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## Health informatics — Traditional Chinese medicine literature metadata

*Informatique de santé — Métadonnées de littérature de la médecine  
traditionnelle chinoise*

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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 (see [www.iso.org/directives](http://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*.

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## Introduction

Chinese medicine has a history of several thousand years, formed by diverse schools of traditional Chinese medicine, which have produced a large amount of medical classics, which are extensive and profound, abundant in content, with lots of abstruse vocabulary. There are many versions and transcription errors. Chinese literature has characteristics that distinguish it from other literature, such as characteristic elements of TCM (traditional Chinese medicine) and the ancient literature. General literature metadata can not fully describe the TCM literature as a specialized area. This Technical Specification describes a set of TCM literature metadata to promote the work of the collection, storage, retrieval and use of TCM literature.

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# Health informatics — Traditional Chinese medicine literature metadata

## 1 Scope

This Technical Specification defines the core set of TCM literature metadata, describes the principles and methods of TCM metadata, and specifies the formal description of TCM metadata. It applies to the storage, processing, recording, maintenance and exchange of TCM literature. It covers areas of identification, content, distribution, constraint, quality, maintenance, and relationship of traditional Chinese medicine literature.

## 2 Terms and definitions

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

### 2.1 metadata

data that defines and describes other data, i.e. data about data

### 2.2 traditional Chinese medicine

traditional medicine that originated in China, and is characterized by holism and treatment based on pattern identification/syndrome differentiation

### 2.3 metadata element

discrete unit of metadata

### 2.4 metadata entity

group of metadata elements and other metadata entities describing the same aspect of data

### 2.5 metadata section

subset of metadata that defines a collection of related metadata entities and elements

### 2.6 encoding scheme

scheme which provides contextual information or parsing rules that aid in the interpretation of a term value

Note 1 to entry: Such contextual information may take the form of controlled vocabularies, formal notations, or parsing rules.

### 2.7 element refinement

property of a resource which shares the meaning of a particular element but with narrower semantics

### 2.8 literature

carrier of the text, graphics, symbols, audio, video and other technical means to record human knowledge, or the curing of knowledge in a certain material carrier.

### 3 Structure

TCM literature metadata specification defines three levels of metadata structure: metadata sections, metadata elements and element refinements.

TCM literature metadata contains seven metadata sections, as follows:

- Identification section: basic information of external characteristics, including title, identifier, creator and publisher, etc.
- Content section: descriptive information of content, including description, subject, etc.
- Distribution section: information about user's access to literature resources.
- Quality section: quality information about status of literature resources.
- Constraint section: constraint information contains access to and use of literature resources.
- Maintenance section: information on the maintenance of literature resources.
- Relation section: providing reference between data and related data.

### 4 Sources of the metadata elements

General metadata elements come from Dublin Core Metadata which have been accepted and published as an ISO standard (ISO 15836), partly cited from HICKR(ISO 13119).

Sources of metadata elements with TCM literature characteristics:

- 1) Choose representative elements that are usually used to describe TCM information;
- 2) The necessary and characteristic elements used to describe TCM information include:
  - Characteristic Element (Dialectical system, the ancient physicians, etc).
  - Data From (four diagnostic method of TCM, Analogism, Clinical experiment, etc)
  - Descriptive Ancient Literature (Content, Edition, Dynasty, etc).

### 5 Standard table of TCM literature metadata

Table 1 shows TCM literature metadata.

Table 1 — Table of TCM literature metadata

Sections	Elements	Element refinements and encoding scheme
<b>1. Identification section</b>	1.1 Title	1.1.1 Translated Title
		1.1.3 Phonetic Guides
		1.1.4 Title on Fore-edge
		1.1.5 Title on the inside cover
		1.1.6 Title on the Book Cover
		1.1.7 Title on the First Page of Text
		1.1.8 Other Titles
	1.2 Creator	1.2.1 Creator Description
		1.2.2 Responsibility
	1.3 Contributor	1.3.1 Contributor Description
		1.3.2 Responsibility
	1.4 Type	
	1.5 Format	1.5.1 Digital Files Format
		1.5.2 Quantity
		1.5.3 Size
		1.5.4 Capacity
		1.5.5 Binding and Layout
		1.5.6 Printing Instructions
		1.5.7 Edition of Ancient books
		1.5.8 Paragraph Style
	1.6 Identifier	1.6.1 URI (including URL), DOI, ISBN
	1.7 Description	1.7.1 Catalog
		1.7.2 Abstract
		1.7.3 Preface or Postscript
		1.7.4 Annotations
		1.7.5 Missing Words Annotations
	1.8 Publisher	
1.9 Place of publication		
1.10 Place of printing		
1.11 Date	1.11.1 Creation Date	
	1.11.2 Update Date	
	1.11.3 Publication Date	
	1.11.4 Printing Date	
	1.11.5 Available Date	

Table 1 (continued)

Sections	Elements	Element refinements and encoding scheme
2.Content section	2.1Subject	2.1.1Subject Headings
		2.1.2Categorizing words
		2.1.3Key Words
		2.1.4MeSH Subject Headings; TCM Thesaurus; Chinese Library Classification; the Ministry of Education disciplines classification; Classification standards and code of the TCM data resources
	2.2Ancient Physicians	
	2.3TCM School Of Thought	
	2.4Data From	
2.5Coverage	2.5.1Location	
	2.5.2Era	
2.6Language		
3.Distribution section	3.1Storage Location	3.1.1Institution information
		3.1.2Collection Number
	3.2Collection History	3.2.1Collection Shift
		3.2.2Obtain-way
	3.2.3Inscriptive Writings and Signet	
4.Quality section	4.1Physical Degradation	4.1.1Grading Criteria For Physical Degradation of Ancient Books
	4.2 Rare Degree	
5.Constraint section	5.1Rights	
6.Maintenance section	6.1Preserve Method	6.1.1Temperature
		6.1.2Humidity
		6.1.3Storage Carrier
		6.1.4Other matters Needing Attention
7.Relation section	7.1Relation	7.1.1Inherit from
		7.1.2Subsequent
		7.1.3Replaces
		7.1.4is Replaced By
		7.1.5Translated From
		7.1.6Collection series
		7.1.7Fascicle
		7.1.8Parallel
		7.1.9Additional
		7.1.10Appendix

## 6 Elements dictionary

TCM Literature Metadata Entity consists of seven sections: Identification section, Content section, Distribution section, Quality section, Constraint section, Maintenance section, Relation section. Listed below are descriptions of each section and element.

NOTE "Obligation" indicates whether a description symbol is mandatory (M), or conditional (C) or optional (O).

### 6.1 Identification section

#### 6.1.1 Title

Definition: A brief description of the theme and content of TCM literature resources

Element Refinements: Translated Title; Pinyin of Each Word; Title on Fore-edge; Title on the Inside Cover; Title on the Book Cover; Title on the First Page of Text; Other Titles.

NOTE Obligation=M; Maximum Occurrence=1

##### 6.1.1.1 Translated Title

Definition: Other language translations of the title.

NOTE Obligation=O; Maximum Occurrence >= 1

##### 6.1.1.2 Phonetic Guides

Definition: The title's transliteration of Chinese Phonetic Alphabet.

NOTE Obligation=O; Maximum Occurrence=1

##### 6.1.1.3 Title on Fore-edge

Definition: The title on fore-edge of ancient books.

Comments: Type page is the page edge Relative to the spine edge

NOTE Obligation=O; Maximum Occurrence=1

##### 6.1.1.4 Title on the inside covers

Definition: The title inscribed on the inside cover of ancient books.

Comments: Ancient books' inside cover is equivalent to the title page of modern books.

NOTE Obligation=O; Maximum Occurrence=1

##### 6.1.1.5 Title on the Book Cover

Definition: The title inscribed the ancient books cover.

NOTE Obligation=O; Maximum Occurrence=1

##### 6.1.1.6 Title on the First Page of Text

Definition: The title on the first page of text.

NOTE Obligation=O; Maximum Occurrence=1

### 6.1.1.7 Other Titles

Definition: The title for short or alias of the literature.

NOTE Obligation=0; Maximum Occurrence  $\geq$  1

### 6.1.2 Creator

Definition: An entity primarily responsible for making the resource. (DC)

Comment: Examples of a Creator include a person, an organization, or a service. Typically, the name of a Creator should be used to indicate the entity.

Element Refinements: Creator Description; Responsibility.

NOTE Obligation=C; Maximum Occurrence  $\geq$  1

#### 6.1.2.1 Creator Description

Definition: An account of a creator of the resource.

Comments: Creator Description may include but is not limited to: nationality, era, country of origin, or identity. The era of creator can be recorded with the reign dynasty dating or Christian era. Reign dynasty dating is recorded by the order: Dynasty (foreign countries should be indicated the name of the country), the Emperor, Annals.

NOTE Obligation=C; Maximum Occurrence  $\geq$  1

#### 6.1.2.2 Responsibility

Definition: The ways by which a creator works on the resource.

Comments: Describe the relationship between a creator and the resource. For example, First author, corresponding author, translate, engrave, record, photograph, Calligraphy, compile, repair, annotate, edit, collect, paint, sort, modify, manufacture, etc.

NOTE Obligation=C; Maximum Occurrence  $\geq$  1

### 6.1.3 Contributor

Definition: An entity contribute to making the resource.

Element Refinements: Contributor Description; responsibility

Comment: Examples of a Creator include a person, an organization, or a service. Typically, the name of a Creator should be used to indicate the entity.

NOTE Obligation=C; Maximum Occurrence  $\geq$  1

#### 6.1.3.1 Contributor Description

Definition: An account of a Contributor of the resource.

Comments: Contributor Description may include but is not limited to: nationality, era, country of origin, or identity. The era of Contributor can be recorded with the reign dynasty dating or Christian era. Reign dynasty dating is recorded by the order: Dynasty (foreign countries should be indicated the name of the country), the Emperor, Annals.

NOTE Obligation=C; Maximum Occurrence  $\geq$  1

### 6.1.3.2 Responsibility

Definition: The ways by which a Contributor works on the resource.

Comments: Describe the relationship between a Contributor and the resource.

EXAMPLE Translate, engrave, record, photograph, Calligraphy, compile, repair, annotate, edit, collect, paint, sort, modify, manufacture, etc.

NOTE Obligation=C;Maximum Occurrence >= 1

### 6.1.4 Type

Definition: The nature or genre of the resource. (DC)

Comments: Describe the general category of the resource.

NOTE Obligation=M;Maximum Occurrence=1

### 6.1.5 Format

Definition: Resources file formats, physical medium and digital media specifications. (DC)

Element Refinements: Format of digital resources; quantity; size; volume; binding and layout; printing instructions; Edition of Ancient books; paragraph Style

NOTE Obligation=M;Maximum Occurrence >= 1

#### 6.1.5.1 Digital Files Format

Definition: Special encoding of information in order to the computer to store information.

Comments: Recommend using thesaurus such as computer media formats table defined Internet media types. [MIME]

NOTE Obligation=C;Maximum Occurrence=1

#### 6.1.5.2 Quantity

Definition: The number of separate parts of a set of literature collection.

Comments: Ancient books are usually expressed in volume, case.

NOTE Obligation=0;Maximum Occurrence=1

#### 6.1.5.3 Size

Definition: Use a specific unit to describe the size of physical medium or storage size of digital resources.

NOTE Obligation=0;Maximum Occurrence=1

#### 6.1.5.4 Capacity

Definition: Number of pages in papery resources, time duration of Audio or video files.

NOTE Obligation=0;Maximum Occurrence=1

#### 6.1.5.5 Binding and Layout

Definition: The method with which books is made into finished products.

NOTE Obligation=0;Maximum Occurrence=1

#### 6.1.5.6 Printing Instructions

Definition: Additional description of edition of the Ancient Books. For example, the printing inks color or printing methods. Color Overprint, chromatography, Blue print, red printed, etc.

NOTE Obligation=0;Maximum Occurrence=1

#### 6.1.5.7 Edition of Ancient books

Definition: Different versions of ancient literature due to different processing methods.

Comments: To identify the edition of ancient literature should accord to the literary records in books combining with characteristics of the different versions. It typically includes: Script writing, manuscripts, carbon copies, wood block prints, Movable - type Printing, stone prints, stereotype print, photocopies, copperplate print, seal print, etc.

NOTE Obligation=0;Maximum Occurrence=1

#### 6.1.5.8 Paragraph Style

Definition: The number of rows per page and the words per row, the style of typesetting including style and size of space of a whole page.

NOTE Obligation=0; Maximum Occurrence >= 1

#### 6.1.6 Identifier

Definition: An unambiguous reference to the resource within a given context. (DC)

Comments: Recommended best practice is to identify the resource by means of a string conforming to a formal identification system.

Encoding Scheme: URI (including URL), DOI, ISBN

NOTE Obligation=0; Maximum Occurrence=1

##### 6.1.6.1 URI (including URL), DOI, ISBN

#### 6.1.7 Description

Definition: An account of the resource. (DC)

Element qualifiers: Catalog; abstract; preface or Postscript

NOTE Obligation=M; Maximum Occurrence=1

##### 6.1.7.1 Catalog

Definition: Catalog is a table of contents in front of text. It is made up systematically to guide reading and retrieving the book content.

NOTE Obligation=0; Maximum Occurrence=1

##### 6.1.7.2 Abstract

Definition: Abstract is also known as a summary. Abstract is in order to provide literature content outline, without comment and supplementary explanation, concisely and exactly recount the important content. The basic elements include the study objectives, methods, results and conclusions. Specifically, is the

main object and scope of the research, the means and methods, the results and important conclusions, and sometimes also include other important information with intelligence value.

NOTE Obligation=0; Maximum Occurrence=1

#### 6.1.7.3 Preface or Postscript

Definition: Preface is also known as preamble, introduction, etc. Preface in ancient times usually put in the back of the book, now usually placed in the front of the book, and call it postscript put when it in the back of the book. The content and style of preface and postscript are roughly the same, so it can be called the prefaces and postscripts.

NOTE Obligation=0; Maximum Occurrence=1

#### 6.1.7.4 Annotations

Definition: Account of the various aspects of content and form of the literature.

NOTE Obligation=0; Maximum Occurrence >= 1

#### 6.1.7.5 Missing Words Annotations

Definition: Record the words that do not exist in current Chinese character fonts.

NOTE Obligation=0; Maximum Occurrence >= 1

#### 6.1.8 Publisher

Definition: An entity responsible for making the resource available.

NOTE Obligation=0; Maximum Occurrence=1

#### 6.1.9 Place of publication

Definition: The locations where the resource was published.

NOTE Obligation=0; Maximum Occurrence=1

#### 6.1.10 Place of printing

Definition: The place where printer printed large numbers of copies of literature with printing tools.

NOTE Obligation=0; Maximum Occurrence=1

#### 6.1.11 Date

Definition: A point or period of time associated with an event in the lifecycle of the resource.

Element Refinements: Creation date; update date; publication date; printing date; available date

NOTE Obligation=0; Maximum Occurrence >= 1

##### 6.1.11.1 Creation Date

Definition: The creation, formation date of the resource.

Comments: Tool of Christian Era, Reign Dating

NOTE Obligation=0; Maximum Occurrence=1

#### 6.1.11.2 Update Date

Definition: The date that administrator or other person modify, add or delete resource content.

Comments: Tool of Christian Era, Reign Dating

NOTE Obligation=0; Maximum Occurrence >= 1

#### 6.1.11.3 Publication Date

Definition: The date that publisher made the finished first draft into batch production.

Comments: Tool of Christian Era, Reign Dating

NOTE Obligation=0; Maximum Occurrence=1

#### 6.1.11.4 Printing Date

Definition: The date that print the resource on paper or other medium.

Comments: Tool of Christian Era, Reign Dating

NOTE Obligation=0; Maximum Occurrence=1

#### 6.1.11.5 Available Date

Definition: The date that the resource can be obtained by a legal way.

Comments: Tool of Christian Era, Reign Dating

NOTE Obligation=0; Maximum Occurrence=1

### 6.2 Content section

#### 6.2.1 Subject

Definition: The topic of TCM literature, which reflect basic understanding and evaluation of the resource.

Element refinements: Subject Headings; Categorizing words ; Key Words

Encoding scheme: MeSH Subject Headings; TCM Thesaurus; Chinese Library Classification; the Ministry of Education disciplines classification; Classification standards and code of the TCM data resources

NOTE Obligation=M; Maximum Occurrence >= 1

##### 6.2.1.1 Subject headings

Definition: Keywords or standardized words used to express the core content of the resource.

NOTE Obligation=M; Maximum Occurrence >= 1

##### 6.2.1.2 Categorizing words

Definition: Classification of literature resources.

NOTE Obligation=M; Maximum Occurrence >= 1

### 6.2.1.3 Key Words

Definition: The non-standardized words or phrases truncated from the title or text which express the subject of resources.

NOTE Obligation=0; Maximum Occurrence >= 1

### 6.2.1.4 MeSH Subject Headings; TCM Thesaurus; Chinese Library Classification; the Ministry of Education disciplines classification; Classification standards and code of the TCM data resources

## 6.2.2 Physicians of Past Generations

Definition: The Physicians of Past Generations who developed the TCM theory that relate to literature resource.

NOTE Obligation=0; Maximum Occurrence >= 1

## 6.2.3 TCM School of thought

Definition: Mark the classic Chinese academic schools which the main content of the TCM literature succeed or advocate.

Comments: Traditional Chinese medicine theory has been developed for thousands of years, and produced a large number of academic schools, for example: typhoid school, the school of acute febrile, replenish school, nourish yin school, the Hejian school, Yi school, Qian Tang medical school, WuZhong medical school, Menghe medical school, etc.

NOTE Obligation=0; Maximum Occurrence >= 1.

## 6.2.4 Data From

Definition: Source or obtaining-way of data of literature.

Comments: For example: Four diagnostic methods of traditional Chinese medicine, analogy method, electronic medical record, image scanning, experimental research, etc.

NOTE Obligation=0; Maximum Occurrence >= 1

## 6.2.5 Coverage

Definition: when and where the main theories of literature generated.

Element Refinements: Spatial; Temporal

NOTE Obligation=0; Maximum Occurrence >= 1

### 6.2.5.1 Spatial

Definition: The geographical scope where the main theory of literature generated.

NOTE Obligation=0; Maximum Occurrence=1

### 6.2.5.2 Temporal

Definition: The time when the main theory of literature generated.

NOTE Obligation=0; Maximum Occurrence=1

### 6.2.6 Language

Definition: The languages of the resource.

NOTE Obligation=0; Maximum Occurrence >= 1

## 6.3 Distribution section

### 6.3.1 Storage Location

Definition: Record the institution which possesses the literature.

Element Refinements: Holdings information; Collection Number

NOTE Obligation=0; Maximum Occurrence >= 1

#### 6.3.1.1 Institution Information

Definition: The information of the institution which possesses the literature.

Note: Obligation=0; Maximum Occurrence=1

#### 6.3.1.2 Collection Number

Definition: A certain number is given to the literature in order to shelving and retrieve faster.

NOTE Obligation=0; Maximum Occurrence=1

### 6.3.2 Collection History

Definition: The circulating history of the ancient books and related information.

Comments: Record the Collection History of the ancient literature, inscriptive writings and signet, obtain-way, the purchase price.

Element Refinements: The Collection History, obtain-way, inscriptive writings and signet, inscriptive writings and signet

NOTE Obligation=0; Maximum Occurrence >= 1

#### 6.3.2.1 Collection Shift

Definition: Historical changes of literature's collectors and collection method.

NOTE Obligation=0; Maximum Occurrence >= 1

#### 6.3.2.2 Obtain-way

Definition: The source and purchase price of literature.

NOTE Obligation=0; Maximum Occurrence >= 1

#### 6.3.2.3 Inscriptive Writings and Signet

Definition: Record the inscriptions and seal in literature.

NOTE Obligation=0; Maximum Occurrence >= 1

## 6.4 Quality section

### 6.4.1 Physical Degradation

Definition: The wear degree of literature resources.

Encoding scheme: Standards of Ancient Books Worn-out Grading

NOTE Obligation=0; Maximum Occurrence  $\geq$  1

#### 6.4.1.1 Grading Criteria For Physical Degradation of Ancient Books

Definition: WH/T 22-2006 Grading Criteria For Physical Degradation of Ancient Books

NOTE Obligation=0; Maximum Occurrence = 1

### 6.4.2 Rare Degree

Definition: The current quantity of literature, superior or inferior version.

Comments: Describe rare degree of the literature. For example, the only existing copies, rare edition, uncut version, residues version, fineness version. coarse version.

NOTE Obligation=0; Maximum Occurrence  $\geq$  1

## 6.5 Constraint section

### 6.5.1 Rights

Definition: Information about rights held in and over the resource.

EXAMPLE

- 1) Permission: Museum reading
- 2) Permissions: Electronic reading
- 3) Permissions: copies of reading

NOTE Obligation = 0; Maximum Occurrence  $> =$  1

## 6.6 Maintenance section

### 6.6.1 Preserve Method

Definition: Requirements of literature preservation

Comments: Environmental constraints include temperature, humidity, storage carrier, vermin proof, security, shockproof, light requirements, etc.

Element Refinements: temperature, humidity, storage carrier, other matters needing attention

NOTE Obligation=0; Maximum Occurrence  $\geq$  1

#### 6.6.1.1 Temperature

Definition: The temperature requirements of preservation environment.

Comments: Specify temperature units, for example, Fahrenheit, Celsius temperature scale

NOTE Obligation=0; Maximum Occurrence=1