Contents

Volume I

Section I. Fundamental Concepts and Theories

This section serves as the foundation for this exhaustive reference tool by addressing crucial theories essential to the understanding of health information systems. Chapters found within these pages provide an excellent framework in which to position health information systems within the field of information science and technology. Individual contributions provide overviews of the future of e-health, telemedicine barriers, electronic health records, and data protection. Within this introductory section, the reader can learn and choose from a compendium of expert research on the elemental theories underscoring health information systems research

Chapter 1.1. Inventing the Future of E-Health ................................................................. 1
José Aurelio Medina-Garrido, University of Cadiz, Spain
Maria José Crisóstomo-Acevedo, Jerez Hospital, Spain

Chapter 1.2. Multi-Dimensional Criteria for the Evaluation of E-Health Services ............... 8
Alalwany Hamid, Brunel University, UK
Alshawi Sarmad, Brunel University, UK

Chapter 1.3. Health Technology Assessment: Development and Future ......................... 26
Lise Lund Håheim, Norwegian Knowledge Centre for the Health Services, Norway
Berit Mørland, Norwegian Knowledge Centre for the Health Services, Norway

Chapter 1.4. Researching Health Service Information Systems Development .................. 42
Said Shahtahmasebi, The Good Life Research Centre Trust, New Zealand

Chapter 1.5. Monitoring and Controlling of Healthcare Information Systems (HIS) ............ 60
Stefan M. Graeber, Saarland University, Germany
Ansgar Kutscha, Diakonie Hospital Schwäbisch Hall gGmbH, Germany
Chapter 1.6. IT Benefits in Healthcare Performance and Safety .......................................................... 71
Stephen Bolsin, Melbourne University & The Geelong Hospital, Australia
Mark Colson, The Geelong Hospital, Australia

Chapter 1.7. IT Adoption and Evaluation in Healthcare: Evolutions and Insights in Theory, Methodology, and Practice .......................................................... 89
Ton AM Spil, University of Twente, The Netherlands
Cynthia LeRouge, St. Louis University, USA
Ken Trimmer, Idaho State University, USA
Carla Wiggins, Idaho State University, USA

Chapter 1.8. Health Infonomics: Intelligent Applications of Information Technology ...................... 117
Michael Mackert, The University of Texas at Austin, USA
Pamela Whitten, Michigan State University, USA
Bree Holtz, Michigan State University, USA

Chapter 1.9. Benefits and Barriers to Adoption of Information Technology in US Healthcare .......... 133
James G. Anderson, Purdue University, USA

Chapter 1.10. Ageing, Learning, Technology, and Health Management ............................................ 146
Gillian M Boulton-Lewis, Queensland University of Technology, Australia
Laurie Buys, Queensland University of Technology, Australia
Sylvia L. Edwards, Queensland University of Technology, Australia
Helen Partridge, Queensland University of Technology, Australia

Chapter 1.11. Evaluating Healthcare IT and Understanding the Work of Healthcare are Entangled Processes ......................................................................................... 162
Joseph Schulman, New York Presbyterian Hospital, USA

Chapter 1.12. Healthcare Information Systems and the Semantic Web ............................................. 178
David Parry, Auckland University of Technology, New Zealand

Chapter 1.13. Ontologies in the Health Field ..................................................................................... 185
Michel Simonet, Laboratoire TIMC-IMAG, Institut de l’Ingénierie et de l’Information de Santé, France
Radja Messai, Laboratoire TIMC-IMAG, Institut de l’Ingénierie et de l’Information de Santé, France
Gayo Diallo, Laboratoire TIMC-IMAG, Institut de l’Ingénierie et de l’Information de Santé, France
Ana Simonet, Laboratoire TIMC-IMAG, Institut de l’Ingénierie et de l’Information de Santé, France

Chapter 1.14. Quality of Health Information on the Internet ............................................................. 204
Kleopatra Alamantarioiu, City University London, UK
Chapter 1.15. Improving Data Quality in Health Care
Karolyn Kerr, Simpl, New Zealand
Tony Norris, Massey University, New Zealand

Chapter 1.16. Literature Review in Computational Linguistics Issues in the Developing Field of Consumer Informatics: Finding the Right Information for Consumer’s Health Information Need
Ki Jung Lee, Drexel University, USA

Chapter 1.17. Better Knowledge for Better Health Services: Discovering Guideline Compliance
Stefano De Luca, Evodevo s.r.l., Italy
Enrico Memo, Ca’ Foscari University, Italy

Chapter 1.18. A Classification Analysis of the Success of Open Source Health Information Technology Projects
Evangelos Katsamakas, Fordham University, USA
Balaji Janamanchi, Texas A&M International University, USA
Wullianallur Raghupathi, Fordham University, USA
Wei Gao, Fordham University, USA

Chapter 1.19. Cybermedicine, Telemedicine, and Data Protection in the United States
Karin Mika, Cleveland State University, USA
Barbara J. Tyler, Cleveland State University, USA

Chapter 1.20. Health Technology Assessment and Health Economics
Steven Simoens, Katholieke Universiteit Leuven, Belgium

Chapter 1.21. Telemedicine Barriers
María José Crisóstomo-Acevedo, Jerez Hospital, Spain
José Aurelio Medina-Garrido, University of Cadiz, Spain

Chapter 1.22. Nurses and Telehealth: Current Practice and Future Trends
Sisira Edirippulige, University of Queensland, Australia
Anthony C. Smith, University of Queensland, Australia
Mark Bensink, University of Queensland, Australia
Nigel R. Armfield, University of Queensland, Australia
Richard Wootton, University of Queensland, Australia

Chapter 1.23. Process-Based Evaluation of Hospital Information Systems: Application of an Information Systems Success Model (PRISE) in the Healthcare Domain
Sevgi Ozkan, Brunel University Business School, UK
Nazife Baykal, Informatics Institute Metu, Turkey
Murat Sincan, Informatics Institute Metu, Turkey
Chapter 1.24. A Review of Recent Contribution in Agent Based Health Care Modeling ................. 356
  Simerjit Gill, University of Regina & TRLabs Regina, Canada
  Raman Paranjape, University of Regina & TRLabs Regina, Canada

Chapter 1.25. Overview and Analysis of Electronic Health Record Standards................................. 374
  Spyros Kitsiou, University of Macedonia Economic and Social Science, Greece
  Vicky Manthou, University of Macedonia Economic and Social Science, Greece
  Maro Vlachopoulou, University of Macedonia Economic and Social Science, Greece

  Abirami Radhakrishnan, Morgan State University, USA
  Dessa David, Morgan State University, USA
  Jigish Zaveri, Morgan State University, USA

Chapter 1.27. A Comparison of How Canada, England, and Denmark
  are Managing their Electronic Health Record Journeys.............................................................. 402
  Denis Protti, University of Victoria, Canada

Chapter 1.28. Electronic Oral Health Records in Practice and Research........................................ 418
  Amit Chattopadhyay, University of Kentucky, USA
  Tiago Coelho de Souza, University of Kentucky, USA
  Oscar Arevalo, University of Kentucky, USA

Section II. Development and Design Methodologies

This section provides in-depth coverage of conceptual architectures, frameworks and methodologies related to the design and implementation of health information systems. Throughout these contributions, research fundamentals in the discipline are presented and discussed. From broad examinations to specific discussions on particular frameworks and infrastructures, the research found within this section spans the discipline while also offering detailed, specific discussions. Basic designs, as well as abstract developments, are explained within these chapters, and frameworks for designing successful e-health systems, pervasive healthcare applications, and ICTs for human services are provided.

Chapter 2.1. Patient-Centered E-Health Design ............................................................................. 445
  Alejandro Mauro, Hospital Italiano de Buenos Aires, Argentina
  Fernán González Bernaldo de Quirós, Hospital Italiano de Buenos Aires, Argentina

Chapter 2.2. Informational Priorities in Health Information System............................................. 461
  Małgorzata Kisilowska, University of Warsaw, Poland
Chapter 2.3. Open Information Management in User-Driven Healthcare ........................................ 480
Rakesh Biswas, People’s College of Medical Sciences, India
Kevin Smith, National Digital Research Centre, Ireland
Carmel M. Martin, Northern Ontario School of Medicine, Canada
Joachim P. Sturmberg, Monash University & The University of Newcastle, Australia
Ankur Joshi, People’s College of Medical Sciences, India
Vinod Narkhede, People’s College of Medical Sciences, India
Jitendra Jain, People’s College of Medical Sciences, India

Chapter 2.4. Medical Information Representation Framework for Mobile Healthcare ..................... 489
Ing Widya, University of Twente, The Netherlands
HaiLiang Mei, University of Twente, The Netherlands
Bert-Jan van Beijnum, University of Twente, The Netherlands
Jacqueline Wijsman, University of Twente, The Netherlands
Hermie J. Hermens, University of Twente, The Netherlands

Chapter 2.5. Interpreting Health and Wellness Information ............................................................... 510
Lena Mamykina, GVU Center Georgia Institute of Technology, USA
Elizabeth D. Mynatt, GVU Center Georgia Institute of Technology, USA

Chapter 2.6. A Distributed E-Healthcare System ................................................................................ 527
Firat Kart, University of California, Santa Barbara, USA
Gengxin Miao, University of California, Santa Barbara, USA
L. E. Moser, University of California Santa Barbara, USA
P. M. Melliar-Smith, University of California, Santa Barbara, USA

Volume II

Chapter 2.7. Planning Successful Telemedicine and E-Health Systems ............................................. 540
Michael Mackert, The University of Texas at Austin, USA
Pamela Whitten, Michigan State University, USA
Emily Krol, The University of Texas at Austin, USA

Chapter 2.8. Shared Healthcare in a Regional E-Health Network ...................................................... 554
Kari Harno, Helsinki University Central Hospital, Finland

Chapter 2.9. Tele-Practice Technology: A Model for Healthcare Delivery to Underserved Populations .......................................................................................................... 569
Thomas W. Miller, University of Connecticut, USA
Robert D. Morgan, Texas Tech University, USA
Jennifer A. Wood, South Texas VA Healthcare Center, USA
Chapter 2.10. Integrated Digital Health Systems Design: A Service-Oriented Soft Systems Methodology ........................................................................................................................................ 585
  Wullianallur Raghupathi, Fordham University, USA
  Amjad Umar, Fordham University, USA

Chapter 2.11. Evaluation Methods to Monitor Success and Failure Factors in Health Information System’s Development ............................................................................................................. 605
  Jytte Brender, University of Aalborg and Virtual Center for Health Informatics, Denmark

Chapter 2.12. Developing Information Communication Technologies for the Human Services: Mental Health and Employment ........................................................... 627
  Jennifer Martin, RMIT University, Australia
  Elspeth McKay, RMIT University, Australia

Chapter 2.13. Enhancing ‘Fit’ of Health Information Systems Design Through Practice Support.... 642
  Craig E. Kuziemsky, University of Ottawa, Canada

  Giovanni Russello, Imperial College London, UK
  Changyu Dong, Imperial College London, UK
  Naranker Dualy, Imperial College London, UK

Chapter 2.15. Alerts in Healthcare Applications: Process and Data Integration ................................. 674
  Dickson K.W. Chiu, Dickson Computer Systems, Hong Kong
  Benny W. C. Kwok, The Chinese University of Hong Kong, Hong Kong
  Ray L. S. Wong, The Chinese University of Hong Kong, Hong Kong
  Marina Kafeza, University Hospital of Heraklion, Greece
  S.C. Cheung, Hong Kong University of Science and Technology, Hong Kong
  Eleanna Kafeza, Athens University of Economics and Business, Greece
  Patrick C.K. Hung, University of Ontario Institute of Technology, Canada

Chapter 2.16. Building a Health Care Multi-Agent Simulation System with Role-Based Modeling................................................................. 694
  Xiaqin Zhang, University of Massachusetts Dartmouth, USA
  Haiping Xu, University of Massachusetts Dartmouth, USA
  Bhavesh Shrestha, University of Massachusetts Dartmouth, USA

Section III. Tools and Technologies

This section presents extensive coverage of the technology that informs and impacts health information systems. These chapters provide an in-depth analysis of the use and development of innumerable devices and tools, while also providing insight into new and upcoming technologies, theories, and instruments that will soon be commonplace. Within these rigorously researched chapters, readers are presented with examples of the tools that facilitate and support the emergence and advancement of health information systems. In addition, the successful implementation and resulting impact of these various tools and technologies are discussed within this collection of chapters.
Chapter 3.1. Capturing Data in Healthcare Using Patient-Centred Mobile Technology .......... 717
Sarah Pajak, Brunel University, UK
Lorraine H. De Souza, Brunel University, UK
Justin Gore, Northwick Park Hospital, UK
Christopher G. Williams, General Dynamics, UK

Chapter 3.2. Managing Mobile Healthcare Knowledge: Physicians’ Perceptions on Knowledge Creation and Reuse ................................................................. 733
Teppo Räisänen, University of Oulu, Finland
Harri Oinas-Kukkonen, University of Oulu, Finland
Katja Leiviskä, University of Oulu, Finland
Matti Seppänen, The Finnish Medical Society Duodecim, Finland
Markku Kallio, The Finnish Medical Society Duodecim, Finland

Chapter 3.3. Personal Health Records Systems Go Mobile: Defining Evaluation Components....... 750
Phillip Olla, Madonna University, USA
Joseph Tan, Wayne State University, USA

Chapter 3.4. Adoption of Mobile Technology by Public Healthcare Doctors: A Developing Country Perspective ............................................................... 773
Nesaar Banderker, University of Cape Town, South Africa
Jean-Paul Van Belle, University of Cape Town, South Africa

Chapter 3.5. Wireless for Managing Health Care: The Wirhe Framework.......................... 790
Esko Alasaarela, University of Oulu, Finland
Ravi Nemana, University of California - Berkeley, USA
Steven DeMello, Health Technology Center, USA
Nick S. Oliver, Imperial College, UK
Masako Miyazaki, University of Alberta, Canada

Chapter 3.6. Confirmatory Factor Analysis to Establish Determinants of Wireless Technology in the Indian Healthcare......................................................... 811
Raj Gururajan, University of Southern Queensland, Australia
Tiana Gurney, University of Southern Queensland, Australia
Abdul Hafeez-Baig, University of Southern Queensland, Australia

Chapter 3.7. Mobility Support in 4G Heterogeneous Networks for Interoperable M-Health Devices.............................................................. 830
Eduardo Antonio Viruete Navarro, University of Zaragoza, Spain
José Ruiz Mas, University of Zaragoza, Spain
Julián Fernández Navajas, University of Zaragoza, Spain
Ignacio Martínez Ruiz, University of Zaragoza, Spain
Chapter 3.8. Exploring the Technology Adoption Needs of Patients Using E-Health ......................... 845
Linda M. Gallant, Emerson College, USA
Cynthia Irizarry, Suffolk University, USA
Gloria M. Boone, Suffolk University, USA

Filipe Meneses, Universidade do Minho, Portugal
Adriano Moreira, Universidade do Minho, Portugal

Chapter 3.10. Electronic Patient Monitoring in Mental Health Services ..................................... 871
Werner G. K. Stritzke, University of Western Australia, Australia
Andrew C. Page, University of Western Australia, Australia

Chapter 3.11. Using Object Oriented Technologies to Build Collaborative Applications in Healthcare and Medical Information Systems .......................................................... 889
A. Dwivedi, University of Hull, UK
R.K. Bali, BIOCORE Coventry University, UK
Nilmini Wickramasinghe, Illinois Institute of Technology, USA
R.N.G. Naguib, BIOCORE Coventry University, UK

Chapter 3.12. Collaborative Virtual Environments and Multimedia Communication Technologies in Healthcare .......................................................................................................... 903
Maria Andréia F. Rodrigues, Universidade de Fortaleza, Brazil
Raimir Holanda Filho, Universidade de Fortaleza, Brazil

Chapter 3.13. HealthGrids in Health Informatics: A Taxonomy ...................................................... 913
Aisha Naseer, Brunel University, UK
Lampros K. Stergioulas, Brunel University, UK

John Ayoade, American University of Nigeria, Nigeria
Judith Symonds, Auckland University of Technology, New Zealand

Chapter 3.15. Modeling and Analysis of Surgery Patient Identification Using RFID .................. 945
Byungho Jeong, Chonbuk National University, Korea
Chen-Yang Cheng, Tunghai University, Taiwan
Vittal Prabhu, The Pennsylvania State University, USA

Chapter 3.16. Internet as a Source of Health Information and Its Perceived Influence on Personal Empowerment ............................................................... 958
Guy Paré, HEC Montréal, Canada
Jean-Nicolas Malek, HEC Montréal, Canada
Claude Sicotte, University of Montreal, Canada
Marc Lemire, University of Montreal, Canada
Section IV. Utilization and Application

This section introduces and discusses the utilization and application of health information systems. These particular selections highlight, among other topics, challenges in electronic medical record system adoption, wireless technology adoption in healthcare, and current practices in healthcare systems. Contributions included in this section provide excellent coverage of today’s online environment and insight into how health information systems impact the fabric of our present-day global village.

Chapter 4.1. Challenges with Adoption of Electronic Medical Record Systems ........................................ 986
Abirami Radhakrishnan, Morgan State University, USA
Dessa David, Morgan State University, USA
Jigish Zaveri, Morgan State University, USA

Chapter 4.2. Best Practices for Implementing Electronic Health Records and Information Systems ................................................................. 994
Beste Kucukyazici, McGill University, Canada
Karim Keshavjee, InfoClin Inc., Canada
John Bosomworth, University of Victoria, Canada
John Copen, University of Victoria, Canada
James Lai, University of British Columbia, Canada

Chapter 4.3. Electronic Medical Records: TAM, UTAUT, and Culture .......................................................... 1014
Ken Trimmer, Idaho State University, USA
Leigh W. Cellucci, Idaho State University, USA
Carla Wiggins, Idaho State University, USA
William Woodhouse, Idaho State University, USA

Chapter 4.4. Perceptions of an Organizing Vision for Electronic Medical Records by Independent Physician Practices .......................................................... 1028
John L. Reardon, University of Hawaii, USA

Chapter 4.5. Providing Telemental Health Services after Disasters: A Case Based on the Post-Tsunami Experience .......................................................... 1051
Shashi Bhushan Gogia, S.A.T.H.I, AMLA MEDIQUIP and Indian Association for Medical Informatics, India

Chapter 4.6. Planning and Control and the Use of Information Technology in Mental Healthcare Organizations .......................................................... 1066
I.J. Baars, Maastricht University, The Netherlands
G.G. Van Merode, Board of Maastricht University Medical Center & Maastricht University, The Netherlands
Chapter 4.7. The Use of Information and Communication Technologies for Health Service Delivery in Namibia: Perceptions, Technology Choices, and Policy Implications for Sub-Saharan Africa

Meke I. Shivute, Polytechnic of Namibia, Namibia
Blessing M. Maumbe, Eastern Kentucky University, USA

Chapter 4.8. Factors Affecting the Adoption of ICT for Health Service Delivery in Namibia: The Role of Functional Literacy and Policy Implications

Blessing M. Maumbe, Eastern Kentucky University, USA
Meke I. Shivute, Polytechnic of Namibia, Namibia
Vesper T. Owei, Cape Peninsula University of Technology, Republic of South Africa

Volume III

Chapter 4.9. Decentralisation and Health Systems Performance in Developing Countries: Impact of “Decision Space” on Primary Health Care Delivery in Nigeria

Adebusoye A. Anifalaje, London School of Economics and Political Science, UK

Chapter 4.10. Assessing Physician and Nurse Satisfaction with an Ambulatory Care EMR: One Facility’s Approach

Karen A. Wager, Medical University of South Carolina, USA
James S. Zoller, Medical University of South Carolina, USA
David E. Soper, Medical University of South Carolina, USA
James B. Smith, Medical University of South Carolina, USA
John L. Waller, Medical University of South Carolina, USA
Frank C. Clark, Medical University of South Carolina, USA

Chapter 4.11. Reforming Public Healthcare in the Republic of Ireland with Information Systems: A Comparative Study with the Private Sector

David Sammon, University College Cork, Ireland
Frederic Adam, University College Cork, Ireland

Chapter 4.12. Aurora Health Care: A Knowledge Management Strategy Case Study

Thomas Ginter, Aurora BayCare Medical Center, USA
Jane Root, Aurora Medical Group, USA

Chapter 4.13. Organisational Factors and Technological Barriers are Determinants for the Intention to Use Wireless Handheld Technology in Healthcare Environment: An Indian Case Study

Raj Gururajan, University of Southern Queensland, Australia

Chapter 4.14. Drivers for Wireless Technology Acceptance in Indian Healthcare

Raj Gururajan, University of Southern Queensland, Australia
   David J. Finnegan, University of Warwick, UK
   Wendy L. Currie, University of Warwick, UK

Chapter 4.16. Developing a User Centered Model for Ubiquitous Healthcare System Implementation: An Empirical Study .......................................................... 1243
   Jongtae Yu, Mississippi State University, USA
   Chengqi Guo, Mississippi State University, USA
   Mincheol Kim, Cheju National University, South Korea

   Venkat Sadanand, University of Saskatchewan, Canada

Chapter 4.18. Computerised Decision Support for Women’s Health Informatics ............................ 1272
   David Parry, Auckland University of Technology, New Zealand

Chapter 4.19. Exploiting Process Thinking in Health Care .............................................................. 1286
   Teemu Paavola, LifeIT Plc, Finland

Section V. Organizational and Social Implications

This section includes a wide range of research pertaining to the social and organizational impact of health information systems around the world. Chapters included in this section analyze preparing healthcare organizations for IT adoption, demographic difference in telehealth outcomes, physician characteristics and electronic medical records, and patient perspectives and roles in creating health records and recording health data. The inquiries and methods presented in this section offer insight into the implications of health information systems at both a personal and organizational level, while also emphasizing potential areas of study within the discipline.

Chapter 5.1. Organizational Factors: Their Role in Health Informatics Implementation ......................... 1295
   Michelle Brear, University of New South Wales, Australia

Chapter 5.2. Changing Healthcare Institutions with Large Information Technology Projects .......... 1304
   Matthew W. Guah, Erasmus University Rotterdam, The Netherlands

Chapter 5.3. Informatics Application Challenges for Managed Care Organizations: The Three Faces of Population Segmentation and a Proposed Classification System ........ 1318
   Stephan Kudyba, New Jersey Institute of Technology, USA
   Theodore L. Perry, Health Research Corporation, USA
   Jeffrey J. Rice, Independent Scholar, USA

Chapter 5.4. Preparing Healthcare Organizations for New IT Systems Adoption: A Readiness Framework .......................................................... 1328
   Robert Breas, National IT Institute for Healthcare (NICTIZ), The Netherlands
   Matthew Waritay Guah, Erasmus University, The Netherlands
Chapter 5.5. Developments in Modeling Organizational Issues in Healthcare: Multi Method Modeling ............................................................................................................. 1342
  Kirandeep Chahal, Brunel University, UK
  Herbert Daly, Brunel University, UK
  Tillal Eldabi, Brunel University, UK
  Ray J. Paul, Brunel University, UK

Chapter 5.6. Managing ICT in Healthcare Organization: Culture, Challenges, and Issues of Technology Adoption and Implementation .......................................................... 1357
  Nasriah Zakaria, Universiti Sains, Malaysia
  Shafiz Affendi Mohd Yusof, Universiti Utara, Malaysia
  Norhayati Zakaria, Universiti Utara, Malaysia

Chapter 5.7. Social Impacts of Mobile Virtual Communities on Healthcare ................................... 1373
  Alessia D’Andrea, IRPPS-CNR, Rome, Italy
  Fernando Ferri, IRPPS-CNR, Rome, Italy
  Patrizia Grifoni, IRPPS-CNR, Rome, Italy

Chapter 5.8. Understanding Computerised Information Systems Usage in Community Health ................................................................................................................. 1388
  Farideh Yaghmaei, Shadeed Behesthi University of Medical Science and Health Services, Iran

Chapter 5.9. Managing E-Procurement in Public Healthcare: A Knowledge Management Perspective .......................................................... 1400
  Tommaso Federici, University of Tuscia, Italy
  Andrea Resca, LUISS ‘Guido Carli’ University, Italy

Chapter 5.10. Information Management in a Grid-Based E-Health Business Environment: A Technical-Business Analysis ................................................................................................... 1415
  Vassiliki Andronikou, National Technical University of Athens, Greece
  Gabriel Sideras, National Technical University of Athens, Greece
  Dimitrios Halkos, National Technical University of Athens, Greece
  Michael Firopoulos, Intracom IT Services, Greece
  Theodora Varvarigou, National Technical University of Athens, Greece

Chapter 5.11. Projecting Health Care Factors into Future Outcomes with Agent-Based Modeling ............................................................................................................. 1431
  Georgiy Bobashev, RTI International, Russia
  Andrei Borshchev, XJ Technologies, Russia

Chapter 5.12. Practical Action and Mindfulness in Health Information Security ........................................... 1454
  Jeff Collmann, Georgetown University Medical Center, USA
  Ted Cooper, Stanford University Medical Center, USA
Chapter 5.13. Demographic Differences in Telehealth Policy Outcomes ........................................ 1472
Mary Schmeida, The Cleveland Clinic, USA
Ramona McNeal, University of Northern Iowa, USA

William P. Wall, Shinawatra University, Thailand

Chapter 5.15. Physician Characteristics and EMR Attitudes ............................................................ 1491
David Meinert, Missouri State University, USA
Dane K. Peterson, Missouri State University, USA

Chapter 5.16. Physician Characteristics Associated with Early Adoption of Electronic Medical Records in Smaller Group Practices ............................................................................. 1503
Liam O’Neill, University of North Texas, USA
Jeffery Talbert, University of Kentucky, USA
William Klepack, Dryden Family Medicine, USA

Chapter 5.17. An Exploratory Study of Patient Acceptance of Walk-In Telemedicine Services for Minor Conditions ............................................................................................................... 1513
Christina I. Serrano, University of Georgia, USA
Elena Karahanna, University of Georgia, USA

Chapter 5.18. Disability Determinations and Personal Health Records ........................................... 1534
Elaine A. Blechman, University of Colorado at Boulder, USA

Chapter 5.19. Active Patient Role in Recording Health Data ........................................................... 1544
Josipa Kern, University of Zagreb, School of Medicine, Andrija Stampar School of Public Health, Croatia
Kristina Fister, University of Zagreb, School of Medicine, Andrija Stampar School of Public Health, Croatia
Ozren Polasek, University of Zagreb, School of Medicine, Andrija Stampar School of Public Health, Croatia

Chapter 5.20. Using Stakeholder Analysis to Identify Users in Healthcare Information Systems Research: Who is the Real User? .............................................................................................. 1553
Alexander J. McLeod Jr., University of Nevada, USA
Jan Guynes Clark, The University of Texas at San Antonio, USA

Chapter 5.21. Economic Efficiency and the Canadian Health Care System ........................................ 1569
Asha B. Sadanand, University of Guelph, Canada
Chapter 5.22. Information Technology and Data Systems in Disaster Preparedness for Healthcare and the Broader Community

Barbara J. Quiram, Texas A&M Health Science Center, USA
Cara L. Pennel, Texas A&M Health Science Center, USA
S. Kay Carpender, Texas A&M Health Science Center, USA

Section VI. Managerial Impact

This section presents contemporary coverage of the managerial implications of health information systems. Particular contributions address the implantation of an enterprise system in a healthcare network and applications of a case management software system in non-profit organization. The managerial research provided in this section allows executives, practitioners, and researchers to gain a better sense of how health information systems can inform their practices and behavior.

Chapter 6.1. A Process Architecture Approach to Manage Health Process Reforms

Christine Stephenson, Emirates Airlines, UAE
Wasana Bandara, Queensland University of Technology, Australia

Chapter 6.2. Difficulties in Accepting Telemedicine

María José Crisóstomo-Acevedo, Jerez Hospital, Spain
José Aurelio Medina-Garrido, University of Cadiz, Spain

Chapter 6.3. Investing Trust Relationships in a Healthcare Network

Stefanie Kethers, Monash University, Australia
Günter Gans, RWTH Aachen University, Germany
Dominik Schmitz, Fraunhofer FIT, Germany
David Sier, CSIRO Mathematical and Information Sciences, Australia

Chapter 6.4. Analyzing an ES Implementation in a Health Care Environment

Albert Boonstra, University of Groningen, The Netherlands

Volume IV

Chapter 6.5. Practical Applications of Case Management Software for Practitioners in Health and Human Services

Lesley Cooper, Wilfrid Laurier University, Canada
Dana Fox, Athena Software, Canada
Diane Stanley-Horn, Athena Software, Canada

Chapter 6.6. An e-Healthcare Mobile Application: A Stakeholders’ Analysis Experience of Reading

Niki Panteli, University of Bath, UK
Barbara Pitsillides, Nicosia, Cyprus
Andreas Pitsillides, University of Cyprus, Cyprus
George Samaras, University of Cyprus, Cyprus
Section VII. Critical Issues

This section addresses conceptual and theoretical issues related to the field of health information systems, which include issues related to privacy, security, and quality. Within these chapters, the reader is presented with analysis of the most current and relevant conceptual inquiries within this growing field of study. Particular chapters address the impact of privacy legislation on patient care, quality assurance approaches to healthcare, and improving the quality of healthcare research data sets. Overall, contributions within this section ask unique, often theoretical questions related to the study of health information systems and, more often than not, conclude that solutions are both numerous and contradictory.

Amy Ray, Bentley College, USA
Sue Newell, Bentley College, USA & Warwick Business School, UK

Khaled M. Khan, Qatar University, Qatar

Chapter 7.3. The Impact of Privacy Legislation on Patient Care .................................................. 1726
Jeff Barnett, University of Victoria, Canada

Chapter 7.4. Privacy Management of Patient-Centered E-Health .............................................. 1744
Olli P. Järvinen, Finnish Game and Fisheries Research Institute, Finland

Chapter 7.5. Healthcare Ethics in the Information Age ................................................................. 1761
Keith Bauer, Marquette University, USA

Chapter 7.6. Quality and Reliability Aspects in Telehealth Systems ........................................... 1777
Anastasia Kastania, Athens University of Economics and Business, Greece
Stelios Zimeras, University of the Aegean, Greece

Chapter 7.7. Electronic Medical Records, HIPAA, and Patient Privacy ....................................... 1795
Jingquan Li, Texas A&M University-Kingsville, USA
Michael J. Shaw, University of Illinois at Urbana-Champaign, USA

Mark C. Shaw, De Montfort University, UK
Bernd Carsten Stahl, De Montfort University, UK

Chapter 7.9. Improving the Quality of Healthcare Research Data Sets ........................................ 1826
Biswa dip Ghosh, Metropolitan State College of Denver, USA
Chapter 7.10. Space-Time Cluster Analysis: Application of Healthcare Service Data in Epidemiological Studies

Joseph M. Woodside, Cleveland State University, USA
Iftikhar U. Sikder, Cleveland State University, USA

Chapter 7.11. A Neural Network Approach Implementing Non-Linear Relevance Feedback to Improve the Performance of Medical Information Retrieval Systems

Dimosthenis Kyriazis, National Technical University of Athens, Greece
Anastasios Doulamis, National Technical University of Athens, Greece
Theodora Varvarigou, National Technical University of Athens, Greece

Chapter 7.12. Queuing Theory and Discrete Events Simulation for Health Care: From Basic Processes to Complex Systems with Interdependencies

Alexander Kolker, Children’s Hospital and Health Systems, USA


Andrzej S. Ceglowski, Monash University, Australia
Leonid Churilov, The University of Melbourne, Australia

Chapter 7.14. Predicting Voluntary Participation in a Public Health Program Using a Neural Network

George E. Heilman, Winston-Salem State University, USA
Monica Cain, Winston-Salem State University, USA
Russell S. Morton, Winston-Salem State University, USA

Chapter 7.15. An Exploration of Demographic Inconsistencies in Healthcare Information Environments

Larbi Esmahi, Athabasca University, Canada
James W. Edwards, Agfa Healthcare, Canada
Elarbi Badidi, United Arab Emirates University, UAE

Chapter 7.16. Analysing Clinical Notes for Translation Research: Back to the Future

Jon Patrick, The University of Sydney, Australia
Pooyan Asgari, The University of Sydney, Australia

Chapter 7.17. Multicriteria Models for E-Health Service Evaluation

Gulcin Buyukozkan, Galatasaray University, Turkey
R. Ufuk Bilsel, The Pennsylvania State University, USA

Chapter 7.18. An Evidence-Based Health Information System Theory

Daniel Carbone, University of Melbourne, Australia
Section VIII. Emerging Trends

This section highlights research potential within the field of health information systems while exploring uncharted areas of study for the advancement of the discipline. Chapters within this section highlight new trends in the creation of personal health records, healthcare education, and coding and messaging systems for health informatics. These contributions, which conclude this exhaustive, multi-volume set, provide emerging trends and suggestions for future research within this rapidly expanding discipline.

Chapter 8.1. Toward a Better Understanding of the Assimilation of Telehealth Systems ............... 2012
   Joachim Jean-Jules, Université de Sherbrooke, Canada
   Alain O. Villeneuve, Université de Sherbrooke, Canada

Chapter 8.2. Mobile Health Applications and New Home Care Telecare Systems:
   Critical Engineering Issues................................................................. 2025
   Žilbert Tafa, University of Montenegro, Montenegro

Chapter 8.3. Pediatric Telepsychiatry as Innovation in Healthcare Delivery ......................... 2044
   Katherine M. Boydell, University of Toronto, Canada
   Tiziana Volpe, The Hospital for Sick Children, Canada
   Antonio Pignatiello, University of Toronto, Canada

Chapter 8.4. Emerging Approaches to Evaluating the Usability of Health Information Systems.... 2057
   Andre W. Kushniruk, University of Victoria, Canada
   Elizabeth M. Borycki, University of Victoria, Canada
   Shige Kuwata, Tottori University Hospital, Japan
   Francis Ho, University of Victoria, Canada

Chapter 8.5. Adaptive Awareness of Hospital Patient Information through
   Multiple Sentient Displays ........................................................................... 2079
   Jesus Favela, CICESE, Mexico
   Mónica Tentori, CICESE and Universidad Autónoma de Baja California, Mexico
   Daniela Segura, CICESE, Mexico
   Gustavo Berzunza, CICESE, Mexico

Chapter 8.6. Support for Medication Safety and Compliance in Smart Home Environments ....... 2091
   José M. Reyes Álamo, Iowa State University, USA
   Hen-I Yang, Iowa State University, USA
   Ryan Babbitt, Iowa State University, USA
   Johnny Wong, Iowa State University, USA
   Carl Chang, Iowa State University, USA

Chapter 8.7. Personal Health Records: Patients in Control ..................................................... 2111
   Ebrahim Randeree, Florida State University, USA
   Melinda Whetstone, Florida State University, USA
Chapter 8.8. Transforming Continuing Healthcare Education with E-Learning 2.0 ........................ 2125
Rajani S. Sadasivam, University of Massachusetts Medical School, USA
Katie M. Crenshaw, University of Alabama at Birmingham, USA
Michael J. Schoen, University of Alabama at Birmingham, USA
Raju V. Datla, Massachusetts Medical Society, USA

Chapter 8.9. Health Information Standards: Towards Integrated Health Information Networks ..... 2145
Stergiani Spyrou, The Medical School, AUTH, Greece
Panagiotis Bamidis, The Medical School, AUTH, Greece
Nicos Maglaveras, The Medical School, AUTH, Greece

Chapter 8.10. Introducing E-Procurement in a Local Healthcare Agency ........................................... 2160
Tommaso Federici, University of Tuscia, Italy

Chapter 8.11. Application of Unified Modelling Language (UML) to the Modelling of Health Care Systems: An Introduction and Literature Survey ................................. 2179
Christos Vasilakis, University College London, UK
Dorota Lecnzarowicz, University of Westminster, UK
Chooi Lee, Kingston Hospital, UK

Chapter 8.12. Coding and Messaging Systems for Women’s Health Informatics ............................. 2192
David Parry, Auckland University of Technology, New Zealand

Chapter 8.13. The S’ANT Imperative for Realizing the Vision of Healthcare Network-Centric Operations ................................................................. 2206
Nilmini Wickramasinghe, Illinois Institute of Technology, USA
Rajeev K. Bali, Coventry University, UK

Gianluca Miscione, International Institute for Geo-Information Science and Earth Observation, The Netherlands
Knut Staring, University of Oslo, Norway