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Health informatics — Categorial structures for representation of acupuncture —

Part 2: Needling

Informatique de santé — Structures catégoriques pour la représentation de l'acupuncture —

Partie 2: Puncture

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Foreword

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The committee responsible for this document is ISO/TC 215, *Health informatics*.

Introduction

In this Technical Specification, acupuncture is a branch of traditional Chinese medicine which mainly involves the theory of meridians, location, usage, indications and combinations of acupoints, needling manipulations and application of ignited moxa in the treatment of disease through regulation of qi, blood and visceral functions.

Acupuncture therapy is widely practiced as a part of complementary and alternative medicine throughout East Asia and also in western countries.

A guideline for reporting acupuncture interventions in clinical trials is already available, and a large number of clinical trials have been conducted to assess efficacy and efficiency of acupuncture therapy. However, the descriptions of acupuncture interventions in clinical reports tend to be insufficient for interpretation of heterogeneity among trials, often causing difficulties for data synthesis in meta-analyses. This arises for three reasons: firstly because an appropriate information structure of acupuncture needling is not used, secondly because certain concepts within traditional medicine practice in the western pacific-rim region originated in China and are frequently not sufficiently considered, and thirdly because semantic associations between concepts of acupuncture needling need to be explicitly identified.

This Technical Specification defines the categorial structures within the subject field of acupuncture needling in order to address these problems.

Health informatics — Categorial structures for representation of acupuncture —

Part 2: Needling

1 Scope

The purpose of this Technical Specification is to specify categorial structures within the subject field of acupuncture by defining a set of domain constraints for use within terminological resources.

This Technical Specification describes a concept system detailing domain constraints of sanctioned characteristics, each composed of a semantic link and an applicable characterizing category.

The potential benefits of this Technical Specification include:

a) support for developers of new terminology systems concerning acupuncture needling;

b) support for developers of new detailed content areas of existing terminology systems concerning acupuncture needling procedures to ensure accuracy, repeatability and comparability;

c) facilitating the representation of acupuncture needling procedures using a standard core model in a manner suitable for computer processing;

d) providing a conceptual framework for the generation of compositional concept representation of acupuncture needling;

e) facilitating the mapping and improved semantic correspondence between different terminologies by proposing a core specification for acupuncture needling;

f) providing a core model to describe the structure of acupuncture, and facilitate improved semantic correspondence with information models;

g) providing a tool for acupuncture text mining, database construction, ancient documents processing and wide area of acupuncture information collection and processing;

h) providing a new method for researchers to conduct relevant research, and ideas for the development of acupuncture disciplines.

Target groups include:

— stakeholders such as companies that offer systems that incorporate Electronic Categorial Structures, by helping building knowledge databases or automatic processing of medical literature, and

— doctors, who can be better assisted with knowledge and documentation of needling procedures.

This Technical Specification can also be used in clinical decision support and to help in data mining for researchers.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 17115, *Health informatics — Vocabulary for terminological systems*

3 Terms and definitions

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

3.1
concept
unit of knowledge created by a unique combination of characteristics

Note 1 to entry: A concept can have one or more names. It can be represented using one or more terms, pictures, icons or sounds.

3.2
categorial structure
minimal set of domain constraints for representing concept systems in a subject field

3.3
category
division of sets of entities regarded as having particular shared characteristics (3.4)

EXAMPLE Oral route, subcutaneous route and all other routes share characteristics particular to the category route.

Note 1 to entry: Categories may be more or less general. Where one category is subsumed by another, the is a relation is asserted to obtain a hierarchy between the more specific or subsumed category and the more general or subsuming category. For example, parenteral route is more general than intravenous route.

3.4
characteristic
abstraction of a property of an entity or of a set of entities

EXAMPLE Fever is a characteristic symptom of flu.

Note 1 to entry: Characteristics are used for describing concepts (3.1) and for differentiating categories (3.3).

3.5
semantic link
formal representation of a directed associative relation or partitive relation between two concepts

EXAMPLE is Cause Of (with inverse has Cause); has Location (with inverse is Location Of).

Note 1 to entry: This includes all relations except the generic relation.

Note 2 to entry: A semantic link always has an inverse, i.e. another semantic link with the opposite direction.

[SOURCE: WHO International Standard Terminologies on Traditional Medicine in the Western Pacific Region —WHO Western Pacific Region, 2007]

4 List of authorized representation of semantic links for acupuncture needling

4.1 Measures

Ascertains or marks the dimensions, quantity, degree, or capacity of.[7]

semantic link between Needle Type and Needle Characteristic by which NeedleType is measured.

semantic link between Additional Stimulation Method and Stimulation Dose Of Additional Stimulation Method by which Additional Stimulation Method is measured.

NOTE Every acupuncture needling method terminological phrase complying with this Technical Specification has this **semantic link**.

4.2 Uses

Employs in the carrying out of some activity. This includes applies, utilizes, employs, and avails.[7]

semantic link between Needle Type and Needle Grasping by which Needle Type is used.

NOTE Every acupuncture needling method terminological phrase complying with this Technical Specification has this **semantic link**.

4.3 Causes

Brings about a condition or an effect. Implied here is that an agent, such as, for example, a pharmacologic substance or an organism, has brought about the effect. This includes induces, effects, evokes, and aetiology.[7]

semantic link between Abnormal Situation and Insertion Technique by which Abnormal Situation is caused.

semantic link between Abnormal Situation and Stimulation Technique with Manipulation by which Abnormal Situation is caused.

semantic link between Abnormal Situation and Supplementation and Draining Method by which Abnormal Situation is caused.

NOTE Every acupuncture needling method terminological phrase complying with this Technical Specification has this **semantic link**.

4.4 Result_of

The condition, product, or state occurring as a consequence, effect, or conclusion of an activity or process. This includes product of, effect of, sequel of, outcome of, culmination of, and completion of.[7]

semantic link between Acupuncture Effects and Additional Stimulation Method which Acupuncture Effects is result_of.

semantic link between Acupuncture Effects and Supplementation and Draining Method which Acupuncture Effects is result_of.

semantic link between Acupuncture Effects and Sham Acupuncture which Acupuncture Effects is result_of.

NOTE Every acupuncture needling method terminological phrase complying with this Technical Specification has this **semantic link**.

4.5 Evaluation_of

Judgment of the value or degree of some attribute or process.[7]

semantic link between Insertion Parameters and Insertion Technique which Insertion Parameters is Evaluation_of.

NOTE Every stimulation method terminological phrase complying with this Technical Specification has this **semantic link**.

4.6 Co-occurs_with

Occurs at the same time as, together with, or jointly. This includes is co-incident with, is concurrent with, is contemporaneous with, accompanies, coexists with, and is concomitant with.[7]

semantic link between Stimulation Technique with Manipulation and Supplementation and Draining Method which Stimulation Technique with Manipulation is Co-occurs_with.

NOTE Every stimulation method terminological phrase complying with this Technical Specification has this **semantic link**.

4.7 Precedes

Occurs earlier in time. This includes antedates, comes before, is in advance of, predates, and is prior to.[7]

semantic link between Needle Grasping and Insertion Technique which Needle Grasping Precedes.

semantic link between Insertion Technique and Response Sought which Insertion Technique Precedes.

semantic link between Response Sought and Stimulation Technique with Manipulation which Response Sought Precedes.

semantic link between Supplementation and Draining Method and Withdrawing Method which Supplementation and Draining Method Precedes.

NOTE Every stimulation method terminological phrase complying with this Technical Specification has this **semantic link**.

5 Categorial structures for representation of acupuncture needling

5.1 Conformance principles

Any categorial structure for representation of acupuncture needling in a terminological system shall conform with the requirements specified in ISO 17115 and shall provide the following information:

a) categories that organize the healthcare entities for representation of acupuncture needling in the terminology and subdividing their representation in the domain;

b) a list of the representation relations authorized by domain constraints;

c) the goal (purpose and scope) of the terminology for which the categorial structure is set;

d) a list of minimal domain constraints required by the goal of the categorial structure. The categories that organize the healthcare entities and the representation relations for representation of acupuncture needling in terminological systems are defined in 5.2 to 5.3.

5.2 Overview

In the formal concept representation system for the subject field of acupuncture needling, it has semantic links to the following characterizing categories.

Semantic links among them are specified in 5.3.

The outline of those characterizing categories and semantic links is illustrated in a concept diagram in Figure 1. Specification of categorial structures for the representation of acupuncture point is out of scope of this Technical Specification.

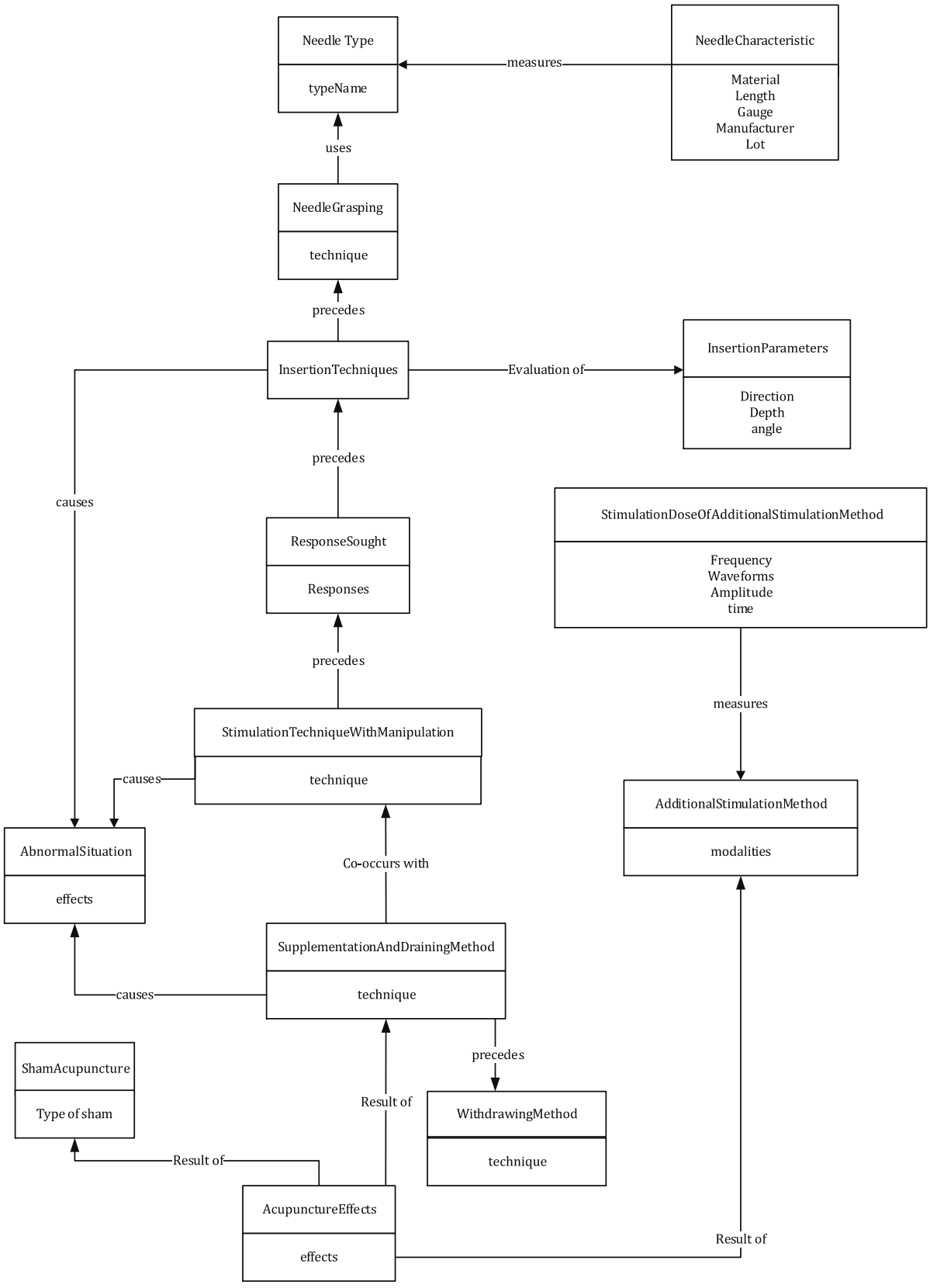

Figure 1 — Conceptual framework for representation of acupuncture needling

5.3 Characterizing categories

5.3.1 Insertion technique

Technique of inserting the needle through the skin (Reference [5] definition 5.1.100).

— Double-handed needle insertion: a needle insertion technique using both the right and left hands in cooperation (Reference [5] definition 5.1.101).

— Fingernail-pressing needle insertion: a two-handed needle insertion technique involving the application of pressure with a single nail (Reference [5] definition 5.1.102).

— Hand-holding needle insertion: a two-handed needle insertion technique whereby the thumb and index finger of the pressing hand hold a sterilized cotton ball with which the shaft of the needle is wrapped (Reference [5] definition 5.1.103).

— Pinching needle insertion: a two-handed needle insertion technique whereby the needle is inserted while the other hand pinches and lifts the flesh (Reference [5] definition 5.1.104).

— Skin-spreading needle insertion: a two-hand needle insertion technique whereby the skin is stretched to facilitate needle insertion (Reference [5] definition 5.1.105).

5.3.2 Insertion parameters

— Angle of needle: the angle formed between the shaft of the needle and the skin punctured while the needle is being inserted (Reference [5] definition 5.1.111).

— Depth of needle: the depth of the needle body penetrating human body.

— Direction of needle: directing the needle with or against the meridian.

5.3.3 Stimulation technique with manipulation

Manipulating the needle after insertion to produce the desired effect, including: twirling method, lifting-thrusting method, handle-scraping method, handle-twisting method, handle-waggling method, handle-flicking method, trembling method, massage along meridian.

NOTE These methods can be used either alone or in conjunction with each other.

5.3.4 Withdrawing method

The method of removing the acupuncture needle from the body (Reference [5] definition 5.1.195).

5.3.5 Supplementation and draining method

Supplementation is a process to activate and restore a decreased function to normal; draining is a process to expel pathogenic factors and thus to restore hyperactivity to normal, the same as reinforcement and reduction (Reference [5] definition 5.1.134).

— Twirling supplementation and draining: reinforcement or reduction achieved by rotating the needle after the qi is obtained, the same as twirling reinforcement and reduction (Reference [5] definition 5.1.135).

— Lifting-thrusting supplementation and draining: reinforcement or reduction achieved by lifting and thrusting the needle after the qi is obtained, the same as lifting-thrusting reinforcement and reduction (Reference [5] definition 5.1.137).

— Directional supplementation and draining: reinforcement or reduction achieved by inserting the needle with the direction or against the direction of the meridian/channel course, the same as directional reinforcement and reduction (Reference [5] definition 5.1.139).

— Quick-slow supplementation and draining: reinforcement or reduction achieved by varying the relative speed of insertion and extraction of the needle, the same as quick-slow reinforcement and reduction (Reference [5] definition 5.1.141).

— Respiratory supplementation and draining: reinforcement or reduction achieved by inserting and extracting the needle in coordination with the patient's respiration, the same as respiratory reinforcement and reduction (Reference [5] definition 5.1.143).

— Open-closed supplementation and draining: reinforcement or reduction achieved by opening or closing the insertion hole after withdrawal of the needle, the same as open-closed reinforcement and reduction (Reference [5] definition 5.1.145).

5.3.6 Additional stimulation method

Methods such as electro-acupuncture and electrothermic acupuncture, laser acupuncture, herbal acupuncture, microwave acumoxa, bee venom acupuncture, acupuncture point injection and incision therapy, which are out of scope of this Technical Specification.

5.3.7 Response sought

The patient's feeling of soreness, numbness, distension or heaviness around the point or feeling like an electric shock while needling (Reference [5] definition 5.1.115).

5.3.8 Acupuncture effects

Anaesthesia: loss of bodily sensation with or without loss of consciousness.

5.3.9 Abnormal situation

— Fainting during acupuncture treatment: an adverse reaction to acupuncture; a feeling of faintness, dizziness, nausea and cold sweating during and/or after needling, also called needle sickness (Reference [5] definition 5.1.196).

— Bending of the needle: an abnormal condition occurring during acupuncture, in which the needle becomes bent after insertion in the body (Reference [5] definition 5.1.197).

— Needle breakage: breaking of a needle below the skin when applying acupuncture treatment (Reference [5] definition 5.1.198).

— Stuck needle: an accidental condition occurring during needling, in which the needle is impossible to rotate, lift or thrust (Reference [5] definition 5.1.199).

NOTE These situations can occur alone or in conjunction with each other.

5.3.10 Needle type

Names of needle types, including: filiform needle, shear needle, round-pointed needle, spoon needle, lance needle, round-sharp needle, stiletto needle, long needle, big needle, great needle, plum-blossom needle, seven-star needle, three-edged needle, fire needle.

5.3.11 Needle characteristic

Material: stainless, silver, tungsten steel, etc.

Length: 13 mm, 25 mm, 40 mm, 50 mm, etc.

Gauge: 28, 30, 32, 36, etc.

Manufacturer: XXX

Lot: 15, 20, 24, 30, etc.

5.3.12 Stimulation dose of additional stimulation method

A variable whose measure is indicative of a quantity or function of electro-acupuncture, that cannot itself be directly determined precisely.

Stimulation dose of electro-acupuncture that is valid for representation of a stimulation method, which includes but varies according to modality: { frequency }, { waveform }, { amplitude }, { time }.

5.3.13 Needle retention time

Retaining the needle in the point for a period of time to maintain and prolong the effect.

Retention time: 20 min to 30min; *n* hours, etc.

5.3.14 Sham acupuncture

Sham acupuncture, a placebo version of the traditional Chinese medicine technique that can involve needling non-acupuncture points, penetrating the skin shallowly, or not penetrating the skin at all, which is only used in experimental research.

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