Global Telemedicine and eHealth Updates: Knowledge Resources

Vol. 9, 2016

Editors
Malina Jordanova and Frank Lievens

ISfTeH
International Society for Telemedicine & eHealth
Preface

Dear Reader,

The ninth volume of the series “Global Telemedicine and eHealth Updates: Knowledge Resources”, is now in your hands.

With 87 papers from 37 countries (Fig. 1), the book presents a collective experience of experts from different continents all over the world. Papers reveal various national and cultural points of view on how to develop and implement Telemedicine/eHealth solutions for the treatment of patients and wellbeing of citizens.

Year after year the series “Global Telemedicine and eHealth Updates: Knowledge Resources” provide a glimpse and summarize the most recent practical achievements, existing solutions and experiences in the area of Telemedicine/eHealth.

Brought to life by contemporary changes of our world, Telemedicine/eHealth offers enormous possibilities. The technological solutions are available and ready to be implemented in healthcare systems. If carefully realized, taking into account the needs of the community, Telemedicine/eHealth is able to improve both access to and the standard of healthcare, and thus to close the gap between the demand for affordable, high quality healthcare to everyone, at any time, everywhere, and the necessity to control the increase in healthcare budgets worldwide.

Telemedicine/eHealth is already a must, a fantastic challenge for the future, but it must be based on cooperation and coordination at all possible levels. It requires networking and planning, readiness to learn from others, and avoiding re-inventing the wheel. The main challenge is to be sure that available options are used optimally and in a coordinated manner as to ascertain that the desired effects do come true and the resources are indeed not diverted away from basic needs.

We are convinced that this book will provide useful information to those who are preparing to introduce Telemedicine/eHealth in their regions or countries. It will allow them to rely on the experience of others and will make them aware of the benefits and problems that were encountered
during and after implementation of systems or services, and as such help
them to avoid mistakes and reduce potential problems.

Yet, it is necessary to underline that:

- The content of the book is divided in chapters covering various
  areas of Telemedicine/eHealth;
- Chapters, and papers in each chapter, are listed alphabetically;
- The original style of the authors was respected as much as possible;
- In the content, after the title of papers, a usually only the first co-
  authors is listed, while the rest are marked as “et al.”;
- “How”, “Where”, “When” and especially “How Much” – are only
  part of the questions that authors are trying to answer.

We hope that everyone involved in Telemedicine/eHealth will find this
book not only interesting, but most valuable as well.

Enjoy your reading!

Editors
Malina Jordanova, MD, PhD
Educational Program Coordinator, Med-e-Tel
Space Research & Technology Institute, Bulgarian Academy of Sciences
Bulgaria

Frank Lievens
Director, Med-e-Tel
Executive Secretary of the International Society for Telemedicine &
eHealth (ISfTeH)
Belgium & Switzerland

Editors gratefully acknowledge the work of all reviewers that dedicated
lots of efforts, time and high expertise, and with their valuable advice,
supported both authors and editors in the process of selecting, correcting
and preparing for publication all papers included in this book.
Content

Preface ii

Disease Management and Treatment Adherence 1

An Open and Interoperable Platform for the Follow-Up of Diabetic Riders
P. Genestier et al.

Complex InspectLife Platform for Imaging Patients with Lymphatic and Dermatology Problems
J. Potůček et al.

Flexible System Architecture of PHR to Support Sharing Health Data for Chronic Disease Self-Management
C. Peng, G. Bai

Gene Analyst – A New Approach to the Gene Expression Patterns Analysis in order to Confirm Disease Diagnoses
J. Jansa, K. Kupka

Integrated Telemedical System for Non-invasive Early Diagnostics of Peripheral Perfusion with Therapy Adherence Support
T. Bohrn et al.

Patient Adherence: What Does it Mean, and Implications for Digital Health Systems
P. A. Cudd et al.

The Road to Smarter Data: INTEGR8 Study Embeds Wearables in Digital Health Data Workflow
B. Zwick, L. Verstappen

eHealth Economics 38

Applicability and Economic Assessment of Teleophthalmology Screening for Diabetic Retinopathy in Southeastern Brazil 39
D. V. Vasconcelos-Santos et al.

Economical Evaluation of Eclair’Age Geriatric Hot Line 45
A. Martin et al.

Evaluating the Economical Impact of Telehealth as a Routine Activity 49
R. M. Figueira et al.

Impact Assessment in the Case of ICT Solutions for Managing Cognitive Impairment among Senior Citizens 55
A. Flynn et al.

Measuring the Long-run Effect of Telecare on Chronic Diseases: An Application of DID-PSM 60
M. Tsuji, Y. Kinai

Strategic and Economic Considerations for the Implementation of Telehealth/ Telemedicine for Remote/Underdeveloped/Poor Areas of Developing Countries 65
I. Rusli

eHealth in Primary and Emergency Care 70

ADAMILO: Automated Diet and Activity Monitoring for Intelligent Lifestyle Optimisation 71
M. N. Kamel Boulos

Analyzing of Functionality of Most Useable Emergency Medical Services Software Products 79
P. Moskov et al.

Initiating and Promoting Usage of Structured Biology Reports and LOINC Codes in a Pilot Region (Alsace, France) 83
A. Stackler et al.

Treatment and Rehabilitation of Drug Addictive Patients through Telemedicine in Punjab, Pakistan 88
M. A. Qadir, N. Mazhar
US Healthcare: The Telemedicine Imperative
M. Y. Griffith

Using Quality Indicators to Improve Emergency Medical Services Systems Efficiency
P. Moskov et al.

**eHealth Quality: Standards, Interoperability, Legal and Ethical Issues**

Constrained Data Transmission with Critical Services in Healthcare
S. Zouarhi

Do Standards for Telehealth Respond to the Needs of Service Users?
M. Fisk

Estimating the Environmental Impact of e-Health and POCT in sub-Saharan Africa
R. E. Scott, M. Mars

T. Karopka

Secure Group Key Management Protocol in an Open Healthcare Environment
P. S. Maswikaneng et al.

Telehealth Standards of Practice: A Nursing Exemplar
C. C. Bartz

Towards a Telehealth Service Planning and Implementation: A Research about the Requirements, Barriers, Benefits and Risks
M. Castelo-Branco, M. Macedo

**eLearning and Health ICT Education**

A Systematic Review of E-Learning in Cardiac Rehabilitation
I. Frederix et al.

Heroes of Telemedicine and E-Health Project: A Tool for the Education Medical Professionals on New Health Infrastructures - Development, Implementation and Further Steps

J. Krasniqi

Knowledge of Students about Telemedicine and Her Advantages in Healthcare in Kosovo

R. Bekteshi et al.

Latin American Journal of Telehealth: Challenges to Creating and Maintaining a Regular Telehealth Journal

M. P. Abreu et al.

New Joint Master’s Program in Biomedical Engineering (with Topics on Health ICT) in Armenia Developed through TEMPUS Project BME-ENA

G. Chaltikyan et al.

New Master’s Program in Medical Informatics, eHealth and Telemedicine at the European Campus of Deggendorf Institute of Technology (DIT) in Germany

G. Chaltikyan et al.

Synchronous Seminars Telephysiotherapy Rio de Janeiro: Education Instrument for Physiotherapists

D. M. Florentino et al.

Tele-Education as a Support Tool in Combating Abuse of Psychoactive Drugs: A Literature Review

D. J. Barbosa et al.

The Applicability of Yang Content Analysis Model for Assessing Teaching-Learning of Bioethics Process in Asynchronous Online Discussions

M. M. P. Silva et al.

Using Online Social Networks as a Support Tool to Reduce Psychoactive Drug Abuse
WhatsApp Telemedicine a Growing Field: A Literature Review

*M. Mar, R. Scott*

**Home Healthcare & Remote Patient Monitoring**

A Diabetic Patients Remote Monitoring System in a Rural Community of Brazil: A Report of the Technological Implementation

*R. Timm et al.*

Reducing Hb1Ac Marker by Providing Telemedicine Support to Patients with Diabetes Type 2 at Home

*Z. Balorda et al.*

Reducing Hospitalisation by Providing Telemedicine Support to CHF Patients at Home in Slovenia

*D. Rudel et al.*

Tele Monitoring Home Program in Patients with Cystic Fibrosis: Results after 15 Years

*S. Bella et al.*

Telemedical Monitoring of People with Sleep Apnea by High Signal Resolution Pulse Wave Method

*R. Krzyminiewski et al.*

The Design and Implementation of an Online Home Exercise Program that Fits the Needs of Patients with Mild Cognitive Impairment

*M. G. H. Dekker-van Weering et al.*

Young Population in Megacity: Self-Monitoring of Health Risks and Wellness Education.

*A. G. Chernikova et al.*

**International Telemedicine & eHealth Initiatives**

A Pan European Rapid Benchmark on the Stage of Development of
Telemedicine in EU Member Countries
A. Khelifa et al.

Improving Cross-border European ePrescription and Patient Summary Services through e-SENS Cross-sectorial Building Blocks
F. Wisniewski et al.

Teleconsultation in VPH: Fighting Zoonoses and Maintaining Public Health through Veterinary Care on São Vicente, Cape Verde
S. Punzo et al.

Telehealth Really is here to Stay: New Care Pathways, Lessons Learned, and Policy Messages
D. Whitehouse

The Use of Twitter and the Hashtags in the WONCA Conferences
R. G. Bravo et al.

Mobile Solutions (mHealth)

A Mobile Application for Individual Health Monitoring within the Home Medicine
R. M. Baevsky et al.

A Mobile Ultrasound E-Learning System
J. C. Hsieh et al.

Inpatient’s Medical Records Installed on Mobile Interfaces: A Natural Evolution of the Mongolian Tele-Assistance Medical Network
T. Chuluunbaatar et al.

Tele-Operated System or Vocal Guidance for Remote-Echography through Internet on 340 Isolated Patients
P. Arbeille et al.

National Telemedicine & eHealth Initiatives

An Update on eHealth in China

viii
A. Khelifa

Asynchronous Teleconsultations Applied to Reduce Patient Waiting-List to Specialized Care in Minas Gerais, Brazil
*M. B. Alkmim et al.*

Bridging the Gap towards Efficient Collaborative Digital Pathology: A Pioneer Initiative of the FlexMIm Project
*D. Racoceanu et al.*

Challenges and Opportunities for Telemedicine in Morocco
*H. Ghazal*

Modelling the Implementation of Teledentistry for Rural and Remote Paediatric Patients in Victoria, Australia
*R. Mariño et al.*

Provider Independent Upgrade to IHE e-Prescription by Using Existing Paper Printing Features
*K. Bauer, S. Benzschawel*

Telehealth for 60 000 eVillages in India: The Beginning of the CSC Story
*K. Ganapathy et al.*

Telehealth in the Himalayas: Operational and Clinical Challenges: A Preliminary Report
*K. Ganapathy et al.*

Telemedicine: A Tool for Investigation, Research and Treatment of Eczema at Remote Beneficiary in Punjab
*M. A. Qadir, A. Hasnain*

**Open Source Software in Healthcare - Benefits and Issues**

An Update on Free/Libre and Open Source Software (FLOSS) in Healthcare
*T. Karopka, S. Kobayashi*
First Experience in Implementing an Open Source Health Information System for a City Hospital in a Developing Country

J. E. Quesada

ScatterWeb Tele-Health Platform Acting As a Proposed Solution for e-Health Strategy Implementation in South Africa: Work in Progress

Z. Mapundu et al.

Smart and Assistive Technologies for Independent Living and Wellbeing

A Driving Assistant to Help People with Mild Cognitive Impairment or Early Stages of Dementia

M. Munoz-Organero

Assistive Technologies in Integrated Care

L. Lhotska

Challenges in Design of Digital Care Systems that Support People with Dementia

P. A. Cudd et al.

Context Understanding for Medico-Social Assistance with an Interactive Robot

W. Ben Ghezala et al.

Empowering Seniors’ Self Care at Home through Advanced Technology Apps: The Senior-TV Project

Y. Laouris et al.

Experimental Smart GSM Based Control System Acting As a Proposed Solution for South Africa Smart Home Deployments

S. B. Makoba et al.

From User Needs and Requirements to Use Cases for ICT Services Addressed to Elderly with Cognitive Impairments

M. Panou et al.

Implementing a Telecardiology Strategy in a Geriatric Institution in
Pelotas – Brazil
F. Stoffels et al.

Measuring the Impact of ICT for People Living with Cognitive Impairment
K. Touliou et al.

Non-Contact Sensing of Vital Signs, Physiological Perspective on Current Research and Future Research Directions
K. Panda, S. P. Rath

Offering Personalized Cloud-Based ICT Solutions to Elderly with Cognitive Impairments
N. Kaklanis et al.

Reliable Information on Accessibility-Related Standards: IN LIFE Contribution to Facilitate the Application of Standards
C. Galinski, B. S. Giraldo

Smart-home Intelligent System Based upon Counting Process and Habits Modelling for Non-Intrusive Daily Home Support
C. Goujeau et al.

The “Digital Pathologies Concept”: New Methodologies and Approaches for Future Digital Applications and Resources
R. Belloum et al.

The Implementation of the Integrated Medical Care Provided for the Elderly Patients (65+) with Chronic Diseases
A. Zwiefka et al.

Usefulness of a Telemedicine Program in Refractory Congestive Heart Failure Patients
E. Burdese et al.

Vers’O: a Support Device to Promote Hydration for Elderly People
Q. Szymanski et al.

Women, eHealth and Telemedicine within the UN
Sustainable Development Goals 2015 – 2030: From a Global Framework to Local Innovative Programs

Complex Telemedical Solution for Fetal Health Monitoring
*M. Lepucka et al.*

Educating Nurses about Telehealth for Clinical Practice
*C. Bartz*

Online Toolkit: Improving Transfer of Learning into Practice from Training Courses on Violence against Women
*R. G. Bravo et al.*

The Use of Information and Communication Technology by Health Workers for Maternal and Child Health Care: A Review of Seven e-Health Projects in Nigeria
*O. Obasola*

Winner of the 2015 ISfTeH Student Videoconference Session

Systematic Literature Review on Telemedicine Solutions Implemented for Management of Patients with Heart Failure
*S. Azam, J. Skov*