# Contents

**IMIA Yearbook of Medical Informatics 2022**

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>President’s Statement</strong></td>
<td>J. Li</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>“It was the best of times, it was the worst of times”</td>
<td></td>
</tr>
<tr>
<td><strong>Editorial</strong></td>
<td>F. Mougin, K. Fultz Hollis, L. F. Soualmia</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Inclusive Digital Health</td>
<td></td>
</tr>
<tr>
<td><strong>IAHSI Paper</strong></td>
<td>W. R. Hersh, R. Haux, E. Huesing, M. J. Ball, M. Kimura, P. Otero, D. Detmer, S. Koch, K. K. Saranto, G. Wright</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>The International Academy of Health Sciences Informatics: 2021 Update</td>
<td></td>
</tr>
<tr>
<td><strong>Position Paper</strong></td>
<td>L. Botin</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Datafication: the Flavor and Scent of Data</td>
<td></td>
</tr>
<tr>
<td><strong>Keynote</strong></td>
<td>R. S. Valdez, J. S. Ancker, T. C. Veinot</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Provocations for Reimagining Informatics Approaches to Health Equity</td>
<td></td>
</tr>
</tbody>
</table>

## Special Section: Inclusive Digital Health

### Survey

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>H. Koehle, C. Kronk, Y. Ji Lee</td>
<td>20</td>
</tr>
<tr>
<td>Digital Health Equity: Addressing Power, Usability, and Trust to Strengthen Health Systems</td>
<td></td>
</tr>
</tbody>
</table>

### Working Group Contributions

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Role of Formative Evaluation in Promoting Digitally-based Health Equity and Reducing Bias for Resilient Health Systems: The Case of Patient Portals</td>
<td></td>
</tr>
<tr>
<td>M. Haghi, A. Benis, T. M. Deserno</td>
<td>40</td>
</tr>
<tr>
<td>Accident &amp; Emergency Informatics and One Digital Health</td>
<td></td>
</tr>
<tr>
<td>C. Kuziemsky, S.-T. Liaw, M. Leston, C. Pearce, J. Jonnagaddala, S. de Lusignan</td>
<td>47</td>
</tr>
<tr>
<td>Towards Equitable and Resilient Digital Primary Care Systems: An International Comparison and Insight for Moving Forward</td>
<td></td>
</tr>
<tr>
<td>Telehealth as a Means of Enabling Health Equity</td>
<td></td>
</tr>
<tr>
<td>C. Paton, J. Braa, A. Muhire, L. Marco-Ruiz, S. Kobayashi, H. Fraser, L. Falcón, A. Marcelo</td>
<td>67</td>
</tr>
<tr>
<td>Open Source Digital Health Software for Resilient, Accessible and Equitable Healthcare Systems</td>
<td></td>
</tr>
<tr>
<td>Overcoming Challenges to Inclusive User-based Testing of Health Information Technology with Vulnerable Older Adults: Recommendations from a Human Factors Engineering Expert Inquiry</td>
<td></td>
</tr>
<tr>
<td>O. Rivera-Romero, E. Gabarron, T. Miron-Shatz, C. Petersen, K. Denecke</td>
<td>82</td>
</tr>
<tr>
<td>Social Media, Digital Health Literacy, and Digital Ethics in the Light of Health Equity</td>
<td></td>
</tr>
</tbody>
</table>

Article published online: 2022-12-05
Working Group Contributions

E. Román-Villarán, E. Ammenwerth, J. Wijayaratne, C. Luis Parra-Calderón
Desiderata for a New Generation of EHRs for Inclusive Healthcare

The Untapped Potential of Nursing and Allied Health Data for Improved Representation of Social Determinants of Health and Intersectionality in Artificial Intelligence Applications: A Rapid Review

Synopsis

B. E. Dixon, J. H. Holmes
Special Section on Inclusive Digital Health: Notable Papers on Addressing Bias, Equity, and Literacy to Strengthen Health Systems

Best Paper Selection

Content summaries of:


Section 1: Bioinformatics and Translational Informatics

Survey

A. Tang, S. Woldemariam, J. Roger, M. Sirota
Translational Bioinformatics to Enable Precision Medicine for All: Elevating Equity across Molecular, Clinical, and Digital Realms

Synopsis

M. L. Benton, S. P. McGrath
2021 Bioinformatics and Translational Informatics Best Papers

Best Paper Selection

Content summaries of:


Wei Q, Ramsey SA. Predicting chemotherapy response using a variational autoencoder approach. BMC Bioinformatics 2021 Sep 22;22(1):453
Section 2: Cancer Informatics

Survey
T. L. Chaunzuwa, M. Quiles del Rey, D. S. Bitterman
Clinical Informatics Approaches to Understand and Address Cancer Disparities

Synopsis
J. L. Warner, M. K. Rooney, D. Patt
Cancer Informatics 2022: Real-World Data Yields Important Insights into the Conduct of Clinical Trials and Registries

Best Paper Selection
Content summaries of:
Evaluating eligibility criteria of oncology trials using real-world data and AI. Nature 2021 Apr;592(7855):629-33
Prevalence of missing data in the National Cancer Database and association with overall survival. JAMA Netw Open 2021 Mar 1;4(3):e211793

Section 3: Clinical Information Systems

Survey
J. Viitanen, P. Valkonen, K. Savolainen, N. Karisalmi, S. Hölsä, S. Kujala
Patient Experience from an eHealth Perspective: A Scoping Review of Approaches and Recent Trends

Synopsis
W. O. Hackl, A. Hoerbst
“All Quiet on the Western Front” - Clinical Information Systems Research in the Year 2021

Best Paper Selection
Content summaries of:
Mobile consulting as an option for delivering healthcare services in low-resource settings in low- and middle-income countries: A mixed-methods study. Digit Health 2021 Aug 19;7:20552076211033425

Section 4: Clinical Research Informatics

Survey
M. Kargl, M. Plass, H. Müller
A Literature Review on Ethics for AI in Biomedical Research and Biobanking

Synopsis
C. Daniel, X. Tannier, D. Kalra
Clinical Research Informatics

Best Paper Selection
Content summaries of:
Cheng AC, Duda SN, Taylor R, Delacqua F, Lewis AA, Bosler T, Johnson KB, Harris PA.
Section 5: Consumer Health Informatics and Education

Survey
R. S. Valdez, C. C. Rogers
Consumer Health Informatics for Racial and Ethnic Minoritized Communities: Minor Progress, Major Opportunities

Synopsis
P. Staccini, A. Y. S. Lau
Consuming Health Information and Vulnerable Populations: Factors of Engagement and Ongoing Usage

Best Paper Selection
Content summaries of:

Section 6: Decision Support

Survey
Electronic Health Record-Integrated Clinical Decision Support for Clinicians Serving Populations Facing Health Care Disparities: Literature Review

Synopsis
D. Borbolla, T.K. Colicchio
Clinical Decision Support Systems: Contributions from 2021

Best Paper Selection
Content summaries of:
Section 7: Health Information Exchange

Survey
Indra Neil Sarkar
Transforming Health Data to Actionable Information: Recent Progress and Future Opportunities in Health Information Exchange 203

Synopsis
M. Bloomrosen, E. S. Berner
Findings from the 2022 Yearbook Section on Health Information Exchange 215

Best Paper Selection
Content summaries of:

Section 8: Human Factors and Organizational Issues

Synopsis
Y. Senathirajah, A. E. Solomonides
Best Papers in Human Factors and Sociotechnical Development 221

Best Paper Selection
Content summaries of:
<table>
<thead>
<tr>
<th>Section 9: Knowledge Representation and Management</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Survey</strong></td>
</tr>
<tr>
<td>Achieving Inclusivity by Design: Social and Contextual Information in Medical Knowledge</td>
</tr>
<tr>
<td><strong>Synopsis</strong></td>
</tr>
<tr>
<td>Knowledge Representation and Management: Notable Contributions in 2021</td>
</tr>
<tr>
<td><strong>Best Paper Selection</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section 10: Natural Language Processing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Survey</strong></td>
</tr>
<tr>
<td>Natural Language Processing: from Bedside to Everywhere</td>
</tr>
<tr>
<td><strong>Synopsis</strong></td>
</tr>
<tr>
<td>Year 2021: COVID-19, Information Extraction and BERTization among the Hottest Topics in Medical Natural Language Processing</td>
</tr>
<tr>
<td><strong>Best Paper Selection</strong></td>
</tr>
<tr>
<td>Content summaries of:</td>
</tr>
</tbody>
</table>
Section 11: Public Health and Epidemiology Informatics

Survey
Towards an Interoperable Ecosystem of Research Cohort and Real-world Data Catalogues Enabling Multi-center Studies

Synopsis
G. Diallo, G. Bordea
Novelty in Public Health and Epidemiology Informatics

Best Paper Selection

Survey
D. Carmo, J. Ribeiro, S. Dertkigil, S. Appenzeller, R. Lotufo, L. Rittner
A Systematic Review of Automated Segmentation Methods and Public Datasets for the Lung and its Lobes and Findings on Computed Tomography Images

Synopsis
C. Baumgartner, T. M. Deserno
Best Research Papers in the Field of Sensors, Signals, and Imaging Informatics 2021

Best Paper Selection


Research & Education

E. H. Shortliffe
Informatics as Science
303

Equitable Research PRAXIS: A Framework for Health Informatics Methods
307

History of Medical Informatics

C. A. Kulikowski
Ethics in the History of Medical Informatics for Decision-Making: Early Challenges to Digital Health Goals
317

Information on IMIA

Welcome to IMIA
323

Honorary Fellows
325

IMIA Member Societies
326

Institutional Members
327

Addresses of IMIA Member Societies
329

Information on IMIA Regions

Information on APAMI (Asia Pacific Association for Medical Informatics)
340

Information on Helina (African Region)
347

Information on IMIA-LAC (Health Informatics Association for Latin-America and Caribbean)
350

Information on MENAHIA (Middle East and North African Association for Health Informatics)
354

Information on NAMI (North-American Medical Informatics)
365

Information on EFMI (European Federation For Medical Informatics)
369

Miscellaneous

Contributors
374

Reviewers
375

IMIA Yearbook Special Topics
376