Contents

**President’s Statement**

H.-A. Park  
President's Statement  

**Obituary**

J. H. van Bemmel, M. Ball, A. Hasman  
Remembering Jana Zvárová (1943 - 2017)  

**Editorial**

B. Séroussi, L. F. Soualmia, J. H. Holmes  
Transforming Data into Knowledge: How to Improve the Efficiency of Clinical Care?  

The International Academy of Health Sciences Informatics: An Academy of Excellence  

On Contributing to the Progress of Medical Informatics as Publisher  

**Keynote**

C. P. Friedman, J. C. Rubin, K. J. Sullivan  
Toward an Information Infrastructure for Global Health Improvement  

**Special Section:**  
Learning from Experience:  
Secondary Use of Patient Data  

**Survey**

C. Safran  
Update on Data Reuse in Health Care  

**Working Group Contributions**

F. J. Martin-Sanchez, V. Aguiar-Pulido, G. H. Lopez-Campos, N. Peek, L. Sacchi  
Secondary Use and Analysis of Big Data Collected for Patient Care  

S. M. Meystre, C. Lovis, T. Bürkle, G. Tognola, A. Budrionis, C. U. Lehmann  
Clinical Data Reuse or Secondary Use: Current Status and Potential Future Progress  

C. Paton, T. Karopka  
The Role of Free/Libre and Open Source Software in Learning Health Systems  

Evaluation Considerations for Secondary Uses of Clinical Data: Principles for an Evidence-based Approach to Policy and Implementation of Secondary Analysis  

**Synopsis**

D. R. Schlegel, G. Ficheur  
Secondary Use of Patient Data: Review of the Literature Published in 2016  

**Best Paper Selection**

Content summaries of:  

Chen J, Podchiyska T, Altman R.  

Miotto R, Li L, Kidd BA, Dudley JT.  

Prasser F, Kehmerayer F, Kuhn KA.  

Saiz C, Zurriaga O, Perez-Panades J, Mclachan I, Robles M, Garcia-Gomez JM.  
Applying probabilistic temporal and multisite data quality control methods to a public health mortality registry in Spain: a systematic approach to quality control of repositories. J Am Med Inform Assoc 2016;23:1085-95
### Section 1: Health Information Management

**Survey**

S. H. Fenton, S. Low, K. J. Abrams, K. Butler-Henderson  
Health Information Management: Changing with Time  
72

**Synopsis**

M. Bloomrosen, E. S. Berner,  
Findings from the 2017 Yearbook Section on Health Information Management  
78

**Best Paper Selection**

Content summaries of:

- Bahous MC, Shadmi E. Health information exchange and information gaps in referrals to a pediatric emergency department. *Int J Med Inform 2016;87:68-74*

### Section 2: Human Factors and Organizational Issues

**Survey**

P. Turner, A. Kushniruk, C. Nohr  
Are We There Yet? Human Factors Knowledge and Health Information Technology — the Challenges of Implementation and Impact  
84

**Synopsis**

S. Pelayo, R. Santos  
Trends and Progress in Human Factors and Organizational Issues in 2016: Learning from Experience  
92

**Best Paper Selection**

Content summaries of:

Section 3: Clinical Information Systems

Survey
S. Murphy, V. Castro, K. Mandl
Grappling with the Future Use of Big Data for Translational Medicine and Clinical Care

Synopsis
W. O. Hackl, T. Ganslandt
Clinical Information Systems as the Backbone of a Complex Information Logistics Process: Findings from the Clinical Information Systems Perspective for 2016

Best Paper Selection
Content summaries of:


Section 4: Sensor, Signal and Imaging Informatics

Survey
An Assessment of Imaging Informatics for Precision Medicine in Cancer

Synopsis
W. Hsu, S. Park, C. E. Kahn, Jr.
Sensor, Signal, and Imaging Informatics

Best Paper Selection
Content summaries of:


Moss TJ, Lake DE, Calland JF, Enfield KB, Delos JB, Fairchild KD, Moorman JR. Signatures of subacute potentially catastrophic illness in the ICU: model development and validation. Crit Care Med 2016 Sep;44(9);1639-48


Section 5: Decision Support

Survey

R. A. Jenders
Advances in Clinical Decision Support: Highlights of Practice and the Literature 2015-2016 125

Synopsis

V. Koutkias, J. Bouaud
Contributions from the 2016 Literature on Clinical Decision Support 133

Best Paper Selection

Content summaries of:


Section 6: Knowledge Representation and Management

Survey

S. T. Rosenbloom, R. J. Carroll, J. L. Warner, M. E. Matheny, J. C. Denny
Representing Knowledge Consistently Across Health Systems 139

Synopsis

F. Dhombres, J. Charlet
Knowledge Representation and Management, It’s Time to Integrate! 148

Best Paper Selection

Content summaries of:


Greene D, NIHR BioResource, Richardson S, Turro E. Phenotype Similarity Regression for Identifying the Genetic Determinants of Rare Diseases. Am J Hum Genet 2016;98(3):490-9 151

Section 7: Consumer Health Informatics

Survey
Present and Future Trends in Consumer Health Informatics and Patient-Generated Health Data 152

Working Group Contribution
Added Value from Secondary Use of Personal Generated Health Data in Consumer Health Informatics 160

Synopsis
P. Staccini, L. Fernandez-Luque
Secondary Use of Recorded or Self-expressed Personal Data: Consumer Health Informatics and Education in the Era of Social Media and Health Apps 172

Best Paper Selection
Content summaries of:


Section 8: Bioinformatics and Translational Informatics

Survey
J. Vamathevan, E. Birney
A Review of Recent Advances in Translational Bioinformatics: Bridges from Biology to Medicine 178

Synopsis
H. Dauchel, T. Lecroq
Findings from the Section on Bioinformatics and Translational Informatics 188

Content summaries of:


Section 9: Clinical Research Informatics

Survey
S. B. Johnson
Clinical Research Informatics: Supporting the Research Study Lifecycle 193

Working Group Contribution
W. Hinton, H. Liyanage, A. McGovern, S.-T. Liaw, C. Kuziemsky, N. Munro, S. de Lusignan
Measuring Quality of Healthcare Outcomes in Type 2 Diabetes from Routine Data: a Seven-nation Survey Conducted by the IMIA Primary Health Care Working Group 210

Synopsis
C. Daniel, R. Choquet
Clinical Research Informatics: Contributions from 2016 209

Best Paper Selection
Content summaries of:

Section 10: Natural Language Processing

Survey
G. Gonzalez-Hernandez, A. Sarker, K. O’Connor, G. Savova
Capturing the Patient’s Perspective: a Review of Advances in Natural Language Processing of Health-Related Text 214

Synopsis
A. Névéol, P. Zweigenbaum
Making Sense of Big Textual Data for Health Care: Findings from the Section on Clinical Natural Language Processing 228

Best Paper Selection
Content summaries of:
## Section 11: Public Health and Epidemiology Informatics

### Surveys

**A. Burgun, E. Bernal-Delgado, W. Kuchinke, T. van Staa, J. Cunningham, E. Lettieri, C. Mazzali, D. Oksen, F. Estupiñan, A. Barone, G. Chêne**

Health Data for Public Health: Towards New Ways of Combining Data Sources to Support Research Efforts in Europe 235

**B. L. Massoudi, K. G. Chester**

Public Health, Population Health, and Epidemiology Informatics: Recent Research and Trends in the United States 241

### Synopsis

**R. Thiébaut, F. Thiessard**

Public Health and Epidemiology Informatics 248

### Best Paper Selection

Content summaries of:

2. **Sharpe JD, Hopkins RS, Cook RL, Striley CW.** Evaluating Google, Twitter, and Wikipedia as Tools for Influenza Surveillance Using Bayesian Change Point Analysis: A Comparative Analysis. JMIR Public Health Surveill 2016 20;2(2) 250

### Research & Education

**M.W. Jaspers, J. Mantas, E. Borycki, A. Hasman**

IMIA Accreditation of Biomedical and Health Informatics Education: Current State and Future Directions 252

### History of Medical Informatics

**C. A. Kulikowski**

Historical Roots of International Biomedical and Health Informatics: The Road to IFIP-TC4 and IMIA through Cybernetic Medicine and the Elsinore Meetings 257

### Working Group Contribution


The IMIA History Working Group: Inception through the IMIA History Taskforce, and Major Events Leading Up to the 50th Anniversary of IMIA 263