

UMLS(Unified Medical Language System)

A Comparative Study on the Sign or Symptom Concepts of the UMLS(Unified Medical Language System) and Clinical Terms in Korean Medical Records

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Abstract: The UMLS is one of the most comprehensive medical terminology systems. We evaluated coverage of the UMLS as compared with Korean medical terms used at Seoul National University Hospital (SNUH). We tested for discordance of clinical terms between the chief complaint terms extracted from the SNUH discharge notes and those of the UMLS 'Sign or Symptom concepts. We found a degree of concordance between UMLS terms and the clinical terms used in Korean medical records. Approximately 35% of Korean clinical terms were matched to those of UMLS. The main reason for discordance was the different way in which clinical terms are described between the two vocabularies.

Keyword: UMLS, clinical terms, electronic medical terminology system, expressive pattern, concept

(UMLS)가 가
[2,3]
가 UMLS
가
(Electronic Medical Records),
(Clinical Decision Support System)
[1], UMLS
Word Index Table
가 가
가 . [4,5]
가
UMLS
UMLS
가 (concordance)
UMLS 가
1.
가
가 UMLS (coverage), UMLS

Metathesaurus (semantic network) (chief complaint)
 134 semantic type semantic 3,186 'sign or symptom'
 type 'sign or symptom' concepts 1,100 35% ,
 . 58% ,

2.

UMLS 'sign or symptom'
 7%

UMLS

UMLS

(chief complaint)

5,073

3,186

UMLS

[6]

3. UMLS Metathesaurus

2000 UMLS

(usually dependant on the anatomical region)

Pentium III

Mysql DBMS

UMLS

'organism',
 'body part, organ, or organ component', 'laboratory
 or test results', 'finding', 'medical device',
 'hormone', 'lipid' 134 semantic type
 'sign or symptom' MRSTY

(severity)

MRCON

(preferred term)

가

'sign or symptom'

'disease or syndrome'

UMLS

mapping test

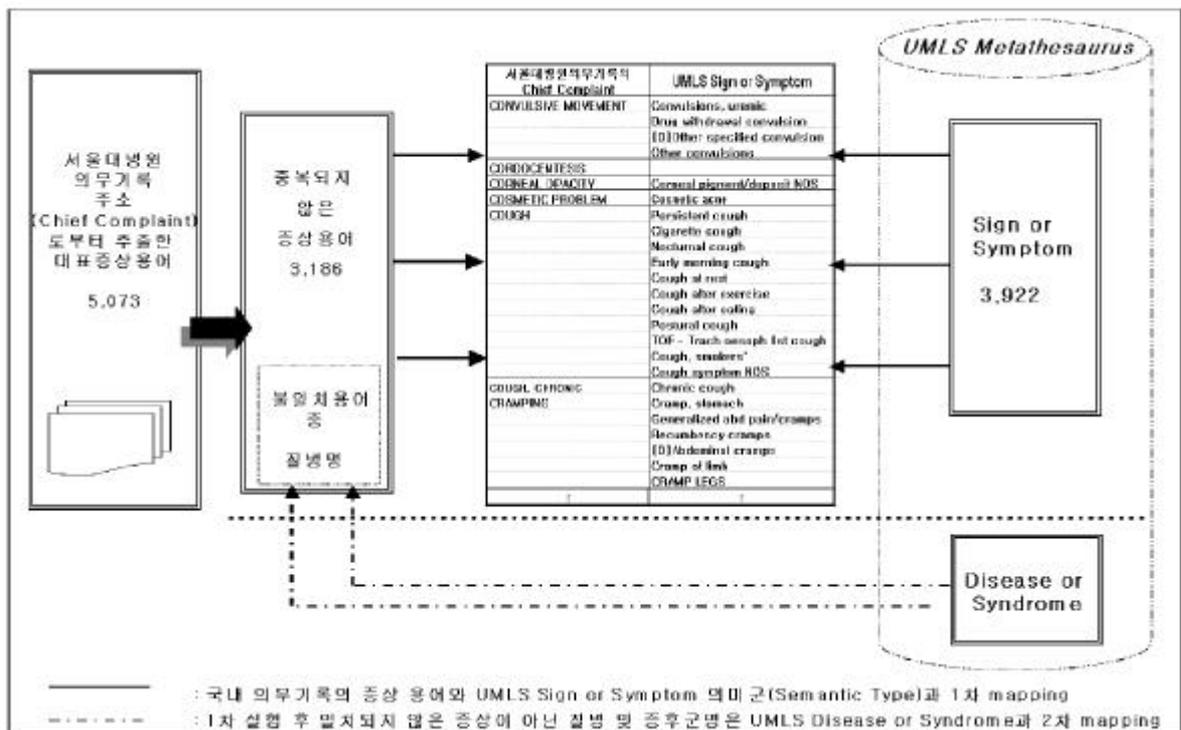


Fig 1. Methodology and Process of mapping test

'buccal abscess', 'liver abscess',
'paradental abscess', 'gallbladder abscess'

UMLS 'sign or symptom'

서울대병원 의무기록의 Chief Complaint	UMLS Sign or Symptom
BACKACHE	Backache with radiation Low Back Pain, Mechanical Low Back Pain, Posterior Compartment Acute back pain with sciatica Back pain worse on sneezing Post-surgery back pain
CHEST PAIN	[D] Retrosternal chest pain CHEST PAIN, DULL CHEST PAIN, CRUSHING Pleuropericardial chest pain Esophageal chest pain CHEST BURNING PAIN OF
TREMOR	[D] Tremor NOS TREMOR, HAND Persistent Tremor TREMOR, HEAD Continuous Tremor TREMOR, TRUNCAL Intermittent Tremor Fine Tremor Postural tremor Rest tremor
BLINDNESS	Blindness, Complete Blindness, Monocular Blindness, Cortical, Post-ictal Blindness Blindness, Legal

Table 1. Comparatives the expressive patterns of the clinical records in SNUH and UMLS sign or Symptom

가

'deformity', 'skin defect', 'gallbladder mass',
'trauma', 'hernia', 'acromegaly', 'hyperglycemia',
'adenomiosis', 'myocardiac infarction', 'amenorrhea',
'azotemia', 'blepharochalasia', 'cytopenia',
'endometriosis'

mapping

test

UMLS

semantic type 'disease or syndrome'

UMLS (weakness)

mapping

UMLS Semantic

서울대병원 의무기록의 Chief Complaint	UMLS Sign or Symptom
ABDOMINAL WEAKNESS	Lower Extremity Weakness, Spastic
WEAINESS, HAND	Muscle Pain or Weakness
WEAINESS, HAND, FOOT	Muscle weakness: flexion and adduction of hip
WEAINESS, LIMB	Muscle weakness: adduction of hip, extension of knee
WEAINESS, LOWER EXTREMITY	WRIST MUSCLE WEAKNESS
WEAINESS, UPPER EXTREMITY	EXTREMITY MUSCLE WEAKNESS, LOWER
GENERAL WEAINESS	Dischramatic weakness General weakness/tiredness Paralysis/weakness WEAINESS POSTURAL Upper facial weakness Weakness of limb

Table 2. Example the expressive patterns of the clinical records in SNUH and UMLS sign or Symptom - weakness

type 'sign or symptom' semantic type

'disease or syndrome' 'weakness' concept

weakness' 'abdominal' 'weakness'

'bleeding'

UMLS 'sign or symptom' 'bleeding'

menstruation sexual intercourse

가 'chief complaint'

UMLS 'disease or syndrome' category

가

가 UMLS

data set 'absence, anus',

'absence, breast' 가

UMLS 'sign or symptom' concepts

'absence, **'

'absence of menstruation',

'absence of reflex', 'absence of tickle sensation',

'absence of pain', 'absence of pain sensation',

'absence of nausea and vomiting'

가

'absence'

UMLS semantic

type 'sign or symptom'

'burn scar'

