

SUPPORTING THE IMPLEMENTATION OF LIVING GUIDELINES BY INFORMATION EXTRACTION

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Background: The concept of „living guidelines“ is an approach to have guidelines become flexible, adaptable documents which present up-to-date and state-of-the art knowledge to practitioners. Thereby, guidelines have to be updated on a more continuous basis than the usual practice of revision every two to five years – which makes a guideline a static document, which cannot be modified easily.

To have guidelines implemented by computer-support they firstly have to be formalized in a computer-interpretable form. Due to the complexity of such representation formats the formalization process is a challenging, but burdensome and time-consuming task.

Objectives: The Scottish Intercollegiate Guidelines Network (SIGN) has already published a living guideline [1]. Based on the documents provided with this guideline we will show that adaptations of formalized guidelines can be accomplished easily and fast.

Methods: In [2] and [3] we have proposed a methodology called LASSIE to have guidelines formalized in several steps from the textual form to the guideline representation language Asbru [4]. Thereby, we use Information Extraction techniques to accomplish these steps. A unique identifier marks information transformed from one step to the next. We will apply LASSIE to support the implementation of living guidelines. The documents provide us the information that has changed. After comparing the new documents with the previous ones we are able to adapt the former formalized documents using LASSIE.

Results: Living guidelines contain adaptations on the basis of phrases, sentences, and paragraphs. If a guideline is already formalized and the format provides also information that links to the correlating point in the textual document we are able to do the adaptations necessary for the new guideline version.

Conclusions: To provide patients the most effective and efficient care the development of “living guidelines” is not enough. Implementation and adaptation of old versions also have to be done in time. By using Information Extraction and the LASSIE methodology we are able to tackle parts of this problem.

References:

- [1] Scottish Intercollegiate Guidelines Network (SIGN) and British Thoracic Society. British Guideline on the Management of Asthma. A Clinical National Guideline. Scottish Intercollegiate Guidelines Network (SIGN), Nov. 2005.
- [2] K Kaiser, C Akkaya, S Miksch. How can Information Extraction Ease Formalizing Treatment Processes in Clinical Practice Guidelines? A Method and Its Evaluation. *Artificial Intelligence in Medicine*, to appear.
- [3] K Kaiser, S Miksch. Modeling Treatment Processes Using Information Extraction. In Lakhmi Jain (ed.) *Computational Intelligence in Healthcare*, Springer Verlag, to appear.
- [4] Y Shahrar, S Miksch, P Johnson. The Asgaard Project: A Task-Specific Framework for the Application and Critiquing of Time-Oriented Clinical Guidelines. *Artificial Intelligence in Medicine*, 14:29–51, 1998.