



NSAI
Standards

Irish Standard
I.S. EN ISO 18104:2014

Health informatics - Categorical structures for
representation of nursing diagnoses and
nursing actions in terminological systems
(ISO 18104:2014)

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This document is based on:

EN ISO 18104:2014

Published:

2014-02-05

This document was published under the authority of the NSAI and comes into effect on:

2014-02-15

ICS number:

35.240.80

NOTE: If blank see CEN/CENELEC cover page

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English Version

Health informatics - Categorical structures for representation of nursing diagnoses and nursing actions in terminological systems (ISO 18104:2014)

Informatique de santé - Structures catégoriques pour la représentation des diagnostics de soins et des actions de soins dans les systèmes terminologiques (ISO 18104:2014)

Medizinische Informatik - Strukturen zur Darstellung von Pflegediagnosen und Pflegeaktionen in terminologischen Systemen (ISO 18104:2014)

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Foreword

This document (EN ISO 18104:2014) 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of an identical text or by endorsement, at the latest by August 2014, and conflicting national standards shall be withdrawn at the latest by August 2014.

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**Health informatics — Categorical
structures for representation of
nursing diagnoses and nursing actions
in terminological systems**

*Informatique de santé — Structures catégoriques pour la
représentation des diagnostics de soins et des actions de soins dans les
systèmes terminologiques*



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Published in Switzerland

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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 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 18104:2003), which has been technically revised. For the history of the revision and a summary of the changes, see the Introduction and [Annex A](#).

Introduction

Development of terminological systems (also referred to as terminologies) to support nursing has been motivated by multiple factors including the need to

- describe nursing in order to educate and inform students and others,
- represent nursing concepts in electronic systems and communications, including systems that support multiprofessional team communications and personal health records, and
- analyse data about the nursing contribution to patient care and outcomes — for quality improvement, research, management, reimbursement, policy and other purposes.

Multiple terminologies exist to support representation of concepts for healthcare purposes; some of these are relevant to the nursing domain. In the context of health informatics, there is a clear requirement for both domain coverage and for interoperability among computer-processable terminological systems that support nursing. Nursing terminologies, or those parts of healthcare-related terminologies that are relevant to nursing, include concept representations for nursing diagnoses and nursing actions.

A nursing diagnosis is a label assigned to an assessment finding, event, situation or other health issue to indicate that it is considered to be noteworthy by the nurse and, where possible, the subject of care. Nursing actions are acts performed by or under the direction of a nurse, with the intention of directly or indirectly improving or maintaining the health of a person, group or population, the precise scope of nursing actions being delineated in each jurisdiction. These concepts and the scope of nursing practice are further elaborated in [Annex B](#).

The first edition of this International Standard^[1] focused on the conceptual structures that are the basis of nursing terminologies in order to support interoperability. A major purpose was “to establish a nursing reference terminology model consistent with the goals and objectives of other specific health terminology models in order to provide a more unified reference health model”. This purpose is still relevant to this revision of the standard, to support interdisciplinary communication, for example, where single, shared records are used, including records held by patients.

Following ISO rules, a review of ISO 18104:2003 was undertaken during 2008/09; ISO national member bodies, nursing organisations, industry representatives and experts provided comment. In addition to evaluation of the purpose, target groups, definitions and provisions of the standard, the review considered the implications of relevant International Standards published since 2003. The main findings/recommendations of the review were as follows.

- a) The standard was being used in at least 11 member countries and by several international terminology development organizations.
- b) Any revision should be based on a clearly articulated value proposition supported by evidence from the review. Published examples of use and value are provided in the Bibliography, linked to the specific purposes stated in [Clause 1](#). There is anecdotal evidence of other uses, including supporting design of terminology content in electronic record systems.
- c) Normative references and definitions to be updated. Other relevant international work needed to be considered, such as the World Health Organization Family of International Classifications (WHO-FIC) International Classification of Healthcare Interventions (ICHI).^[2]
- d) A review of relevant International Standards confirmed that the naming of some categories might need to be revised and that some categories could have been more appropriately designated as semantic links.
- e) Responses indicated that “dimension” and “potentiality” in the diagnosis model and “target” in the action model were not applied reliably by different users and required further consideration.

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- f) It was recommended that a model for outcomes be considered and that informative annexes clarify the relationship between the model for diagnoses and the model for actions, as well as points of intersection between terminology models and information models.
- g) A number of reviewers recommended that the standard be supported by implementation guidance/examples, and that the title and the language used be revised, so that it would be better understood by target groups.

This second edition addresses these findings and recommendations. In the main body of the standard, two redundant categories have been removed (*dimension* and *recipient of care*) and changes have been made to correct errors, clarify meaning and update definitions. [Annex A](#) summarizes the changes. The standard defines the structure of terminological expressions for nursing diagnoses and nursing actions; the professional meaning of these constructs and their relationship to other record components is addressed in [Annex B](#) along with points of intersection between terminology models and information models. An informative description of categorial structures and their implementation is provided by [Annex C](#).

Health informatics — Categorial structures for representation of nursing diagnoses and nursing actions in terminological systems

1 Scope

This International Standard specifies the characteristics of two categorial structures, with the overall aim of supporting interoperability in the exchange of meaningful information between information systems in respect of nursing diagnoses and nursing actions. Categorial structures for nursing diagnoses and nursing actions support interoperability by providing common frameworks with which to

- a) analyse the features of different terminologies, including those of other healthcare disciplines, and to establish the nature of the relationship between them,^{[3]-[8]}
- b) develop terminologies for representing nursing diagnoses and nursing actions,^{[9]-[12]}
- c) develop terminologies that are able to be related to each other,^{[3] [8] [13]} and
- d) establish relationships between terminology models, information models and ontologies in the nursing domain.^{[14]-[16]}

There is early evidence that the categorial structures can be used as a framework for analysing nursing practice^[17] and for developing nursing content of electronic record systems.^{[18] [19]}

This International Standard is applicable to the following user groups:

- developers of terminologies that include nursing diagnosis and nursing action concepts;
- developers of categorial structures and terminologies for other healthcare domains, to support clarification of any relationship to or overlap with nursing concepts;
- developers of models for health information management systems such as electronic health records and decision support systems, to describe the expected content of terminological value domains for particular attributes and data elements in the information models;
- developers of information systems that require an explicit system of concepts for internal organization, data warehouse management or middleware services;
- developers of software for natural language processing, to facilitate harmonization of their output with coding systems.

It is not intended for use by clinical nurses without health informatics expertise. However, [Annex C](#) provides an introduction to categorial structures to assist those without health informatics expertise to contribute to its development, review, implementation and evaluation.

NOTE 1 Although the scope of testing and review of the first edition of this International Standard has been limited to nursing, the two categorial structures have features in common with the more general framework for clinical findings [ISO/TS 22789 and the domain-specific categorial structure for surgical procedures (ISO 1828) ^[20] as well as with the WHO ICHI].^[2] The standard may therefore inform development of other general and domain-specific categorial structures in healthcare.

Topics considered outside the scope of this International Standard include

- complete categorial structures that would cover all the potential details that could appear in expressions of nursing diagnoses and nursing actions,
- a detailed terminology of nursing diagnoses or nursing actions,

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