Title: Evaluation of a semi-automated code mapping and management system

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INTRODUCTION

- Vocabulary mapping plays a vital role in health research based on CDM.
- EvidNet has a mapping protocol to increase agreement on relationship between Korean codes and international codes.
- To prevent human-error in the mapping protocol, we developed an application based on Server-Client model which is 'MASO' (Mapping Assistance System on OMOP) to manage mapping process and evaluated suitability of the protocol, efficiency of MASO, and usability of MASO in this research.

METHODS

- The function of MASO with the protocol was examined in regards of suitability, usability and usability.
- We calculated disagreement rate between expert A,B and C.
- Average spent time without MASO and with MASO were measured on the mapping process.
- We also tried to check hitting rate of providing proper concept on MASO.

RESULTS

- 1. [Suitability] MASO makes the agreement rate of mapping results between mapping experts increase through online discussion.
- 2. [Efficiency] MASO shows a decrease of human-errors on mapping process in comparison to mapping process with files. Also MASO leads to saving time on account of unnecessary of editing mapping files and maintaining mapping database separately.
- 3. [Usability] Hitting rate of provided candidate concepts was increased as the number of institution which has finished mapping was increased.

With MASO

and a simple algorithm, the **more experience** you have mapped,

the easier the next mapping will be.





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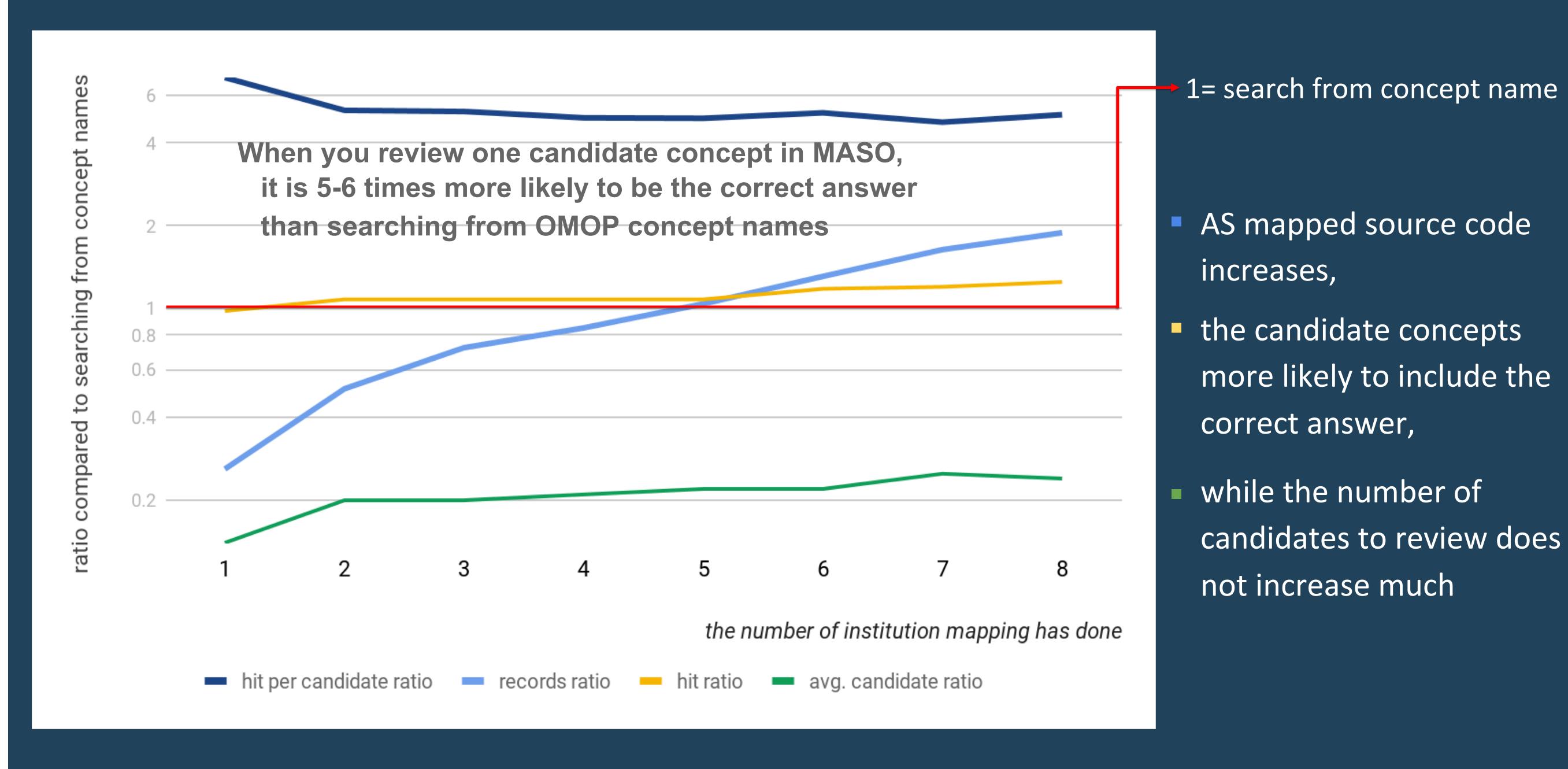


Figure 2. Target concept searching performance ratio of the new algorithm compared to the search from concept names for local source codes.

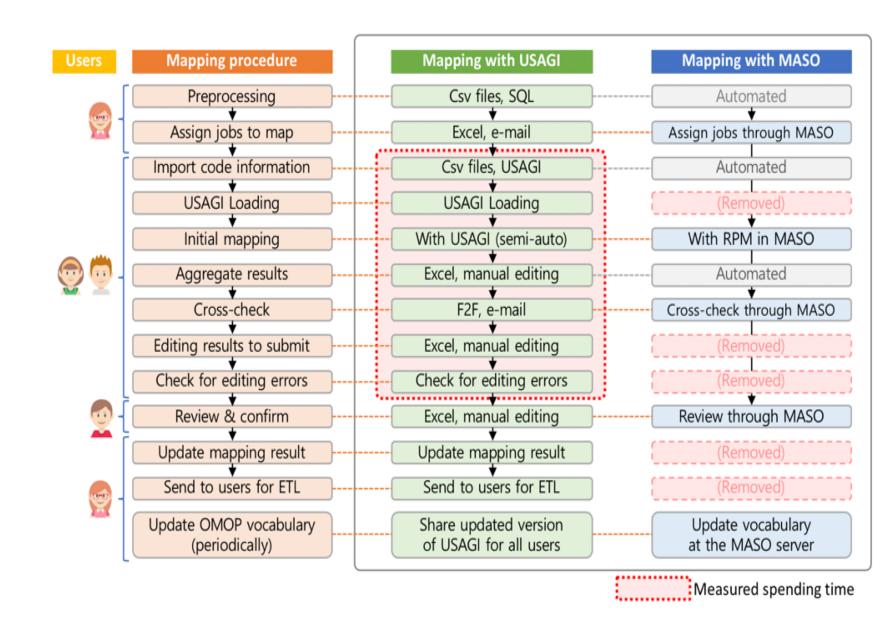


Figure 1. Simplified mapping procedure and activities with MASO.

SEARCHING ALGORITHM in MASO

- It extracts keywords from the name of source code and searches those from previous mapped source code names
- When a user tries to map a new source code, MASO automatically recommend candidates sorted by similarity (Figure 3), also the user can do new search with other keywords the user wants.

	↓ Extrac	actedSourceSeq LocalCd1 LocalCd1Nam			IName			ConceptID	ConceptNan	ConceptName			SourceDom	aink Domainld	F	requency	Vocabularyld	
	2210462 PD [PD] Conjunctival			ınctival swab	411			Conjunctival swab				Specimen	Specimen Specimen		15	SNOMED		
2210463			PE	[PE] Lacrimal gland discharge			4161922		Specimen f	Specimen from eye region			Specimen	Specimen	2		SNOMED	
2210464		PF	[PF] Liver abscess				40488846	Specimen from abscess of liver			Specimen	Specimen	1	485	SNOMED			
	2210465		PG	[PG] Lung abscess				4133172	Specimen f	Specimen from lung			Specimen		1	90	SNOMED	
		Conceptld	ConceptName		DomainId	Vocabularyld	ConceptC	ClassId St	andardConcept	ConceptCode	ValidStartDate	ValidEndDate	Invalidreason Co	omment				
⊕ 4133172 S		Specimen from	men from lung Specimen		SNOMED	Specimen S			1970-01-01 2099-12		2099-12-31							
	←																	
~	2210466 PH		PH	[PH] TTNA									Specimen		3	95		
	2210467		PI	[PI]Corne	al scraping								Specimen		4	3		
	2210468 F			[PJ] Brain	abscess								Specimen		8	5		
	2210469 PP			[PP] Pelvic area abscess									Specimen	imen			296	
	2210470		PR	[PR] Hemovac drainage									Specimen	Specimen			585	
2210471			PW	[PW] Para	gonimus westerma	ani							Specimen		4	356		
2210472			PX	[PX] Other	pus								Specimen		2	0321		
	2210473		R1	R1 [R1] Sputum									Specimen		737456			
←																		
Re		? Similarity	ExtractedSou	rceSeq L	.ocalCd1Name	ConceptID (ConceptNam	ie				DomainId	Vocabularyld	CodeOwnerName	SourceDomainId	Frequenc	cy Common	
арр	apply 0.35		620822	A	bscess	cess 4001183 S		Specimen from abscess				Specimen	SNOMED	Kyungpook Nationa	Specimen	879		
арр	apply 0.29		3028		ng LLL 4133172 Sp		Specimen from lung			Specime		Specimen	SNOMED	KyungHee Universit	Specimen	59		
арр	apply 0.29		3082	L	ung LUL	4133172 Specime		n from lung			Specimen		SNOMED	KyungHee Universit	Specimen	139		
apply 0.29		2986	2986 Li		4133172 Specimer		rom lung			Sp		SNOMED	KyungHee Universit	Specimen	63			
apply 0.29		3076	3076 Lung RUL		4133172	33172 Specimen from lung				Specimen		SNOMED	KyungHee Universit	Specimen	150			
apply 0.24		3140	3140 Lung(LLL)		4133172 Specimen from lung				Specimen			SNOMED	KyungHee Universit	Specimen	46			

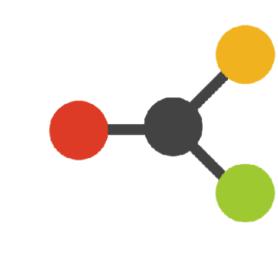
Figure 3. MASO UI for recommending candidate concepts with similarity.

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