INTERNATIONAL STANDARD

**ISO 21549-5**

Second edition
2015-09-15

# Health informatics — Patient healthcard data —

## Part 5: Identification data

*Informatique de santé — Données relatives aux cartes de santé des patients —*
*Partie 5: Données d'identification*



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# 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 (see www.iso.org/directives).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information



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

This second edition cancels and replaces the first edition (ISO 21549-5:2008), which has undergone a minor revision. The following changes have been made:



— Subclause 5.2, Table 1: condition of Sex optionality is added.

— Subclause 5.2, Table 1: optionality of National representation of the name is corrected to match ASN.1 definition and Figure 1.

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. Healthcare funding institutions and providers are increasingly involved in cross-region care, where reimbursement may require automated data exchange between dissimilar healthcare systems. Administrative data objects may require linkage to external parties responsible for their own domains which are not within the scope of this part of ISO 21549. For instance, cross-border reimbursement of healthcare services are usually regulated by law and intergovernmental agreements which are not subject to standardization.

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 standardized 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 carries relates), administrative and clinical. It is important to realize that a given healthcare data card "de facto" contains 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 are defined to include:

— unique identification of the device holder (and not information of other persons).

Administrative data can include:

— complementary person(s) related data;

— identification of the funding of healthcare, whether public or private, and their relationships, i.e. insurer(s), contract(s) and policy(ies) or types of benefits;

— identification of other persons as a part of the insurance contract (e.g. a family contract);

— 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;

— related actions planned requested or performed.

Medication data may include:

— a record of medications received or taken by the patient;

— copies of prescriptions including the authority to dispense records of dispensed medication;

— records of medication bought by the patient;

— pointers to other systems that contain information that makes up an electronic prescription and the authority to dispense.

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 Modeling 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 basic structure of the identification data objects held on healthcare 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 5: Identification data

## 1 Scope

This part of ISO 21549 describes and defines the basic structure of the identification data objects held on healthcare data cards, but does not specify particular data sets for storage on devices.

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):

— security functions and related services that are likely to be specified by users for data cards depending on their specific application, e.g. confidentiality protection, data integrity protection and authentication of persons and devices related to these functions;

— access control services;

— the initialization 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 card;

— the forms that data take 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 3166-1, *Codes for the representation of names of countries and their subdivisions — Part 1: Country codes*

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

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/IEC 5218, *Information technology — Codes for the representation of human sexes*

ISO/IEC 8824-1, *Information technology — Abstract Syntax Notation One (ASN.1): Specification of basic notation*

ISO/IEC 8825-1, *Information technology — ASN.1 encoding rules: Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER)*

ISO/IEC 10646:2014, *Information technology — Universal Coded Character Set (UCS)*

## 3 Terms and definitions

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

**3.1**
**identification data**
data that provide for the unique identification of the cardholder to whom the records relate

[SOURCE: ISO 21549-1:2013, 5.3, modified — shortened]

## 4 Symbols and abbreviated terms

| | |
|---|---|
| ASN.1 | Abstract Syntax Notation One |
| CRT | Cardholder Related Template |
| ICAO | International Civil Aviation Organization |
| L | Length (ASN.1) |
| LDS | Logical Data Structure of machine-readable travel documents |
| N | Numeric |
| NET | National Extensions Template |
| UCS | Universal Multiple-Octet Coded Character Set |
| UML | Unified Modelling Language |
| UTF8 | UCS Transformation Format 8 |



## 5 Identification data objects

### 5.1 Identification objects and data structure

For identification of the cardholder, information about the following objects is needed:

— person;

— address;

— telephone;

— miscellaneous.

The structure of the identification information is derived from the LDS set used for machine-readable travel documents (see ISO/IEC 7501-1). No separate objects are introduced for healthcare. The following paragraph contains the table with the definitions of the identification data set.

### 5.2 Definition of the identification data set

Table 1 shows the definition of identification data according to the ASN.1 basic notation and basic encoding described in ISO/IEC 8824-1 and ISO/IEC 8825-1, respectively. The corresponding ASN.1 definition is given in Annex A. In the ASN.1 definition the ASN.1 data type UTF8String (see ISO/IEC 10646) is used for the coding of alphanumeric data elements. Since the UTF8 encoding uses 1 to 6 bytes for each character, the number of storage bytes which should be provided by the card may be greater than the denoted length in characters. The use of UTF8 should be restricted to a limited international character set, since it does not make sense to provide each country with any unfamiliar

 

character set of another country. The formation of this international character set as a subset of the UCS has to be discussed. Figure 1 shows the UML class diagram. Figure 2 shows the CRT Template of Identification data with embedded NET.

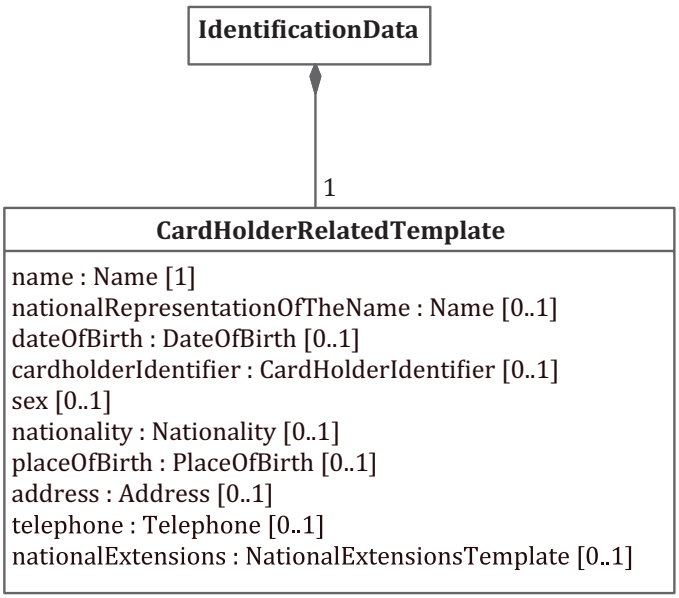


**Figure 1 — UML class diagram**



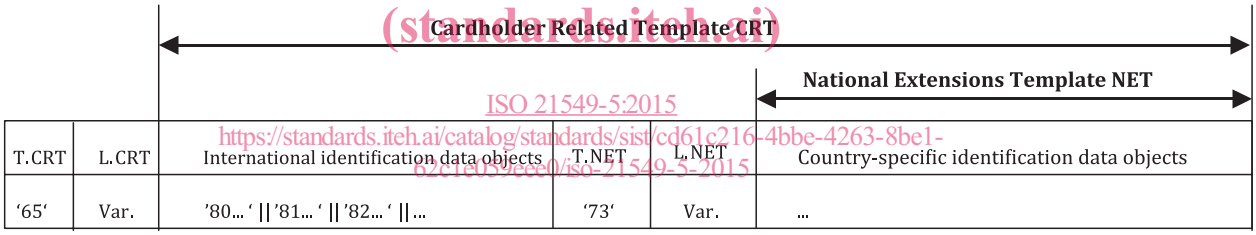




**Figure 2 — CRT Template of Identification data with embedded NET**

**Table 1 — Identification Data**

| Tag | L | Value | | | Data type | Notes |
|---|---|---|---|---|---|---|
| '65' | Var. | Cardholder Related Template | | | | Tag of Cardholder related data (see ISO/IEC 7816-6) |
| | | **Tag** | **L** | **Value** | **Data type** | **Notes** |
| | | '80' | x | Name [a] | Class | Mandatory; this will be derived from HL7 entity name data type, see below. |

[a] There are two fields for names:

— the "Name" (mandatory) using international character set for international use;

— the "National representation of the name" is optional and used to represent the name in a domestic character set (Japanese, Chinese, Russian etc.). See ISO/TS 22220, 6.9. It requires several components and as such is a composite entity.

The content of each name field shall be derived from HL7 CDA Entity Name datatype (EN). This content is to allow one family name, more than one field for given names (each given name field is optional) and the fields for suffix and prefix are optional.

Each name field may have an optional qualifier and an optional language subfield (derived from EN datatype).

Where the structure of a name is unable to be determined the card issuer may record that name in the family name field.