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Jingshan Li, Andrea Matta, Evren Sahin

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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

*Editors*

Paola Cappanera  
Dipartimento di Ingegneria  
dell'Informazione  
University of Florence  
Florence  
Italy

Evren Sahin  
Laboratoire Génie Industriel  
École Centrale Paris  
Châtenay-Malabry  
France

Jingshan Li  
Department of Industrial and Systems  
Engineering  
University of Wisconsin–Madison  
Madison, WI  
USA

Nico J. Vandaele  
OG Productie en Logistiek Leuven  
Katholieke Universiteit Leuven  
Leuven  
Belgium

Andrea Matta  
Department of Mechanical Engineering  
Politecnico di Milano  
Milan  
Italy

Filippo Visintin  
Dipartimento di Ingegneria Industriale  
University of Florence  
Florence  
Italy

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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



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# Contributors

**Waleed Abo-Hamad** College of Business, Dublin Institute of Technology (DIT), Dublin, Ireland

**Roshanghalb Afsaneh** Department of Management, Economics & Industrial Engineering, Politecnico di Milano, Milan, Italy

**Davide Aloini** Department of Energy, Systems, Territory and Construction Engineering, University of Pisa, Pisa, Italy

**Ozgun M. Araz** College of Business Administration, Supply Chain Management and Analytics, University of Nebraska Lincoln, Lincoln, NE, USA

**Roberto Aringhieri** Dipartimento di Informatica, Università degli Studi di Torino, Torino, Italy

**Cristina Azcarate** Public University of Navarre, Pamplona, Navarre, Spain

**Hari Balasubramanian** Department of Mechanical and Industrial Engineering, University of Massachusetts, Amherst, United States

**Nicholas Bambos** Stanford University Department of Electrical Engineering, Stanford University Department of Management Science and Engineering, and Lucile Packard Children's Hospital Stanford, Palo Alto, CA, USA

**Margaret L. Brandeau** Department of Management Science and Engineering, Stanford University, Stanford, CA, USA

**Valérie Bélanger** Department of Logistics and Operations Management, HEC Montréal, Montréal, Canada

**Paola Cappanera** Dipartimento di Ingegneria dell'Informazione, University of Florence, Florence, Italy

**Caterina Caprara** IBIS Lab, University of Florence, Florence, Italy

**Giuliana Carello** Politecnico di Milano, DEIB, Milan, Italy

**Sergio Cavalieri** CELS - Research Group on Industrial Engineering, Logistics and Service Operations, Department of Management, Information and Production Engineering, Università degli Studi di Bergamo, Bergamo, Italy

**Yan Chen** Department of Decision Sciences, Macau University of Science and Technology, Taipa, Macau, China

**Marta Cildoz** Public University of Navarre, Pamplona, Navarre, Spain

**Domenico Conforti** DIMEG, University of Calabria, Rende, Italy

**Justine Coton** Grenoble INP (Institute of Engineering), G-SCOP, University Grenoble Alpes, CNRS, Grenoble, France

**Mazzali Cristina** Department of Management, Economics & Industrial Engineering, Politecnico di Milano, Milan, Italy

**Paul Damien** McCombs School of Business, Information Risk and Operations Management, University of Texas at Austin, Austin, TX, USA

**Maria Di Mascolo** Grenoble INP (Institute of Engineering), G-SCOP, Univ. Grenoble Alpes, CNRS, Grenoble, France

**Stefano Dotti** CELS - Research Group on Industrial Engineering, Logistics and Service Operations, Department of Management, Information and Production Engineering, Università degli Studi di Bergamo, Bergamo, Italy

**Riccardo Dulmin** Department of Energy, Systems, Territory and Construction Engineering, University of Pisa, Pisa, Italy

**Davide Duma** Dipartimento di Informatica, Università degli Studi di Torino, Torino, Italy

**Lettieri Emanuele** Department of Management, Economics & Industrial Engineering, Politecnico di Milano, Milan, Italy

**Marie-Laure Espinouse** Grenoble INP (Institute of Engineering), G-SCOP, Univ. Grenoble Alpes, CNRS, Grenoble, France

**Paolo Gaiardelli** CELS - Research Group on Industrial Engineering, Logistics and Service Operations, Department of Management, Information and Production Engineering, Università degli Studi di Bergamo, Bergamo, Italy

**Vittorio Giudici** Bolognini Hospital, Seriate, Italy

**Pierre Gruau** CEA Grenoble, Grenoble, France

**Rosita Guido** DIMEG, University of Calabria, Rende, Italy

**Alain Guinet** DISP, Institut National Des Sciences Appliquées de Lyon, (Université de Lyon), Villeurbanne, France

**Kwei-Long Huang** Institute of Industrial Engineering, National Taiwan University, Taipei, Taiwan

**Kyosang Hwang** KAIST, Yuseong-gu, Deajeon, Republic of Korea

**Alexander Hübner** Catholic University Eichstätt-Ingolstadt, Operations Management, Ingolstadt, Germany

**Amaia Ibarra** Hospital Compound of Navarre, Navarre, Spain

**Giuseppe Ielpa** DIMEG, University of Calabria, Rende, Italy

**Hoon Jang** Georgia Institute of Technology, Atlanta, GA, USA

**Minji Kim** National Medical Center, Jung-gu, Seoul, Republic of Korea

**Melik Koyuncu** Engineering-Architecture Faculty, Industrial Engineering Department, Cukurova University, Adana, Turkey

**Yong-Hong Kuo** Stanley Ho Big Data Decision Analytics Research Centre, The Chinese University of Hong Kong, Shatin, New Territories, Hong Kong

**Nadia Lahrichi** Polytechnique Montreal, Mathematics and Industrial Engineering, Montreal, Canada

**Paolo Landa** Medical School, University of Exeter, Exeter, UK

**Ettore Lanzarone** Istituto di Matematica Applicata E Tecnologie Informatiche (IMATI), Consiglio Nazionale Delle Ricerche (CNR), Milan, Italy

**Ettore Lanzarone** CNR-IMATI, Milan, Italy

**Daniele Laricini** Politecnico di Milano, DEIB, Milan, Italy

**Taeho Lee** National Medical Center, Jung-gu, Seoul, Republic of Korea

**Taesik Lee** KAIST, Yuseong-gu, Deajeon, Republic of Korea

**Fermin Mallor** Public University of Navarre, Pamplona, Navarre, Spain

**Paganoni Anna Maria** Department of Mathematics, Politecnico Di Milano, Milan, Italy

**Andrea Matta** Dipartimento di Meccanica, Politecnico di Milano, Milan, Italy

**Daniel Miller** Stanford University Department of Electrical Engineering, Stanford University Department of Management Science and Engineering, and Lucile Packard Children's Hospital Stanford, Palo Alto, CA, USA

**Valeria Mininno** Department of Energy, Systems, Territory and Construction Engineering, University of Pisa, Pisa, Italy

**Pınar Miç** Engineering-Architecture Faculty, Industrial Engineering Department, Cukurova University, Adana, Turkey

**Vittorio Nicoletta** Department of Operations and Decision Systems, Université Laval, Québec, Laval, Canada

**Maddalena Nonato** Dipartimento di Ingegneria, University of Ferrara, Ferrara, Italy

**Maxime Painchaud** Department of Operations and Decision Systems, Université Laval, Québec, Canada

**Francesco Puggelli** Meyer Children's Hospital, Florence, Italy

**Jérôme Radureau** Adomni-Adhap Services, Lyon and Bourgoin Jallieu, France

**Barbara Resta** CELS - Research Group on Industrial Engineering, Logistics and Service Operations, Department of Management, Information and Production Engineering, Università degli Studi di Bergamo, Bergamo, Italy

**Marina Resta** Department of Economics and Business Studies, University of Genova, Genoa, Italy

**Roberta Rossi** Dipartimento di Ingegneria dell'Informazione, University of Florence, Florence, Italy

**Angel Ruiz** Department of Operations and Decision Systems, Université Laval, Québec, Canada

**David Scheinker** Stanford University Department of Electrical Engineering, Stanford University Department of Management Science and Engineering, and Lucile Packard Children's Hospital Stanford, Stanford, CA, USA

**Fabian Schäfer** Catholic University Eichstätt-Ingolstadt, Operations Management, Ingolstadt, Germany

**Maria Grazia Scutellà** Dipartimento di Informatica, University of Pisa, Pisa, Italy

**Mara Servilio** CNR-IASI, Rome, Italy

**Hansu Shin** National Medical Center, Jung-gu, Seoul, Republic of Korea

**Wei Deng Solvang** Faculty of Engineering Science and Technology, Department of Industrial Engineering, UiT – the Arctic University of Norway, Tromsø, Norway

**Michele Sonnessa** Department of Economics and Business Studies, University of Genova, Genoa, Italy

**Alessandro Stefanini** Department of Enterprise Engineering, University of Rome Tor Vergata, Rome, Italy; Department of Energy, Systems, Territory and Construction Engineering, University of Pisa, Pisa, Italy

**Angela Testi** Department of Economics and Business Studies, University of Genova, Genoa, Italy

**Guillaume Thomann** Grenoble INP (Institute of Engineering), G-SCOP, University Grenoble Alpes, CNRS, Grenoble, France

**Elena Tànfani** Department of Economics and Business Studies, University of Genova, Genoa, Italy

**François Villeneuve** Grenoble INP (Institute of Engineering), G-SCOP, University Grenoble Alpes, CNRS, Grenoble, France

**D. Vincent-Genod** Escale PMR department, Hospices Civils de Lyon, University of Lyon, Lyon, France

**Filippo Visintin** IBIS Lab, University of Florence, Florence, Italy

**Carole Vuillerot** Escale PMR department, Hospices Civils de Lyon, University of Lyon, Lyon, France

**Manuel Walther** Catholic University Eichstätt-Ingolstadt, Operations Management, Ingolstadt, Germany

**Semih Yalçındağ** Industrial and Systems Engineering Department, Yeditepe University, Istanbul, Turkey

**Jiun-Yu Yu** Department of Business Administration, National Taiwan University, Taipei, Taiwan

**Wes Zeger** Emergency Medicine Department, University of Nebraska Medical Center, Omaha, NE, USA