TECHNICAL SPECIFICATION

ISO/TS 22220

Health Informatics — Identification of subjects of health care

Informatique de la santé — Identification des sujets de soins sanitaires

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Foreword

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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of document:

— an ISO Publicly Available Specification (ISO/PAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50 % of the members of the parent committee casting a vote;

— an ISO Technical Specification (ISO/TS) represents an agreement between the members of a technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

An ISO/PAS or ISO/TS is reviewed after three years in order to decide whether it will be confirmed for a further three years, revised to become an International Standard, or withdrawn. If the ISO/PAS or ISO/TS is confirmed, it is reviewed again after a further three years, at which time it must either be transformed into an International Standard or be withdrawn.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO/TS 22220 was prepared by Technical Committee ISO/TC 215, *Health Informatics*.

Introduction

The health care system relies heavily on the ability to uniquely and accurately identify a person when they attend for care. The introduction of computerization into this process requires the clear specification of all elements of information used to support the procedural as well as the computerized identification of a subject of care so that the current person is associated with previous health information and to support communication between health care professionals. Developments in the health care system and the emergence of health networks have amplified the importance of collecting, sharing and exchanging data concerning individual subjects of care between different health care providers and between different information systems.

More effective communication between health care professionals is key to securing closer co-operation, improving the handling of subjects of care in terms of quality and continuity of care, and prevention and promoting health system efficiency.

Reliable identification of the individual has always been a critical part of the health care process. The ability of computerized systems to support and enhance the manual process of identification is vital in addition to the ability of these systems to identify individuals when communicating patient information electronically. High quality identification is necessary to ensure that health care professionals have access to patient information, facilitating closer co-ordination and continuity of care and improving service in terms of prevention and follow-up. Modern service delivery networks result in greater flows of subjects of care and services across national, functional, jurisdictional and professional boundaries. However, high quality identification can be very complex in a more integrated health care environment.

Within health care service delivery environments, the process of positively identifying subjects of care entails matching data supplied manually and/or electronically, or through hard documentation by those subjects of care against data the service provider holds about those subjects. This process occurs both manually, increasingly with computer support, and electronically where systems have to communicate information about individuals securely and accurately. Impediments to high quality identification include variable data quality, inadequately considered manual identification processes, differing data capture requirements and mechanisms, and varying data matching methods.

This Technical Specification identifies the data elements and relevant structure and content of the data used to manually identify individuals in a health care setting and provides support to the identification of individuals in a consistent manner between systems that will support the natural changes in usage and application of the various names used by people over time.

This Technical Specification addresses the business requirements of identification as well as the data needed to improve the confidence of health service providers in subjects of care identification. It defines the data used to identify subjects of care, and the business processes associated with this activity, whether computerized or manual. This Technical Specification is intended to be used both to support the processes of the identification of subjects of care by individuals and computerized identification in automated matching systems.

Usage

Within a health care service delivery context, the process of positively identifying individuals entails matching data supplied by those individuals against data the service provider holds about them.

The ability to positively identify individuals and to locate their relevant details is critical to the provision of speedy, safe, high quality, comprehensive and efficient health care. The benefits of positive identification include the following:

— less time wasted and inconvenience generated in hunting for and/or re-gathering information about the individual, which translates to more efficient health care;

— more complete and accurate information on which to base potentially life-critical clinical decisions;

— fewer duplicate entries for an individual leading to less duplication of testing and prescribing;

— safer treatment from having clinical details for the right individual.

The delivery of health care is undergoing a paradigm change, brought about by changing consumer expectations, technological advances, economic pressures, socio-demographic change and changes in the patterns of health and ill health in communities.

These changes include the following:

— a shift from institution-centred care to subject-centred care, together with greater empowerment of the subjects of care;

— greater emphasis on continuity of services supporting quality and safety, health promotion and maintenance;

— more integrated health care, in which organizational and administrative barriers are invisible to subjects of care.

These new service directions will necessitate a much greater flow of information on subjects of care and services across functional, jurisdictional, administrative and professional boundaries. In a more integrated health care environment, positive identification is no less critical, but is much more complex. Population mobility and multiple points of access to the health care system lead to the accumulation of subject-related data in a variety of fragmented, unrelated repositories. Positive subject of care identification is recognized around the world as a critical success factor for health care reform.

There are many barriers to successfully identifying individuals in health care settings, including the following.

— Variable data quality and changes in key identifying information over time.

— The patient's capacity to provide information. In a health care environment the identification system must be able to cope with the fact that people's memories and capacity to communicate vary according to their mental and physical capacity and to their willingness to seek and receive care. Information is often provided by third parties (family and friends) who might know the person by a preferred name rather than by the person's formal name.

— Differing data capture requirements and mechanisms, and varying data matching methods. This Technical Specification provides a framework for improving the confidence of health service providers and subjects of care alike, that the data being associated with any given individual, and upon which clinical decisions are made, is appropriately associated and suited to the flexibility of the health care setting.

— The need to respect the wishes of the subject of care. If an individual prefers that others not know their full name, or that they be known by a preferred or nickname, then this should be able to be respected by the system, allowing the system to communicate the formal name, when required, to other systems, but also to ensure that the preferred name is used so as not to unnecessarily stress the subject of care or confuse family and/or friends.

Where permitted by law, data matching may be undertaken in a variety of contexts and settings, including for administrative purposes. However, the specific focus of this Technical Specification is the positive identification of subjects of care for health care service delivery purposes. It is recognized that implementations in different systems and national settings may need to establish the elements of this document best suited to these local needs.

It is recognized that this document may support national client registry projects in health care, but does not represent a registry content or structural specification.

Health Informatics — Identification of subjects of health care

1 Scope

1.1 Introduction

This Technical Specification indicates the data elements and structure suited to accurate and procedurally appropriate and sensitive identification of individuals in health care in a face-to-face setting supported by computer technology, or through interactions between computer systems. It provides guidelines for improving the positive identification of subjects of care within and between health care organizations.

It defines demographic and other identifying data elements suited to capture, and the wide variety of manual and computer-enhanced procedures used for subject of care identification in health care settings. It also provides guidance on their application in the manual and the computer environment and makes recommendations about the nature and form of health care identifiers, the management organization to oversee subject of care identification, and computer support to be provided for the identification process.

There are additional factors to be considered in providing access to distributed subject of care data, including privacy, security and data transfer mechanisms. These are outside the scope of this Technical Specification. Application of this Technical Specification will increase the capacity for data access. Authorization of such access is determined by the application of legislation, organizational policies and guidelines and professional ethics.

It is recognized that specific applications may require additional data to fulfil their purpose. This Technical Specification provides a generic set of identifying information, which is application-independent. Implementations in different health care environments and national settings may require the establishment of data sub-sets or priorities.

1.2 Objective

The objective of this Technical Specification is to promote uniform good practice in:

a) identifying individuals in a face-to-face or paper-based environment, as well as in and between automated systems;

b) recording and reporting of subject of care identifying data;

c) ensuring that data being associated with any given subject of care, and upon which clinical communication and data aggregation are based, are appropriately associated with that individual or organization and no other.

1.3 Application

This Technical Specification is primarily concerned with the use of subject of care identification data to support patient care. It should be used by health and health-related establishments that create, use or maintain records on subjects of care. Health care organizations should use this Technical Specification where appropriate, for collecting data when registering subjects of care or potential subjects of care and when reporting patient information to other systems, both clinical and administrative.

Informative guides are provided in the following annexes.

a) Annex A (Collection of data) provides guidance on basic business principles for management of identification information collection.

b) Annex B (Messaging) is provided to assist in the implementation of this Technical Specification in a messaging environment.

c) Annex C (Data matching) provides guidance on manual searching for a subject of care within a master index. The use of appropriate and thorough searching techniques is important in ensuring that any existing client data will be linked to the relevant health care client.

d) Annex D (Guide for implementation of subject of care master indices) provides guidance on master indices that form the key client directory within health care establishments. They are central to health care client identification.

e) Annex E (Guidelines for searching for a subject of care).

f) Annex F (Names — Condensed guide).

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/IEC 2022, *Information technology — Character code structure and extension techniques*

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

ISO/IEC 11179-3, *Information technology — Metadata registries (MDR) — Part 3: Registry metamodel and basic attributes*

ISO/IEC 19785-1, *Information technology — Common Biometric Exchange Formats Framework — Part 1: Data element specification*

ISO/IEC 19785-2, *Information technology — Common Biometric Exchange Formats Framework — Part 2: Procedures for the operation of the Biometric Registration Authority*

AS 4846-2006, *Health Care Provider Identification*

AS 4590-2006, *Interchange of client information*

ASTM E1714-00, *Standard Guide for Properties of a Universal Health Care Identifier (UHID)*

HL7 V2.4, *Health Level Seven Version 2.4*

HL7 V3, *Health Level Seven Version 3*

Australian Institute of Health and Welfare, *National Health Data Dictionary (NHDD)*. Available at: http://www.aihw.gov.au

HealthNet/BC Provider ID Standard, British Columbia Health Information Standards Council, B.C. Ministry of Health and Ministry Responsible for Seniors, June 1999

HNBC 98-10, *HealthNet/BC Provider Data Standard Version 1.0*

3   Terms and definitions

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

3.1
capture
deliberate action that results in the registration of a record in a record-keeping system

3.2
subject of (health) care
SOC
any person who uses or is a potential user of a health care service

NOTE   Subjects of care can also be referred to as patients, health care consumers or subject of cares.

3.3
subject of care identifier
SCI
unique number or code issued for the purpose of identifying a subject of (health) care

3.4
information system
organized collection of hardware, software, supplies, policies, procedures and people which stores, processes and provides access to information

3.5
records
recorded information, in any form, including data in computer systems, created or received and maintained by an organization or person in the transaction of business or the conduct of affairs and kept as evidence of such activity

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a5de85f8c2f5/iso-ts-22220-2009

3.6
registration
act of giving a record a unique identity in a record-keeping system

3.7
storage
function of storing records for future retrieval and use

4   Responsibilities

The positive and unique identification of subjects of care within and between health care organizations is a critical event in health service delivery, with direct implications for the safety and quality of health care.

Responsibilities for the quality, capture, storage and use of identifying data for subjects of care, including implementation of this Technical Specification, should be clearly and unambiguously assigned within the organization, and documented in relevant policies, procedures and work instructions.

Users of this Technical Specification should refer to relevant privacy legislation, codes of fair information practice and other guidelines, so as not to breach personal privacy in their collection, use, storage and disclosure of subject of care information.

5   Training

Relevant staff should receive training that highlights the nature, importance and health benefits of high quality procedures for the capture, storage and use of health identifying data, and the safety implications of errors and duplications of subject of care information.

6 Business processes

Business processes associated with the capture, storage and use of subject-identifying data should be designed and continuously improved to ensure that accurate, consistent and complete data collection, communication and storage practices are used.

7 Components of data elements

7.1 General

This Technical Specification includes recommendations concerning the data elements most likely to affect the quality of identification of subjects of care. Data elements are expressed in terms of the interrelated components listed under 7.2. Individual organizations should identify the elements of most relevance for identification in their cultural and health setting environment.

Data concepts described in this Technical Specification are listed in Figure 1. This figure does not show the interrelationships between the sections, all the data elements that comprise these concepts or data structures.
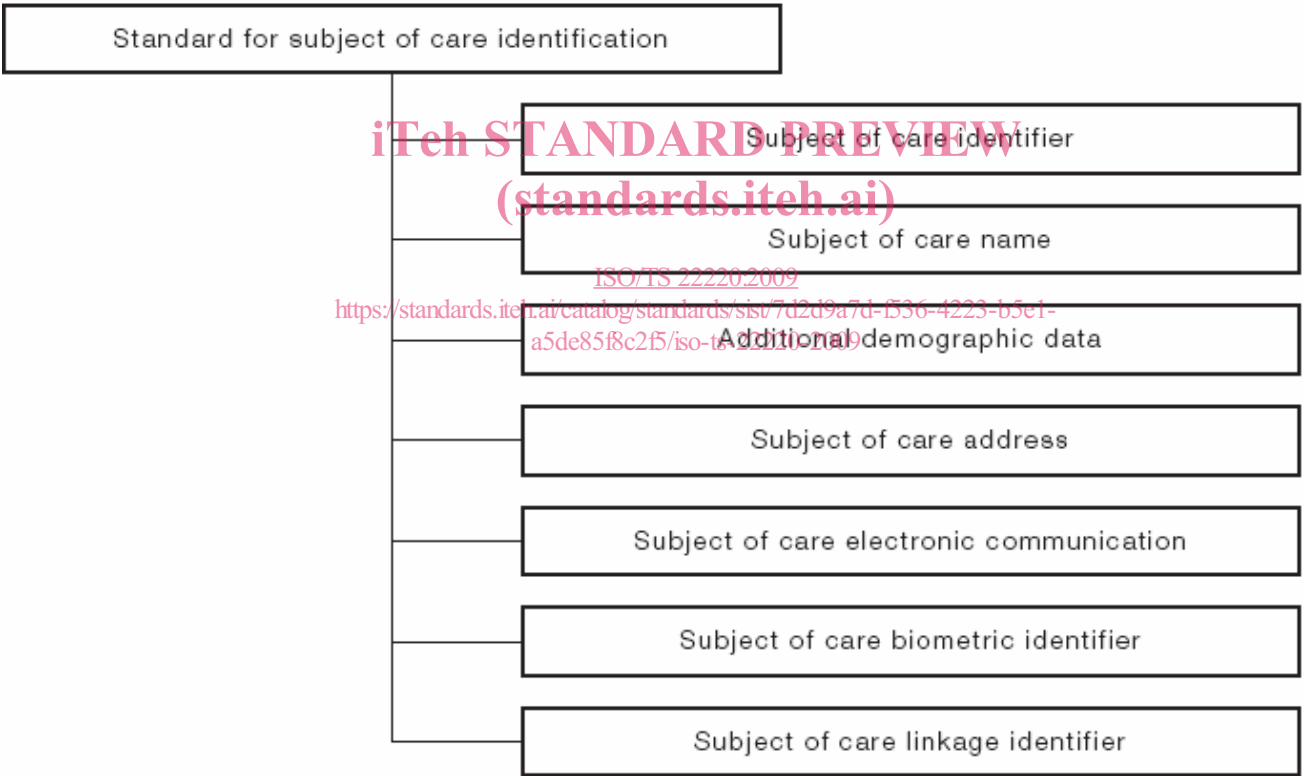
Figure 1 — Data elements and interrelated components

7.2 Data element structure

7.2.1 General

Each data element has been defined according to a set of metadata components that are based on ISO 11179-3. Most components (*viz* definition, data type, representational class, data domain, etc.) describe essential features of the structure of a data element. Some components such as collection method and comments describe additional, non-essential features and may be left blank where appropriate.

7.2.2   Synonyms

Alternative names for the data element.

7.2.3   Definition

A statement that expresses the essential nature of the data element and its differentiation from all other data elements

7.2.4   Source standards

Details of established data definitions or guidelines for data elements that have been cited in this Technical Specification. See Clause 2 and the Bibliography.

7.2.5   Data type

It is recognised that different representations of the values shown in this Technical Specification may be required. Where possible, the data types are described in a manner consistent with HL7 data types. The list below provides examples of data types used in this document:

— Boolean-literal (true/false);

— number (e.g. ISO 11404) (only used in this Technical Specification where arithmetic operations are performed);

— character string;

— text or unconstrained text;

— coded text (from an agreed vocabulary or value domain);

— constrained text (where the text is associated with a formal terminology); the difference between the coded and constrained text is the relationship to a formal, structured terminology, as opposed to a code set, or list of values;

— unique identifier;

— dates/times.

Though there are other data types, they are not required within this Technical Specification and thus have not been included.

7.2.6   Data domain

The values or codes acceptable for representation of the data element.

The data elements contained in this Technical Specification are either free text or coded. For each data element that is coded, a code value is provided as well as a descriptor of the code value and in some cases an alternative code (generally an alphabetic code). The code should be used for communication of this data value, the descriptor is the title of the code value, and the alternative code is provided for collection of the data, where the use of alphabetic code values is preferred at the point of data collection or for screen viewing. For example, the data domain for the data element "sex" is shown in Table 1.

Table 1 — Example of data domain representation

Code	Descriptor	Alternative code
1	Male	M
2	Female	F
3	Indeterminate	I
9	Not stated/inadequately described	N

7.2.7 Guide for use

Additional guidance to inform the use of the data element.

7.2.8 Verification rules

Quality control mechanisms that restrict the collection, storage or transferral of non-valid data.

7.2.9 Collection method

Comments and advice concerning the actual capture of data for the particular data elements to achieve uniformly high quality data.

7.2.10 Comments (optional)

Any further information relevant to data element collection or storage.

7.3 Summary structure

Table 2 provides a summary guide to the structure of the data elements defined in this Technical Specification. This table indicates that for a given individual there may be multiple identifiers, names, addresses, electronic communications and biometric identifiers, but one set of core demographic data. Each of these data elements are established from a sub-set of data elements.

Table 2 — Summary of data element structure

Clause	Data elements	Opt. [a]	Data type	Repeat data element [b]
8	Subject of care identifier	R	Text	Y
9	Subject of care name	R	Text	Y
10	Additional demographic data	O	Text	N
11	Subject of care address	O	Text	Y
12	Subject of care electronic communications	O	Text	Y
13	Subject of care biometric identifier	O	Text	Y
14	Subject of care linkage	O	Text	Y
[a] Whether the data element is optional (O) or required (R).				
[b] Whether yes (Y) or no (N).				

8 Subject of care identifiers

8.1 General

This clause includes data elements that jointly comprise a unique identifier for subjects of care. This clause outlines subject identifiers. See Figure 2.

The combination of the subject identifier and the health care organization, the type of identifier and the name given to the identifier in the organization is one way to indicate unique identification of the subject of care.

Subject of care identifier may also be known as:

— patient ID (HL7);

— person identifier;

— unit record number (URN);

— medical record number (MRN);

— local subject identifier;

— subject identification number;

— enterprise identifier;

— area identifier;

— province/state/territory identifier;

— unique identifier (UID);

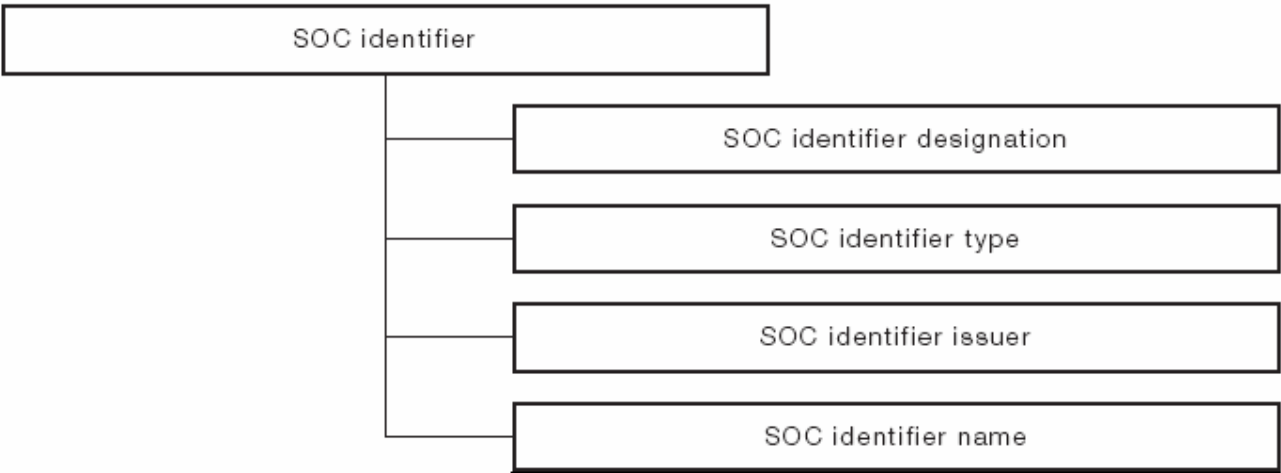— unique health identifier (UHID).

Figure 2 — Data elements for subject of care identifier

Table 3 indicates the data elements used to describe a subject of care identifier. There may be multiple identifiers collected for any one individual. Most subjects of care will have more than one identifier. Each health care organization or health care activity may designate a specific identifier as the one for use in their environment. This identification process would require the specification of the identifier type, identifier issuer and identifier name to be used within that organization/purpose.