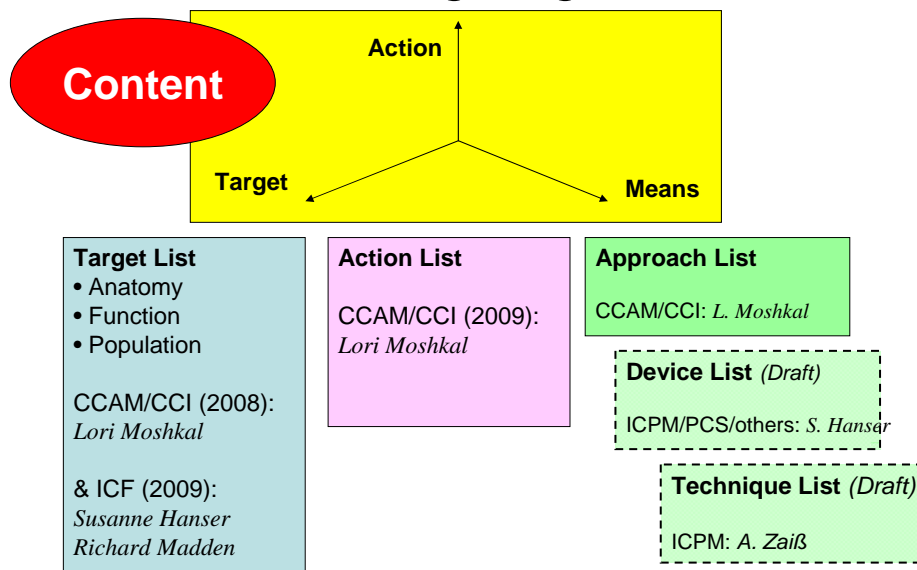


# ICHI: Work done and to be done

Refined draft structure for target axis (anatomical sites) based on a mapping of ICHI-2008 classes to ICF and FMA

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## ICHI – Ongoing Work

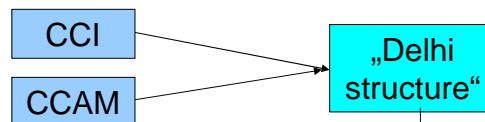


## Objective

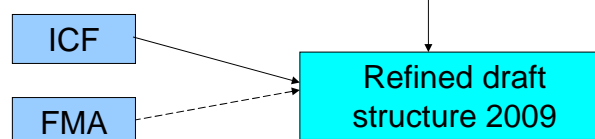
- Further development of a classification of anatomical sites for the target axis of the International Classification of Health Interventions (ICHI)
- Generation of a draft structure for the target axis which
  - is appropriate for intervention coding
  - is compatible with the International Classification of functioning, disability and health (ICF)

## Draft 2008 → Draft 2009

- Published in WHO/FIC2008\_ICHI\_Delhi-Structure.doc



- Further discussions: **ICF?**



# Material: ICHI 2008, ICF

## 1. TARGET

### 1.A Anatomical site or physiological function

#### 1.AA NERVOUS SYSTEM

- 1.AAA Brain (Encephalon)
- 1.AAB Intracranial ventricles, meninges and cerebrospinal fluid
- 1.AAC Intracranial, multiple locations or not otherwise specified
- 1.AAD Cranial nerves
- 1.AAE Spinal cord
- 1.AAF Spinal canalis centralis, meninges and cerebrospinal fluid

### ICF Browser

Language/Versi

- ICF
  - b BODY FUNCTIONS
  - s BODY STRUCTURES
    - s1 CHAPTER 1 STRUCTURES OF THE NERVOUS SYSTEM
      - s110 Structure of brain
        - s1100 Structure of cortical lobes
          - s11000 Frontal lobe
          - s11001 Temporal lobe
          - s11002 Parietal lobe
          - s11003 Occipital lobe
          - s11008 Structure of cortical lobes, other specified
          - s11009 Structure of cortical lobes, unspecified
        - s1101 Structure of midbrain
        - s1102 Structure of diencephalon
        - s1103 Basal ganglia and related structures
        - s1104 Structure of cerebellum

# Material: Foundational Model of Anatomy

**Foundational Model Explorer** Options Help

Search

Select navigation tree type: part

- Thoracic duct tree
- Right lymphatic duct tree
- Dental arcade
- Musculoskeletal system
- Nervous system
  - Neuraxis
    - Brain**
    - Spinal cord
    - Ventricular system of neuraxis
    - Neural tissue of neuraxis
    - Vasculature of neuraxis
  - Autonomic nervous system
    - Somatic nervous system
    - Enteric nervous system
    - Peripheral nervous system
  - Respiratory system
  - Alimentary system
  - Urinary system
  - Genital system
  - Endocrine system
    - Sense organ system
    - Deep fascial system
    - Stomatognathic system
    - Hemolymphoid system
    - Cardiovascular system
    - Integumentary system

Cerebro Spanish  
Utak Filipino

FMAID: 50801

**DEFINITION:**  
Segment of neuraxis that has as its parts gray matter and white matter that surround the cerebral ventricular system. Examples: There is only one brain.

**BOUNDED BY:**  
Plane of foramen magnum  
Surface of brain

**MEMBER OF:**  
Nervous system of head

**PART:**  
Forebrain  
Midbrain  
Hindbrain  
Neural tissue of brain  
Ventricular system of brain

## Methods

- Comparison of anatomical site (and function) classification in ICHI 2008 draft, ICF and Foundational model of anatomy ontology (FMA)
- Mapping of ICHI “target” classes for anatomical site and physiological function to ICF classes.
  - ⇔ ICF subtrees for body structure and body function

## Results 1

- ICHI\_anatomy\_2009.doc with
  - A mapping table ICHI-2008 – ICF – FMA with annotations and definitions
  - “ICHI 2009”: A draft proposal for the portion of the target axis that concerns anatomy

## Draft structure: target (anatomy)

ICHI	ICHI txt	ICF	ICF txt	FMA (synonyms in brackets)	Info/notes	ICHI-2009 Draft proposal	Mapping type
<b>Nervous system</b>							
AAA	Brain (Encephalon)	S110	Structure of brain	Brain (Encephalon, Gehirn)	Def. Segment of <i>neuraxis</i> that has as its parts gray matter and white matter that surround the cerebral ventricular system (FMA)	Brain (Encephalon) excl. ventricular system of brain excl. meninges of brain excl. vasculature of brain	ICF finer: midbrain, hindbrain etc. 1:n
AAB	Intracranial ventricles, meninges and cerebrospinal fluid	S130	Structure of meninges (broader, includes spinal meninges!)	Menigeal cluster (Meninges) (broader, incl. spinal meninges!)	Def. Heterogeneous cluster which has as its parts the <i>dura mater</i> , <i>arachnoid mater</i> and <i>pia mater</i> (FMA)	Intracranial meninges	1:n
		S1108	Structure of brain, other specified	Cerebrospinal fluid (portion of body substance) ? "Liquorsystem", "Liquorraume"?		Ventricular system of brain incl. intracranial Cerebrospinal fluid	
		S1108	Structure of brain, other specified	Ventricular system of brain			
AAC	Intracranial, multiple locations	--- (S1109)	(Structure of brain,			Intracranial, not otherwise specified	Residual class

## Results 2: Mapping results

Mapping Type ICHI-2008 =>ICF	N Σ=182	%
-	12	6,6%
1:1	93	51,1%
1:n	29	15,9%
n:1	31	17%
n:m	17	9,3%

1:0

BH *Whole body*

- TO  
(no match)

➔ **Whole body**

- In general, we keep the classes from the ICHI-2008 draft structure

1:1

AJA *Pituitary gland* (ICHI 2008)

- TO  
s5800 *Pituitary gland* (ICF)

➔ **Pituitary gland (ICHI 2009)**

- Keep classes from ICHI-2008  
1:1 mapping in cases of a perfect match and in case of a mapping to a broader or slightly narrower, but unique class (i.e. class appears only once in this list)

1:n

All *Ovary, Fallopian tube* (ICHI 2008)

- TO

{ *s6300 Ovaries, s63012 Fallopian tubes* } (ICF)

→ **Ovary**

→ **Fallopian tube (ICHI 2009)**

- In general: Finer classification according to WHO-ICF. Exceptions, when we estimated ICHI 2008 classes to be more useful.

n:1

{ *AEC Arteries of upper limbs and thorax, AED Abdominal and pelvic arteries, AEE Arteries of lower limbs* } (ICHI 2008)

- TO

*S4101 Arteries* (ICF)

→ **Artery of upper limbs & thorax**

→ **Abdominal & pelvic artery**

→ **Artery of lower limb**

(ICHI 2009)

n:1

- Decision in n:1 mappings depended on the specific situation: Here, a more specific classification is needed for interventions on vessels as ICF provides

n:m

{ *AEA Intracranial vessels, AEB Vessels of head and neck, extracranial or not otherwise specified*}

- TO

{ *S4101 Arteries, S4102 Veins, S4103 Capillaries*}



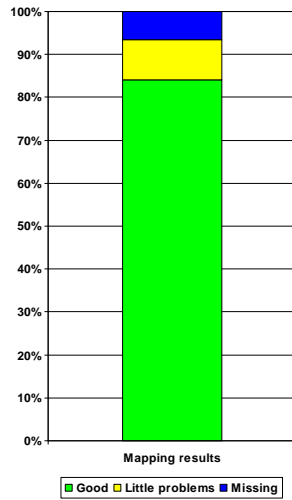
n:m

- ICHI 2008: unspecified vessel - on a specific location
- ICF: type of vessel (artery, vein, capillary) – location unspecified
- **ICHI 2009: specific vessel on a specific location:**
  - Intracranial artery
  - Intracranial vein
  - Artery of head and neck, extracranial or NOS
  - Vein of head and neck, extracranial or NOS
- For compatibility reasons, ICF was preferred if possible
- Choice depended on our estimation which solution would be more appropriate for intervention coding

### Results 3: typical problems

- Titles (Labels):
  - Ambiguity (epiphysis – part of bone/pineal body)
  - Use of singular or plural
- Unclear **class limits** in ICF: missing entities „other specified“ or included somewhere
- Difficult to decide which number of **residual classes** is necessary
- Classes for „Unspecified or **multiple locations**“ (e.g. heart and great vessels, multiple ...)

# Conclusion



- Already high compatibility: For 84.1% of anatomy classes of the ICHI 2008 version matching ICF-classes could be found
  - Full match, one broader class or multiple narrower classes
- In 9.3%, ICHI 2008 and ICF classify differently (n:m)
- No matching ICF class in 6.6%
- *FMA was helpful*

## Draft structure: target (function) 2009

ICF Title	ICF Code	ICHI Code
<b>MENTAL FUNCTIONS</b>		
<b>Global Mental Functions</b>		
Consciousness functions	b110	FAA
Orientation functions	b114	FAB
Intellectual functions	b117	FAC
Global psychosocial functions	b122	FAD
Temperament and personality	b126	FAE
Energy and drive functions	b130	FAF
Sleep functions	b134	FAG
Global mental functions, other	b139	FAH
<b>Specific Mental Functions</b>		
Attention functions	b140	FAJ
Memory functions	b144	FAK
Psychomotor functions	b147	FAL
Emotional functions	b152	FAM
Perceptual functions	b156	FAN
Thought functions	b160	FAO
Higher-level cognitive functions	b164	FAP
Mental functions of language	b167	FAQ
Calculation functions	b172	FAR

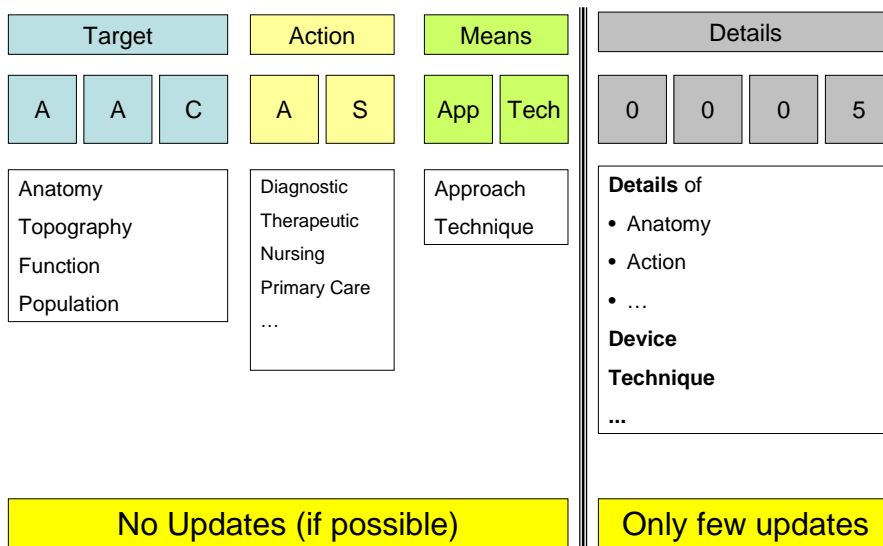
# Draft structure: action 2009

## ACTIONS

### A. INVESTIGATION

- AA Assessment** (patient, environmental factors, health impact)- evaluating a condition, situation, problem or body function to establish a diagnosis, identify appropriate treatment or monitor response. Includes: analysis, detection, evaluation, examination.
- AB Biopsy** –removal and direct examination or analysis of tissue or biological element from the body. Includes biopsy by endoscopy, punch biopsy, percutaneous needle biopsy and superficial smears, incision, open operation
- AC Measurement** – determining quality, quantity, power, ability of certain body parts, biological elements. Includes: electrophysiological measurement; potential (evoked), measurement, pressure measurement, size and sound measurement, plethysmography. *Excludes:* mapping
- AD Test** – a specific review or examination of body function, production or range of movement. Includes: study; psychological testing, apgar score, adrenal function tests, visual field test, cardiac stress test, conduction study, flow study, function study, audiometry
- AE Inspection** –visualization or manual exploration of a body part for diagnostic purposes. Includes exploration, endoscopy, exploratory laparotomy, 'oscopy,
- AF Mapping** – tracing or following pathways of electrical impulses
- AG Screening** to detect disease/risk factors – this may entail a group of procedures that are not unique. What makes them unique is the diagnosis, or

## ICHI – Coding Structure



## ICHI: Work to be done

- Refined lists
  - Devices with consideration of GMDN
  - Technique
- Mapping test for evaluation
  - ICPM and ICD-9-CM Vol. 3 → ICHI
  - Frequently used codes
  - Randomly selected codes
  - Selected complete chapters