

# The SNOMED CT Mapping Project

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# Agenda

- **Hospital Authority Clinical Vocabulary Table (HACVT)**
- **SNOMED CT**
- **Mapping of HACVT (Diagnosis & Procedure) to SNOMED CT**
- **Conclusion**

# **HOSPITAL AUTHORITY CLINICAL VOCABULARY TABLE (HACVT)**

# History

1992

- **Integrated Patient Administration System (IPAS):**
- ICD9 Diagnosis (3-digit code)
- Daily ward return

1993

- **Medical Record Abstract System (MRAS):**
- ICD9CM Diagnosis & Procedure (5-digit code)
- Discharge summary

1995

- **HA Master Disease Code Table (HAMDCT) in CMS**
- ICD9CM diagnoses & procedures
- Extension for locally added terms, alias, associated codes

2001

- **HA Clinical Vocabulary Table (HACVT) replacing HAMDCT**
- ICD9CM diagnosis & procedures, ICD 10 diagnosis
- Unique TermID

2009

- **HACVT in Information Architecture Management System (IAMS)–  
Concept module**
- Other terminologies/classifications, e.g. SNOMED CT, ICPC
- Beyond diagnoses and procedures, e.g. organism, medication

# HACVT – Statistics on Dx & Px

## (as at 31 January 2011)

	Active	Inactive	Total
Diagnosis	18,743	7,265	26,008
Procedure	7,244	1,953	9,197
<b>Total</b>	<b>25,987</b>	<b>9,218</b>	<b>35,205</b>

	Original ICD terms	Added terms	Total
Diagnosis	15,571	<b>10,437</b>	26,008
Procedure	4,431	<b>4,766</b>	9,197
<b>Total</b>	<b>20,002</b>	<b>15,203</b>	<b>35,205</b>

# **SYSTEMATIZED NOMENCLATURE OF MEDICINE - CLINICAL TERMS (SNOMED CT)**



# Background

- Single largest healthcare terminology :
  - @ ~300,000 active concepts
  - @ Cover various healthcare domains, e.g. disease, procedure, drug, laboratory ...
- Owned and maintained by:
  - @ International Health Terminology Standards Development Organization (IHTSDO)(Denmark) <http://www.ihtsdo.org/>
- Joint effort of:
  - @ US : The College of American Pathologists (CAP)
  - @ UK: National Health Service (NHS)
- Originally created by CAP by combining:
  - @ SNOMED Reference Terms & Clinical Terms Version 3 (Read Codes Version 3)

# SNOMED CT – 19 Hierarchies

Body structure	Procedure
Clinical finding	Qualifier value
Environment and geographical location	Record artifact
Event	Situation with explicit context
Linkage concept	Social context
Observable entity	Special concept
Organism	Specimen
Pharmaceutical/biologic product	Staging and scales
Physical force	Substance
Physical object	<b>Total : 291,000 active concepts (Jan 2010 release)</b>

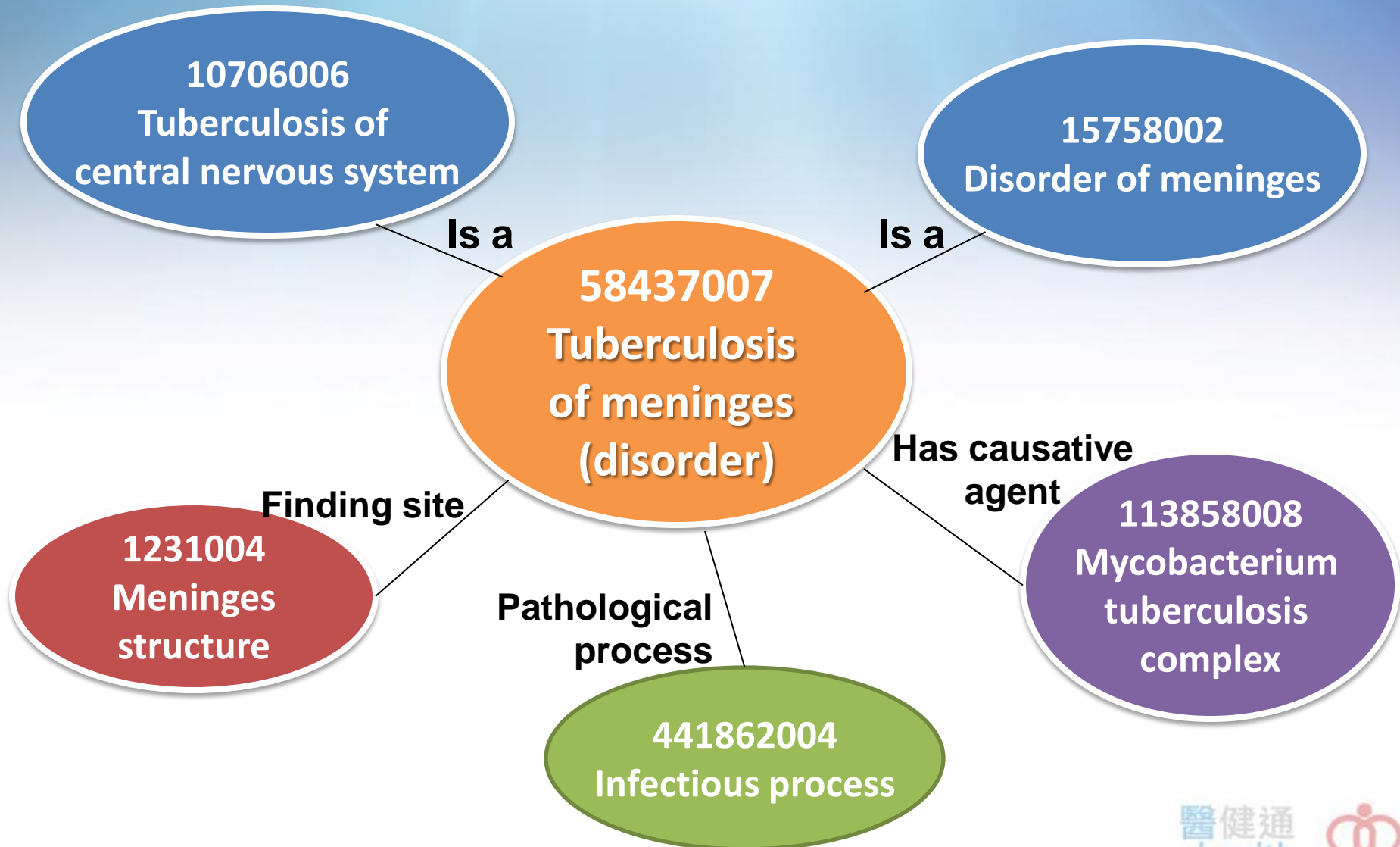


# **MAPPING OF DIAGNOSIS & PROCEDURE TO SNOMED CT**

# Objective

- To map all ICD-9-CM based (diagnosis & procedure terms) in HACVT to SNOMED CT in preparation to transit from a single hierarchical classification to a poly-hierarchical terminology in future
- To facilitate clinical documentation
- To support sharing of clinical data
- To assist data retrieval at granularity level:
  - *For building decision support system*
  - *For other purposes, e.g. research, reporting data ...*

# SNOMED CT Example: TB Meningitis



# Scope of HACVT

(as at August 2009)

	Total Terms	Exclude Never Used / Invalid	Revised Total Terms
Diagnosis	25,707	(5,631)	20,076
Procedure	8,302	(1,143)	7,159
Total	34,009	(6,774)	27,235

# Mapping Process (1)

◎Based on SNOMED CT, version Jan 2010

◎Mapping process - 2 levels:

- Staff A: Initial mapping
- Staff B: Verification

◎Mapping outcomes:

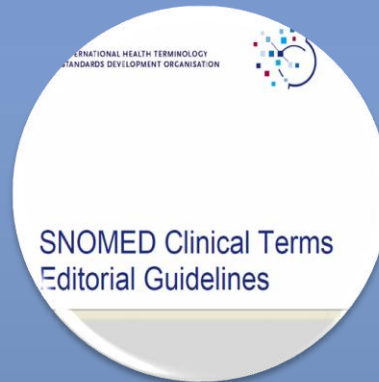
- Exact matched: ~53%
- Not exact matched: ~47%

# Mapping Process (2)



## Terminology Tool

- Information Architecture Management System
- Apelon



## Editorial Policy

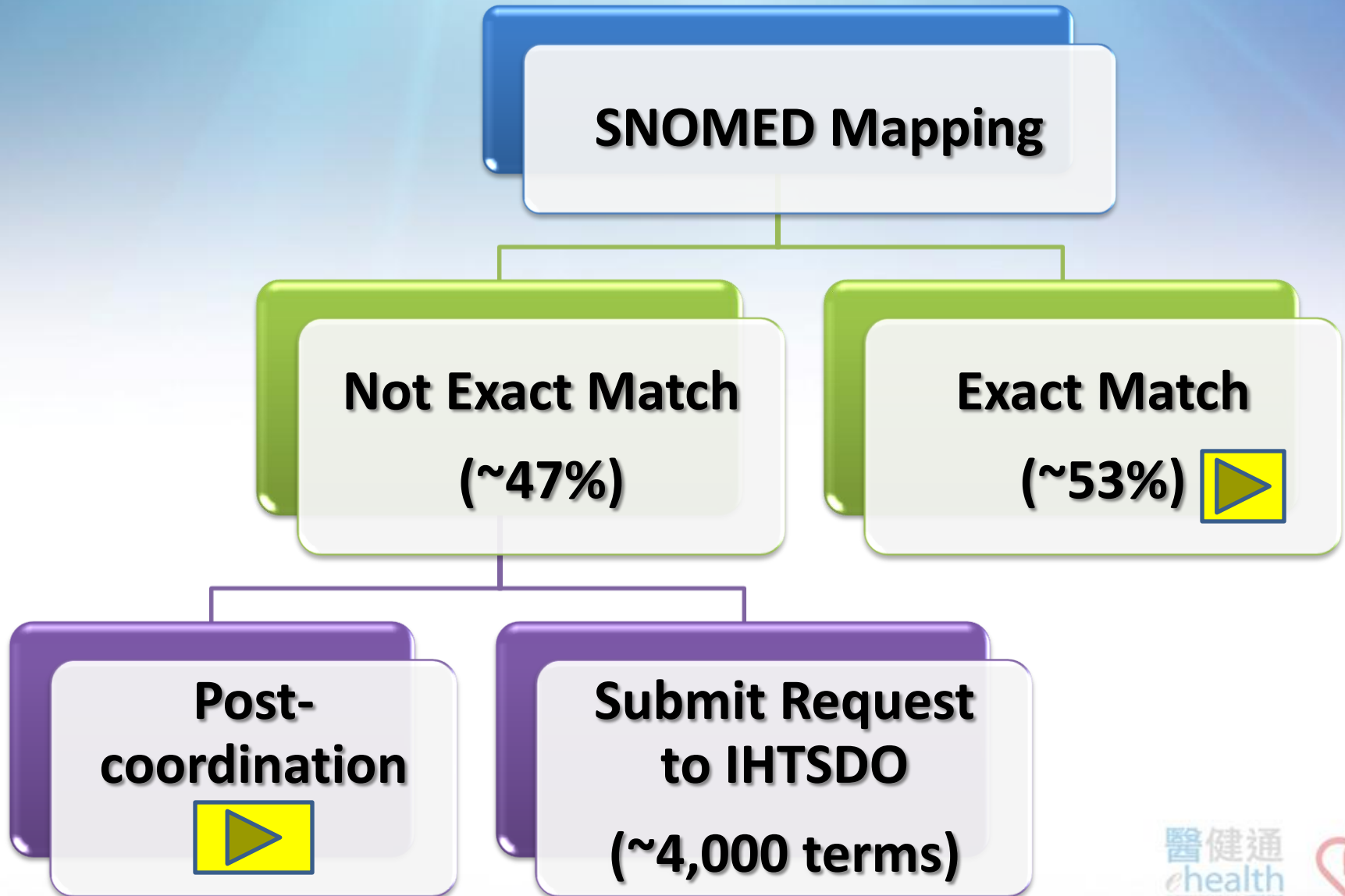
- SNOMED CT
- HKCTT



## SNOMED Mapping Core Group



# Mapping Process (3)



# Mapping Process (4)

2009

- Jul → Get prepared
- Aug → Start mapping project (Total 34,009 terms)
- Sept → Set up SNOMED Mapping Core Group

2010

- Jul → Exclude invalid & never used (6,774 terms)
- Oct → Withhold submission to IHTSDO (>4,000 terms submitted)
- Dec → Exact matched terms completed

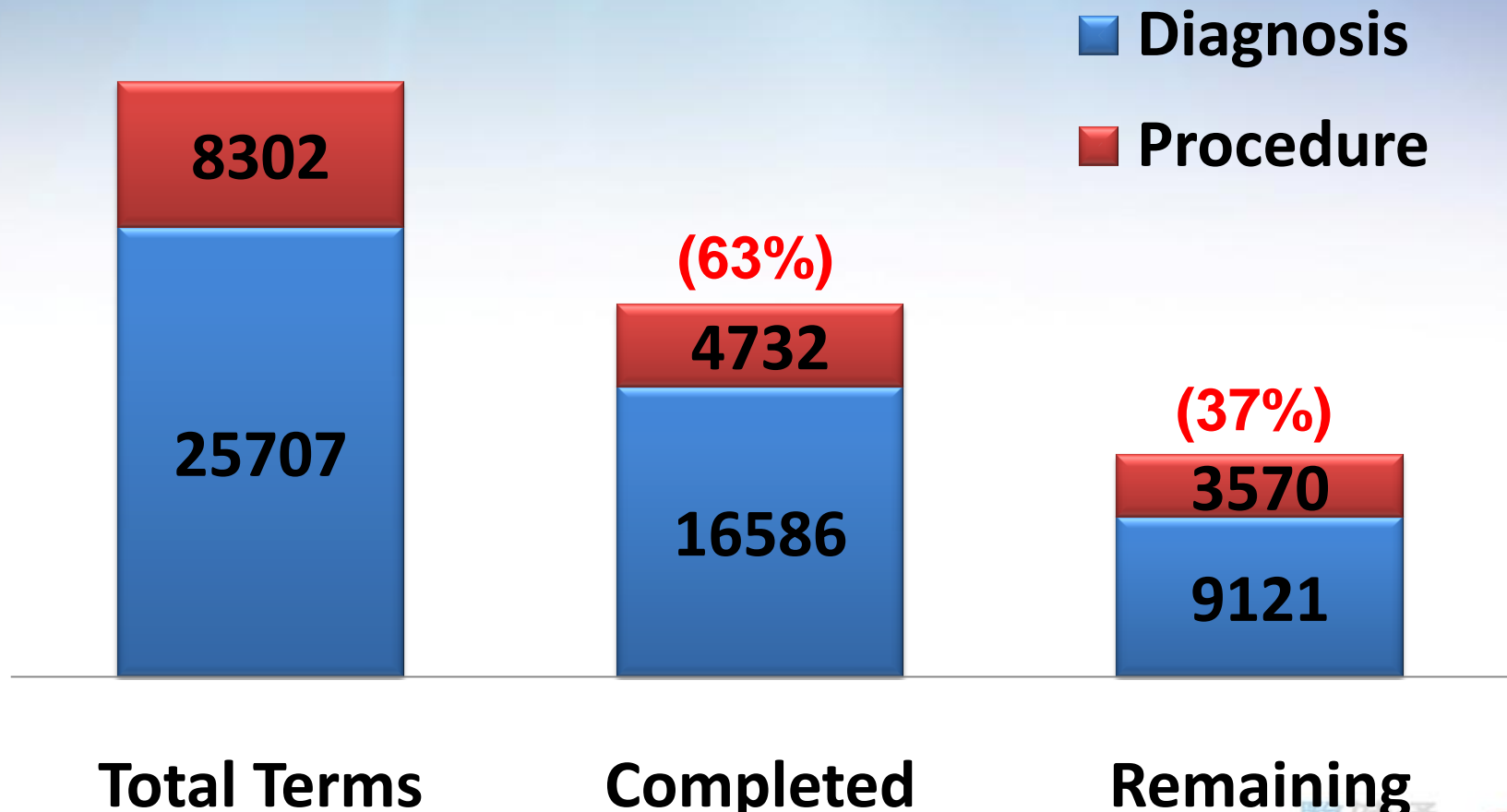
2011

- Jan → Start post-coordination for unmatched terms (12,691 terms)
- Feb → Develop editorial policy



# Mapping Status

(as at 10 February 2011)



# Mapping Project Plan

**Jul 2009**

- Get prepared
- Mapping

**2010**

- Mapping & Verification

**2011**

- Mapping & Verification

**2012**

- Mapping & Verification
- Refinement of Mapping

# Governance

- ☑ eHR IS Coordinating Group
- ☑ eHR Project Management Office
- ☑ HKCTT Editorial Policy Group
- ☑ SNOMED Mapping Core Group



# Conclusion

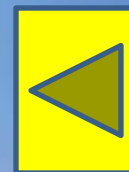
- Over 3 years mapping project
- Closely monitor the performance
- Promptly deal with mapping issues/difficulties
- Ongoing tasks:
  - *New version of SNOMED CT (every 6 months)*
  - *Ongoing mapping for new terms*
  - *Auditing*



# Thank You



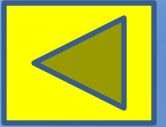
# Examples: Exact Match Terms



HACVT Term	SNOMED CT Concept ID	SNOMED CT (FSN)
Acute tonsillitis	17741008	Acute tonsillitis (disorder)
Pneumonia due to adenovirus	41207000	Adenoviral pneumonia (disorder)
Renal stone	95570007	Kidney stone (disorder)
Prolapse of vaginal wall	398022005	Vaginal wall prolapse (disorder)



# Examples: Post-coordination



HACVT Term	Relationship	SNOMED Concept ID	SNOMED (FSN)
<b>Acute pulmonary embolism</b>	<b>is a</b>	<b>59282003</b>	<b>pulmonary embolism (disorder)</b>
	<b>Group</b>	<b>55584005</b>	<b>embolus</b>
	<b>- associated morphology</b>	<b>81040000</b>	<b>pulmonary artery structure</b>
	<b>- finding site</b>		
	<b>clinical course</b>	<b>424124008</b>	<b>sudden onset AND/OR short duration (qualifier value)</b>

<b>Left pneumonectomy</b>	<b>is a</b>	<b>49795001</b>	<b>Total pneumonectomy (procedure)</b>
	<b>Group</b>		
	<b>- method</b>	<b>12930400</b>	<b>Excision – action (qualifier value)</b>
	<b>- procedure site – direct</b>	<b>361982005</b>	<b>Entire left lung (body structure)</b>