SLOVENSKI STANDARD
oSIST prEN ISO 13940:2024

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Zdravstvena informatika - Sistem pojmov za podporo neprekinjeni oskrbi (ISO/DIS 13940:2024)

Health informatics - System of concepts to support continuity of care (ISO/DIS 13940:2024)

Medizinische Informatik - Begriffssystem zur Unterstützung der Kontinuität der Versorgung (ISO/DIS 13940:2024)

Informatique de santé - Système de concepts en appui de la continuité des soins (ISO/DIS 13940:2024)

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35.240.80	Uporabniške rešitve IT v zdravstveni tehniki	IT applications in health care technology

oSIST prEN ISO 13940:2024 **en,fr,de**

DRAFT International Standard

ISO/DIS 13940

Health informatics — System of concepts to support continuity of care

Informatique de santé — Système de concepts en appui de la continuité des soins

ICS: 35.240.80

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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 document 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 of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 215, Health informatics.

This second edition cancels and replaces the first edition (ISO 13940:2015), which has been technically revised.

The main changes are as follows:

— The move of all terms into Clause 3

— The inclusion of explicit clauses to highlight the continuity includes social care

— Remodelling roles to take into account ISO 21298:2017 Functional and structural roles

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

0.1 General

Continuity is an important prerequisite for good and efficient care. An optimal order of investigating and treating activities will promote a favourable outcome of the course of any health problem, be it a clinical illness, a social problem or a physical injury. In order to achieve this continuity of care there are two major requirements regarding planning and documentation of care: one of them is the common understanding of processes in care; the other one is a common understanding of semantics in care. This document does not standardise processes. Such standardisation can be found in other standard documents, for instance ISO 12967, Health informatics – Service architecture (HISA) – where part 1, Enterprise viewpoint, describes processes in the enterprise of care and how they should be represented in models and text. The purpose of this document is to define generic concepts needed to achieve continuity of care. A subject of care will meet care professionals in different organisations, and the exchange of information between these organisations must be safe without conceptual ambiguity. At the same time all information must be clear to the reader in order to prevent human misunderstanding.

Besides the support of care continuity, the concept system in this document also enables the use of care information for other purposes such as secondary use for follow-up and knowledge management.

To cover continuity of care, concepts are therefore needed from all of these basic process aspects:

— care processes (in social care and clinical healthcare)

— management

— support

This system of concepts is based upon the enterprise perspective of care. All other areas of work in care both relate to and interact with the care processes. As such, the management aspects of care are identified in the process management areas, and similarly the resource support areas are correspondingly identified in the processes. This architecture with the areas around the care process is described in Figure 1.

Conformance statements are entered in Annex A.

Figure 1 — Architecture of the concept areas

0.2 Aims for this document

The general aim for this document is to provide a comprehensive, conceptual basis for content and context in care services, be it social services, clinical services or integrated services seamlessly engaging both contexts. It should be the foundation for interoperability at all levels in care organisations and for development of information systems in care.

The core business in care is the interaction between subjects of care and care professionals. To be able to support continuity of care, the standard also aims to include comprehensive concept definitions and concept relations for the management and resource aspects of care.

In practice this document is intended for use whenever requirements for information in care are specified. This will cover all levels of specifications in the development of

— enterprise models as a common basis for interoperability on international, national or local levels

— information systems

— structured information for specified types of clinical and social processes.

0.3 About the concept of health

In this document *health* is defined with reference to the World Health Organization's (WHO) declaration of health from 1948: "... a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity". In 1986 WHO made two amendments to the above definition: "resource for everyday life, not the objective of living" and "health is a positive concept emphasizing social and personal resources, as well as physical capacities". The second amendment emphasizes the importance of social aspects on all concepts in the context of health.

0.4 Care, healthcare and social care

Clinical healthcare as well as social care has the objective to influence, restore and maintain health in the WHO sense. In this document the term "care" is preferred to stress the common characteristics and objectives of both (clinical) healthcare and social care. It is a common understanding that healthcare is restricted to clinical action against physical and mental health problems. That is not in line with the whole of the WHO description, which includes social aspects on health. All kinds of activities have the potential to influence one or more of the five components of health mentioned in the WHO International Classification of Functioning, Disability and Health (ICF). Hence, the objective of this document is to support all parts described in the ICF: body functions and structure, activity, participation, personal factors and environmental factors. It supports smooth transition between social care and clinical care including referral from municipality care to hospital and vice versa.

Reference to process models is entered as Annex C.

When a clear distinction is necessary to express the full meaning, terms social care, healthcare or clinical care will be used with a clear explanation of the context. In most instances the short-term care is used to stress the common character of most phenomena in the context of this document. Previous editions of this document have been focused upon the part of healthcare that (in most cultures) does not emphasize social care. The role of the subject of care was defined with respect to clinical healthcare and the terms chosen were fetched from this sector. However, many of the concepts are equally relevant for the social care sector. In this edition of ISO 13940 a set of concepts in the context of social care and welfare have been added to the standard. Additional notes have been entered to explain the similarities and differences between the contexts. Social care is considered equivalent with clinical healthcare in all terminological entries, so that term and definition is valid in both contexts. The important overlapping area covering both contexts has been recognised, for example the presence of social care workers in hospitals and physicians supporting social care.

The foundation work for including the context of social care is described in Annex B.

0.5 Intended users for this document

All parties interested in the interoperability issues in clinical healthcare and social care are intended users of this health informatics standard. This includes, but is not limited to, care professionals and teams, social care personnel, subjects of care, care managers, care funding organisations and all types of care providers and community care teams.

This system of concepts is relevant across all care information and the development and use of care information systems. It can also be used for business analysis as a basis for organisational decisions and more widely in development that is not inherently tied to the use of information systems.

0.6 The use of role concepts in this document

There are roles in healthcare, e.g. *subject of care*, *care third party*, *care performer, care device*. Between these roles there may exist relations. Therefore, a concept system of roles in care will be conformant with ISO 17115:2020 Health informatics -- Representation of categorial structures of terminology (CatStructure) and described in the DOLCE standard. This is also the foundation of SNOMED CT.

0.7 Description and display of concepts

In this document the concepts are – in conformance with the ISO/IEC Directives, part 2 – listed in clause 3. The order is logical with subclauses according to the kinds of concepts. Each of the concepts is defined and described according to ISO 704 and ISO 10241. For most of the concepts the terminological entry includes a small UML model with the relations and related concepts surrounding the core concept.

Clauses 5 to 12 provide additional description of the concepts and comprehensive UML diagrams showing all relations between the concepts listed in clause 3.

Examples are provided wherever they are considered relevant and necessary.

The purpose of using a concept model in this document is to highlight the relationships between concepts. In conformance with ISO 24156 no attributes are shown in the concept classes. Characteristics are shown as related concepts. Attributes belong to classes in an information model, where they may represent related concepts. This can be added in the course of implementation and still be conformity to this document.

The relation of this system of concepts to an upper ontology is described in Annex D.

0.8 Relationship of this standard to other relevant standards

— The terminology has been aligned with the ISO 13606 family of standards.

— The revision has been performed in collaboration with the development of ISO/TR 24305

— Process orientation is aligned with ISO 12967 series

— Issues concerning quality in care follows the ISO 9000 series

— The revision work is timely coordinated with the revision of ISO 27269

— ISO/IEC 21838-3:2024 Information technology — Top-level ontologies (TLO) — Part 3: Descriptive ontology for linguistic and cognitive engineering (DOLCE) has been a guidance in the modelling work.

Health informatics — System of concepts to support continuity of care

1 Scope

This document defines a system of concepts for different aspects of the provision of healthcare encompassing social care as well as clinical care. The subject of the document is continuity of care.

The core business in care is the interaction between subjects of care and care professionals. Such interactions occur in care processes and are the justification for the process reference in this document. To be able to represent both clinical/social content and clinical/social context, this document is related to a generic care process model as well as comprehensive concept definitions and concept models for the clinical, social, management and resource aspects of care services.

In practice this document covers the concept definitions needed whenever structured information in care is specified as a requirement. The definitions are intended to refer to the conceptual level only and not to details of implementation. This document will cover all levels of specifications in the development of

— logical reference models within the information viewpoint as a common basis for semantic interoperability on international, national or local levels,

— information systems, and

— information for specified types of care processes.

How to perform specific care processes is not covered by this document.

Research processes in the context of social and clinical care, welfare and educational processes are not covered in this document.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 1087:2019, ISO 9000:2015 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1 General terms

3.1.1
knowledge
maintained, processed, and interpreted information

[SOURCE: ISO 5127:2017, 3.1.1.17]

Table 1 — Associations of knowledge

Specialization of	Generalization of
	care guideline
	care pathway
	core care plan
	information model

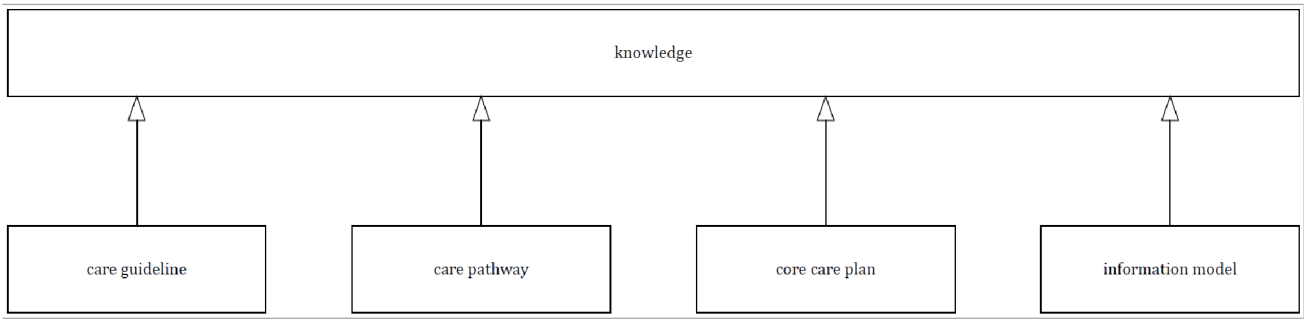

Figure 2 — Knowledge (UML representation)

3.1.2
synonym
one of two or more terms denoting the same concept

[SOURCE: ISO 25964-1:2011, 2.58, modified - example and note removed]

3.1.3
organization
person or group of people that has its own functions with responsibilities, authorities and relationships to achieve its objectives

Note 1 to entry: Groupings or subdivisions of organizations may also be considered as organizations where there is need to identify them in this way for purposes of information interchange.

Note 2 to entry: In this document, this definition applies to any kind of organizations, whatever their legal status.

[SOURCE: ISO 9000:2015, 3.2.1]

Table 2 — Associations of organization

Association from		Association name	Association to	
1..1	organization	is	0..*	care actor
1..*	organization	plays	0..*	organization role

Figure 3 — Organization (UML representation)

3.1.4
organizational pattern
relationships between the various parts of an organization

3.1.5
party
person or group performing a role in relation to the business of a specific community or domain

[SOURCE: ISO 8459:2009, 2.33]

3.1.6
person
individual human being

Table 3 — Associations of person

Association from		Association name	Association to	
1..1	health state	concerns	1..1	person
1..*	person	plays	0..*	person role

Figure 4 — Person (UML Representation)

3.1.7
continuity of care
coherent and interconnected series of care events over time

Note 1 to entry: Care actor is defined in 3.3.1

Table 4 — Associations of continuity of care

Association from		Association name	Association to	
1..*	care actor	is involved in	0..*	continuity of care
1..*	information	is shared during	0..*	continuity of care
0..*	continuity of care	relates to the delivering of	0..*	care

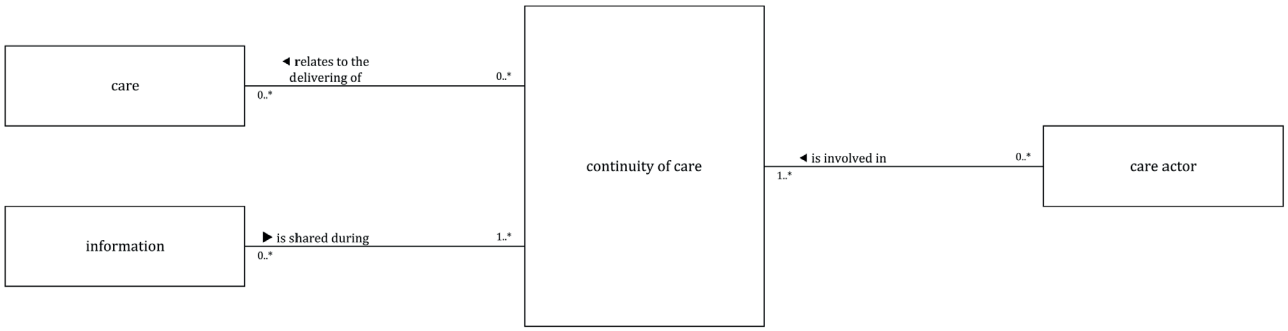

Figure 5 — Continuity of care (UML Representation)

3.1.8
resource
asset that is utilized or consumed during the execution of activities

EXAMPLE 1 Time, personnel, human skills and knowledge, equipment, services, supplies, facilities, technology, data, money

EXAMPLE 2 Capital equipment, tools

EXAMPLE 3 Utilities such as power, water, fuel and communication infrastructures

Note 1 to entry: Resources may be reusable, renewable or consumable.

Note 2 to entry: Resources are used, consumed or renewed during activities as part of a process.

[SOURCE: ISO/IEC 15288:2015, 4.1.3.8, modified 'execution of a process' changed to 'execution of activities']

Table 5 — Associations of resource

Specialization of		**Generalization of**		
		data repository		
		care funds		
		care resource		
Association from		**Association name**	**Association to**	
1..*	resource	care	0..*	care

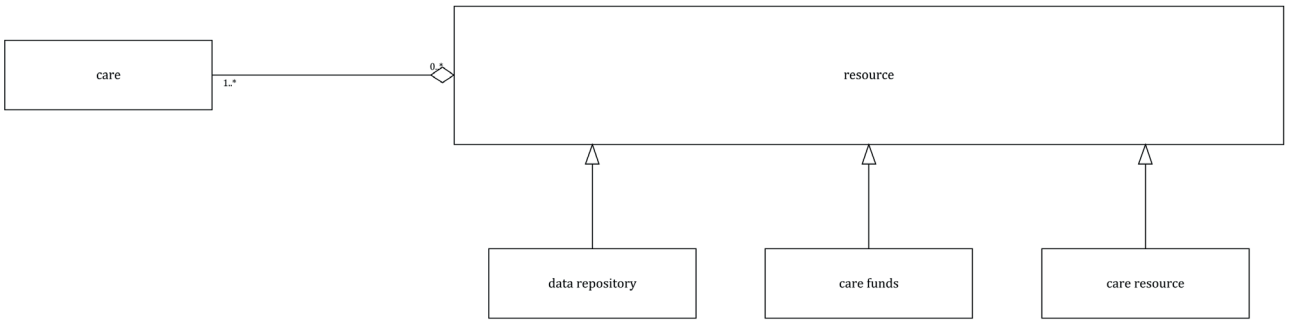

Figure 6 — Resource (UML Representation)