## Contents

### President’s Statement

**S. Koch**  
President’s Statement  
1

### Obituaries

**E. Hovenga, J. Ronald, L. Westbrooke, D. Skiba**  
Remembering - Joan Edgcombe (1942-2019)  
2

**R. Beuscart, J. Bouaud, M.-C. Jaulent, B. Séroussi**  
Vassilis Koutkias (1975 - 2019) - the Painful Loss of a Rare Person  
5

### Editorial

**K. Fultz Hollis, L. F. Soualmia, B. Séroussi**  
Transparency of Health Informatics Processes as the Condition of Healthcare Professionals’ and Patients’ Trust and Adoption—the Rise of Ethical Requirements  
7

### IAHSI Papers

The International Academy of Health Sciences Informatics (IAHSI): IMIA’s Academy is Now Established and on Track  
11

**F. Martin-Sanchez, M. J. Ball, M. Kimura, P. Otero, E. Huesing, C. U. Lehmann, R. Haux**  
International Academy of Health Sciences Informatics (IAHSI): Strategy and Focus Areas, 1st Version  
15

### Keynote

**K. W. Goodman**  
Ethics in Health Informatics  
26

---

### Special Section: Ethics in Health Informatics

#### Survey

**H. K. Galvin, P. R. DeMuro**  
Developments in Privacy and Data Ownership in Mobile Health Technologies, 2016-2019  
32

#### Working Group Contributions

Ethics in Telehealth: Comparison between Guidelines and Practice-based Experience — the Case for Learning Health Systems  
44

**S.-T. Liaw, H. Liyanage, C. Kuziemsky, A. L. Terry, R. Schreiber, J. Jonnagaddala, S. de Lusignan**  
Ethical Use of Electronic Health Record Data and Artificial Intelligence: Recommendations of the Primary Care Informatics Working Group of the International Medical Informatics Association  
51

Challenges and Best Practices in Ethical Review of Human and Organizational Factors Studies in Health Technology: a Synthesis of Testimonies  
58

**O. Rivera-Romero, S. Constantinidis, K. Denecke, E. Gabarrón, C. Petersen, M. Househ, M. Meroll, M. A. Mayer**  
Ethical Considerations for Participatory Health through Social Media: Healthcare Workforce and Policy Maker Perspectives  
71
Section 1: Health Information Management

Survey
L. Riplinger, J. Piera-Jiménez, J. Pursley Dooling
Patient Identification Techniques — Approaches, Implications, and Findings

Synopsis
M. Bloomrosen, E. S. Berner
Findings from the Health Information Management Section of the 2020 International Medical Informatics Association Yearbook

Best Paper Selection
Content summaries of:


Section 2: Human Factors and Organizational Issues

Survey
H. Hochheiser, R. S. Valdez
Human-Computer Interaction, Ethics, and Biomedical Informatics

Synopsis
Y. Senathirajah, S. Pelayo
Human Factors and Organizational Issues

Best Paper Selection
Content summaries of:


Section 3: Clinical Information Systems

Survey
U. H. Hübner, N. Egbert, G. Schulte
Clinical Information Systems — Seen through the Ethics Lens
104

Working Group Contribution
F. Martin-Sanchez, R. Bellazzi, V. Casella, W. Dixon, G. Lopez-Campos, N. Peek
Progress in Characterizing the Human Exposome: a Key Step for Precision Medicine
115

Synopsis
W. O. Hackl, A. Hoerbst
Trends in Clinical Information Systems Research in 2019
121

Best Paper Selection
Content summaries of:
MedGAN: Medical image translation using GANs. Comput Med Imaging Graph 2020;79:101684
127
Chandra BS, Sastry CS, Jana S
127
de Vos BD, Berendsen FF, Viergever MA, Sokooti H, Staring M, Išgum I
A deep learning framework for unsupervised affine and deformable image registration. Med Image Anal 2019;52:128-43
128
Shen N, Bernier T, Sequeira L, Strauss J, Silver MP, Carter-Langford A, Wiljer, D

Section 4: Sensor, Signal and Imaging Informatics

Survey
A. Choudhary, L. Tong, Y. Zhu, M. D. Wang
Advancing Medical Imaging Informatics by Deep Learning-Based Domain Adaptation
129

Synopsis
W. Hsu, C. Baumgartner, T. Deserno
Notable Papers and Trends from 2019 in Sensors, Signals, and Imaging Informatics
139

Best Paper Selection
Content summaries of:
Assessment of employee susceptibility to phishing attacks at US health care institutions. JAMA Netw open 2019;2(3):e190393
127
127
Shen N, Bernier T, Sequeira L, Strauss J, Silver MP, Carter-Langford A, Wiljer, D
128
Zhu T, Pimentel MAF, Clifford GD, Clifton DA
143
Section 5: Decision Support

Survey
I. Jankovic, J. H. Chen
Clinical Decision Support and Implications for the Clinician Burnout Crisis 145

Synopsis
C. Duclos, J. Bouaud
Pragmatic Considerations on Clinical Decision Support from the 2019 Literature 155

Best Paper Selection
Content summaries of:

Section 6: Knowledge Representation and Management

Survey
P. N. Robinson, M. A. Haendel
Ontologies, Knowledge Representation, and Machine Learning for Translational Research: Recent Contributions 159

Synopsis
F. Dhombres, J. Charlet
Design and Use of Semantic Resources: Findings from the Section on Knowledge Representation and Management of the 2020 International Medical Informatics Association Yearbook 163

Best Paper Selection
Content summaries of:

Section 7: Consumer Health Informatics and Education

Survey
T. Eyers, Y. Krastev
Ethics in Surgical Innovations from the Patient Perspective 169

Synopsis
P. Staccini, A. Y. S. Lau
Social Media, Research, and Ethics: Does Participant Willingness Matter? 176

Best Paper Selection
Content summary of:
Section 8: Bioinformatics and Translational Informatics

Survey
X. M. Fernández
Untangling Data in Precision Oncology — A Model for Chronic Diseases? 184

Synopsis
M. Smaïl-Tabbone, B. Rance
Contributions from the 2019 Literature on Bioinformatics and Translational Informatics 188

Best Paper Selection
Content summaries of:

Section 9: Clinical Research Informatics

Survey
A. Solomonides
Review of Clinical Research Informatics 193

Synopsis
C. Daniel, D. Kalra
Clinical Research Informatics 203

Best Paper Selection
Content summaries of:
## Section 10: Natural Language Processing

### Survey

U. Hahn, M. Oleynik  
Medical Information Extraction in the Age of Deep Learning  
208

### Synopsis

C. Grouin, N. Grabar  
A Year of Papers Using Biomedical Texts: Findings from the Section on Clinical Natural Language Processing of the International Medical Informatics Association Yearbook  
221

### Best Paper Selection

<table>
<thead>
<tr>
<th>Synopsis</th>
<th>Content summaries of:</th>
</tr>
</thead>
</table>

## Section 11: Public Health and Epidemiology Informatics

### Survey

D. L. Buckeridge  
Precision, Equity, and Public Health and Epidemiology Informatics — A Scoping Review  
226

### Synopsis

S. Cossin, R. Thiébaut  
Public Health and Epidemiology Informatics: Recent Research Trends. Moving toward Public Health Data Science  
231

### Best Paper Selection

<table>
<thead>
<tr>
<th>Content summaries of:</th>
</tr>
</thead>
</table>

## Section 12: Cancer Informatics

### Survey

A. C. Griffin, U. Topaloglu, S. Davis, A. E. Chung  
From Patient Engagement to Precision Oncology: Leveraging Informatics to Advance Cancer Care  
235

### Synopsis

J. L. Warner, D. Patt  
Cancer Informatics in 2019: Deep Learning Takes Center Stage  
243

### Best Paper Selection

<table>
<thead>
<tr>
<th>Content summaries of:</th>
</tr>
</thead>
</table>
Research & Education

L. Di Marco, J. Breton, D. K. Martin, P. Morand, P. Gillois
Freedom of Master’s Degree Students to Study in Health Curricula: Switching to Optimized Blended Learning as a Solution!

History of Medical Informatics

C. A. Kulikowski
Donald A. B. Lindberg: Inspiring Leader and Visionary in Biomedicine, Healthcare, and Informatics

Information on IMIA

Welcome to IMIA
Honorary Fellows
IMIA Member Societies
Institutional Members
Addresses of IMIA Member Societies

Information on IMIA Regions

Information on APAMI (Asia Pacific Association for Medical Informatics)
Information on Helina (African Region)
Information on IMIA-LAC (Health Informatics Association for Latin-America and Caribbean)
Information on MENAHIA (Middle East and North African Association for Health Informatics)
Information on NAMI (North-American Medical Informatics)
Information on EFMI (European Federation For Medical Informatics)

Miscellaneous

Contributors
Reviewers
IMIA Yearbook Special Topics