [List of Codes or Strings] (7.10.4)
<i>Description:</i> An observation or investigation result expressed using text or codes.		

7.6.8 record item

Type: class

Specialisation of: EHCR component (7.4.3)

Description: A record item is the *EHCR component* that represents the smallest structural unit into which the content of the EHCR can be broken down without losing its meaning. The record item is used to aggregate information that cannot be safely disaggregated.

Note: The record item is always a part of an *original record item complex* and inherits from the *original record item complex* hierarchy values for any of the *EHCR component* attributes which are not explicitly present in the record item. Thus most attributes are optional within any instance but attributes values should be specified explicitly at a levels in the hierarchical tree where the appropriate values change.

Additional contextual information relevant to a record item is also derived from the *original record item complex* hierarchy within which the record item is located if the higher level of the hierarchy contain *ORIC members* marked as "Context for Content".

Part of

A record item may be part of an *ORIC member* (7.5.3)

Components

A record item contains a *record item element* (7.6.9)

Attributes		
Attributes of generalisation	EHCR component (7.4.3)	
record item safety context (7.6.10)	Type: class	1
<i>Description:</i> Simple modifiers that are included to minimise the risk of serious misinterpretation following communication between heterogeneous systems.		
record item element type	Type: E [Enumerated]	1
<i>Description:</i> The type or role of this <i>record item element</i> . <i>Note:</i> Several types of <i>record item element</i> are defined in normative provisions of this Prestandard. Additional composite types are proposed in Informative Annex ##. Other <i>record item element</i> types may be defined by agreement within communicating communities. <i>Values:</i> 0. <i>community defined RIEs</i> (specified by record element type reference) 1. <i>plain text RIE</i> 2. <i>structured text and code RIE</i> 3. <i>quantifiable observation RIE</i> 4. <i>link RIE</i> 5. <i>external data reference RIE</i> 6. <i>physical entity reference RIE</i> 7. <i>demographic details RIE</i> 8. <i>healthcare administrative RIE</i> 9. <i>patient related party RIE</i>		
record element type reference	Type: V [Codes Value] (7.10.6)	0 or 1
<i>Description:</i> A reference to one of an agreed set of element types. <i>Note:</i> The record element type reference may be used with the record item element type "other RIE" to refer to either an element type defined in Informative Annex ## or to an element type defined at a National, Regional or enterprise level. New RIE types should be defined using combinations of data types and sub-classes defined in the Normative parts of this Prestandard. The record element type reference may also be used with one of the defined record item element types to specify an extension to one of the RIE types defined in this Prestandard.		
record item element (7.6.9)	Type: class	1
<i>Description:</i> A record item element is the unit of data of contained by a record item.		

7.6.9 record item element**Type: class**

Description: A record item element is the unit of data of contained by a *record item*.

Note: This is an abstract class. Specialised record item elements exist to represent the most frequently used compound types of information found within the EHCR. Other compound types can be produced by aggregation of record item elements within a *record item*.

Specialisations

A record item element is specialised as a *plain text RIE* (7.6.6), a *structured text and code RIE* (7.6.10), a *quantifiable observation RIE* (7.6.7), a *physical entity reference RIE* (7.6.5), an *external data reference RIE* (7.6.3), a *link RIE* (7.6.4), a *demographic details RIE* (7.6.2), a *patient related party RIE* (B.5), an *event RIE* (B.2), a *medication RIE* (B.4), a *healthcare administrative RIE* (B.3) or a *community defined RIEs* (7.6.1)

Part of

A record item element is part of a *record item* (7.6.8)

7.6.10 record item safety context**Type: class**

Description: Simple modifiers that are included to minimise the risk of serious misinterpretation following communication between heterogeneous systems.

Part of

A record item safety context may be part of any number of *record items* (7.6.8)

Attributes		
certainty modifier	Type: E [Enumerated]	1
<i>Description:</i> Indication of the degree of certainty that the author of the record has asserted about a particular piece of information. <i>Note:</i> This modifier is not intended as a substitute for more detailed representation of degrees of certainty. It is included to limit the risk of serious misinterpretation following communication between heterogeneous systems. <i>Example(s):</i> Possible inferior myocardial infarction. <i>Values:</i> 0. False 1. Uncertain 2. True		
negation modifier	Type: B [Boolean]	1
<i>Description:</i> An indication that the information states the absence of, rather than the presence of a particular observation or diagnosis. <i>Note:</i> This is used to enable a warning to be communicated to avoid misinterpretation of a negative statement. This is important if a code (or a text string) that may be used to make positive statement, is qualified by another code or text string which indicates the converse. This modifier is not intended as a substitute for appropriate coding and unambiguous structuring of negative statements. It is included to limit the risk of serious misinterpretation following communication between heterogeneous systems.. <i>Example(s):</i> No evidence of ischaemic heart disease. <i>Values:</i> - True - the record item element contains a negated statement. - False - the record item element does not contain a negated element.		

warning to avoid modifier	Type: B [Boolean]	1
<i>Description:</i> An indication that the information record is a warning to avoid a particular treatment rather than a record of or plan for that treatment. <i>Note:</i> This modifier is not intended as a substitute for clear and unambiguous representation of warning. It is included to limit the risk of serious misinterpretation following communication between heterogeneous systems. <i>Example(s):</i> Distinction between Allergy to penicillin and prescription for penicillin in circumstances where the code or text used to represent "penicillin" is the same or similar. <i>Values:</i> False - does not contain a warning to avoid. True - contains a warning to avoid.		

7.6.11 structured text and code RIE

Type: class

Specialisation of: record item element (7.6.9)

Description: Clinical information presented in a coded and textual structure.

5 **Note:** The main difference between this and the *plain text RIE* is that the information in a structured text and code RIE is suitable for structured searches and retrieval of data as well as human-readability. In contrast, the *plain text RIE* is only suitable for human interpretation and should not be subject to automated processing.

10 **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.

Attributes		
original code for RIE	Type: composite code (7.9.4)	1 or many
<i>Description:</i> Coded information represented as one or more code values from within the coding scheme in which this information was originally recorded. <i>Note:</i> More than one code value may be used to construct a single clinical concept. For example, when using a compositional coding scheme such as SNOMED or a scheme that incorporates qualifiers such as the UK NHS Clinical Terms. However, multiple code values in the same <i>record item element</i> should not be used to record more than one distinct clinical concept.		
alternative or mapped code for RIE	Type: composite code (7.9.4)	0 or many
<i>Description:</i> Coded information represented as one or more code values from within a coding scheme to which this information has been mapped or translated for the purposes of communication.		
additional comment on RIE	Type: S [String]	0 or many
<i>Description:</i> Text which adds to the content of the coded or other structured information within a <i>record item element</i>.		

7.7 EHCR healthcare party subsystem

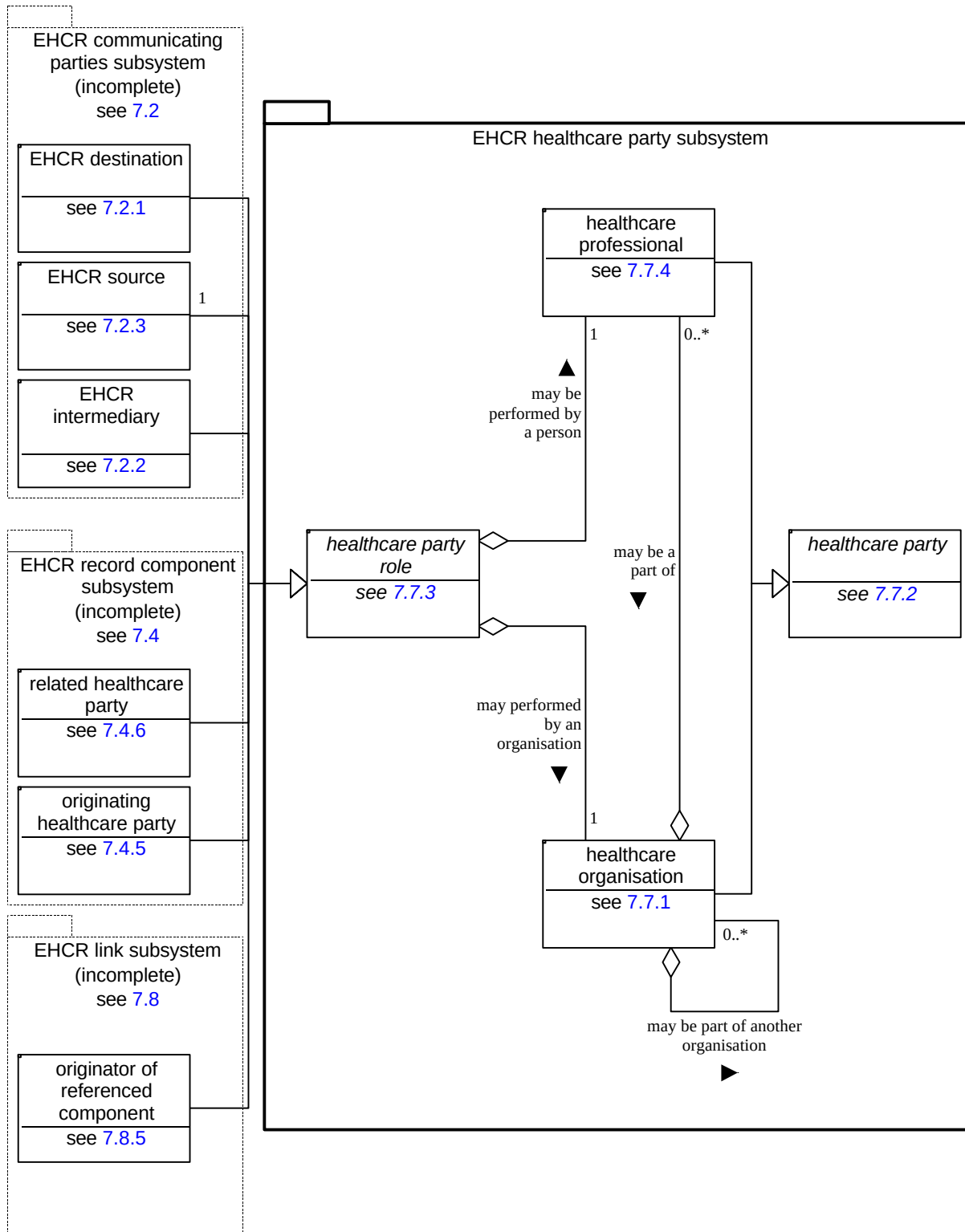


Figure 19. Domain Model - EHCR Healthcare Parties Subsystem

7.7.1 healthcare organisation**Type:** class**Specialisation of:** healthcare party (7.7.2)**Description:** Information about an 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.**Part of**A healthcare organisation may perform a [healthcare party role](#) (7.7.3)A healthcare organisation may be part of another [healthcare organisation](#) (7.7.1)**Components**A healthcare organisation may include any number of other [healthcare organisations](#) (7.7.1)A healthcare organisation may include any number of [healthcare professionals](#) (7.7.4)

Attributes		
Attributes of generalisation	healthcare party (7.7.2)	
healthcare organisation (7.7.1)	Type: class	0 or many
<i>Description:</i> Information about an organisation responsible for the direct or indirect provision of healthcare services, or involved in the provision of healthcare related services.		
healthcare professional (7.7.4)	Type: class	0 or many
<i>Description:</i> Information about a person who is entrusted with the direct or indirect provision of defined healthcare services to a patient or population of patients.		
name of healthcare organisation	Type: S [String]	0 or 1
type of organisation	Type: V [Codes Value] (7.10.6)	0 or 1
<i>Example(s):</i> University hospital, private diagnostic service provider.		

7.7.2 healthcare party**Type:** class**Description:** Information about an organisation or person responsible for the direct or indirect provision of healthcare services, or involved in the provision of healthcare related services.**Note:** This may be a healthcare sub-department, department, organisation or person.**Specialisations**A healthcare party is specialised as a [healthcare organisation](#) (7.7.1) or a [healthcare professional](#) (7.7.4)

Attributes		
Identification of healthcare party	Type: party identifiers (7.9.20)	1
address of healthcare party	Type: address (7.9.2)	0 or many
telecommunication of healthcare party	Type: telecommunication (7.9.28)	0 or many
language details of healthcare party	Type: language details (7.9.9)	0 or many
medical specialty of healthcare party	Type: C/S [Code or String] (7.10.2)	0 or many
<i>Description:</i> Particular subject area or branch of medical science, offered by a healthcare party.		

7.7.3 healthcare party role**Type: class**

Description: Information about the role of a *healthcare party* in relation to a message.

Specialisations

- 5 A healthcare party role is specialised as an *EHCR source* (7.2.3), an *originator of referenced component* (7.8.5), an *originating healthcare party* (7.4.5), a *related healthcare party* (7.4.6), an *EHCR destination* (7.2.1), an *EHCR intermediary* (7.2.2)

Components

- 10 A healthcare party role may be performed by a *healthcare professional* (7.7.4) or a *healthcare organisation* (7.7.1)

Attributes		
Choice of		1
	healthcare professional (7.7.4)	Type: class
<i>Description:</i> Information about a person who is entrusted with the direct or indirect provision of defined healthcare services to a patient or population of patients.		
	healthcare organisation (7.7.1)	Type: class
<i>Description:</i> Information about an organisation responsible for the direct or indirect provision of healthcare services, or involved in the provision of healthcare related services.		

7.7.4 healthcare professional**Type: class****Specialisation of: healthcare party (7.7.2)**

- 15 **Description:** Information about a 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, dentist, nurse, social worker.

Part of

- A healthcare professional may be a part of a *healthcare organisation* (7.7.1)
A healthcare professional may perform a *healthcare party role* (7.7.3)

Attributes		
Attributes of generalisation	healthcare party (7.7.2)	
type of healthcare professional	Type: V [Codes Value] (7.10.6)	0 or 1
<i>Example(s):</i> Medical doctor, nurse, pharmacist, diagnostic service worker.		
name of healthcare professional	Type: person name details (7.9.22)	0 or 1
position of healthcare professional	Type: C/S [Code or String] (7.10.2)	0 or 1
<i>Example(s):</i> Head of department, trainee GP, hospital consultant.		
qualification of healthcare professional	Type: C/S [Code or String] (7.10.2)	0 or many
<i>Note:</i> This information is provided as supplied by the healthcare professional or the organisation within which they work and is not proof of qualification to undertake healthcare services. <i>Example(s):</i> MD, M.Sc.		
military rank of healthcare professional	Type: C/S [Code or String] (7.10.2)	0 or 1
<i>Example(s):</i> Captain, Major.		
healthcare organisation (7.7.1)	Type: class	1

7.8 EHCR link subsystem

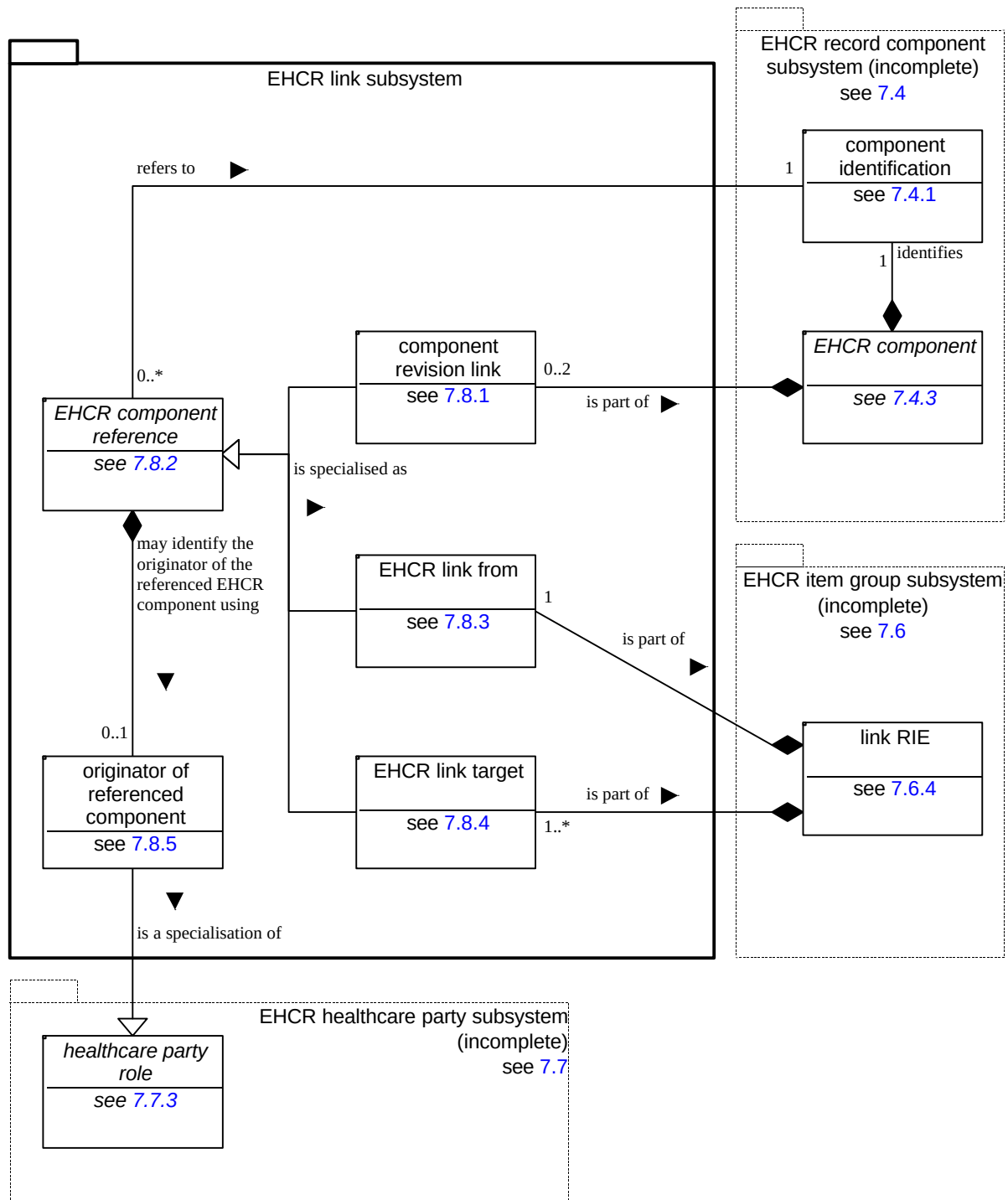


Figure 20. Domain Model - EHCR Link Subsystem

7.8.1 component revision link

Type: class

Specialisation of: EHCR component reference (7.8.2)

Description: A unique identification of either an earlier version of an *EHCR component* that is to be revised or a subsequent version which updated the current *EHCR component*.

Note: This attribute is equivalent to ENV12265 clause 4.6.4 Revised Version.

Additional information is provided to enable references to EHCR components from other originators.

Part of

A component revision link is part of an *EHCR component* (7.4.3)

Attributes		
Attributes of generalisation	EHCR component reference (7.8.2)	
EHCR component revision reference type	Type: V [Codes Value] (7.10.6)	1
<i>Description:</i> An indication of whether the associated identifier refers to an original instance of this component or to the most recent previous revision of this component. <i>Values:</i> 0. Original version 1. Most recent previous version.		

7.8.2 EHCR component reference

Type: class

Description: An abstract class containing a reference to an *EHCR component*.

Note: This is an abstract class. It is only instantiated as one of its specialisations.

Specialisations

An EHCR component reference is specialised as a *component revision link* (7.8.1)

An EHCR component reference is specialised as an *EHCR link target* (7.8.4)

An EHCR component reference is specialised as an *EHCR link from* (7.8.3)

Associations

An EHCR component reference refers to a *component identification* (7.4.1)

Components

An EHCR component reference may identify the originator of the referenced EHCR component using an *originator of referenced component* (7.8.5)

Attributes		
identifier of referenced component	Type: S [String]	1
<i>Description:</i> The identifier assigned to a previous revision of this component by the originator <i>healthcare party</i> of the component.		
recording date and time of referenced component	Type: TOCD [Time+Date]	0 or 1
<i>Description:</i> The date and time of origin of the EHCR component that is to be superseded. <i>Note:</i> This attribute may be required by some communicating parties to support unique identification of EHCR components when communicating between systems that have different record structures and which as a result may not use a common scheme of EHCR component identifiers.		
referenced component order	Type: I [Integer]	0 or 1
<i>Description:</i> A number indicating the position of a referenced <i>EHCR component</i> where several references of the same type exist. <i>Note:</i> Two or more referenced components may share the same referenced component order. In this case the order of these referenced components in relation to one another is arbitrary.		
originator of referenced component (7.8.5)	Type: class	0 or 1
<i>Description:</i> The identification of the originator of a referenced <i>EHCR component</i> .		

7.8.3 EHCR link from**Type:** class**Specialisation of:** EHCR component reference (7.8.2)**Description:** A reference to the *EHCR component* from which the link is to be made.5 **Part of**An EHCR link from is part of a *link RIE* (7.6.4)

Attributes		
Attributes of generalisation	EHCR component reference (7.8.2)	

7.8.4 EHCR link target**Type:** class**Specialisation of:** EHCR component reference (7.8.2)10 **Description:** A reference to the *EHCR component*(s) to which the link applies.**Part of**An EHCR link target is part of a *link RIE* (7.6.4)

Attributes		
Attributes of generalisation	EHCR component reference (7.8.2)	

7.8.5 originator of referenced component**Type:** class15 **Specialisation of:** healthcare party role (7.7.3)**Description:** The identification of the originator of a referenced *EHCR component*.**Note:** This attribute is required unless the EHCR component identifiers are unique to both the *EHCR source* and *EHCR destination*.**Part of**20 An originator of referenced component may be part of any number of *EHCR component references* (7.8.2)

Attributes		
Attributes of generalisation	healthcare party role (7.7.3)	

7.9 Common subclasses

7.9.1 actual event details

Type: sub class

Description: Information about an *event RIE* that has already taken place.

Attributes		
period of event	Type: period (7.9.21)	0 or 1
<i>Description:</i> <i>period</i> during which the event occurred.		
occurrence outcome of actual action event	Type: occurrence outcome (7.9.18)	0 or 1

5 7.9.2 address

Type: sub class

Description: An address expressed in a structured or unstructured form.

Components

An address may include a *structured address* (7.9.25) or an *unstructured address* (7.9.32)

Attributes		
address type	Type: V [Codes Value] (7.10.6)	0 or 1
<i>Example(s):</i> Home address, vacation address, work address.		
period of address validity	Type: period (7.9.21)	0 or 1
<i>Description:</i> The period during which the associated address is applicable to the associated person or organisation.		
Choice of		1
	structured address (7.9.25)	Type: sub class
	unstructured address (7.9.32)	Type: sub class

10 7.9.3 bed location

Type: sub class

Description: A location expressed as a combination of a bed, a room and ward.

Attributes		
ward	Type: C/S [Code or String] (7.10.2)	0 or 1
<i>Description:</i> Separate division in a hospital.		
room	Type: S [String]	0 or 1
bed	Type: S [String]	0 or 1
<i>Description:</i> An identification or description of a particular bed within a ward.		

7.9.4 composite code

Type: sub class

Attributes		
coded element	Type: C [Coded] (7.10.1)	1
coding scheme axis	Type: V [Codes Value] (7.10.6)	0 or 1
<i>Description:</i> If multiple codes are used to represent a single clinical concept, the coding scheme axis may be used to distinguish between different coding axes.		

7.9.5 duration**Type:** sub class**Description:** Information on the length of time that the party recommending or prescribing the drug intends that it be taken.5 **Part of**A duration is part of a *medication RIE* (B.4)

Attributes		
Choice of		1
	duration as time interval	Type: time interval (7.9.30)
Note: This attribute group consists of the attributes numerical value of duration of drug treatment and unit of value of duration of drug treatment.		
	duration as date range	Type: period (7.9.21)
	duration as text description	Type: S [String]

7.9.6 expected delay**Type:** sub class10 **Description:** The *time interval* of, and reason for, a delay.

Attributes		
duration of expected delay	Type: time interval (7.9.30)	1
comments to expected delay	Type: S [String]	0 or 1

7.9.7 general message information**Type:** sub class**Description:** Information applicable to all messages.**Note:** Includes urgency of the message, request for acknowledgement, comments and language.15 **Part of**General message information may be part of any number of *messages from EHCR destination* (7.3.2)

Attributes		
urgency of message	Type: V [Codes Value] (7.10.6)	1
Description: Indication by the administrative information originator of the urgency with which the receiver should examine and consider the report. Note: This information may allow a receiving system to draw special attention to its users for some reports. Example(s): High priority, medium priority, low priority.		
message receipt acknowledgement request	Type: B [Boolean]	1
Description: Indication of whether or not the issuer of a report requests acknowledgement of the report receipt by the recipient.		
originator's comment on message	Type: C/S [Code or String] (7.10.2)	0 or many
Description: (narrative) comment from the administrative information originator that can not be expressed by any other existing attribute.		
message language	Type: V [Codes Value] (7.10.6)	0 or 1
Description: The language in which the diagnostic service report is expressed. Note: Represented by the abbreviations specified in ISO 639.		

7.9.8 identifier**Type:** sub class**Description:** A general purpose identifier that can be qualified by the identification scheme from which the identifier is derived.

Attributes		
identification scheme	Type: V [Codes Value] (7.10.6)	0 or 1
<i>Description:</i> The identification scheme from which an associated identifier is derived. <i>Note:</i> This may be omitted where there is appropriate agreement between communicating parties which include partner agreed identifiers for the party or object identified by the associated identifier.		
identifier value	Type: S [String]	1

5 **7.9.9 language details****Type:** sub class**Description:** language(s) in which a person is willing and able to converse for the purposes of providing or receiving healthcare services.

Attributes		
language	Type: V [Codes Value] (7.10.6)	0 or 1
<i>Note:</i> Represented by the abbreviations specified in ISO 639.		
ability in language	Type: V [Codes Value] (7.10.6)	0 or 1
<i>Example(s):</i> First language, preferred, fluent, fair, poor, none.		

7.9.10 location details10 **Type:** sub class**Description:** Information about a geographical location or type of location, expressed without a formal postal *address*.**Example(s):** In the patient's home, in hospital, on a ward, in a diagnostic department, on a particular ward, in a particular room within a department.

Attributes		
location type	Type: C [Coded] (7.10.1)	0 or 1
<i>Example(s):</i> Hospital ward, patient's residence, outpatient clinic, accident & emergency department, prison, nursing home, diagnostic department.		
location identification	Type: S [String]	0 or 1
<i>Description:</i> A partner agreed identification of the location. <i>Note:</i> The location identification may if necessary be specified as a concatenation of the <i>identifier</i> of a general location and a sub-location (e.g. a hospital identification followed by a ward identification within that hospital). The format of these combined identifiers should be agreed by the communicating parties.		
location description	Type: S [String]	0 or 1
<i>Description:</i> A textual description of the location.		

7.9.11 location related information**Type: sub class**

Description: Information about a location including associated information.

Note: Associated information may include *period* of time at a location, the *address*, *telecommunication* and *healthcare organisation* responsible for a location.

Components

Location related information may include a *bed location* (7.9.3)

Attributes		
location role	Type: V [Codes Value] (7.10.6)	0 or 1
<i>Description:</i> Role of location where the patient has received or is to receive care. or where the patient was located immediately prior to or immediately after receiving care. <i>Example(s):</i> location at which diagnostic service was performed, intended location of diagnostic service, location prior to diagnostic service, location after completion of diagnostic service.		
period at location	Type: period (7.9.21)	0 or 1
<i>Note:</i> If the location is a hospital or ward this is the date of admission or transfer to that location.		
location	Type: location details (7.9.10)	0 or 1
bed location (7.9.3)	Type: sub class	0 or 1
<i>Description:</i> A location expressed as a combination of a bed, a room and ward.		
address of location	Type: address (7.9.2)	0 or 1
telecommunication of location	Type: telecommunication (7.9.28)	0 or many
organisation at location	Type: organisation reference (7.9.19)	0 or 1
user defined data for location	Type: user defined data (7.9.33)	0 or many

7.9.12 measurable quantity**Type: sub class**

Description: A representation of a phenomenon, body or substance that may be distinguished qualitatively and determined quantitatively.

Example(s): Foetal biparietal diameter in systematic notation: Foetus ; head ; diameter ; measured by ultra sound ; biparietal diameter.

Part of

A measurable quantity is part of a *quantifiable observation RIE* (7.6.7)

Attributes		
Choice of		1
	measurable quantity attribute	Type: C/S [Code or String] (7.10.2)
	measurable quantity (7.9.12)	Type: sub class
<i>Description:</i> A representation of a phenomenon, body or substance that may be distinguished qualitatively and determined quantitatively.		

7.9.13 measurement**Type:** sub class**Description:** A measurement expressed as a numeric value and unit of measurement.

Attributes		
numerical value	Type: R [Real]	1
<i>Example(s):</i> 140 when a result is 140 mmol/l.		
unit of measurement	Type: V [Codes Value] (7.10.6)	1

7.9.14 measurement range5 **Type:** sub class**Description:** A measurement range expressed as two numeric values and unit of measurement.

Attributes		
lower limit value	Type: R [Real]	0 or 1
upper limit value	Type: R [Real]	0 or 1
unit of measurement	Type: V [Codes Value] (7.10.6)	1

7.9.15 measurement with comparator**Type:** sub class10 **Description:** A *measurement* expressed as a numeric value and unit of measurement with an optional mathematical comparator**Note:** Used where it is rational for a *measurement* to be expressed as greater than or less than a specified value.

Attributes		
numerical value	Type: R [Real]	1
<i>Example(s):</i> 140 when a result is 140 mmol/l.		
unit of measurement	Type: V [Codes Value] (7.10.6)	1
arithmetic comparator	Type: V [Codes Value] (7.10.6)	0 or 1
<i>Example(s):</i> >, >=, =, <=, <.		

7.9.16 message identification**Type:** sub class15 **Description:** The originators identification of a message and its time of origin.

Attributes		
identification of message by originator	Type: S [String]	1
<i>Description:</i> identifier assigned by the originator of a message <i>Note:</i> This <i>identifier</i> shall be globally unique across all messages originating from a particular healthcare party. The originator shall not assign the same <i>identifier</i> to any other message that conforms with a European Standard or European Prestandard promulgated by CEN Technical Committee 251 Healthcare Informatics.		
issue date and time of message	Type: TOCD [Time+Date]	1
<i>Description:</i> Date and time at which a message is issued by the sending application. <i>Note:</i> This need not be the same as the date/time at which the message is dispatched to the message handling service or network service provider.		

7.9.17 message reference**Type:** sub class**Description:** A reference to an identified message from within another message.**Part of**5 A message reference is part of a *message from EHCR source* (7.3.3)

Attributes		
originator of referenced message (7.3.4)	Type: class	1
identification of referenced message by its originator	Type: S [String]	1
identification of referenced message by originator of current message	Type: S [String]	0 or 1
<i>Description:</i> identifier assigned by the recipient of a message. <i>Note:</i> This <i>identifier</i> may be an <i>identifier</i> assigned to a request by a service provider to enable them to refer to it in subsequent communications.		
issue date and time of message	Type: TOCD [Time+Date]	0 or 1
<i>Description:</i> Date and time at which a message is issued by the sending application. <i>Note:</i> This need not be the same as the date/time at which the message is dispatched to the message handling service or network service provider.		

7.9.18 occurrence outcome**Type:** sub class**Description:** Whether an event has occurred and optionally a reason for non-occurrence.

Attributes		
occurrence status	Type: V [Codes Value] (7.10.6)	1
<i>Description:</i> Describes whether the planned patient (or patient related person) contact actually occurred or not. <i>Example(s):</i> action event occurred, originator initiated cancellation, cancelled by patient without notification, cancelled by service requester.		
reason for non-occurrence	Type: S [String]	0 or 1

7.9.19 organisation reference10 **Type:** sub class**Description:** A *healthcare organisation* responsible provision of services at a specified location.**Part of**An organisation reference is part of an *event RIE* (B.2)

Attributes		
Identification of organisation at location	Type: party identifiers (7.9.20)	0 or 1
name of organisation at location	Type: S [String]	0 or 1
type of organisation	Type: V [Codes Value] (7.10.6)	0 or 1
<i>Example(s):</i> University hospital, private diagnostic service provider.		

7.9.20 party identifiers**Type:** sub class**Description:** A set of one or more party identifiers used to identify the a person or organisation.**Note:** Each *identifier* is qualified to indicate the identification scheme from which it is derived.**5 Components**Party identifiers includes one or more *identifiers* (7.9.8)

Attributes		
identifier (7.9.8)	Type: sub class	1 or many
<i>Description:</i> A general purpose identifier that can be qualified by the identification scheme from which the identifier is derived.		

7.9.21 period**Type:** sub class**Description:** A period expressed as a start and end date.

Attributes		
start date and time	Type: TOCD [Time+Date]	0 or 1
<i>Description:</i> Date and time of the start of the specified period.		
end date and time	Type: TOCD [Time+Date]	0 or 1
<i>Description:</i> Date and time of the end of the specified period.		

10 7.9.22 person name details**Type:** sub class**Description:** The structured or unstructured name of a person.**Components**Person name details may include a *structured person name* (7.9.26)

Attributes		
person name type	Type: V [Codes Value] (7.10.6)	0 or 1
<i>Example(s):</i> Alias name of patient (artificial or assumed name by which a patient has been or is known; any code may serve as an alias, sometimes temporarily because proper identity is unknown or to preserve anonymity; a given person may have more than one alias), maiden name of patient (when female patients change their family name - e.g. upon marriage - this item carries their previous family name), former name of patient, mother's maiden name of patient (may be required to distinguish between patients with the same birth date and family name when registry files are very large and when no other means of unique patient identifiers by name is available), preferred name.		
period of name validity	Type: period (7.9.21)	0 or 1
<i>Description:</i> The period during which this name is or was valid.		
<i>Note:</i> This may be used to refer to previous names for the same person.		
Choice of		1
	structured person name (7.9.26)	Type: sub class
<i>Description:</i> A person name composed of separately identifiable elements.		
	unstructured name	Type: S [String]
<i>Description:</i> A person name represented as a plain string of text without decomposition into separate name elements.		
<i>Note:</i> Used instead of structured names when communication parties do not support structured names. It may be impossible to distinguish which parts or a name should be placed in which name elements.		
<i>Example(s):</i> "Adelin Albert", "Alexandre le Grand", "Lord George Christopher"		

7.9.23 planned event details**Type:** sub class**Description:** Information about an *event RIE* that is planned.

Attributes		
planning stage	Type: C [Coded] (7.10.1)	0 or 1
<i>Description:</i> The stage that has been reached in planning the delivery of this diagnostic investigation. <i>Example(s):</i> Accepted, proposed, scheduled, completed, rejected, postponed, cancelled.		
status of plan	Type: V [Codes Value] (7.10.6)	0 or 1
<i>Example(s):</i> Interim, confirmed.		
comment on plan status	Type: C/S [Code or String] (7.10.2)	0 or 1
<i>Description:</i> A note of any conditions on which an plan is dependent. <i>Example(s):</i> An abdominal radiological investigation may be planned for a particular date but this may depend on the patient's menstrual cycle.		
date and time of planning	Type: TOCD [Time+Date]	0 or 1
<i>Description:</i> The date and time at which the planning stage indicated was reached by the diagnostic service provider. <i>Example(s):</i> The date on which a request was accepted, the date on which an appointment was made.		
date and time scheduled	Type: TOCD [Time+Date]	0 or 1
<i>Description:</i> Date and time on which the service is scheduled to be undertaken.		
expected delay before event	Type: expected delay (7.9.6)	0 or 1
<i>Description:</i> <i>expected delay</i> with reference to the issue date of the report.		
transport arrangements for planned event	Type: transport arrangements (7.9.31)	0 or 1

7.9.24 specification of EHCR information5 **Type:** sub class**Description:** A specification of the language and completeness of content of the EHCR information requested or provided. The specification may also include an identification of the nature of the enterprise environment of the party sending the message.

Attributes		
EHCR language	Type: V [Codes Value] (7.10.6)	0 or 1
<i>Description:</i> The language in which the EHCR is requested or provided.		
EHCR enterprise identification	Type: C [Coded] (7.10.1)	0 or 1
<i>Description:</i> An indication of the enterprise environment applicable to a message or to an <i>EHCR enterprise item</i> within a message. <i>Note:</i> Used in the <i>request EHCR message</i> to indicate the enterprise capabilities of the <i>EHCR destination</i> . Used in the <i>provide EHCR message</i> to indicate the source of reference for <i>EHCR enterprise items</i> in the message.		
EHCR scope	Type: E [Enumerated]	1
<i>Description:</i> An indication of whether the EHCR contained in (or requested in) the message is complete, summarised or an update. <i>Values:</i> 0. Complete 1. Summarised 2. Update determined by EHCR update period 3. Update determined automatically by logging changes since last exchange.		

EHCR update period	Type: period (7.9.21)	0 or 1
<i>Description:</i> EHCR update period the period of time to which the requested or provided parts of the EHCR applies.		
<i>Note:</i> Unless otherwise agreed between the communicating parties, the period applies to the date and time or origin of the relevant <i>EHCR components</i> .		

7.9.25 structured address**Type: sub class**

Attributes		
street name	Type: S [String]	0 or 1
number or name of house	Type: S [String]	0 or 1
apartment number	Type: S [String]	0 or 1
PO box number	Type: S [String]	0 or 1
<i>Note:</i> PO is post office.		
city district	Type: C/S [Code or String] (7.10.2)	0 or 1
<i>Description:</i> Part of a city.		
postal code	Type: S [String]	0 or 1
city	Type: S [String]	0 or 1
area of country / county	Type: C/S [Code or String] (7.10.2)	0 or 1

7.9.26 structured person name**Type: sub class**

- 5 **Description:** A person name composed of separately identifiable elements.

Attributes		
family name	Type: S [String]	0 or 1
<i>Note:</i> "last name" is ambiguous, especially in the case of persons of Far Eastern extraction.		
first given name	Type: S [String]	0 or 1
<i>Note:</i> "first name" is ambiguous, especially in the case of persons of Far Eastern extraction; "Christian name" may cause offence.		
middle name	Type: S [String]	0 or 1
<i>Note:</i> If the complete name consists of more than one name besides family name and given name, initials of the other names may be substituted for the middle name.		
title	Type: S [String]	0 or 1
<i>Example(s):</i> Mr, Mrs, Sir, Lord, Dr, Ms, Miss, Rev.		
generation qualifier	Type: S [String]	0 or 1
<i>Note:</i> Usage of this name component is common in the United States of America. <i>Example(s):</i> Jnr, Snr, II, III, IV.		

7.9.27 structured telecommunication number**Type: sub class**

Attributes		
telecommunication country code	Type: S [String]	0 or 1
telecommunication area code	Type: S [String]	0 or 1
telecommunication number	Type: S [String]	0 or 1
telecommunication extension number	Type: S [String]	0 or 1

7.9.28 telecommunication**Type: sub class**5 **Description:** Telephone, facsimile and other telecommunication numbers in a structured or unstructured form.**Components**A telecommunication may include a *structured telecommunication number* (7.9.27)

Attributes		
Telecommunication type	Type: V [Codes Value] (7.10.6)	0 or 1
<i>Example(s):</i> Voice telephony, fax, e-mail.		
address type of telecommunication	Type: V [Codes Value] (7.10.6)	0 or 1
<i>Description:</i> Relates a telecommunication number to a particular <i>address</i> or location specified using an associated instance of the <i>address</i> message. <i>Note:</i> The code list used should be the same similar to that used for L-address type so that where several addresses and numbers are given for a person or organisation these can be related to one another. <i>Example(s):</i> Home, work, vacation, mobile.		
period of telecommunication number validity	Type: period (7.9.21)	0 or 1
Choice of		1
	structured telecommunication number (7.9.27)	Type: sub class
	unstructured telecommunication number	Type: S [String]
<i>Note:</i> Used instead of structured number when communication parties do not support structured telecommunication numbers or when the structure of the number does not match the components available in the telecommunication common attribute group. <i>Example(s):</i> X.400 <i>address</i> .		

7.9.29 text blocks with heading**Type: sub class****Description:** Blocks of text with a related text or coded heading.

Attributes		
text block heading	Type: C/S [Code or String] (7.10.2)	0 or 1
<i>Description:</i> A heading for a section of text. <i>Note:</i> This attribute provides an optional heading for one or more paragraphs of text. It may also be applied as a heading to a group of related coded items. <i>Example(s):</i> Macroscopic appearance, microscopic appearance, interpretation.		
text block	Type: S [String]	1 or many
<i>Description:</i> A block of plain printable text which represents a single paragraph.		

7.9.30 time interval5 **Type: sub class****Description:** An interval of time expressed a number and a unit of time.

Attributes		
numerical value of time interval	Type: R [Real]	1
<i>Description:</i> Number of the value for the time interval		
unit of time interval	Type: V [Codes Value] (7.10.6)	1
<i>Description:</i> The unit of time in which the value of the time interval is expressed		

7.9.31 transport arrangements**Type: sub class**10 **Description:** Information about the arrangement or requirements for the transportation of a patient to and from a healthcare location.

Attributes		
transport arrangement responsibility indicator	Type: V [Codes Value] (7.10.6)	1
<i>Description:</i> Indicator showing whether transport has been arranged for patient or patient associated person. <i>Example(s):</i> Provider, requester, patient.		
transport arrangement status	Type: S [String]	0 or 1
<i>Description:</i> An indication of whether transport arrangement are known to have been made. <i>Example(s):</i> Arranged, not arranged, unknown.		
patient's requirements for transport	Type: C/S [Code or String] (7.10.2)	1
<i>Description:</i> The method of transport required if the patient has to attend the diagnostic service department for an investigation to be conducted. <i>Example(s):</i> Walking on own, walking accompanied/assisted, wheelchair, stretcher.		
escort required	Type: V [Codes Value] (7.10.6)	0 or 1
<i>Description:</i> An indication that the patient needs to be escorted to the diagnostic service department. <i>Note:</i> The nature of the escort requirements should be stated in the comments to requested patient transport.		
comment to transport requirements	Type: S [String]	0 or 1

7.9.32 unstructured address**Type:** sub class

Attributes		
unstructured address line	Type: S [String]	0 or many
<i>Note:</i> Used instead of <i>structured address</i> when communication parties do not support structured addresses		

7.9.33 user defined data**Type:** sub class

- 5 **Description:** A data item that can be used to convey additional information not represented by any of the specified message components.

Attributes		
user defined data type	Type: V [Codes Value] (7.10.6)	1
user defined data identification	Type: S [String]	1
user defined data description	Type: S [String]	1

7.10 Compound data types**7.10.1 C [Coded]****Type:** sub class

- 10 **Description:** Code with text description.

Attributes		
ICSI	Type: S [String]	1
<i>Description:</i> International Coding Scheme Identifier. This is usually part of a message that includes a coded value taken from the identified coding scheme. <i>Note:</i> ICSIs are issued in accordance with ISO 7826 to registered coding schemes. The ISO7826 provides ranges of values for unregistered local schemes.		
code value	Type: S [String]	1
<i>Description:</i> A string that contains a coded value. This is usually part of a sub-class in which contains an instance of ICSI which identifies the coding scheme from which the value is taken,		
code meaning	Type: S [String]	1

7.10.2 C/S [Code or String]**Type:** sub class**Description:** Code (with text description) or uncoded text string.

Attributes		
Choice of		1
	coded element	Type: C [Coded] (7.10.1)
	text description	Type: S [String]

7.10.3 C+S [Code+String]**Type:** sub class**Description:** Code (with text description) and optional textual qualification

Attributes		
coded element	Type: C [Coded] (7.10.1)	1
text qualifier to coded information	Type: S [String]	1

7.10.4 LC/S [List of Codes or Strings]5 **Type:** sub class**Description:** List of codes (with text descriptions) or uncoded text strings.

Attributes		
coded or text element	Type: C/S [Code or String] (7.10.2)	1 or many

7.10.5 LC+S [List of Codes+Text]**Type:** sub class**Description:** Lists of codes (with text descriptions) each with an optional textual qualification.

Attributes		
coded element and text	Type: C+S [Code+String] (7.10.3)	1 or many

10 **7.10.6 V [Codes Value]****Type:** sub class**Description:** Code without description

Attributes		
ICSI	Type: S [String]	1
<i>Description:</i> International Coding Scheme Identifier. This is usually part of a message that includes a coded value taken from the identified coding scheme. <i>Note:</i> ICSIs are issued in accordance with ISO 7826 to registered coding schemes. The ISO7826 provides ranges of values for unregistered local schemes.		
code value	Type: S [String]	1
<i>Description:</i> A string that contains a coded value. This is usually part of a sub-class in which contains an instance of ICSI which identifies the coding scheme from which the value is taken,		

7.11 Simple data types

7.11.1 B [Boolean]

Type: #

Description: Boolean

5 **7.11.2 E [Enumerated]**

Type: #

Description: Enumerated list

7.11.3 I [Integer]

Type: #

10 **Description:** Integer

7.11.4 R [Real]

Type: #

Description: Real

7.11.5 S [String]

15 **Type:** #

Description: String

7.11.6 TOCD [Time+Date]

Type: #

Description: Time and date

20

Annex A. How to read the models (informative)

A.1 Introduction

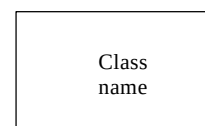
The modelling technique and the definition of terms in the models follow the conventions described within the Unified Modelling Language (UML).

- 5 This annex contains a brief overview of the modelling conventions used in this document. However, it shall be understood modelling is used only within this European Prestandard for consistency and is used as a means of describing the domain. It is not the intention of this European Prestandard, or this Annex to present this modelling method, or its implementation, as a general method for modelling healthcare information for other purposes.

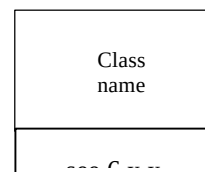
A.2 Classes and Packages

- 10 a) A **class** is the descriptor for a set of objects with similar structure, behaviour, and relationships. This document provides a graphical notation for the relationships between instances of the classes where this adds to the clarity of the description of the domain. All classes are described textually. Note: an instance of a class may be called ‘an

- 15 Notation: Within UML, a Class is shown as a solid-outline rectangle with 3 compartments separated by horizontal lines. The upper *name* compartment holds the class name; the middle compartment holds a list of *attributes*; the bottom list compartment holds a list of *operations*. In this document, where a class is included in a diagrammatic representation of the structure within a subsystem, only the *name* compartment is shown.

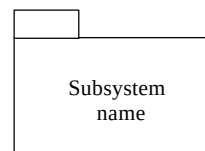


- 25 Within this European Prestandard, the most common representation of a class utilises two compartments, the *name* compartment and the *attribute* compartment, the latter indicating the sub-clause within the document where the attributes are described.



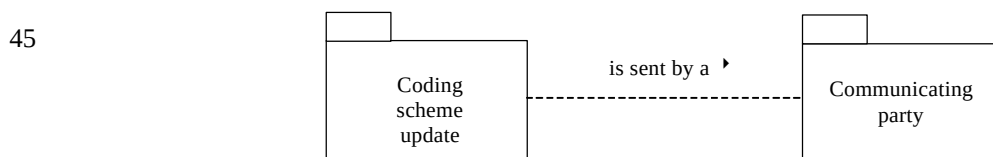
- 35 b) A **package** is a grouping of model elements. Packages themselves may be nested within other packages. All kinds of UML model elements and diagrams can be organised into package.

Notation: A package is shown as a large rectangle with a small rectangle (a “tab”) attached on one corner. If the contents of the package are not shown, then the name is placed within the large rectangle.



A.3 Types of relationships

A.3.1 Relationship between packages

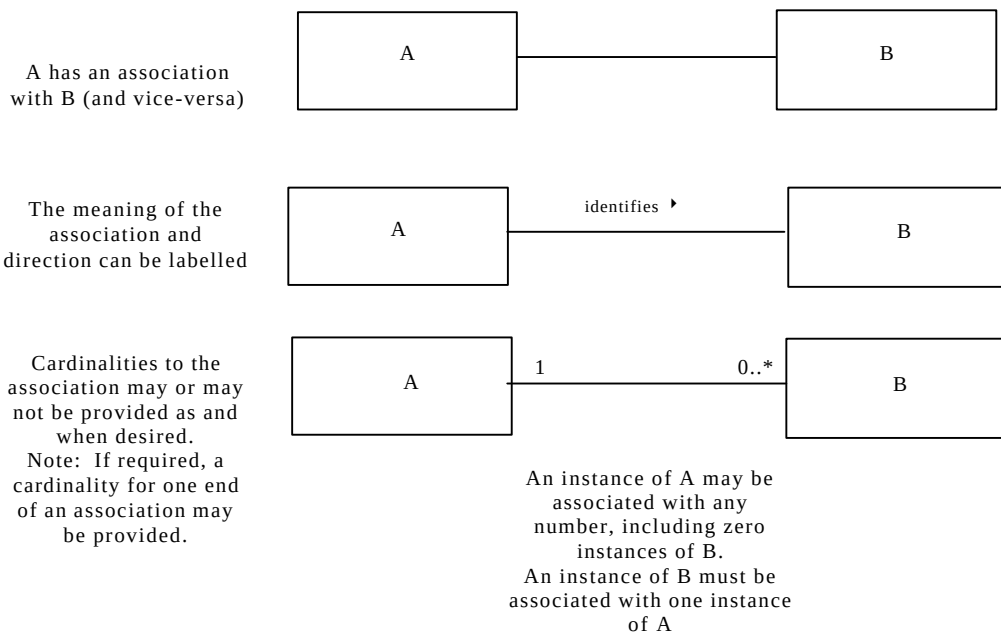


- 50 **Association:** Within this First Working Document associations between packages are illustrated using a dashed line. In addition, there is usually an indication of the nature or purpose and the direction of the relationship using a text string and arrow of direction.

A.3.2 Relationship between classes.

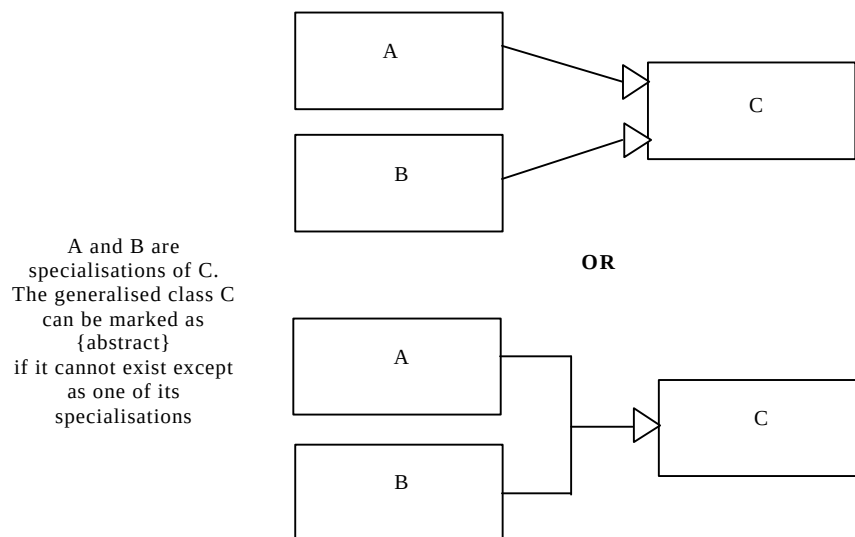
Class Association: Within this First Working Document associations between instances of classes are illustrated using a solid line. In addition, the cardinalities associated with the association are usually attached and may, as with the associations between packages above, attach a textual description of the meaning associated with the link.

55

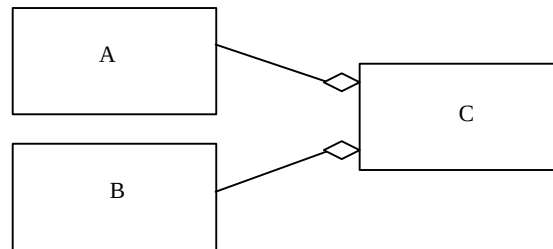


Generalisation/Specialisation: This type of relationships represent "is a" or "is a kind of" structures and are modelled using a connection containing a triangle at the generalisation end of the association.. Specialisation classes inherit all attributes, relationships and services from their generalisation class(es).

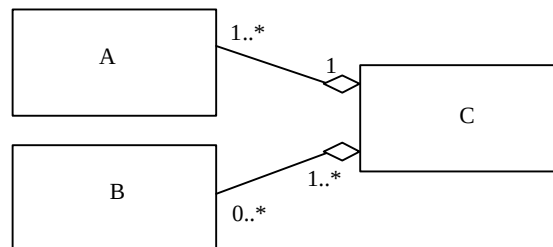
5



Aggregation: This type of relationships represents "is a part of" structures and are modelled using a connection containing a small hollow diamond at the class that is the aggregate.



This indicates that A and B are 'Part of' C. However, the instances of A and B may exist apart from C (e.g. in some other relationship or in another instance of the same type of association). For example, a healthcare professional may exist without a healthcare organisation but can also be a part of one. If the healthcare organisation ceases to exist, the healthcare professional will still exist.



In the same way as associations, above, the links may have associated cardinalities (can be many-to-many), and may have labels.

In this example:

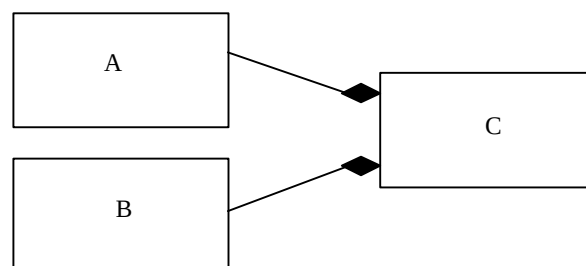
An instance of C is associated with one to many instances of A and zero to many instances of B.

An instance of B is a part of one to many instances of C

An instance of A is always associated with a particular single instance of C

Composition: This is a type of aggregation with strong ownership and coincident lifetime of part with the whole. This type of relationship is modelled using a connection containing a small filled diamond at the class that is the aggregate.

5

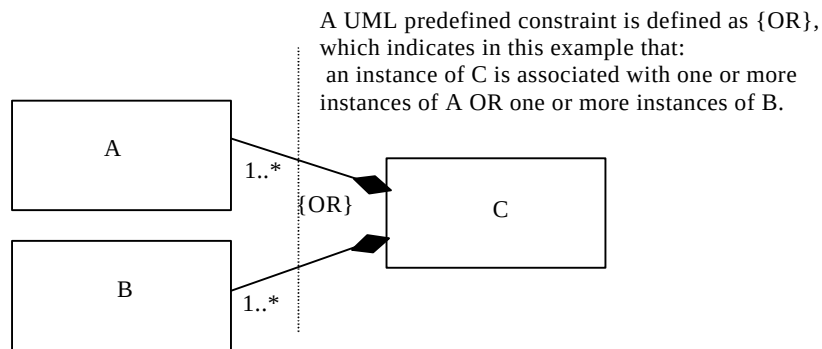
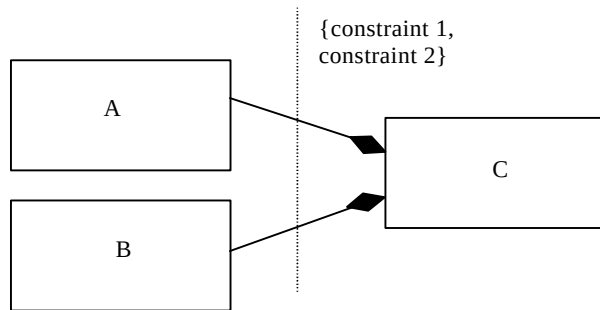


A composition aggregation owns its parts. The parts 'live' inside the whole: they will be destroyed together with its whole. The cardinality therefore allows a part to be associated with one whole, but the whole may own many instances of a particular part. The link may be labelled at the part end.

A.3.3 Other notation elements

Constraints: A constraint may be attached to any type of association including aggregation and composition. The constraint is indicated by a dashed line across the affected associations. The type of constraints are shown below:

5



Annex B. Suggested extended EHCR item elements (Informative)

B.1 Introduction

This Annex contains additional *record item elements* (7.6.9) that are suggested as a basis for consideration when implementing the *provide EHCR message* (7.3.5). These elements are based on classes included in earlier CEN TC251 message Prestandards. Support for these elements is not a requirement for conformance with this Prestandard but implementors should anticipate requirements for these or similar extensions when these messages are introduced into communicating communities.

B.2 event RIE

Type: class

Specialisation of: record item element (7.6.9)

Description: Information about a planned or actual event that relates to the care process for an individual.

Note: EHCR related events include:

- individual contacts between health professionals and patients (e.g. consultations, phone calls)
- admission, transfers and discharges
- identifiable periods of care (e.g. episodes)

Attributes		
administrative category of event	Type: V [Codes Value] (7.10.6)	0 or 1
<i>Description:</i> Administrative type of the event that is requested, proposed or carried out. <i>Example(s):</i> First out-patient attendance, subsequent out-patient attendance, admission, day care, domiciliary visit, telephone consultation, direct access to procedure/operation, emergency admission.		
urgency status of event	Type: V [Codes Value] (7.10.6)	0 or 1
<i>Description:</i> Classification of event in terms of urgency. <i>Example(s):</i> Emergency, elective.		
expected duration of event	Type: time interval (7.9.30)	0 or 1
<i>Description:</i> the length of time that a single event RIE is expected to last from the start date and time of event (in the case of actual action events) or date and time scheduled (in the case of planned events).		
administrative outcome	Type: C/S [Code or String] (7.10.2)	0 or many
<i>Description:</i> Information relevant to further action. <i>Note:</i> If a request that is rejected or a planned investigation is postponed there may be further plans (e.g. a new appointment may be issued automatically or only on further request). The reason for postponement may impact future plans (e.g. non-attendance for the appointment, admission or death of the patient). <i>Example(s):</i> patient did not attend appointment, patient died, another appointment given, open appointment, appointment to be given at a later date, no further arrangements will be made.		
organisation at location	Type: organisation reference (7.9.19)	0 or many
event location	Type: location related information (7.9.11)	0 or many
<i>Description:</i> Information about a location that is directly related to the provision of care to a patient. <i>Example(s):</i> the location immediately prior to an event RIE, the location at which the event takes place or the location immediately subsequent to the event.		
Choice of		1
	event RIE completion details	Type: actual event details (7.9.1)
	event RIE planning details	Type: planned event details (7.9.23)

B.3 healthcare administrative RIE**Type:** class**Specialisation of:** record item element (7.6.9)**Description:** Administrative information related to a patient.5 **Note:** Includes marital status, religion, nationality, occupation, basis of entitlement to healthcare services, etc.

Attributes		
marital status of patient	Type: V [Codes Value] (7.10.6)	0 or 1
<i>Example(s):</i> Single, married, divorced, widowed.		
religion of patient	Type: C/S [Code or String] (7.10.2)	0 or 1
nationality of patient	Type: C/S [Code or String] (7.10.2)	0 or 1
date and time of death	Type: TOCD [Time+Date]	0 or 1
<i>Note:</i> In case the exact date and time is unknown, year only or year + month or year + month + day are sufficient.		
patient occupation	Type: C/S [Code or String] (7.10.2)	0 or many
basis of entitlement to health services	Type: C [Coded] (7.10.1)	0 or 1
<i>Example(s):</i> National, E111 holder, resident of other country with reciprocal rights, not entitled to public health services.		
language details of patient	Type: language details (7.9.9)	0 or 1
confidentiality constraint on patient data	Type: C/S [Code or String] (7.10.2)	0 or many
<i>Description:</i> Information that is of relevance in determining the type of patient information which may be shared by staff in the receiving <i>healthcare organisation</i> and the degree/extent to which it may be shared.		
<i>Note:</i> The confidentiality constraints on patient data may also be defined by the patient.		
<i>Example(s):</i> In some countries, the patient's consent is required before computer-held data is transmitted to a third party.		

B.4 medication RIE**Type:** class**Specialisation of:** record item element (7.6.9)**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.**Note:** May include 'presentation' (e.g. tablets, capsules, injection, inhaler, syrup) as well as the drug itself. This should not be used for conveying prescriptions as this is outside the scope of this European Prestandard.

Attributes		
drug information status	Type: E [Enumerated]	1
<i>Description:</i> Information which describes the status of the medication RIE information. <i>Values:</i> 0. Record of current medication (at the time of origin of this item). 1. Past medication. 2. Record of an issued prescription. 3. Record of a decision to prescribe or change dosage. 4. Record of medication administered to the patient. 5. Other		
identification of drug	Type: C/S [Code or String] (7.10.2)	1
<i>Note:</i> 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). The scope of this attribute includes the possibility of it conveying both drug identification information and form of presentation information since code lists which combine these are in widespread current use. It is expected that in the future this information will be carried in several distinct attributes. <i>Example(s):</i> Salbutamol inhaler, salbutamol syrup, Ventolin, paracetamol, warfarin tablets, soluble insulin, lignocaine, dobutamine, gluten-free flour.		
dosage and administration instructions	Type: LC+S [List of Codes+Text] (7.10.5)	0 or many
<i>Description:</i> Information which, together with the drug identification, provides a full specification of the patient's treatment with the drug. <i>Note:</i> 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). Form of presentation not normally included if indicated by the identification of the drug. <i>Example(s):</i> 100 micrograms 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	Type: duration (7.9.5)	0 or 1
days supply	Type: I [Integer]	0 or 1
quantity of drug supplied	Type: measurement (7.9.13)	0 or 1
<i>Note:</i> This attribute group consists of the attributes numerical value of quantity and unit of quantity.		
comment to drug treatment	Type: S [String]	0 or 1
<i>Note:</i> To convey any unstructured comment about the patient's treatment with the drug.		

B.5 patient related party RIE**Type:** class**Specialisation of:** record item element (7.6.9)**Description:** Information about a person or organisation who has a role in the care of a patient other than as a *healthcare party*.**Note:** If a message needs to refer to any person other than a *healthcare professional* or the patient these may be represented as a patient related party.

An instance of patient related party can also be used to convey information about a patient's next of kin or a person who should be contacted in the event of a serious medical emergency.

Attributes		
identification of patient related party	Type: party identifiers (7.9.20)	0 or 1
<i>Description:</i> Identification of a patient related party RIE assigned by a national healthcare authority.		
relationship type of patient related party	Type: V [Codes Value] (7.10.6)	1
<i>Description:</i> Relationship of the patient person in connection with the patient. <i>Example(s):</i> Next of kin, wife, carer, father, guardian, prison officer, friend.		
relationship period	Type: period (7.9.21)	0 or 1
<i>Description:</i> <i>period</i> during which when <i>healthcare party</i> performed the specified role in the care of the patient.		
name of patient related person	Type: person name details (7.9.22)	0 or 1
organisation name details	Type: S [String]	0 or 1
address of patient related party	Type: address (7.9.2)	0 or many
telecommunication of patient related party	Type: telecommunication (7.9.28)	0 or many
patient related party sex	Type: V [Codes Value] (7.10.6)	0 or 1
<i>Note:</i> Represented by the abbreviations specified in ISO 5281.		
patient related party occupation	Type: C/S [Code or String] (7.10.2)	0 or 1
language details of patient related party	Type: language details (7.9.9)	0 or many