

# Methods of Flexible Information Storage in MUDR<sup>II</sup> Health Record

Josef Spidlen, Petr Hanzlicek, Antonin Riha, Jana Zvarova

*European Center for Medical Informatics, Statistics and Epidemiology – Cardio,  
Institute of Computer Science, Academy of Sciences of the Czech Republic,  
Prague, Czech Republic*

## Abstract

*An important research task of the EuroMISE Center – Cardio is the applied research in the field of electronic health record (EHR). In this frame we have proposed a mathematical meta-description of a flexible information storage model and described global system architecture of a 3-layer EHR application. In the poster both of this proposals are briefly described. We have tested the functionality of our solution implementing a pilot EHR application named “MULTimedia Distributed Record” (MUDR). According to our experience and test results gained from the MUDR EHR usage we describe an advanced solution MUDR<sup>II</sup>, which can be applied as a kernel of an EHR application. Since we are a research center and not a commercial company, in our EHR kernel we do not handle all parts needed for a large commercial use in a local environment. To give publicity to our solutions we negotiate with two companies about the application of our EHR kernel into their hospital information systems used in the Czech Republic.*

## Keywords:

Health Records, Information Storage and Retrieval.

## Introduction

The European Center for Medical Informatics, Statistics and Epidemiology – Cardio (EuroMISE Center – Cardio) is focused on new approaches to the electronic health record (EHR) design, including electronic medical guidelines and intelligent systems for data mining and decision support [1]. The main goal of our work in frame of the EHR research is to suggest common general principles to increase the quality of EHR systems, to simplify data sharing and data migration among various EHR systems and to help to overcome the classical free-text based health record.

## Materials and Methods

We tried to propose an open EHR information storage meta-model with various implementation possibilities as inspirations and recommendations for EHR software vendors on the market. This will be demonstrated on the poster in detail.

## Results

To test the functionality of our solutions we have developed a pilot EHR application called “MULTimedia Distributed Record” (MUDR) [2]. Now we present an advanced solution MUDR<sup>II</sup>, which can be applied as a kernel of an EHR. We have tested our implementation together with physicians in the ambulance of the EuroMISE Center where service is provided by cardiologists from two cooperating Czech hospitals. We have confirmed, that our information storage model is flexible and we have verified the purposiveness of our architecture.

## Conclusion

Nowadays, we have started the negotiation about the implementation of our EHR kernel in hospital information systems of two big Czech medical software vendors. We hope this will put our solutions into the real practical use, which should bring advantages for the health care in the Czech Republic.

## Acknowledgments

The work was partially supported by the grant no. LN00B107 of the Ministry of Education of the Czech Republic.

## References

- [1] Rauch J: Mining for Statistical Association Rules. The Fifth Pacific/Asia Conference on Knowledge Discovery and Data Mining Industrial track and Workshop Proceeding Red. Joseph Fong and Michael Ng Hong Kong 2001, pp. 149-158.
- [2] Hanzlicek P: Development of Universal Electronic Health Record in Cardiology. Proceedings of MIE 2002. Amsterdam IOS Press, 2002. ISBN 1-58603-279-8, ISSN 0926-9630, pp. 356-360.

## Address for correspondence

Josef Spidlen, EuroMISE Center – Cardio, IS AS CR  
Pod Vodarenskou vezi 2, 182 07 Prague 8, Czech Republic  
Email: spidlen@euromise.cz