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## Editorial

# *Quality of Health Care: The Role of Informatics*

In the Recommendations of the International Medical Informatics Association (IMIA) on Education in Health and Medical Informatics it is stated that:

- 1 progress in information processing and information and communication technology is changing our societies;
- 2 the amount of health and medical knowledge is increasing at such a phenomenal rate that we cannot hope to keep up with it, or store, organize and retrieve existing and new knowledge in a timely fashion without using a new information processing methodology and information technologies;
- 3 there are significant economic benefits to be obtained from the use of information and communication technology to support medicine and health care;
- 4 similarly the quality of health care is enhanced by the systematic application of information processing and information and communication technology;
- 5 it is expected, that these developments will continue, probably at least at the same pace as can be observed today"<sup>1</sup>.

Following this development we have chosen as topic for the 2003 edition of the IMIA Yearbook of Medical Informatics „Quality of care: The Role of Informatics“.

As modern information processing methodology and information and communication technology has strongly influenced our societies, including their health care, we wanted to place strong emphasis on this change. As a consequence of this change, medical informatics as a discipline has taken a leading role in the further development of health care. This involves developing information systems that enhance opportunities for global access to health services and medical knowledge. Informatics methodology and technology will facilitate continuous quality of care in ageing societies, and will decrease the possibilities of health care errors. It enables the dissemination of the latest medical and health information on the web to consumers and health care providers alike.

This year's preface to the Yearbook on „quality health care requires quality patient data“ has been prepared by Roger Côté from the University of

<sup>1</sup> <http://www.imia.org>, Methods Inf Med 2000;39:267-77, reprint in IMIA Yearbook of Medical Informatics 2001, 133-143.

Sherbrooke, Canada, the founder of SNOMED. The editors highly appreciate that one of the leaders of our field accepted to write the preface which is devoted to the topic of this Yearbook.

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### **About the IMIA Yearbook of Medical Informatics**

The Yearbook of Medical Informatics of the International Medical Informatics Association (IMIA) is distributed through IMIA's Member and Corresponding Member Societies worldwide. For the 2003 Yearbook we expect that over 7,000 copies will reach the memberships of 44 Member and 13 Corresponding member societies. The Yearbook editors appreciate the contributions of distinguished researchers in medical informatics who have prepared 4 invited review papers, 5 research and education papers, and 9 synopses of papers included in the different disciplinary fields covered. In addition we owe a debt of gratitude to the 67 reviewers who assisted in the selection of papers from the recent refereed literature.

The present Yearbook includes papers selected from the literature for the period April 2001 to March 2002. The criteria for selection include: significance, representativeness and coverage of research in a given subfield, subject to appropriately high levels of quality in presentation and results. A more detailed description of these quality criteria can be downloaded from [http://www.Yearbook.uni-hd.de/quality\\_criteria.pdf](http://www.Yearbook.uni-hd.de/quality_criteria.pdf). The referees score and rank the papers, and the final selection is made by the editors with the advice of the managing editors from each of the specialty areas.

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### **In Memoriam Professor Jean-Raoul Scherrer**

In 2002 one of the leaders of our field, Professor Jean-Raoul Scherrer,

passed away. A section of this yearbook has been devoted to him in honor of his outstanding contributions to medical informatics.

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### **IMIA Code of Ethics**

After several years of discussion and preparation, the IMIA code of ethics for health informatics professionals was adopted by the IMIA General Assembly at its meeting in Taipei on October 4, 2004.

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### **Reviews**

As is customary, the 2003 Yearbook includes a number of original review articles, which focus primarily on this year's theme. In particular the papers of Marion Ball et al. and Arie Hasman et al. focus on various aspects of the informatics foundations for quality of care. In addition the papers of Grigore Burdea and of Giuseppe Riva survey virtual reality approaches for diagnosis, therapy and rehabilitation.

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### **Research and Education in Medical Informatics**

The Yearbook provides an opportunity for highlighting an international selection of current education, training, and research programs in Medical Informatics. In this 2003 edition authors from Bethesda, Geneva, Osaka, Rotterdam and Thessaloniki summarize their educational and research approaches.

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### **Challenges in Medical Informatics**

In April 2002, an IMIA working conference on challenges in medical informatics took place in Madrid. Selected papers, published as outcome

from this conference, are reprinted here. Mark Musen and Jan van Bommel, the organizers of this meeting, invite the readers of the Yearbook to comment on these papers.

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### **Guest Editors**

After the selection of papers to be included in the Yearbook was completed, guest editors were asked to write Synopses reviewing the papers in the different sections. The special section on Quality of Health Care was edited by Thomas Bürkle of the University of Münster. The section on Health and Clinical Management was edited by Zhu Ling of Golden Medicine Commodities Network Co., Beijing; that on Patient Records by Johan van der Lei of the Erasmus University of Rotterdam; that on Health Information Systems by Lincoln de Assis Moura Jr. of Atech Foundation, São Paulo; that on Image Processing by Heinz Handels, University of Lübeck; that on Signal Processing by Bernhard Tilg of the University for Health Informatics and Technology Tyrol, Innsbruck; that on Knowledge Processing and Decision Support by Yuval Shahar of Ben Gurion University, Beer Sheva and that on Bioinformatics by Hiroshi Tanaka of Tokyo Medical and Dental University.

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### **Information on IMIA**

The Yearbook contains detailed information about IMIA, its Member Societies, Regional Groups, Working Groups, and Special Interest Groups. Preparation of the general pages describing IMIA activities received considerable assistance from Steve Huesing, the Executive Director. The section on IMIA Working Groups and Special Interest Groups was greatly aided by contributions from Nancy Lorenzi. For the second time a more detailed report on the activities of IMIA

regions is included with the help of Regional Editors. We would like to thank Arie Hasman (for EFMI), Sedick Isaacs (for Helina), Jochen Moehr and Charles Safran (for the North American IMIA Member Societies), Chun Por Wong (for APAMI) and Lincoln de Assis Moura, Jr. (for IMIA-Lac) for their support. The IMIA representatives from the individual countries provided the material for their own national societies.

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### The 2004 IMIA Yearbook

The theme of the 2004 Yearbook will center around the potential of bioinformatics, in conjunction with medical informatics, to contribute to novel diagnostic and therapeutic approaches in what is often referred to as molecular medicine. The issue will concentrate on clinical implications of research, with the purpose of documenting accomplishments, and encouraging interdisciplinary approaches to the new field of clinical bioinformatics.

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### Acknowledgements

The editors gratefully acknowledge the contributions of the Referees and Guest Editors. They would also like to thank the writers of the critical Review Papers and the contributors to the Research and Education Section.

They are most appreciative of the considerable skill, time, and effort devoted by the Managing Editors, especially the Executive Managing Editor Elske Ammenwerth (UMIT - University for Health Informatics and Technology Tyrol, Innsbruck, Austria), and by the Section Managing Editors, Andreas Bohne (German Cancer Research Center, Heidelberg, Germany), Ralf Brandner (University of

Heidelberg, Germany), Birgit Brigl (University of Leipzig, Germany), Gerald Fischer (UMIT), Sebastian Garde (University of Heidelberg), Petra Knaup (University of Heidelberg), Franz Ruderich (University of Applied Sciences, Heilbronn, Germany), Rainer Schubert (UMIT), Reiner Singer (University of Applied Sciences, Heilbronn) and Astrid Wolff (University of Heidelberg). Last, but not least, we especially want to thank the Editorial Assistant, Martina Hutter, from the Department of Medical Informatics at the University of Heidelberg, without whose untiring efforts the Yearbook would not have been completed.

The Editors also wish to thank the members of the Advisory Board for their invaluable contributions to the planning of this Yearbook. They are: Marion Ball, Vice-President of Healthlink, Inc. of Baltimore, MD, USA, Jan H. van Bommel, Rector of Erasmus University Rotterdam, The Netherlands, and Alexa McCray, Director of the Lister Hill Center of the National Library of Medicine, Bethesda, MD, USA.

The referees who contributed to the selection of articles in the 2003 Yearbook of Medical Informatics were:

Jos Aarts, The Netherlands  
 Ameen Abu-Hanna, The Netherlands  
 Udo Altmann, Germany  
 Dominik Aronsky, USA  
 Suzanne Bakken, USA  
 Kay Bartholomew, USA  
 Riccardo Bellazzi, Italy  
 Marc Berg, The Netherlands  
 Knut Bernstein, Denmark  
 Andreas Beß, Austria  
 Helmar Burkart, Switzerland  
 Thomas Bürkle, Germany  
 P.A. de Clercq, The Netherlands  
 Nicolette de Keizer, The Netherlands  
 Martin Denz, Switzerland  
 Jens Dørup, Denmark,  
 Martin Dugan, Germany

Andrej Fandak, Slovak Republic  
 Carol Friedman, USA  
 Dragan Gamberger, Croatia  
 Antoine Geissbühler, Switzerland  
 Reda R. Gharieb, Egypt  
 W.T.F. Goossen, The Netherlands  
 Stefan Gräber, Germany  
 Andrew Grant, Canada  
 James E. Gray, USA  
 Carolyn J. Green, Canada  
 Jane Grimson, Ireland  
 Heinz Handels, Germany  
 Wilhelm Hasselbring, Germany  
 Monique Jaspers, The Netherlands  
 Bonnie Kaplan, USA  
 Ron Kikinis, USA  
 György Kozmann, Hungary  
 Andy H. Lee, Australia  
 Thomas Lehmann, Germany  
 Richard Lenz, Germany  
 Yu-Chuan (Jack) Li, Taiwan  
 Ya-bin Liu, Japan  
 Margarethe Lorensen, Norway  
 Christian Lovis, Switzerland  
 Nicos Maglaveras, Greece  
 John Mantas, Greece  
 Victor Maojo, Spain  
 Fernando Martin Sánchez, Spain  
 Wendy McPhee, Australia  
 Silvia Miksch, Austria  
 Peter Moorman, The Netherlands  
 Peter Murray, United Kingdom  
 Karl-Peter Pfeiffer, Austria  
 Andreas Pommert, Germany  
 Soumya Raychaudhuri, USA  
 Assa Reichert, Israel  
 Jeffrey Soar, Australia  
 Mario Stefanelli, Italy  
 Robert Stevens, United Kingdom  
 Selma Supek, Croatia  
 Ian Symonds, New Zealand  
 Wilfried Thoben, Germany  
 Toomas Timpka, Sweden  
 Mark van Gils, Finland  
 Michael Vannier, USA  
 Max Viergever, The Netherlands  
 Vivian Vimarlund, Sweden  
 Judith Wagner, Switzerland  
 Alfred Winter, Germany  
 Ulrich Woermann, Switzerland