

An Abridged History of Medical Informatics Education in Europe

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Review

ABSTRACT

This contribution presents the development of medical informatics education in Europe. It does not discuss all developments that took place. Rather it discerns several themes that indicate the progress in the field, starting from the initiation phase to the final quality control phase.

Key words: Medical informatics, education, EFMI, WG1.

1. INTRODUCTION

The history of medical informatics is relatively short. The field started in the fifties of the last century. EFMI was established in 1976 and educational programs in medical informatics in Europe were not introduced much earlier. We were asked to sketch the history of medical informatics education in Europe. Different names with sometimes (slightly) different meanings have been suggested for our field of medical informatics. We will use the terms medical informatics, biomedical informatics and health informatics in this contribution interchangeably as umbrella terms.

When we started writing, we realized that we were not fully aware of all educational developments that took place in other European countries other than our own. That is why we called our contribution an abridged history with apologies that we probably do not refer to all important developments. On the other hand, we also realized that writing such a history does not mean that all developments have to be traced back and be mentioned. It is more important to look for trends that can be inferred from the various developments and to provide examples of those trends. That is what we have done in the following where we distinguish five different themes.

The questions whether medical informatics is a discipline separate from informatics or even whether it is a scientific discipline and whether it is necessary to develop specialized curricula for this field have often been posed. Especially in the beginning much of the research carried out by medical informaticians focused on the development of systems, like for example hospital information systems, departmental systems, database systems, signal and image processing systems and expert systems. These systems had as goal to support physicians and nurses in their work. Later on questions about the quality of the systems and the general design principles

on which they have to be based became more important. It was also realized that a technically perfect system does not warrant that such a system will be automatically accepted in practice. Since the implementation of an information system is a process of mutual transformation, the organization and the technology transform each other during the implementation process. Therefore, also sociological aspects play an important role and should be taken into account.

Medical informatics was considered by some as computer science applied to medicine, others were of the opinion that medical informatics was more than computer science and medicine together (because the body of knowledge in medical informatics also contained knowledge coming from a number of other disciplines like epidemiology, cognitive psychology, sociology, biostatistics, etc.) and therefore, they considered it as a medical discipline closely linked to but separate from informatics. However, in both views education in medical informatics would lead to graduates that were medical informatics professionals and not medical professionals (although some of these new professionals could initially have been educated as a medical specialist). Also, in order to be accepted by physicians, medical informatics specialists should be educated at an academic level.

Medical informatics is both an engineering discipline (design and development of information systems for example) and an applied science (aspects related to information science). Since medicine and healthcare are the domains of study of medical informatics, studies in medical informatics can lead to new knowledge that is pertinent to these domains. But the research outcomes are always about the computational and informational aspects of medicine and healthcare and therefore, also contribute to the field of medical informatics.

Health And Medical Informatics Education In Europe

Peter Kokol, Blaž Zupan, Janez Stare



Health And Medical Informatics Education In Europe:

Health and Medical Informatics Education in Europe John Mantas, 2000 After the success of the first two books with the proceedings of the newly established series of European conferences in Health Telematics Education the third one gives a new dimension in the field of Health and Medical Informatics Education in Europe It deals with the needs and the current status in Health Telematics Education in Europe with curriculum development in Health Medical and Nursing Informatics with development of courseware material computer based training and computer assisted learning Also distance learning and Internet applications training in using Hospital Information Systems HIS and Departmental Information Systems Inter University programmes and accreditation of courses are discussed *Education and Training in Health Informatics in Europe* A. Hasman, 1995 A European wide survey on the EDUCTRA Education and Training in Health Informatics Concerted Action was commenced in 1992 under the auspices of the AIM Advanced Informatics in Medicine in Europe programme This book consists of four parts The first chapter reproduces the original EC Recommendation and outlines the concerted European efforts in education and training in health telematics made by the European Commission DG XIII Health Telematics office The second part provides the general guidelines for European curricula in health informatics as they were developed and elaborated by the members of the EDUCTRA Concerted Action 1992 1994 The third part of this volume entails the detailed descriptions and applications of curricula in health informatics in European states The fourth part consists of a glossary of terms and acronyms used in current research and practice of health informatics The work provides a comprehensive overview of the current needs in health informatics in Europe but also the necessary guidelines materials tools and applications for improving education and training within the near future Readers medicine and health care professionals administrators health professionals teachers and trainers The work provides not only a comprehensive overview of the current needs in health informatics in Europe but also the necessary guidelines materials tools and applications for improving education and training within the near future *Health Informatics Europe* volume 3 no 2 November 1995 p 15

Global Health Informatics Education E. J. S. Hovenga, Evelyn J. S. Hovenga, John Mantas, 2004 Throughout the world healthcare professionals often lack knowledge of the possibilities and limitations of systematically processing data information and knowledge and of the resulting impact on quality decision making They are often asked to use information technologies of which they have limited appreciation in order to enhance their practices through better use of information resources However for systematically processing data information and knowledge in medicine and in healthcare healthcare professionals who are well trained in medical informatics or health informatics are needed It will only be through improved education of healthcare professionals and through an increase in the number of well trained workers in health and medical informatics that this lack of knowledge and associated skills can begin to be reversed Although we can recognize further progress in educating health and a considerable number of educational programs for health informatics medical informatics

specialists have been set up there is still a need to enhance these educational activities world wide considering global developments as well as new curricular concepts and technological opportunities IMIA and in particular its working group on health and medical informatics education is the leading international society stimulating such educational activities in various ways This book is especially helpful for educators in the field of health medical informatics *Health Telematics Education* John Mantas,1997 This volume focuses on the activities on Health Telematics Education In Europe coordinated activities in healthcare informatics education started in the late 1980 s with the establishment of European Courses in Health Telematics At the same time the European Commission foresaw the need for spreading the knowledge of IT in the Healthcare Sector Therefore the EC since then have supported the initiatives that aim to create awareness stimulate diffusion educate and train the users healthcare professionals in the application of Information Technology to the Healthcare Sector Such an initiative is the NIGHTINGALE project which is an essential project in the planning and implementation of strategy timing the Nursing profession in using and applying healthcare information systems as well as the IT EDUCTRA project which covers a more wide spectrum of the Health Telematics Education The objective of this book is to promote the appropriate use of the developed Telematics infrastructure across Europe by educating and training healthcare professionals in a harmonising way across Europe in the upcoming field of Health and Nursing Informatics For achieving this objective the European Commission established a series of European Conferences on Health Telematics Education and Workshops by experts users developers and policymakers In this book the Proceedings of the first European Conference in Health Telematics Education HTE 96 organised by the NIGHTINGALE project and supported by the IT EDUCTRA project are included as well as the minutes and the presentations of the NIGHTINGALE Workshops Medical Informatics in a United and Healthy Europe European Federation for Medical Informatics. International Congress,2009 This volume contains the proceedings of the twenty second International Conference on Medical Informatics Europe MIE 2009 that was held in Sarajevo Bosnia and Herzegovina from 30 August to 2 September 2009 The scientific topics present in this proceedings range from national and trans national eHealth roadmaps health information and electronic health record systems systems interoperability and communication standards medical terminology and ontology approaches and social networks to Web Web 2 0 nd Semantic Web solutions for patients health personnel and researchers Furthermore they include quality assurance and usability of medical informatics systems specific disease management and telemedicine systems including a section on devices and sensors drug safety clinical decision support and medical expert systems clinical practice guidelines and protocols as well as issues on privacy and security Moreover bioinformatics biomedical modeling and simulation medical imaging and visualization and last but not least learning and education through medical informatics systems are parts of the included topics **Medical Informatics in a United and Healthy Europe** K.-P. Adlassnig,B. Blobel,J. Mantas,2009-08-14 Contains the proceedings of the 22nd International Conference on Medical Informatics Europe 2009 This work presents the

scientific topics that range from national and transnational e health roadmaps health information and electronic health record systems and social networks to web 2.0 and semantic web solutions for researchers

Medical Informatics Europe '99 Peter Kokol, Blaž Zupan, Janez Stare, 1999 This volume seeks to reflect the state of the art on medical informatics. It presents ideas that will guide the process of medical informatics. Topics in the book include information systems in health care and medicine telemedicine and telematics security biomedical processing data mining and knowledge discovery training and education Internet intranet resources management intelligent medical systems health guidelines and protocols electronic patient encounter card technology electronic data interchange terminology nursing informatics

Decision Support Systems and Education John Mantas, Zdenko Sonicki, Mihaela Crișan - Vida, Kristina Fišter, Maria Hägglund, 2018-10-15 Medical informatics has revolutionized healthcare in recent years and one of the major challenges now faced by health professionals everywhere is the further improvement of healthcare by making more effective use of the data from biomedical informatics not least for education and decision support. This book presents the 52 full papers accepted from 95 initial submissions delivered at the Special Topic Conference of the European Federation for Medical Informatics EFMI STC 2018 held in Zagreb Croatia on 15 and 16 October 2018. The EFMI STC is one of Europe's leading conferences for the sharing of current professional and scientific knowledge in health informatics processes and the topics covered here have been broadly divided into two sections: decision support and education. Offering an overview of current medical informatics research, this book will undoubtedly prove invaluable for the professional development of healthcare practitioners as well as contributing to knowledge sustainability within the field of medical informatics.

Advances in Health Telematics Education John Mantas, 1998 Get a head start The Student Workbook which contains all of the Assessments Activities and Worksheets from the Instructor's Resource Binder. Use it for classroom discussions in class activities and group work.

A Legal Framework for Security in European Health Care Telematics Otto Rienhoff, 2000 Title page Preface Prof Dr Herbert Burkert Preface Prof Dr Heyo Eckel Table of Contents Executive Summary Zusammenfassung Resume Resumen Sammanfattning The Editors Key Authors and Experts 1 Digital Signatures and Encryption as Key Elements of Security in Health Telematics 2 Methodologies Used in the Legal Studies 3 Liability Reference Model 4 Strategic Reference Model 5 Specific Issues in Health Care 6 Outlook 7 Materials Index of Subjects and Names

Informatics Education in Healthcare Eta S. Berner, 2020-10-19 This heavily revised second edition defines the current state of the art for informatics education in medicine and healthcare. This field has continued to undergo considerable changes as the field of informatics continues to evolve. The book features extensively revised chapters addressing the latest developments in areas including relevant informatics concepts for those who work in health information technology and those teaching informatics courses in clinical settings techniques for teaching informatics with limited resources and the use of online modalities in bioinformatics research education. New topics covered include how to get appropriate accreditation for an informatics program data science and bioinformatics education and

undergraduate health informatics education Informatics Education in Healthcare Lessons Learned addresses the broad range of informatics education programs and available techniques for teaching informatics It therefore provides a valuable reference for all involved in informatics education **European Neurological Network** Teresa Paiva,Thomas Penzel,2000

Achievements, Milestones and Challenges in Biomedical and Health Informatics Arie Hasman,Reinhold Haux,2022-11-15 The technological advances in Biomedical and Health Informatics BMHI in the last 4 decades could barely have been imagined when the field was in its infancy At the time computers were large and unwieldy memory was measured in kilobytes and the Internet was accessible only to people in the technology professions How the world has changed The skills of BMHI are now essential for everyone who participates in healthcare from practitioners and researchers to administrators and patients This book presents the 17 accepted papers of the International Symposium on Achievements Milestones and Challenges in Biomedical and Health Informatics BMHI held in Athens Greece on 29 October 2022 This event marks the retirement of Professor John Mantas whose career in BMHI spans over 40 years and a number of eminent colleagues from around the world were invited to present original review papers in their respective domains not only to celebrate the work of Professor Mantas but to review the achievements milestones and challenges of BMHI Most of those presenting papers have worked in the field for decades and their collective experience and wisdom highlights the accomplishments and limitations of the field Each paper was peer reviewed by 3 independent reviewers before being thoroughly revised ensuring the high quality of the accepted papers The book is dedicated to the entire BMHI community It covers the achievements attained the milestones reached and the challenges which have been overcome or which have not been conquered and provides knowledge and perspective for both learners and practitioners in the field **Building**

Regional Health Care Networks in Europe John Oates,John E. Oates,Henrik Bjerregaard Jensen,2000 Title page Contents INTRODUCTION EXECUTIVE SUMMARY 1 VISION OF A COMPREHENSIVE RHCN 2 RHCNs MAKING IT HAPPEN 3 RHCNs THE FUTURE 1998 2002 4 RHCNs A PERSPECTIVE BY COUNTRY Appendix A Glossary and Abbreviations Appendix B Healthcare Standardisation Organisations Appendix C References Appendix D Description of six EU IVFP projects building RHCNs **EHealth: Combining Health Telematics, Telemedicine, Biomedical Engineering and Bioinformatics to**

the Edge B. Blobel,P. Pharow,M. Nerlich,2008-03-03 Demographic economic and social conditions which developed countries are faced with require a paradigm change for delivering high quality and efficient health services This title presents papers from leading international experts representing various domains involved in ehealth Health Information Governance in a Digital Environment Heather Grain,2013-09-15 Delivering the desired benefits from using information technology in healthcare requires a high degree of data standardization effective governance and semantic interoperability between systems in the health industry Corporate chief executive officers CEOs and company boards need to be more aware of their governance responsibility This publication explains these concepts to assist the reader to collaboratively work with

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Butler-Henderson,Karen Day,Kathleen Gray,2021-11-10 This book provides a detailed guide to the highly specialised but little known health information workforce people who are health informaticians digital health experts and managers of health data health information and health knowledge It explains the basis of their unique functions within healthcare their educational pathways and standards professional qualifications and industry certifications scholarly foundations and principles of good practice It explores their challenges including the rise of the health consumer movement the drive to improve equity and quality in healthcare new technologies such as artificial intelligence and the COVID 19 infodemic Case studies describe how practitioners in real world roles around the world are addressing the digital transformation of health The Health Information Workforce Current and Future Developments offers insights into a skilled group of people who are essential for healthcare services to function for care providers to practice at the top of their scope for researchers to generate significant insights and for care consumers to be empowered participants in health systems This book offers new perspectives for anyone working or intending to work in the health sector It is a critical resource for health workforce planners employers and educators seeking guidance on the specialised capabilities needed for high performance in an increasingly information intensive sector

Global Health Informatics Education Evelyn J.S. Hovenga,John Mantas,2004-08-30 Throughout the world healthcare professionals often lack knowledge of the possibilities and limitations of systematically processing data information and knowledge and of the resulting impact on quality decision making They are often asked to use information technologies of which they have limited appreciation in order to enhance their practices through better use of information resources However for systematically processing data information and knowledge in medicine and in healthcare healthcare professionals who are well trained in medical informatics or health informatics are needed It will only be through improved education of healthcare professionals and through an increase in the number of well trained workers in health and medical informatics that this lack of knowledge and associated skills can begin to be reversed Although we can recognize further progress in educating health and a considerable number of educational programs for health informatics medical informatics specialists have been set up there is still a need to enhance these educational activities world wide considering global developments as well as new curricular concepts and technological opportunities IMIA and in particular its working group on health and medical informatics education is the leading international society stimulating such educational activities in

various ways This book is especially helpful for educators in the field of health medical informatics Medinfo 2007 Klaus A. Kuhn,James R. Warren,Tze-Yun Leong,2007 The papers presented are refereed and from all over the world They reflect the breadth and depth of the field of biomedical and health informatics covering topics such as health information systems knowledge and data management education standards consumer health and human factors emerging technologies sustainability organizational and economic issues genomics and image and signal processing As this volume carries such a wide collection it will be of great interest to anyone engaged in biomedical and health informatics research and application

User Acceptance of Health Telematics Applications Ilias Iakovidis,Stavroula Maglavera,Antonios Trakatellis,2000 Health Telematics Applications and User Acceptance from a Medical Student s point of view Author Index

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