

***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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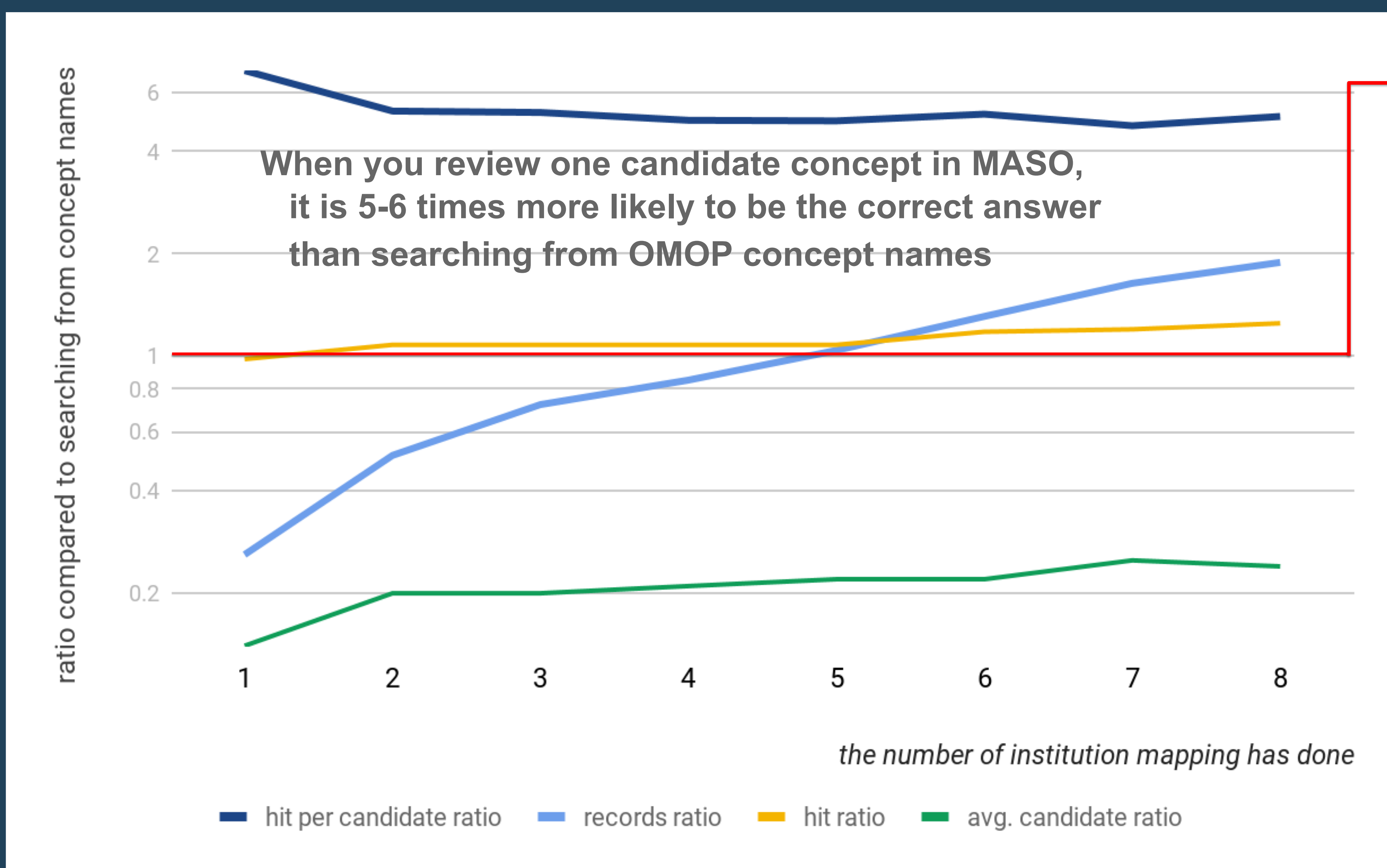


Figure 2. Target concept searching performance ratio of the new algorithm compared to the search from concept names for local source codes.

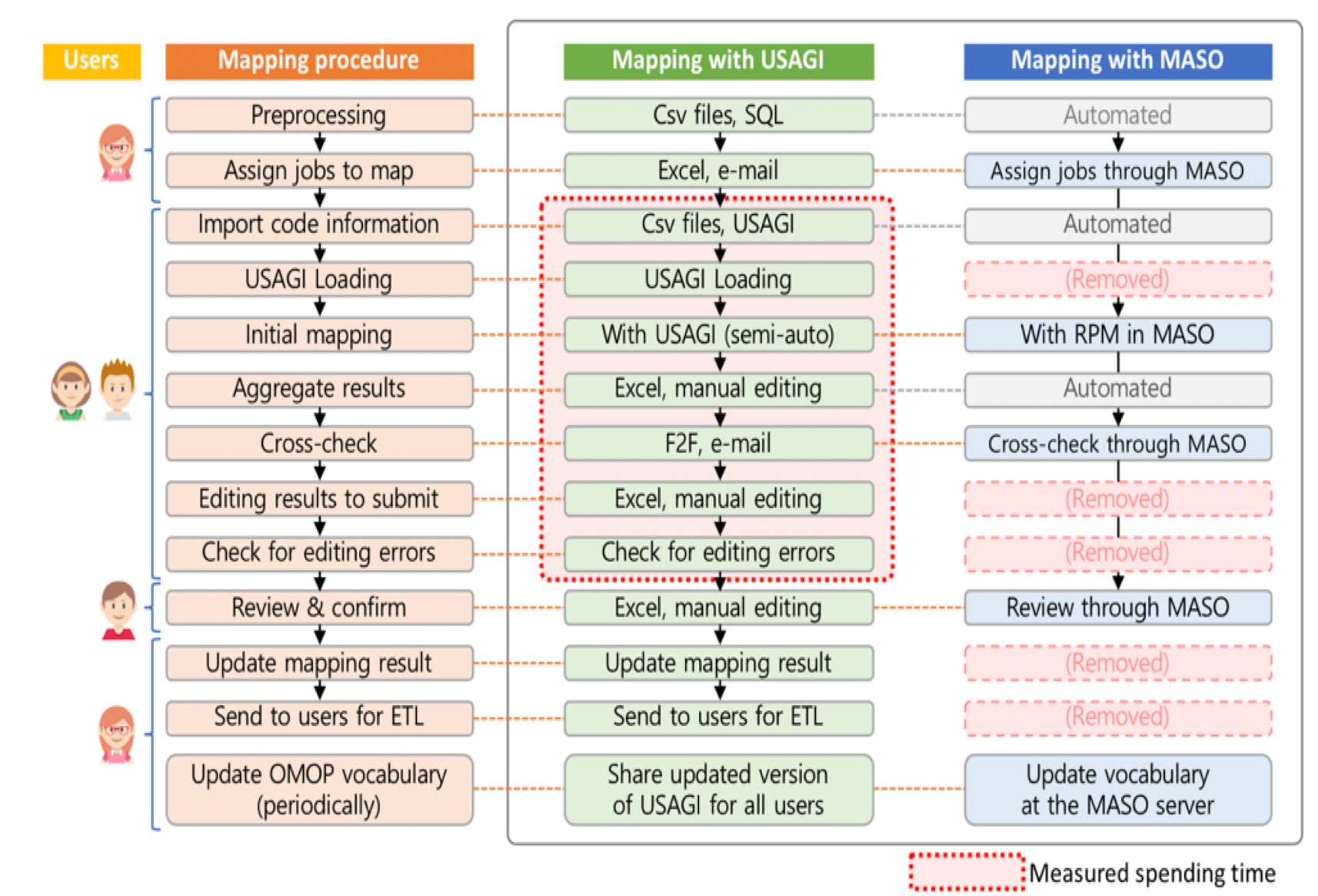


Figure 1. Simplified mapping procedure and activities with MASO.

## 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.

[illegible]

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

- AS mapped source code increases,
- the candidate concepts more likely to include the correct answer,
- while the number of candidates to review does not increase much

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