

## Computer-based Clinical Guidelines and Protocols

9-11th January, 2008

### Aim

The aim of the workshop was to bring together researchers from different branches of computer science (in particular AI), medical informatics and medicine to examine cutting-edge approaches to computer-based guideline modelling and development and work on completing a book on computer-based guidelines and protocols (see below).

With the rise in the complexity and costs of healthcare, on the one hand, and increased expectations from society what healthcare is able to deliver, on the other hand, health-care professionals have developed a, sometimes urgent, need for care-practice support. Medical guidelines and protocols have become the main instruments for disseminating best practices in healthcare. They promote safe practices, reduce inter-clinician practice variations and support decision-making in patient care while containing the costs of care. In many cases, medical guidelines and protocols have been useful in improving the quality and consistency of healthcare, by supporting healthcare quality assessment and assurance, clinical decision making, workflow and resource management. The benefits of having access to medical guidelines and protocols are widely recognised, yet the guideline development process is time- and resource-consuming, and the size and complexity of guidelines remains a major hurdle for effectively using them in clinical care.

Many researchers expect that the computer-based development, use and dissemination of guidelines will have a positive effect on the time required for the development of new guidelines and protocols, for the revision of existing ones, for deployment in daily care and dissemination. Guideline development institutes are increasing exploiting computer-based techniques in the development process; at the same time guidelines are made available through the world-wide-web. Current guidelines are evidence based, i.e., based on carefully weighed scientific evidence from literature. Computer-based methods are indispensable for ensuring that guidelines are in agreement with the latest requirement for guideline development.

Despite the guideline-related research spanning a large range of the AI research community, as well as other research areas, a comprehensive integration of the results of these communities is still

lacking. Through working in small groups on specific topics (see below), and plenary feedback sessions, and some invited talks on important issues in the area, the workshop worked toward a comprehensive review of the area.

## Outcome

The outcome of the workshop was the publication of the book "A. ten Teije, S. Miksch and P.J.F. Lucas (Eds.). Computer-based Clinical Guidelines and Protocols: a Primer and Current Trends, IOS Press, Amsterdam, 2008". It includes both research papers from the field and tutorial-style papers reviewing the state of the art.

## Topics

- guideline development and deployment in medical practice
- guideline representation languages
- guideline modelling methods
- use of formal methods in guidelines
- temporal aspects of guidelines
- vocabularies, ontologies and terminologies
- planning
- guideline adaptation
- visualisation and guidelines
- guideline compliance
- research agenda for the coming years

## Participants

There were 23 participants from many different countries. Most of the participants were involved in writing the book on computer-based guidelines and protocols. Some of the participants were PhD students and postdocs.

## Final remarks

The Lorentz Center offered really excellent support for the organisation of the workshop, and all participants were impressed by the facilities offered, in particular by the availability of offices, computers, printing facilities, meeting rooms, and the common room. The pleasant working atmosphere at the centre had a very positive effect on the outcome of the workshop.

Peter Lucas (Radboud University, Nijmegen)  
Annette ten Teije (Free University Amsterdam)  
Frank van Harmelen (Free University Amsterdam)