INTERNATIONAL STANDARD

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Second edition
2014-02-15

Health informatics — Patient healthcard data —

Part 4: Extended clinical data

Informatique de santé — Données relatives aux cartes de santé des patients —

Partie 4: Données cliniques étendues

Reference number
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Contents

Page

Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2. www.iso.org/directives

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The committee responsible for this document is ISO/TC 215, *Health informatics.*

This second edition cancels and replaces the first edition (ISO 21549-4:2006), which has undergone a minor revision. The following changes have been made.

— Foreword: mention of CEN collaboration is removed.

— Scope: first paragraph is reworded.

— Scope: requirements “shall“ are replaced by “are“ in the third paragraph.

— Normative references: references that are not cited normatively are moved to the Bibliography.

— Terms and definitions, subclause 3.1: the second sentence is removed.

— Clause 5: paragraph after Figure 1 is reworded.

— Clause 7: references to figures and tables are added; the class ExtendedEmergencyData is moved to Part 3.

— Annexes B and C: requirements “shall“ are replaced by “should“.

— Annex B, subclause B.2: syntax errors are corrected.

— Bibliography: created to list all the documents cited that are not in the normative references.

ISO 21549 consists of the following parts, under the general title *Health informatics — Patient healthcard data*:

— *Part 1: General structure*

— *Part 2: Common objects*

— *Part 3: Limited clinical data*

— *Part 4: Extended clinical data*

— *Part 5: Identification data*

— *Part 6: Administrative data*

— *Part 7: Medication data*

— *Part 8: Links*

Introduction

With a more mobile population, greater healthcare delivery in the community and at patients' homes, together with a growing demand for improved quality of ambulatory care, portable information systems and stores have increasingly been developed and used. Such devices are used for tasks ranging from identification, through portable medical record files, and on to patient-transportable monitoring systems.

The functions of such devices are to carry and to transmit person-identifiable information between themselves and other systems; therefore, during their operational lifetime they may share information with many technologically different systems which differ greatly in their functions and capabilities.

Healthcare administration increasingly relies upon similar automated identification systems. For instance prescriptions may be automated and data exchange carried out at a number of sites using patient transportable computer readable devices.

The advent of remotely accessible databases and support systems has led to the development and use of "Healthcare Person" identification devices that are also able to perform security functions and transmit digital signatures to remote systems via networks.

With the growing use of data cards for practical everyday healthcare delivery, the need has arisen for a standardised data format for interchange.

The person related data carried by a data card can be categorised in three broad types: identification (of the device itself and the individual to whom the data it caries relates), administrative and clinical. It is important to realize that a given healthcare data card "de facto" has to contain device data and identification data and may in addition contain administrative, clinical, medication and linkage data.

Device data are defined to include:

— identification of the device itself;

— identification of the functions and functioning capabilities of the device.

Identification data may include:

— unique identification of the device holder or of all other persons to whom the data carried by the device are related.

Administrative data may include:

— complementary person(s) related data;

— other data (distinguishable from clinical data) that are necessary for the purpose of healthcare delivery.

Clinical data may include:

— items that provide information about health and health events;

— their appraisal and labelling by a healthcare provider (HCP);

— related actions planned requested or performed.

Because a data card essentially provides specific answers to definite queries while having at the same time a need to optimize the use of memory by avoiding redundancies "high level" Object Modelling Technique (OMT) has been applied with respect to the definition of healthcare data card data structures.

This part of ISO 21549 describes and defines the Extended Clinical Data objects used within or referenced by patient held health data cards using UML, plain text and Abstract Syntax Notation (ASN.1).

This part of ISO 21549 does not describe and define the common objects defined within ISO 21549-2 even though they are referenced and utilized within this part of ISO 21549.

Health informatics — Patient healthcard data —

Part 4: Extended clinical data

1 Scope

This part of ISO 21549 is applicable to situations in which clinical data additional to the limited clinical data defined in ISO 21549-3 is recorded on or transported by patient healthcare data cards compliant with the physical dimensions of ID-1 cards defined by ISO/IEC 7810.

This part of ISO 21549 specifies the basic structure of the data contained within the data object extended clinical data, but does not specify or mandate particular data sets for storage on devices.

In order to facilitate interoperability, whenever an application is built for use in the healthcare domain in compliance with this part of ISO 21549, data items required for that application are drawn from the list of objects (some of which are extensible) as provided in Clause 5. These are used in conjunction with other data defined in other parts of this International Standard.

The detailed functions and mechanisms of the following services are not within the scope of this part of ISO 21549, (although its structures can accommodate suitable data objects elsewhere specified).

— The encoding of free text data.

— Security functions and related services which are likely to be specified by users for data cards depending on their specific application, for example: confidentiality protection, data integrity protection, and authentication of persons and devices related to these functions.

— Access control services which may depend on active use of some data card classes such as microprocessor cards.

— The initialisation and issuing process (which begins the operating lifetime of an individual data card, and by which the data card is prepared for the data to be subsequently communicated to it according to this part of ISO 21549).

The following topics are therefore beyond the scope of this part of ISO 21549:

— physical or logical solutions for the practical functioning of particular types of data cards;

— how the message is processed further 'downstream' of the interface between two systems;

— the form which data takes for use outside the data card, or the way in which such data are visibly represented on the data card or elsewhere.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 21549-1, *Health informatics — Patient healthcard data — Part 1: General structure*

ISO 21549-2, *Health informatics — Patient healthcard data — Part 2: Common objects*

ISO 21549-3, *Health informatics — Patient healthcard data — Part 3: Limited clinical data*

3 Terms and definitions

For the purposes of this document the terms and definitions given in ISO 21549-1, ISO 21549-2, ISO 21549-3 and the following apply.

3.1
clinical information
information about a patient, relevant to the health or treatment of that patient, that is recorded by or on behalf of a healthcare professional

[SOURCE: ENV 1613]

3.5
healthcare party
organization or person responsible for the direct or indirect provision of healthcare to an individual, or involved in the provision of healthcare-related services

[SOURCE: ENV 1613]

3.9
relaying agent
party agreed to be acting as an intermediary, communicating messages between the requesting and requested healthcare parties in both directions when direct communication is not possible as the requested healthcare party's identity is not known, being dependent on individual patient's choice

[SOURCE: ENV 13607]

4 Symbols and abbreviated terms

ASN.1 Abstract Syntax Notation version 1

HCP Healthcare Person

HDC Healthcare Data Card

UML Unified Modelling Language

UTC Universal Time Coordinated

5 Basic data object model for a healthcare data card

5.1 Patient HDC data object structure

A set of basic data objects have been designed to facilitate the storage of clinical data in a flexible structure, allowing for future application-specific enhancements. These tools should help the implementation of common accessory characteristics of stored data in a way that allows efficient use of memory, an important feature for many types of data cards.

The tools consist of a generic data structure based on an object-oriented model represented as an UML class diagram as shown below in Figure 1.

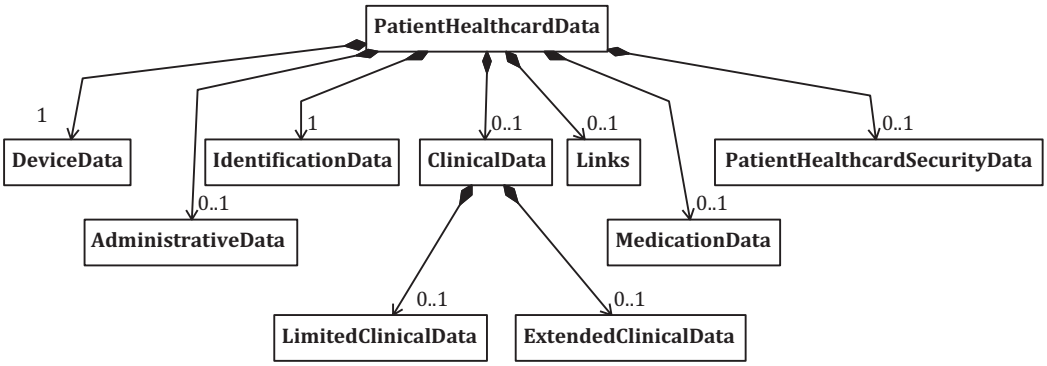

Figure 1 — Patient healthcard data: overall structure

The content of this object-oriented structure described in Clause 7 and Annex A will also require the use of data objects not defined within this part of ISO 21549.

NOTE It is possible to take the data objects and recombine them while preserving their context-specific tags, and to define new objects, while still preserving interoperability.

In addition to the capability of building complex aggregate data objects from simpler building blocks, this part of ISO 21549 allows for associations between certain objects, so that information can be shared. This feature is mainly used to allow, for example, a set of accessory attributes to be used as services to several stored information objects.

5.2 Basic data objects for referencing

5.2.1 Overview

A series of generally useful data type definitions have been made that have no intrinsic value in themselves, but which are used to define other objects within this part of ISO 21549. Operations may be performed with these objects in association with other information objects to "add value". These objects have formal definitions within ISO 21549-2.

5.2.2 Coded data

Coded values are understood by reference to the coding scheme to which they apply. The general principle in this part of ISO 21549 is that it is not mandatory to use a particular coding scheme, unless specified within this part of ISO 21549, when such codes act as parameters. One example is the use of ISO 3166-1 for country codes.

When a coding scheme is exclusively specified within this part of ISO 21549 no alternative coding scheme shall be allowed. Any references to coding schemes not so specified may however be modified in the future independent of the rest of this International Standard.

The data object CodedData shall be constructed according to the definition contained in ISO 21549-2.

5.2.3 Device and data security attributes

Data stored in data cards used in health care may be personally sensitive. For this reason this part of ISO 21549 utilizes a series of security attributes, defined in ISO 21549-2. The actual data content (value) is not within the scope of this part of ISO 21549, nor are the mechanisms that make use of these data elements. It is emphasized that the security attributes cannot satisfy given security requirements without the implementation of the appropriate security functions and mechanisms within the data card.

Such access privileges are attributable to specific individuals with respect to discrete data items. These privileges will be defined by application developers and can be controlled by automated systems such as

healthcare professional cards. The privileges may be defined at the application level thereby providing application and potential country specificity.

The data object SecurityServices provides for the storage of data required to deliver these security functions and mechanisms. This data can be "attached" to individual data elements thereby preserving the original author's security requirements when the data object is transferred between different forms of data card. This mechanism may therefore ensure that in the process of transferring data from active to passive media and then back to active media, the original security requirements are regenerated. This ability also allows exact replication of a data card such as on regeneration after failure.

5.2.4 Accessory attributes

The data object AccessoryAttributes shall consist of an ordered set of data that is essential to record an audit trail regarding both the originator of the information and the means via which it arrives to the recipient as defined in ISO 21549-2.

6 Functional requirements on card information for extended clinical data

6.1 Overview of supported uses

The major consideration in this part of ISO 21549 is for HDC:

— to carry the clinical messages (orders, referrals and reports) between the loosely coupled healthcare parties (i.e. parties that are not able to establish network connections or do not have the third trusted party yet);

— to carry the links and access keys to clinical messages between the tightly coupled healthcare parties (i.e. the parties that are able to establish network connection and have the third trusted party);

— to carry coded summaries of diagnosis and procedures extending limited clinical data set described in ISO 21549-3. These summaries may be considered as the national or even institutional extensions of limited clinical data.

6.2 Clinical message transfer between healthcare parties

HDC designed to transfer clinical messages between healthcare parties shall be considered as a secure data media for a relaying agent. Such HDC may receive clinical messages without a predefined target healthcare party and may also play a role in authenticating the eligibility of the healthcare party to retrieve these clinical data.

7 Extended clinical data

7.1 General

The ExtendedClinicalData object is specifically divided into two separate data objects, index of clinical events (class *ClinicalEventDescription*), and sequence of mapped clinical messages (class *MappedClinicalMessage*). Because of their groupings each of these can have differing security settings including access rights as determined by the provisions contained within accessory attributes (class *AccessoryAttributes*).

Figure 2 and Table 1 define ExtendedClinicalData data object.

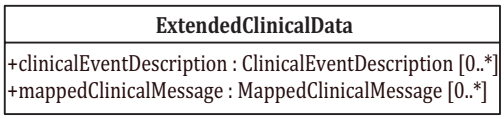

Figure 2 — The structure of ExtendedClinicalData

Table 1 — The specification of individual entities within the object ExtendedClinicalData

Object name	Object Type	Multiplicity	Comments
clinicalEventDescription	ClinicalEventDescription	0..*	This class holds the description of a clinical event registered onto HDC
mappedClinicalMessage	MappedClinicalMessage	0..*	This class holds a mapped clinical message carrying information of the registered clinical event

7.2 The clinical event description

An object ClinicalEventDescription shall consist of a set of data consisting of a clinical event identifier, a type and a subtype (control code) of this event and also date, time and place of event. This object may contain the optional element AccessoryAttributes. This object is intended to support the process of a selection of the relevant clinical message.

According to Figure 3 an instance of ClinicalEventDescription may reference an instance of the MappedClinicalMessage and an instance of EventPlace. Table 2 defines the specification of individual entities within the object ClinicalEventDescription.

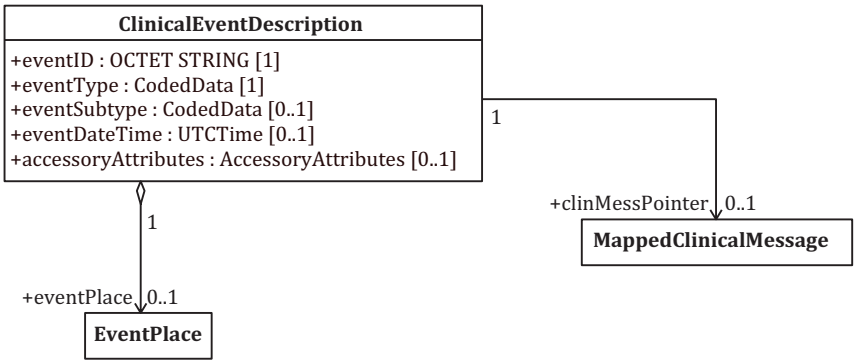

Figure 3 — The structure of ClinicalEventDescription

Table 2 — The specification of individual entities within the object ClinicalEventDescription

Object name	Data Type	Multiplicity	Comments
eventID	OCTET STRING	1	This identifies a clinical event in a manner allowing the originator of the related clinical message to identify this event uniquely.
eventType	CodedData	1	This identifies type of the clinical event (order, referral, discharge, result of clinical investigation and so on).
eventSubtype	CodedData	0..1	This identifies subtype of the clinical event or control (new order, cancel order and so on).
eventDateTtime	UTCTime	0..1	This identifies date and time of clinical event.
accessoryAttributes	AccessoryAttributes	0..1	An object that incorporates data that determines authentication and authorization in particular.
eventPlace	RefPointer	0..1	This references the identifier of a location or a system where the clinical event took place or was registered.
clinMessPointer	RefPointer	0..1	This references the mapped clinical message.

7.3 The mapped clinical message

An object MappedClinicalMessage shall carry information on the clinical event. This information is contained in the clinical message triggered by this event and directed by a service requester to a service provider or vice versa.

According to Figure 4 each instance of the object MappedClinicaMessage shall be referenced by one instance of the object ClinicalEventDescription. Table 3 defines the specification of individual entities within the object MappedClinicaMessage.

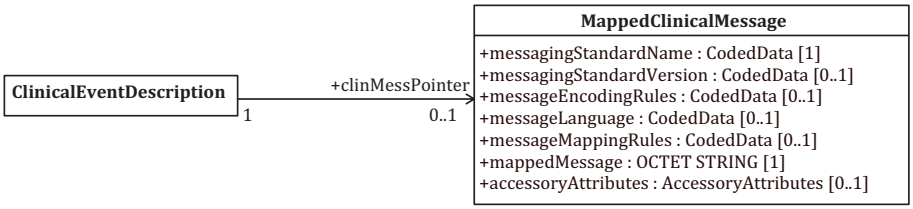

Figure 4 — The structure of MappedClinicaMessage

Table 3 — The specification of individual entities within MappedClinicalMessage

Object name	Data Type	Multiplicity	Comments
messagingStandardName	CodedData	1	This identifies messaging standard used by the originator of the message.
messagingStandardVersion	CodedData	0..1	This identifies messaging standard used by the originator of the message.
messageEncodingRules	CodedData	0..1	This identifies messaging encoding rules used by the originator of the message.
messageLanguage	CodedData	0..1	This identifies principal language of the message.
messageMappingRules	CodedData	0..1	This identifies the mapping rules used by a card application while writing the message into HDC.
mappedMessage	OCTET STRING	1	This is the mapped message itself.
accessoryAttributes	RefPointer	0..1	An object that incorporates data that determines authentication and authorization in particular.

Annex A
(normative)

ASN.1 Data definitions

```
ExtendedClinicalData DEFINITIONS ::= BEGIN
EXPORTS ExtendedClinicalData;
-- AccessoryAttributes, CodingSchemesUsed, CodedData, RefPointer are defined
-- in ISO 21549-2
IMPORTS AccessoryAttributes, CodingSchemesUsed, CodedData, RefPointer FROM CommonData-
Types;
ExtendedClinicalData ::= SET
{
      clinicalEventDescriptions   [0] SEQUENCE OF ClinicalEventDescription     OPTIONAL,
      mappedClinicalMessages      [1] SEQUENCE OF MappedClinicalMessage  OPTIONAL
}
ClinicalEventDescription   ::= SET
{
   eventID                     [0] OCTET STRING,
   eventType                   [1] CodedData,
   eventSubtype                [2] CodedData     OPTIONAL,
   eventDateTime               [3] UTCTime       OPTIONAL,
   eventPlace                  [4] RefPointer    OPTIONAL,
-- This is a pointer to a person/place identifier stored elsewhere
   clinMessPointer             [5] RefPointer    OPTIONAL,
-- This is a pointer to a clinical message stored elsewhere
   accessoryAttributes         [6] AccessoryAttributes   OPTIONAL
}

MappedClinicalMessage      ::= SET
{
   messagingStandardName       [0] CodedData,
   messagingStandardVersion    [1] CodedData     OPTIONAL,
   messageEncodingRules        [2] CodedData     OPTIONAL,
   messageLanguage             [3] CodedData     OPTIONAL,
   messageMappingRules         [4] CodedData     OPTIONAL,
   mappedMessage               [5] OCTET STRING,
   accessoryAttributes         [6] AccessoryAttributes   OPTIONAL
}

END
```

Annex B
(informative)

Rationale of extended clinical data structure

B.1 Introduction

The request for clinical order or referral is usually accompanied by a relevant subset of the clinical information held by the requesting healthcare professional about the patient or subject of the order or referral. The recipient of the order or the referral usually reports on the progress and outcome of the requested service. These reports may be made when the requested service is completed or at other significant points in the delivery of the requested service. The information that is transferred in the requests and reports passing between healthcare professionals typically forms part of the administrative and clinical record of the patient held by each of the communicating parties. Electronic transfer of these requests and reports reduces the need for manual data entry and the risk of transcription errors. It also results in greater efficiency leading to better healthcare provision.

HDC may facilitate the electronic transfer of the orders, referrals and reports in several ways. First of all they may carry the orders, referrals and reports between the loosely coupled healthcare parties (i.e. parties that are not able to establish network connections or do not have third trusted party yet). HDC may also carry the links and access keys to the relevant subsets of the electronic patient's record between the tightly coupled healthcare parties (i.e. parties that are able to establish network connection and have third trusted party).

HDC coupled with the appropriate card application (card system) may be considered as a relaying agent in terms of ENV 13607 (Figure B.1).

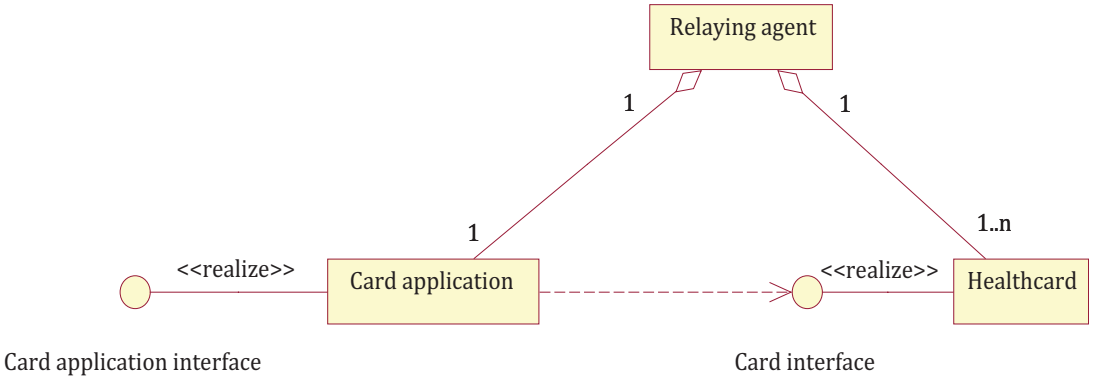

Figure B.1 — HDC as a component of relaying agent

In case of clinical orders and referrals, the relaying agent is a party agreed to be acting as an intermediary, communicating messages between the requesting and requested healthcare parties in both directions when direct communication is not possible as the requested healthcare party's identity is not known, being dependent on individual patient's choice (Figure B.2). Such a relaying agent is also entrusted with the role of receiving a new order or referral from the requesting party without a predefined requested party. The relaying agent may also play a role in authenticating the eligibility of the requested party to retrieve extended clinical data.

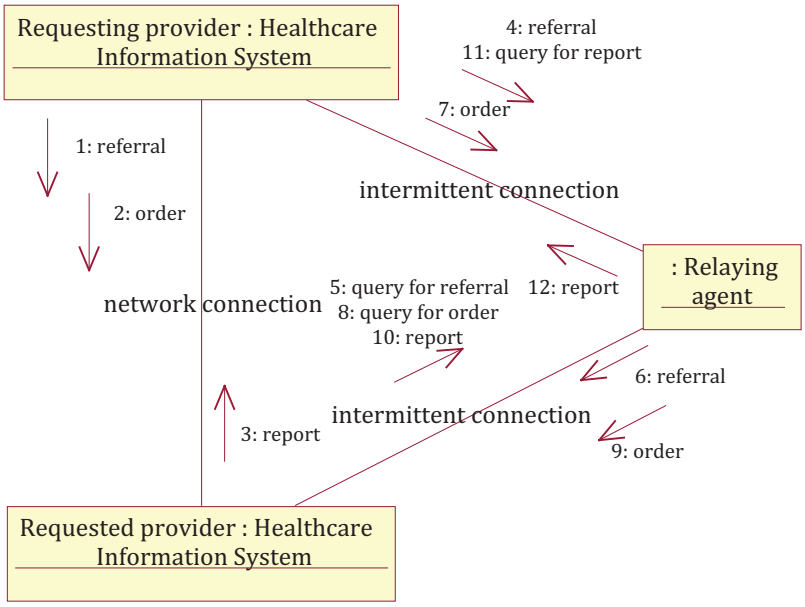

Figure B.2 — Relaying agent as intermediary between requesting and requested providers

In order to play a role in orders, referrals and reports storage for the relaying agent, HDC is to be able to carry extended clinical data in addition to emergency data set, medication data, identification and administrative data. Standards are required to define the structure of extended clinical data carried by HDC between the many systems currently used. Implementation of these standards facilitates electronic exchange of orders, referrals and reports between both loosely and tightly coupled healthcare parties and reduces the need for manual entry and the risk of transcription errors. It also results in greater efficiency, leading to better healthcare provision.

B.2 Extended clinical data structure construction

Extended clinical data objects that will be proposed in this part of ISO 21549 are to be derived from definitions of relevant data objects given by existing standards of electronic orders/referrals/reports exchange including but not limited to:

- ENV 1613 *Medical informatics - Messages for exchange of laboratory information*
- ENV 12538 *Medical informatics - Messages for patient referral and discharge*
- ENV 12539 *Medical Informatics - Request and report messages for diagnostic service departments*
- ISO/HL7 27931 Chapter 4 *Order Entry*, Chapter 7 *Observation Reporting*, Chapter 11 *Patient Referral*
- UN/EDIFACT *Messages MEDREQ and MEDRPT*
- DICOM 3.0

This approach implies that the relevant parts of the messages defined in these standards are to be mapped to and from proposed extended clinical data structure. Such a mapping may be performed by an intermediate card application (Figure B.1). It may be done at different levels of the message structure: message level, message parts level, message elements level (Figure B.3).

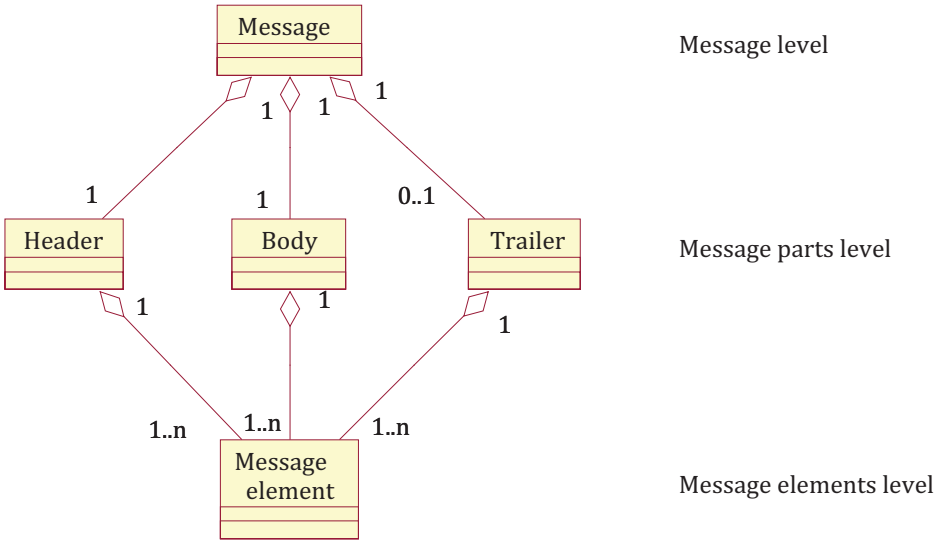

Figure B.3 — The levels of the message structure

ASC X12N faced a similar problem of constructing the clinical data structure for healthcare claims attachment several years ago. This committee has adopted mapping of HL7 Version 2 clinical order messages on the first, message level: the whole ORU (Observational Report Unsolicited) message is embedded in binary segment BIN. This approach simplifies the task of the implementation and maintenance of the standard significantly.

If HDC memory is small then HDC may not carry the mapped clinical messages. The new HDC may have memory up to several hundred MByte. So this disadvantage is not crucial.

HDC should contain not only embedded clinical messages but also some kind of supporting data structure. This structure may be derived from collaboration diagrams shown in Figure B.4.

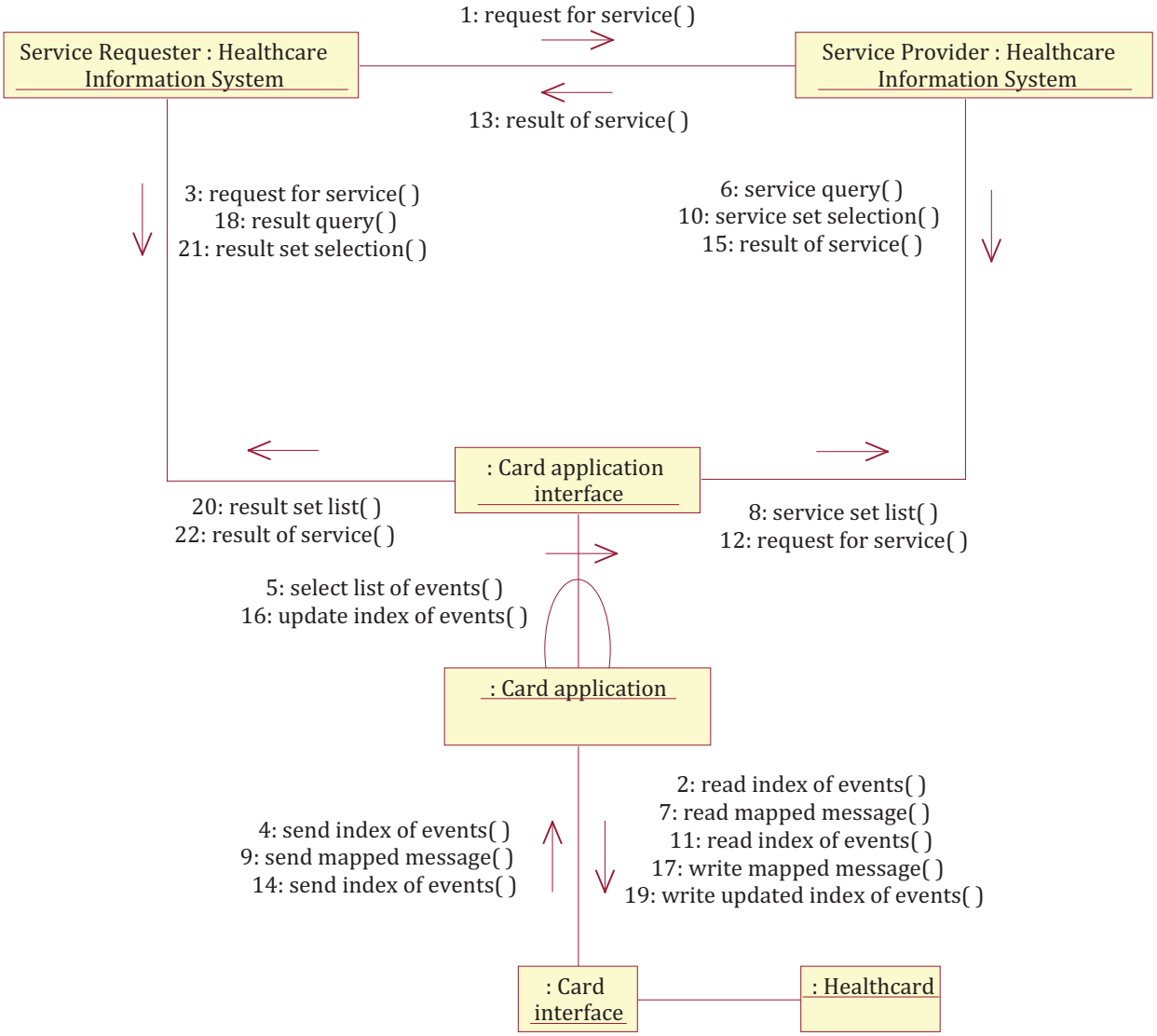

Figure B.4 — Interactions between health information systems and HDCs carrying clinical messages

A service requester may send a request for service (order or referral) directly to a service provider or may forward it to a HDC through a card application interface. When a patient (the HDC holder) visits the service provider he or she grants rights of HDC usage to this provider. HDC may carry many requests for service so the service provider should first of all query for the relevant requests and then select a proper request from the returned list. A similar procedure should be undertaken by the service requester to receive information on the result of the requested service. So the card application is to read an index of the related clinical events from HDC or to build this index by polling the embedded clinical messages. The latter method is not suitable because HDC may carry a huge volume of clinical data and message polling may be very time consuming. So HDC should contain both embedded clinical messages and an index of clinical events related to these messages. If memory capacity of HDC does not allow the clinical messages to be carried, then this card may contain only the index of events. The knowledge of the fact of the event may be useful even in the absence of the related message in the card memory. Having event ID, the healthcare party may query the message originator for detailed clinical information using network connection or simply by phone.

HDC may also carry the coded summary of the patient problems, diagnosis or procedures. Such a summary extents the limited clinical data set defined in the ISO 21549-3. It may be useful in an emergency. Each

entry of this summary contains coded phrases constructed from the relevant clinical classification or coding system, for example ICD, CPT, SNOMED International, SNOMED RT, SNOMED CT. The definition of the type ConceptDescriptor is derived from the definition of data type CD.CV defined in ISO 21090:2011.

Annex C
(informative)

Type and subtype of clinical event

C.1 Introduction

According to this part of ISO 21549 the types and the subtypes of events are coded data. In ISO/HL7 27931 the types of events are defined by HL7 Table 0003 – Event type, so their code system name should be H70003. Order control codes (HL7 Table 0119) may be considered as the subtypes of events, so their code system name should be H70119. This annex contains the subset of HL7 Table 0003 (see Table C.1) and HL7 Table 0119 (see Table C.2) as recommended values for the codes of the types and the subtypes of events respectively.

C.2 Event types

Table C.1 — Subset of HL7 Table 0003 - Event type

Event Type	Description
A03	ADT/ACK - Discharge/end visit
A13	ADT/ACK - Cancel discharge/end visit
C01	CRM - Register a patient on a clinical trial
C02	CRM - Cancel a patient registration on clinical trial (for clerical mistakes only)
C03	CRM - Correct/update registration information
C07	CRM - Correct/update phase information
C08	CRM - Patient has gone off phase of clinical trial
C09	CSU - Automated time intervals for reporting, like monthly
C10	CSU - Patient completes the clinical trial
C11	CSU - Patient completes a phase of the clinical trial
C12	CSU - Update/correction of patient order/result information
I12	REF/RRI - Patient referral
I13	REF/RRI - Modify patient referral
I14	REF/RRI - Cancel patient referral
I15	REF/RRI – Request patient referral status
O01	ORM - Order message
O02	ORR - Order response
O19	OMG - General clinical order
O20	ORG/ORL – General clinical order response
O21	OML - Laboratory order
O22	ORL - General laboratory order response message to any OML
PC1	PPR - PC/ problem add
PC2	PPR - PC/ problem update
PC3	PPR - PC/ problem delete

Table C.1 *(continued)*

Event Type	Description
PC6	PGL - PC/ goal add
PC7	PGL - PC/ goal update
PC8	PGL - PC/ goal delete
PC9	QRY - PC/ goal query
PCA	PPV - PC/ goal response
PCB	PPP - PC/ pathway (problem-oriented) add
PCC	PPP - PC/ pathway (problem-oriented) update
PCD	PPP - PC/ pathway (problem-oriented) delete
PCG	PPG - PC/ pathway (goal-oriented) add
PCH	PPG - PC/ pathway (goal-oriented) update
PCJ	PPG - PC/ pathway (goal-oriented) delete
R01	ORU/ACK – Unsolicited transmission of an observation message
R21	OUL - Unsolicited laboratory observation
T01	MDM/ACK – Original document notification
T02	MDM/ACK – Original document notification and content
T03	MDM/ACK – Document status change notification
T04	MDM/ACK – Document status change notification and content
T05	MDM/ACK – Document addendum notification
T06	MDM/ACK – Document addendum notification and content
T07	MDM/ACK – Document edit notification
T08	MDM/ACK – Document edit notification and content
T09	MDM/ACK – Document replacement notification
T10	MDM/ACK – Document replacement notification and content
T11	MDM/ACK – Document cancel notification
V04	VXU – Unsolicited vaccination record update
W01	ORU - Waveform result, unsolicited transmission of requested information

C.3 Event subtypes

Table C.2 — HL7 Table 0119 - Order control codes

Value	Description
AF	Order/service refill request approval
CA	Cancel order/service request
CH	Child order/service
CN	Combined result
CR	Canceled as requested
DC	Discontinue order/service request
DE	Data errors
DF	Order/service refill request denied
DR	Discontinued as requested

Table C.2 *(continued)*

Value	Description
FU	“Order/service refilled, unsolicited”
HD	Hold order request
HR	On hold as requested
LI	Link order/service to patient care problem or goal
NA	Number assigned
NW	New order/service
OC	Order/service cancelled
OD	Order/service discontinued
OE	Order/service released
OF	Order/service refilled as requested
OH	Order/service held
OK	Order/service accepted and OK
OR	Released as requested
PA	Parent order/service
PR	Previous Results with new order/service
RE	Observations/Performed Service to follow
RF	Refill order/service request
RL	Release previous hold
RO	Replacement order
RP	Order/service replace request
RQ	Replaced as requested
RR	Request received
RU	Replaced unsolicited
SC	Status changed
SN	Send order/service number
SR	Response to send order/service status request
SS	Send order/service status request
UA	Unable to accept order/service
UC	Unable to cancel
UD	Unable to discontinue
UF	Unable to refill
UH	Unable to put on hold
UM	Unable to replace
UN	Unlink order/service from patient care problem or goal
UR	Unable to release
UX	Unable to change
XO	Change order/service request
XR	Changed as requested
XX	“Order/service changed, unsol.”

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