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Health informatics – Patient healthcard data – Part 8: Links (ISO 21549-8:2010)

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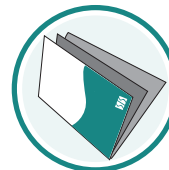
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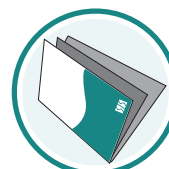
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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 21549-8

June 2010

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English Version

Health informatics - Patient healthcard data - Part 8: Links (ISO 21549-8:2010)

Informatique de santé - Données relatives aux cartes de santé des patients - Partie 8: Liens (ISO 21549-8:2010)

Medizinische Informatik - Patientendaten auf Karten im Gesundheitswesen - Teil 8: Verweise (ISO 21549-8:2010)

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Foreword

This document (EN ISO 21549-8:2010) has been prepared by Technical Committee ISO/TC 215 "Health informatics" in collaboration with Technical Committee CEN/TC 251 "Health informatics" the secretariat of which is held by NEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2010, and conflicting national standards shall be withdrawn at the latest by December 2010.

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Introduction

The ISO 21549 series of International Standards is intended to replace the European Prestandard ENV 12018 adopted by CEN in 1995. This series of International Standards provides data structures and definitions for data objects on patient data cards.

Healthcare becomes more and more integrated and is changing from having a local character to being regional and – with increasing mobility – even international. Typically, a patient's health history consists of many service episodes distributed over time and space. Sometimes patients are getting services from separate service providers at the same time. Each service provider such as hospital, health centre and physician has his own local patient record system. Thus the patient's health data is distributed more and more over specialities and space inside one country and also worldwide.

Patients can be better cared for if the health professional in charge has access to the patient's most recent data. Physicians at different locations have to be able to simultaneously see and edit a patient record from remote locations.

This requires on the one hand, information systems that are able to communicate and, on the other hand, standardized methods to locate the information. The Internet, which is able to distribute information to geographically-distant users, offers a securable technological solution for handling electronic patient records. However, it is necessary to access the data required in an easy and timely way. Not only does this mean that the relevant information has to be made available by its authors, but also that it has to be retrieved from a mass of irrelevant information whenever and wherever needed.

Patient data are especially sensitive and a secure basic infrastructure is absolutely necessary. Therefore, besides the secure transmission of data, the persons handling the record, for example health professionals and/or the patients have to be identified and authenticated. Further services like integrity and privacy protection, accountability, accessibility etc. need to be addressed as well.

Health cards can help to provide the necessary security in the sensitive health domain – including data integrity and data protection. They enable authentication for data on the card and can also provide links to several additional data objects stored elsewhere. Health cards may contain both a subset of critical clinical data stored on the card itself and links to data distributed nationally or worldwide over many medical information systems.

Health informatics — Patient healthcard data —

Part 8: Links

1 Scope

This part of ISO 21549 defines a way to facilitate access to distributed patient records and/or administrative information using healthcards. It defines the structure and elements of “links” typically stored in healthcards and representing references to individual patients' records as well as to subcomponents of them. Access control mechanisms, data protection mechanisms, access methods and other security services are outside the scope of this part of ISO 21549.

2 Normative references

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

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

ISO 21549-4, *Health informatics — Patient healthcard data — Part 4: Extended clinical data*

HL7v3, *Health Level Seven — Messaging Standard Version 3*, Normative Edition 2006

IETF RFC 3986, *Uniform Resource Identifier (URI): Generic Syntax*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

reference

information that provides the unambiguous identification of a certain part of a distributed record

3.2

linkage information

data set that provides the complete information to locate the resource of a certain part of a distributed record

3.3

ISO OID organization code

unique worldwide organization code defined and managed following the ISO/IEC 9834 series of International Standards

3.4

Uniform Resource Identifier

compact sequence of characters which identifies an abstract or physical resource

3.5

Uniform Resource Locator

standardized address used for referring to resources by their location

3.6

Uniform Resource Name

location-independent standardized label identifying an object by its name serving as persistent, location-independent resource identifier

4 Abbreviated terms

- OID Object Identifier
- URI Uniform Resource Identifier
- URL Uniform Resource Locator
- URN Uniform Resource Name
- XML eXtended Markup Language

5 Requirements

Typically, organizations are using internal data object identification systems for patient data records and images (e.g. DICOM numbering system consisting of an ISO OID organization code, a local archiving code and accumulative yearly number). The data object identifiers may be globally unique (as DICOM identifiers of studies, series and frames) or locally unique (as laboratory accession numbers). References to these data objects enable access to data objects that cannot be handled by use of the healthcard itself (e.g. for reasons of timing or storage capacity). The logical structure of these references should be compatible with the structure of references used in messages sent between healthcare information systems.

6 Structure

A link consists of the following data elements (see Figure 1).

- **URI** contains the physical reference (e.g. an internet/email address) and the unique ID (OID or proprietary ID) labelling the referenced data.
- **Description** gives a short characterization of the kind of data.
- **Accessory** specifies who stored the data and the date the link was created. Moreover it may contain the author and the date of collection of the data.



Figure 1 — Schematic representation of a link

URI represents the **Reference** part of a Link. Additional **linkage information** is provided by the optional sections, description and constraints. The constraints elements are used according to the specification for accessory attributes in ISO 21549-2.

The proposed structure of healthcard links data area intended for storage of internal and external references is shown below in Figure 2 as a UML class diagram.

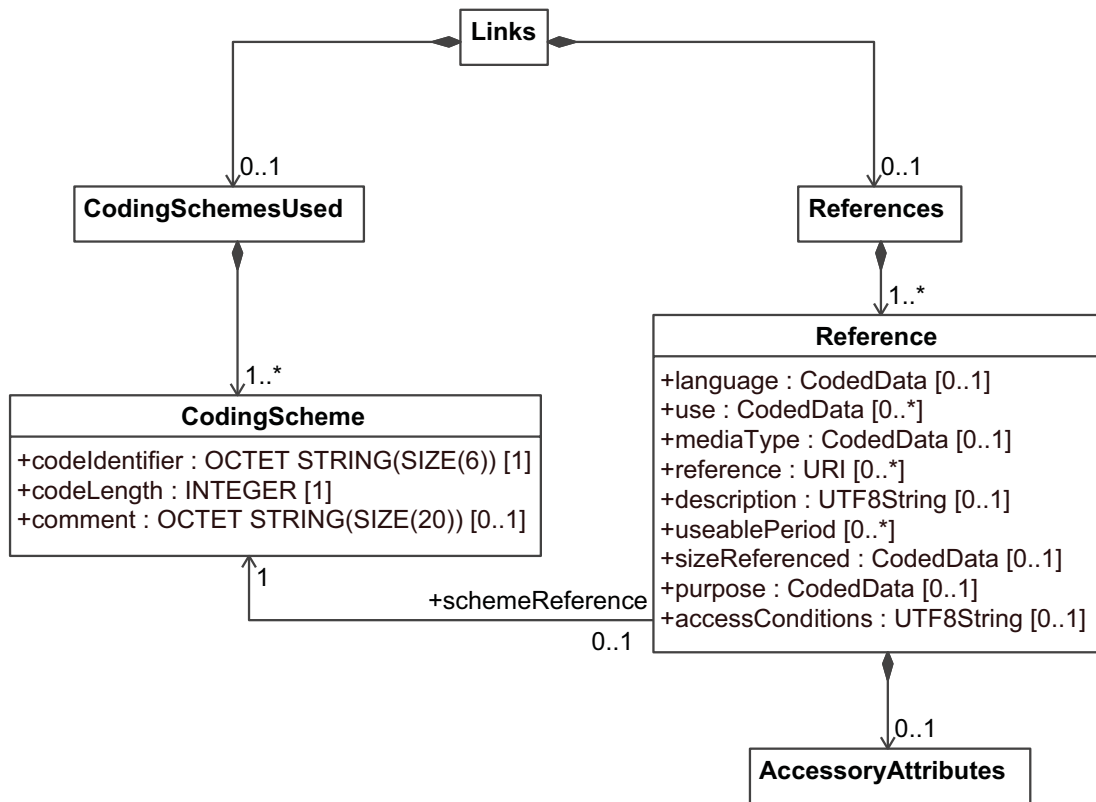


Figure 2 — Patient healthcard links data structure

This structure extends the structure of the object links defined in ISO 21549-2 with the following two optional objects.

- Object CodingSchemesUsed is defined in ISO 21549-2. It contains the identifiers and the short descriptions of the coding schemes used in the other parts of ISO 21549.
- Object References contains references to external data objects which may be complemented by a concise characterization of the kind of data and the AccessoryAttributes as specified in ISO 21549-2.

Due to the different usage, references can be divided into the two subtypes: **relay** and **standalone**.

Reference of type **relay** provides a kind of extension point for data objects stored on the healthcard itself. If there are additional data for a ClinicalEvent data object specified in ISO 21549-4 available from an external source, this can be referenced by use of an object Reference. A **standalone** reference is independent from other data objects on the healthcard and may be used discretely.

The structure of the object Reference is derived from data type Encapsulated Data defined in Health Level Seven Reference Information Model and used in Health Level Seven Clinical Document Architecture, Release Two. The attribute description is of type CWE (HL7 “Code With Exception”) and allows to have code only, code with text or text only.