

**Tervishoiuinformaatika.
Tervishoiuspetsiifiliste probleemide
ajastandardid**

Health care informatics - Time standards for
healthcare specific problems

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-ENV 12381:2000 sisaldab Euroopa standardi ENV 12381:1996 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 11.01.2000 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-ENV 12381:2000 consists of the English text of the European standard ENV 12381:1996.</p> <p>This document is endorsed on 11.01.2000 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
--	---

<p>Käsitlusala: Standard spetsifitseerib rea esitusprimitiive ja semantilisi seoseid, mis on vajalikud meditsiiniinformaatikas esinevate otseselt väljendatavate ajaga seotud avaldiste üheselt mõistetavaks esituseks.</p>	<p>Scope:</p>
--	----------------------

ICS 35.240.80

Võtmesõnad: aeg, andmeesitus, andmetöötlus, infovahetus, tunnid

ICS 11.020; 35.240.60

Descriptors: data processing, information interchange, medicine, data representation, hours:time

English version

**Health care informatics - Time standards for
healthcare specific problems**

Informatique de santé - Représentation du temps
dans le domaine de la santé

Medizinische Informatik - Zeitnormen für
spezifische Probleme im Gesundheitswesen

This European Prestandard (ENV) was approved by CEN on 1996-08-29 as a prospective standard for provisional application. The period of validity of this ENV is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the ENV can be converted into an European Standard (EN).

CEN members are required to announce the existence of this ENV in the same way as for an EN and to make the ENV available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the ENV) until the final decision about the possible conversion of the ENV into an EN is reached.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Contents list

	Page
FOREWORD	3
INTRODUCTION	3
1 SCOPE	5
2 NORMATIVE REFERENCES	5
3 TERMS AND DEFINITIONS	5
4 EXPLICIT SEMANTIC LABELLING OF PREDICATIONAL COMPONENTS	10
5 CHARACTERISTICS OF CONFORMANCE	19

Annexes

A	BNF description of the syntax used in the <i>standard predications</i> of this document (informative)	23
---	--	----

Foreword

This European Prestandard has been prepared by Technical Committee CEN/TC 251 "Medical Informatics", the secretariat of which is held by IBN.

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to announce this European Prestandard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

Time is an important variable in healthcare, and standards are needed about how to represent information in with explicit references to time. This European Prestandard is a first contribution to this harmonization process, focusing on "representation" and "explicit reference".

Indeed, a system for Time-Standards must have as a minimum requirement the capacity to order temporal facts (*situations, events, episodes*) in three major ways, independent of any specific ontology of time itself:

- by relating situations to a calendar,
- by relating situations to "reference" situations
- by relating events together in "before- and after-" chains

The main reason for this threefold organization is that our everyday temporal discourse contains a variety of expressions that only with a certain artificiality can be regimented into a uniform style of analysis.

The purpose of this European Prestandard is to enhance, in a perspective of machine-machine and man-machine communication, the generation of statements that are guaranteed to be understood unambiguously with respect to the time-related expressions that are embedded within them.

The purpose of this European Prestandard is not to develop a full-blown temporal logic, but a standardized way of representing time-related expressions, such that all kinds of questions about the temporal organization of *situations* can be answered on the basis of the information available. Nor is it the intention of the framework presented here to provide a means to interpret the information in its original format. Interpretation of the source information is the task of the provider of information itself. The framework presented in this document allows information providers to express their time-related information in such a way that the intended meaning can be unambiguously understood by a receiver.

This of course requires the use of a "restricted", regimented model or language, allowing the disambiguation of many time-related expressions uttered in natural language. The model (language) presented in this document is restricted enough to allow such disambiguation for time-related expressions in "traditional" medical language, but is not expressive enough to account for all time-related linguistic phenomena that can be encountered in natural language.

This European Prestandard provides representational tools for "explicit" time-related information. It does not allow (nor encourage) the ad hoc interpretation of implicit temporal information. In an expression such as "diabetes since childhood", "since childhood" is an explicit temporal reference for the diabetes, but the implicit information what "childhood" might mean (e.g. starting at the age of 2 years ?), is not addressed. However, the framework presented in this document has enough expressive power to allow a specific provider of information to state explicitly what his understanding is of "childhood".

This European Prestandard describes some conformance characteristics by means of which developers of health care information systems can label specific modules of their systems as to the

degree they are compliant with the standard. Although the framework itself does not deal with temporal reasoning, the conformance characteristics can be used to evaluate to what level temporal reasoning is possible with the information collected in a given system.

This document is a preview generated by EVS

1 Scope

This European Prestandard specifies a set of representational primitives and semantic relations required for an unambiguous representation of explicit time-related expressions in medical informatics. This Prestandard does not introduce or force a specific ontology of time, nor does it force the use of a fixed representation scheme for such an ontology. Rather this Prestandard provides a set of principles for syntactic and semantic representation that allow the comparability of specific ontologies on time, and the exchange of time-related information that is expressed explicitly.

This European Prestandard is applicable to

- (1) developers of medical information systems in which the need is felt to have explicit time-related concepts for internal organization (e.g. temporal data bases, temporal reasoning systems),
- (2) information modellers or knowledge engineers building models for the systems mentioned in (1),
- (3) experts involved in the development of semantic standards on precise subdomains in health care where time-related information need to be covered, (e.g. in the study of Pathochronology, i.e. the discipline dealing with the time course of specific diseases)
- (4) developers of interchange formats for messages in which time-related information is embedded.

This European Prestandard is not intended to be used directly for:

- (1) representing what is true in time
- (2) reasoning about time
- (3) representation of metrological time (which is covered in other standards).

2 Normative references

This European Prestandard incorporates by dated or undated reference, provisions from other publications. These normative references are cited in the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments and revisions of any of these publications apply to this European Prestandard only when incorporated in it by amendment and revision. For undated references, the latest edition of the publication referred to applies.

ISO 8601 : 1988	Data elements and interchange formats - Information interchange - Representation of dates and times
ISO 31-1 : 1992	Quantities and units. Pt1, Space and Time
ISO 1087 : 1990	Vocabulary of terminology.

3 Terms and definitions

For the purposes of this standard, the following terms and definitions apply (listed in a logical order):

3.1 situation

phenomenon occurring (or having the potential to occur) at or over a time in a given world context

NOTE:

- (1) *situations* cover phenomena which may occur in past, present or future time.
- (2) This European Prestandard applies both to the representation of actual phenomena occurring in the real world (eg registrations in medical records), as to the description of concepts (eg medical knowledge bases)

EXAMPLES: "The patient suffered from pain which occurred over night", "pain occurring over night",