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Paola Cappanera · Jingshan Li  
Andrea Matta · Evren Sahin  
Nico J. Vandaele · Filippo Visintin  
Editors

# Health Care Systems Engineering

HCSE, Florence, Italy, May 2017

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# Foreword Proceedings HCSE 2017

The International Conference on Health Care Systems Engineering provides an opportunity to discuss state-of-the-art operations management issues in healthcare delivery systems. The third edition of this conference took place in Florence at the Meyer Children's Hospital—a unique location in a beautiful city. One facet of the uniqueness of the Meyer Children's Hospital is that it was built not to look like a hospital. This inspiring atmosphere carried over directly to the participants. Scientists and practitioners used the opportunity to discuss new ideas, methods, and technologies and how they can be brought into practice.

Topics included predictive models and information systems in healthcare, healthcare logistics, planning and location, clinical pathways, patient-centered services, emergency department management, and many more.

What makes HCSE a very special conference is the broadness of the topics and at the same time the dialogue between researchers and practitioners to better evaluate the value of the presented ideas. Moreover, for each session, there is not only a chair person assigned, but also a discussant. This improves the quality and intensity of the discussion after each talk enormously.

The hospital tour at the Meyer Children's Hospital as well as the perfect social program completed the positive impression of HCSE 2017 in Florence. I am very much looking forward to future editions of HCSE.

Prof. Stefan Nickel  
Karlsruhe Institute of Technology—KIT, Karlsruhe  
Germany

# Preface

This volume is dedicated to the peer-reviewed contributions accepted for presentation at the Third International Conference on Health Care Systems Engineering (HCSE 2017) that took place in Florence, Italy, from May 29–31, 2017. This conference aims at giving evidence of how quantitative operations management (OM) methods can support complex decisions arising in healthcare processes.

A distinguishing feature of the conference with respect to the other OM conferences on similar topics is to bring together medical staff and OM people to (i) share knowledge, (ii) share perspectives—often different and possibly conflicting—with the aim of finally (iii) come to a problem solution. The conference is purposely organized in plenary and single-stream regular sessions so as to foster the discussions and collaborations between OM scientists and clinicians.

Another peculiar feature of the conference is the location which is quite unusual for an OM conference: Each edition was hosted inside a hospital and for HCSE 2017 the hosting hospital was the Meyer Children’s Hospital in Florence. We would like to express our gratitude to the General Director Dr. Alberto Zanobini for letting us visit and use the (outstanding) hospital facilities throughout the conference.

In this edition of the conference, we had the honor of host two keynote speakers to whom we express our truly deep gratitude: Prof. Stefan Nickel from the Karlsruhe Institute of Technology—KIT (Germany) and Prof. Angela Testi from the University of Genoa (Italy). Their contributions were perfectly fitting the objective of the conference and were very much appreciated by the audience.

Each of the contributions submitted to the conference has undergone a peer-review process which involved at least two reviewers selected by the Conference Scientific Committee. A total of 29 contributions were finally accepted and organized in six regular sessions (25 contributions) and a young session (4 contributions). Each session was chaired by an academic and a clinician discussant, both experts in the field. This conference was indeed multidisciplinary and international with 84 authors spread in 18 countries and in 3 continents.

The regular sessions cover a wide spectrum of topics in the management of healthcare systems, and they feature the following topics: (i) predictive models and

information system, (ii) planning and location, (iii) protection and analytical approaches, (iv) emergency department management, (v) robustness management, and (vi) scheduling.

Young session is a novelty of this edition: Young scholars, i.e., graduated students and Ph.D. students, have been given the opportunity to submit an extended abstract instead of a full paper and to present their ongoing research on emerging topics in healthcare management in a dedicated session. Presentations have been held in a friendly, inspiring, and bridge-building environment, where young scholars received valuable feedback from the audience to finalize their research. The most promising research was awarded by a committee made of members of the Scientific Committee and experts in the field, and the winner was Fabian Schäfer presenting the paper: F. Schäfer, M. Walther, A. Hübner, Patient-Bed Allocation in Large Hospitals.

We would like to thank Prof. Nickel who accepted to write the foreword of this volume, all the members of the Scientific Committee who gave us the opportunity to host HCSE 2017, all the speakers, authors, attendees, discussants, and reviewers for their valuable help in guaranteeing the quality of the accepted contributions. Each of them has contributed to the success of HCSE 2017.

We are deeply indebted to the young people from the local organizing committee, i.e., to Caterina Caprara and Roberta Rossi because without their help everything would have been more difficult to manage.

Finally, we would like to express our sincere wishes for the success of the next edition of the conference, HCSE 2019!

Florence, Italy

Paola Cappanera  
Filippo Visintin



# Contents

## Part I Regular Contributions

|   |    |
|---|----|
| <b>How to Protect a Hospital Against Cyber Attacks</b> . . . . .  | 3  |
| Alain Guinet  |    |
| <b>Analytical Approaches to Operating Room Management</b> . . . . .   | 17 |
| David Scheinker and Margaret L. Brandeau  |    |
| <b>A New Decomposition Approach for the Home Health Care Problem</b> . . . . .  | 27 |
| Nadia Lahrichi, Ettore Lanzarone and Semih Yalçındağ  |    |
| <b>Strategic Operations Management in Healthcare:</b>   |    |
| <b>A Reference Model for Cardiac Rehabilitation</b> . . . . .   | 37 |
| Barbara Resta, Vittorio Giudici, Sergio Cavalieri, Wei Deng Solvang, Stefano Dotti and Paolo Gaiardelli                                       |    |
| <b>Mining the Patient Flow Through an Emergency Department to Deal with Overcrowding</b> . . . . .  | 49 |
| Davide Duma and Roberto Aringhieri  |    |
| <b>A Location Problem for Medically Under-Served Areas in Korea</b> . . . . .   | 61 |
| Hoon Jang, Kyosang Hwang, Taeho Lee, Minji Kim, Hansu Shin and Taesik Lee   |    |
| <b>A Choice Model for Estimating Realized Accessibility: Case Study for Obstetrics Care in Korea</b> . . . . .                                | 73 |
| Kyosang Hwang, Hoon Jang, Taeho Lee, Minji Kim, Hansu Shin and Taesik Lee   |    |
| <b>Handling Time-Related Demands in the Home Care Nurse-to-Patient Assignment Problem with the Implementor-Adversarial Approach</b> . . . . . | 87 |
| Giuliana Carello, Ettore Lanzarone, Daniele Laricini and Mara Servilio  |    |

|  |     |
|--|-----|
| <b>A Cardinality-Constrained Robust Approach for the Ambulance Location and Dispatching Problem</b> . . . . .                    | 99  |
| Vittorio Nicoletta, Ettore Lanzarone, Valérie Bélanger and Angel Ruiz  |     |
| <b>A Practical Approach to Machine Learning for Clinical Decision Support</b> . . . . .  | 111 |
| Daniel Miller, David Scheinker and Nicholas Bambos   |     |
| <b>User-Centered Development of an Information System in Patient’s Motor Capacity Evaluation</b> . . . . .                       | 121 |
| Justine Coton, D. Vincent-Genod, Guillaume Thomann, Carole Vuillerot and François Villeneuve                                     |     |
| <b>A Hybrid Simulation Approach to Analyse Patient Boarding in Emergency Departments</b> . . . . .                               | 133 |
| Paolo Landa, Michele Sonnessa, Marina Resta, Elena Tànfani and Angela Testi  |     |
| <b>Estimation of Case Numbers at Pandemics and Testing of Hospital Resource’s Sufficiency with Simulation Modeling</b> . . . . . | 145 |
| Pınar Miç and Melik Koyuncu  |     |
| <b>Empirical Data Driven Intensive Care Unit Drugs Inventory Policies</b> . . . . .  | 155 |
| Paola Cappanera, Maddalena Nonato and Roberta Rossi  |     |
| <b>A Decision-Making Tool for the Calculation of a Robust Planning for Home Service Employees</b> . . . . .                      | 167 |
| Maria Di Mascolo, Marie-Laure Espinouse, Pierre Gruau and Jérôme Radureau  |     |
| <b>Service Reconfiguration in Healthcare Systems: The Case of a New Focused Hospital Unit</b> . . . . .                          | 179 |
| Alessandro Stefanini, Davide Aloini, Riccardo Dulmin and Valeria Mininno   |     |
| <b>Improving Emergency Medical Services with Time-Region-Specific Cruising Ambulances</b> . . . . .                              | 189 |
| Jiun-Yu Yu and Kwei-Long Huang   |     |
| <b>A Simulation Model for Optimizing Staffing in the Emergency Department</b> . . . . .  | 201 |
| Melik Koyuncu, Ozgur M. Araz, Wes Zeger and Paul Damien  |     |
| <b>Patient Pathways Discovery and Analysis Using Process Mining Techniques: An Emergency Department Case Study</b> . . . . .     | 209 |
| Waleed Abo-Hamad   |     |

**A Decomposition Approach for the Home Health Care Problem with Time Windows** . . . . . 221  
 Semih Yalçındağ and Andrea Matta

**Discrete-Event Simulation of an Intrahospital Transportation Service** . . . . . 233  
 Maxime Painchaud, Valérie Bélanger and Angel Ruiz

**Appointment Overbooking and Scheduling: Tradeoffs Between Schedule Efficiency and Timely Access to Service** . . . . . 245  
 Yan Chen, Hari Balasubramanian and Yong-Hong Kuo

**Pattern Generation Policies to Cope with Robustness in Home Care** . . . . . 257  
 Paola Cappanera and Maria Grazia Scutellà

**Outpatient Day Service Operations: A Case Study Within Rheumatology Diseases Management** . . . . . 269  
 Giuseppe Ielpa, Rosita Guido and Domenico Conforti

**Can Performance Monitoring Identify Any Effect of Hospital for Improvement/Worsening: Case of Heart Failure Patients** . . . . . 281  
 Roshanghalb Afsaneh, Mazzali Cristina, Lettieri Emanuele and Paganoni Anna Maria

**Part II Emerging Research in Health Care**

**Crowding in Paediatric Emergency Department, A Review of the Literature and a Simulation-Based Case Study** . . . . . 293  
 Caterina Caprara, Filippo Visintin and Francesco Puggelli

**Dealing with Stress and Workload in Emergency Departments** . . . . . 297  
 Marta Cildoz, Fermin Mallor, Amaia Ibarra and Cristina Azcarate

**Patient-Bed Allocation in Large Hospitals** . . . . . 299  
 Fabian Schäfer, Manuel Walther and Alexander Hübner

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