

# **American Medical Informatics Association Annual Symposium (AMIA 2021)**

San Diego, California, USA  
30 October – 3 November 2021

Volume 1 of 3

ISBN: 978-1-7138-3911-8

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© (2021) by American Medical Informatics Association  
All rights reserved.

Printed with permission by Curran Associates, Inc. (2022)

For permission requests, please contact American Medical Informatics Association  
at the address below.

American Medical Informatics Association  
4720 Montgomery Lane, Suite 500  
Bethesda, Maryland 20814  
USA

Phone: (301) 657-1291  
Fax: (301) 657-1296

[www.amia.org](http://www.amia.org)

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2633  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

## VOLUME 1

### PANEL

ADAPTING EHRS TO SUPPORT ONGOING PROVIDER DIAGNOSTIC CALIBRATION .....	29
<i>Julia Adler-Milstein, Andrew Olson, Charlene Weir, Benjamin I. Rosner, Robert El-Kareh</i>	
FIGHTING COVID-19 WITH FHIR: LATEST DEVELOPMENTS FROM THE COVID-19 KNOWLEDGE ACCELERATOR (COKA).....	32
<i>Brian S. Alper, Harold Lehmann, Joanne Dehnbostel, Andrey Soares, Vignesh Subbian</i>	
USING SPECIFIC COVID-19 TARGETS AND PATIENT CARE SETTINGS AS A SPRINGBOARD FOR DRIVING GLOBAL IMPROVEMENTS IN THE LEARNING HEALTH SYSTEM CYCLE FOR COVID-19 AND BEYOND .....	34
<i>Steve Bernstein, Jerome A. Osheroff, Julia Skapik, Christopher J. Tignanelli, Matthew Burton</i>	
REPRESENTATION REQUIRES INTENTIONALITY: OUR JOURNEY TO CREATING A DIVERSE INFORMATICS WORKFORCE .....	37
<i>Tiffani J. Bright, Chinyere Agunwa, Kim M. Unertl, Oliver J. Bear Don'T Walk, Yalini Senathirajah</i>	
USE OF HEALTHCARE INFORMATION TECHNOLOGY AND DATA PLATFORMS TO INFORM PANDEMIC RESPONSE: PERSPECTIVES AT THE INTERSECTION OF ACADEMIC HEALTHCARE PROVIDER ORGANIZATIONS AND INDUSTRY PARTNERS .....	40
<i>Atul J. Butte, Christopher A. Longhurst, Amy Abernethy, Gretchen P. Jackson, Philip Payne</i>	
LEAP 2020: CUTTING EDGE HEALTH INFORMATION TECHNOLOGY TOOLS FOR RESEARCH .....	43
<i>Kevin Chaney, Kenneth D. Mandl, Kristen E. Miller</i>	
ADDRESSING THE DIGITAL DIVIDE TO PROMOTE HEALTH EQUITY .....	46
<i>Guilherme Del Fiol, Chelsey R. Schlechter, Bryan Gibson, Thomas Reese, David W. Wetter</i>	
RELIABLE INSIGHTS REGARDING MEDICATION OUTCOMES FROM REAL WORLD DATA– KEY PRINCIPLES OF AN EVIDENCE GENERATION FRAMEWORK .....	49
<i>Rishi J. Desai, Sebastian Schneeweiss, Keith Marsolo, Shirley Wang, Robert Ball</i>	
MENTAL FUNCTIONING ONTOLOGIES .....	52
<i>Guy Divita, Maryanne Sacco, Janna Hastings, Piper Ranallo</i>	
ADDRESSING BIAS IN THE APPLICATION OF MACHINE LEARNING ON REAL-WORLD DATA.....	55
<i>Hossein Estiri, Yuan Luo, Hongfang Liu, Suzanne Tamang, Harold Lehmann</i>	
TRANSFORMING HEALTHCARE THROUGH PATIENT-GENERATED HEALTH DATA INTEGRATION .....	58
<i>Chun-Ju Hsiao, Deborah J. Cohen, Ida Sim, Leslie A. Lenert, Danielle C. Lavalley</i>	
PROVEN METHODOLOGIES FOR ACCELERATING ADOPTION OF HL7® FHIR® .....	61
<i>Charles Jaffe, Steven Z. Kassakian, Viet Nguyen, Anna Taylor</i>	

PRIVACY-PRESERVING FEDERATED BIOMEDICAL DATA ANALYSIS .....	64
<i>Xiaoqian Jiang, Luca Bonomi, Jaideep Vaidya, Li Xiong, Lucila Ohno-Machado</i>	
EVOLVING CHALLENGES IN PATIENT MATCHING .....	67
<i>Abel N. Kho, Shaun Grannis, Adam Culbertson, Molly Murray, Yu Deng</i>	
THE COVID-19 PANDEMIC AS CATALYST: THE ACCELERATION OF REGISTRY SCIENCE IN THE 21ST CENTURY TO ADDRESS NOVEL CHALLENGES .....	70
<i>Steven E. Labkoff, Leon Rozenblit, Helen Burstein, Rachel Richesson</i>	
MULTI-MODAL DATA SCIENCE FOR HEALTHCARE: STATE OF THE ART, CHALLENGES, AND OPPORTUNITIES.....	73
<i>Yuan Luo, Fei Wang, Benjamin Glicksberg, Jessilyn Dunn, Nigam Shah</i>	
GRAPH BASED MACHINE LEARNING FOR HEALTHCARE: STATE OF THE ART, CHALLENGES, AND OPPORTUNITIES.....	76
<i>Yuan Luo, Fei Wang, Marinka Zitnik, Shuiwang Ji</i>	
STEWARDSHIP CONSIDERATIONS IN THE DEVELOPMENT AND IMPLEMENTATION OF SHAREABLE SMART ON FHIR APPLICATIONS: CASE STUDIES ON MULTIPLE CHRONIC CONDITION CARE PLANNING AND CHRONIC PAIN MANAGEMENT.....	79
<i>Laura Haak Marcial, Saira N. Haque, Kensaku Kawamoto, David A. Dorr, Roland Gamache</i>	
LESSONS LEARNED THE HARD WAY FROM COVID-19: WHAT GAPS IN LABORATORY INFORMATICS DO WE NEED TO CLOSE BEFORE THE NEXT PANDEMIC?.....	82
<i>Patrick C. Mathias, Noah G. Hoffman, Brian R. Jackson, Amrom Obstfeld, S. W. Long</i>	
INFORMATICS-IZING THE NATIONAL INSTITUTES OF HEALTH .....	85
<i>Clement J. McDonald, Patricia Flatley Brennan, Michael Chiang, Joshua Denny, Zhiyong Lu</i>	
BIOMEDICAL INFORMATICS CO-DESIGN: CONCEPTS, APPLICATIONS, AND OPPORTUNITIES .....	88
<i>Mollie M. McKillop, Anne Moen, Rosemary Kennedy, Andrew B. Berry, Rupa Valdez</i>	
BALANCING ACCESS TO FEDERAL DATA SETS WITH ENHANCING PRIVACY AND SECURITY .....	91
<i>Lisa B. Mirel, Stephanie Garcia, Stefan Jaeger, Patricia Keenan, Susan Lumsden</i>	
TEMPORAL PHENOTYPIC PATHWAYS OF POST-ACUTE SEQUELAE OF SARS-COV-2 BY AN INTERNATIONAL CONSORTIUM FOR CLINICAL CHARACTERIZATION OF COVID-19 (4CE) .....	94
<i>Shawn N. Murphy, Hossein Estiri, Arianna Dagliati, Riccardo Bellazzi, John H. Holmes</i>	
THE ROLE OF INFORMATICS IN ADDRESSING SOCIAL ISOLATION AND LONELINESS: IMPLEMENTING RECOMMENDATIONS FROM THE 2020 NATIONAL ACADEMIES REPORT WITH LESSONS FROM THE COVID-19 PANDEMIC.....	97
<i>Laurie L. Novak, Carla Perissinotto, George Demiris</i>	
STAKEHOLDER-DRIVEN “ART OF THE POSSIBLE” PATIENT JOURNEYS FOR COVID-19 AND BEYOND; CURRENT AND FUTURE STEPS TO FULLY REALIZE THIS VISION.....	100
<i>Jerome A. Osheroﬀ, Brian S. Alper, Christopher J. Tignanelli, Julia L. Skapik</i>	
REVERSE CLINICIAN BURNOUT TRENDS BY EXPLORING CLUES FROM GLOBAL POLICY VARIANCES.....	103
<i>Larry Ozeran, Jon Patrick, Yalini Senathirajah, William J. Foster, Richard Schreiber</i>	

ADAPTABLE PATIENT FACING AND CLINICAL DECISION SUPPORT SYSTEMS: THE NEXT FRONTIER.....	106
<i>Mustafa Ozkaynak, Karen Dunn Lopez, Adam Wright, Andrew Boyd, Blackford Middleton</i>	
TO SHARE OR NOT TO SHARE: EXPLORING THE ETHICAL IMPLICATIONS OF SHARING PERSONAL HEALTH DATA WITH PATIENTS AND INFORMAL CAREGIVERS .....	109
<i>Meghan Reading Turchioe, Sabrina Mangal, Marianne Sharko, Natalie C. Benda, Ruth Masterson Creber</i>	
PERSPECTIVES ON DEVELOPING AND IMPLEMENTING SHAREABLE, INTEROPERABLE CLINICAL DECISION SUPPORT FOR CHRONIC PAIN: THE CDS4CPM PROJECT .....	112
<i>Joshua E. Richardson, Cheng-Kai Kao, Laura H. Marcial, Bryn Rhodes, Asli Weitkamp</i>	
PRACTICAL APPROACHES TO TELEHEALTH EQUITY .....	115
<i>Jorge A. Rodriguez, Amy Sheon, Sarah C. Nosal, Courtney Lyles, Jessica S. Ancker</i>	
HOW THE COVID-19 PANDEMIC ACCELERATED AI TECHNOLOGY DEVELOPMENT AND ADOPTION IN HEALTHCARE: LESSONS LEARNED .....	118
<i>Michal Rosen-Zvi, Anil Jain, Eileen Koski</i>	
HEALTH INFORMATION EXCHANGES AND PUBLIC HEALTH DATA: LESSONS FROM COVID .....	121
<i>Donald W. Rucker, Jaime Bland, Lisa Bari, Dan Chavez, David Horrocks</i>	
PRIMARY CARE INFORMATICS WORKING GROUP (PCIWG) PANEL: DEMONSTRATING THE VALUE OF A COMPLEX SYSTEM PROBLEM SOLVER.....	124
<i>Matthew Sakumoto, Tiffany I. Leung, Ryan Jelinek, Stephen J. Morgan, Deepti Pandita</i>	
ACCELERATING THE USE OF STANDARDIZED APIS TO SUPPORT REAL-WORLD DATA AND REAL-WORLD EVIDENCE FOR HEALTH CARE AND RESEARCH.....	127
<i>Anita Samarth, Kevin Chaney, Scott Gordon, Vera Mucaj, Andrew Kress</i>	
ADVANCING INTEROPERABILITY: ANALYSIS OF EHR INTEROPERABILITY MEASUREMENT CAPABILITIES .....	130
<i>Anita Samarth, Amit Trivedi, Steven R. Lane, Vaishali Patel</i>	
MAKING HEALTH AI WORK IN THE REAL WORLD: STRATEGIES, INNOVATIONS, AND BEST PRACTICES FOR USING AI TO IMPROVE CARE DELIVERY .....	133
<i>Suchi Saria, Marzyeh Ghassemi, Ziad Obermeyer, Karandeep Singh, Pei-Yun S. Hsueh, Eric Topol</i>	
RE-IMAGINING ACADEMIC-PRIVATE SECTOR COLLABORATION TO ENHANCE DIGITAL HEALTH EQUITY .....	136
<i>Urmimala Sarkar, Ashwin Patel, Everett Crosland, David W. Bates, Courtney Lyles</i>	
BROADBAND INTERNET ACCESS AS A SOCIAL DETERMINANT OF HEALTH WITH IMPACTS ON HEALTH DISPARITIES DURING COVID-19 .....	139
<i>Marianne Sharko, Natalie C. Benda, Tiffany Veinot, Cynthia Sieck, Jessica S. Ancker</i>	
INFORMATICS CAREER JOURNEYS AMONG ACADEMIC, GOVERNMENT AND INDUSTRIAL ROLES .....	142
<i>Jane L. Snowdon, Patricia F. Brennan, Judy Murphy, Marion J. Ball, Yull E. Arriaga</i>	
HOME HEALTHCARE TO PRIMARY CARE DATA INTEROPERABILITY CHALLENGES AND OPPORTUNITIES.....	144
<i>Paulina S. Sockolow, Kathryn H. Bowles, Maxim Topaz, Edgar Chou</i>	

APPLYING STATE OF THE ART LANGUAGE MODELS TO ENABLE BETTER CLINICAL NATURAL LANGUAGE PROCESSING.....	147
<i>Bryan D. Steitz, Emily Alsentzer, Hoo Chang Shin, Byron Wallace, Adam Wright</i>	
CAREER DEVELOPMENT ISSUES FOR WOMEN IN BIOMEDICAL INFORMATICS WITHIN PROFESSIONAL ORGANIZATIONS.....	150
<i>Donghua Tao, Duo (Helen) Wei, Rubina F. Rizvi, Deepti Pandita, Bushra Alghamdi, Polina Kukhareva, Margarita Sordo, William R. Hersh, Omolola Ogunyemi, Kelly Evans, Gretchen P. Jackson</i>	
PUBLIC HEALTH INFORMATICS IN A GLOBAL PANDEMIC: IN THE COVID RESPONSE TRENCHES .....	153
<i>Jessica D. Tenenbaum, Theresa Cullen, Indra N. Sarkar, Philip Payne, Brian E. Dixon</i>	
LEVERAGING PGHD IN CLINICAL WORKFLOWS: OPPORTUNITIES AND CHALLENGES FOR USE IN PATIENT CARE .....	156
<i>Victoria L. Tiase, Robin Austin, Christie L. Martin, Young Ji Lee</i>	
LESSONS IN HEALTH EQUITY FROM THE CMS AI HEALTH OUTCOMES CHALLENGE.....	159
<i>David K. Vawdrey, Dave Decaprio, Carol McCall, Yaron Kinar, Aneesh Chopra</i>	
OPPORTUNITIES AND CHALLENGES IN HEALTH AND CLINICAL INFORMATICS CAREERS AND THE FUTURE OF THE PROFESSION.....	162
<i>Amy Y. Wang, Jodi Kodish-Wachs, Deepti Pandita, Thomas Agresta, Catherine H. Ivory</i>	
DEMONSTRATIONS IN SYNTHETIC DATA AND THE NATIONAL COVID COHORT COLLABORATIVE (N3C) .....	165
<i>Adam Wilcox, Randi E. Foraker, Jason A. Thomas, Jon D. Morrow, Noa Zamstein</i>	
THE WOMEN IN AMIA-LED PODCAST: REBRANDING AND SOCIAL MEDIA OPTIMIZATION TO FOCUS ON DIVERSITY .....	167
<i>Karmen S. Williams, Mindy K. Ross, Adela Grando, Tiffany Harman, Rachael Howe, Kelly Evans, Wendy M. Ingram, Davina J. Zamanzadeh, Leyla B. Warsame, Zubin Khan, Anita Murcko, Omolola Ogunyemi</i>	
OPPORTUNITIES TO ADVANCE WORKFLOW AUTOMATION THROUGH MODERN COMPUTING .....	170
<i>Teresa Zayas-Cabán, Tracy H. Okubo, Marc Overhage, Walter Suarez, Grace Cordovano</i>	
ADVANCING THE USE OF FHIR IN RESEARCH: AN UPDATE ON NIH'S EFFORTS.....	173
<i>Teresa Zayas-Cabán, Belinda Seto, Paul Harris, Allison P. Heath, Viet Nguyen</i>	

**PAPER**

A COMPARISON OF EXHAUSTIVE AND NON-LATTICE-BASED METHODS FOR AUDITING HIERARCHICAL RELATIONS IN GENE ONTOLOGY .....	176
<i>Rashmie Abeysinghe, Fengbo Zheng, Licong Cui</i>	
DETECTING FINE-GRAINED EMOTIONS ON SOCIAL MEDIA DURING MAJOR DISEASE OUTBREAKS: HEALTH AND WELL-BEING BEFORE AND DURING THE COVID-19 PANDEMIC .....	186
<i>Olanrewaju Tahir Aduragba, Jialin Yu, Alexandra Cristea, Lei Shi</i>	

EXPRESSING AND EXECUTING INFORMED CONSENT PERMISSIONS USING SWRL: THE ALL OF US USE CASE.....	196
<i>Muhamamd Amith, Marcelline Harris, Cooper Stansbury, Kathleen Ford, Frank J. Manion, Cui Tao</i>	
CHILDREN'S DESIGNS FOR THE FUTURE OF TELEHEALTH.....	206
<i>Erin Beneteau, Ann Paradiso, Wanda Pratt</i>	
A FRAMEWORK FOR INFERRING EPIDEMIOLOGICAL MODEL PARAMETERS USING BAYESIAN NONPARAMETRICS .....	216
<i>Oliver E. Bent, Charles Wachira, Sekou L. Remy, William Ogallo, Aisha Walcott</i>	
COMPARING OLDER AND YOUNGER ADULTS PERCEPTIONS OF VOICE AND TEXT- BASED SEARCH FOR CONSUMER HEALTH INFORMATION TASKS .....	226
<i>Karen Bonilla, Brian Gaitan, Jaime Sanders, Noami Khenglawt, Aqueasha Martin-Hammond</i>	
CONTROVERSIAL TRIALS FIRST: IDENTIFYING DISAGREEMENT BETWEEN CLINICAL GUIDELINES AND NEW EVIDENCE.....	236
<i>Florian Borchert, Laura Meister, Thomas Langer, Markus Follmann, Bert Arnrich, Matthieu- P. Schapranow</i>	
BIAS ASSESSMENT AND CORRECTION IN MACHINE LEARNING ALGORITHMS: A USE-CASE IN A NATURAL LANGUAGE PROCESSING ALGORITHM TO IDENTIFY HOSPITALIZED PATIENTS WITH UNHEALTHY ALCOHOL USE.....	246
<i>Marissa Borgese, Cara Joyce, Emily E. Anderson, Matthew M. Churpek, Majid Afshar</i>	
OLDER ADULTS' PERSONAL HEALTH INFORMATION MANAGEMENT: THE ROLE AND PERSPECTIVE OF VARIOUS HEALTHCARE PROVIDERS .....	254
<i>Alyssa L. Bosold, Shih-Yin Lin, Jean O. Taylor, George Demiris, Anne M. Turner</i>	
USING MACHINE LEARNING TO SUPPORT TRANSFER OF BEST PRACTICES IN HEALTHCARE .....	264
<i>Sebastian Caldas, Jieshi Chen, Artur Dubrawski</i>	
BROKEN DOWN BY BIAS: HEALTHCARE BIASES EXPERIENCED BY BIPOC AND LGBTQ+ PATIENTS.....	274
<i>Reggie Casanova-Perez, Calvin R. Apodaca, Emily Bascom, Deepthi Mohanraj, Cezanne Lane, Drishti Vidyarthi, Erin Beneteau, Janice Sabin, Wanda Pratt, Nadir Weibel, Andrea Hartzler</i>	
UNPACKING THE DROP IN COVID-19 CASE FATALITY RATES: A STUDY OF NATIONAL AND FLORIDA LINE-LEVEL DATA.....	284
<i>Cheng Cheng, Helen Zhou, Jeremy Weiss, Zachary Lipton</i>	
TRANSITIONS OF CARE: COMPLETENESS OF THE INTEROPERABILITY DATA STANDARD FOR COMMUNICATION FROM HOME HEALTH CARE TO PRIMARY CARE.....	294
<i>Edgar Chou, Paulina Sockolow</i>	
CONSOLIDATED ENVIRONMENTAL AND SOCIAL DATA FACILITATES NEIGHBORHOOD-LEVEL HEALTH STUDIES IN PHILADELPHIA .....	304
<i>Colin W. Christie, Sherrie Xie, Avantika R. Diwadkar, Rebecca Greenblatt, Alexandra A. Rizaldi, Blanca E. Himes</i>	
RACIAL DISPARITY IN CLINICAL ALERT OVERRIDES.....	313
<i>James J. Cimino</i>	

DATA-DRIVEN SEQUENTIAL UPTAKE PATTERN DISCOVERY FOR FAMILY PLANNING STUDIES .....	323
<i>Celia Cintas, Victor Akinwande, Ramya Raghavendra, Girmaw Abebe Tadesse, Aisha Walcott, Charity Wayua, Frederick Makumbi, Rhoda Wanyenze, Komminist Weldemariam</i>	
STATE OF THE ART CAUSAL INFERENCE IN THE PRESENCE OF EXTRANEOUS COVARIATES: A SIMULATION STUDY .....	333
<i>Raluca Cobzaru, Sharon Jiang, Kenney Ng, Stan Finkelstein, Roy Welsch, Zachary Shahn</i>	
VAPING AT THE VA: DEVELOPING AN ANNOTATED CORPUS OF ELECTRONIC CIGARETTE MENTIONS IN CLINICAL NOTES AT THE DEPARTMENT OF VETERANS AFFAIRS .....	342
<i>Mike Conway, Patrick R. Alba, Shu-Hong Zhu, Olga V. Patterson</i>	
TESTING OF A RISK-STANDARDIZED COMPLICATION RATE ELECTRONIC CLINICAL QUALITY MEASURE (ECQM) FOR TOTAL HIP AND/OR TOTAL KNEE ARTHROPLASTY .....	351
<i>Mica R. Curtin-Bowen, Troy Li, Avery Pullman, Alexandra Businger, Stuart Lipsitz, Ania Syrowatka, Michael Sainlaire, Tien Thai, Jay Lieberman, Aileen Davis, Bonnie Blanchfield, David W. Bates, Patricia C. Dykes</i>	
MAPPING THE READ2/CTV3 CONTROLLED CLINICAL TERMINOLOGIES TO PHECODES IN UK BIOBANK PRIMARY CARE ELECTRONIC HEALTH RECORDS: IMPLEMENTATION AND EVALUATION .....	361
<i>Spiros Denaxas, Ge Liu, Qiping Feng, Ghazaleh Fatemifar, Lisa Bastarache, Eric Kerchberger, Aroon Hingorani Tom Lumbers, Josh F. Peterson, Wei Wei-Qi, Harry Hemingway</i>	
GOLDEN OPPORTUNITIES FOR CLINICAL DECISION SUPPORT IN AN ERA OF TEAM-BASED MEDICAL CARE .....	371
<i>Paul R. Dexter, Titus K. Schleyer</i>	
IMPACT OF CLINICAL AND GENOMIC FACTORS ON COVID-19 DISEASE SEVERITY .....	377
<i>Sanjoy Dey, Aritra Bose, Saubrata Saha, Prithwish Chakraborty, Mohamed Ghalwash, Filippo Utro, Aldo Guzman-Saenz, Kenney Ng, Jianying Hu, Laxmi Parida, Daby Sow</i>	
DEVELOPING A DATA QUALITY STANDARD PRIMER FOR CARDIOVASCULAR RISK ASSESSMENT FROM ELECTRONIC HEALTH RECORD DATA USING THE DATAGAUGE PROCESS .....	387
<i>Franck Diaz-Garelli, Andrew M. Long, Michael P. Bancks, Alain G. Bertoni, Adhithya Narayanan, Brian Wells</i>	
TECHNOLOGY TO SUPPORT COLLABORATIVE DISSEMINATION OF RESEARCH WITH ALASKA NATIVE COMMUNITIES .....	397
<i>Lisa G. Dirks, Wanda Pratt</i>	
DEVELOPMENT OF FOUR ELECTRONIC CLINICAL QUALITY MEASURES (ECQMS) FOR USE IN THE MERIT-BASED INCENTIVE PAYMENT SYSTEM (MIPS) FOLLOWING ELECTIVE PRIMARY TOTAL HIP AND KNEE ARTHROPLASTY .....	407
<i>Patricia C. Dykes, Mica R. Curtin-Bowen, Troy Li, Avery Pullman, Alexandra Businger, Stuart Lipsitz, Ania Syrowatka, Michael Sainlaire, Tien Thai, David W. Bates</i>	
CLINICAL NOTE SECTION DETECTION USING A HIDDEN MARKOV MODEL OF UNIFIED MEDICAL LANGUAGE SYSTEM SEMANTIC TYPES .....	417
<i>Aaron S. Eisman, Katherine A. Brown, Elizabeth S. Chen, Indra N. Sarkar</i>	



PRACTICAL PERFUSION QUANTIFICATION IN MULTISPECTRAL ENDOSCOPIC VIDEO: USING THE MINUTES AFTER ICG ADMINISTRATION TO ASSESS TISSUE PATHOLOGY .....	427
<i>Jonathan P. Epperlein, Mykhaylo Zayats, Seshu Tirupathi, Sergiy Zhuk, Tigran Tchrakian, Pol Mac Aonghusa, Donal F. O'Shea, Niall Hardy, Jeffrey Dalli, Ronan A. Cahill</i>	
LAUNCHING INTO CLINICAL SPACE WITH MEDSPACY: A NEW CLINICAL TEXT PROCESSING TOOLKIT IN PYTHON .....	437
<i>Hannah Eyre, Alec B. Chapman, Kelly S. Peterson, Jianlin Shi, Patrick R. Alba, Makoto M. Jones, Tamara L. Box, Scott L. Duvall, Olga V. Patterson</i>	
A MACHINE LEARNING PIPELINE FOR ACCURATE COVID-19 HEALTH OUTCOME PREDICTION USING LONGITUDINAL ELECTRONIC HEALTH RECORDS .....	447
<i>Alice Feng</i>	
CHART COMPLETION TIME OF ATTENDING PHYSICIANS WHILE USING MEDICAL SCRIBES.....	456
<i>Sarah T. Florig, Sky Corby, Nicholas T. Rosson, Tanuj Devara, Nicole G. Weiskopf, Jeffrey A. Gold, Vishnu Mohan</i>	
PARSING IMMUNE CORRELATES OF PROTECTION AGAINST SARS-COV-2 FROM BIOMEDICAL LITERATURE .....	465
<i>Sydney L. Foote, Sara E. Jones, Jane Lockmuller, Liliana Brown, Joseph Breen, Anupama E. Gururaj</i>	
IDENTIFYING OPIOID USE DISORDER FROM LONGITUDINAL HEALTHCARE DATA USING A MULTI-STREAM TRANSFORMER.....	475
<i>Sajjad Fouladvand, Jeffery C. Talbert, Linda P. Dvoskin, Bush M. Heather, Amy L. Meadows, Lars E. Peterson, Steve Roggenkamp, Ramakanth Kavuluru, Jin Chen</i>	
OUTCOME PREDICTION FROM BEHAVIOUR CHANGE INTERVENTION EVALUATIONS USING A COMBINATION OF NODE AND WORD EMBEDDING .....	485
<i>Debasis Ganguly, Martin Gleize, Yufang Hou, Charles Jochim, Francesca Bonin, Alessandra Pascale, Pierpaolo Tommasi, Pol Mac Aonghusa, Robert West, Marie Johnston, Mike Kelly, Susan Michie</i>	
IMPACT OF COVID-19 PANDEMIC ON EMERGENCY DEPARTMENT VISITS: A REGIONAL CASE STUDY OF INFORMATICS CHALLENGES AND OPPORTUNITIES .....	495
<i>Hamid Ghaderi, Jeffrey Stowell, Murtaza Akhter, Craig Norquist, Paul E. Pugsley, Vignesh Subbian</i>	
MULTI-TASK DEEP LEARNING-BASED SURVIVAL ANALYSIS ON THE PROGNOSIS OF LATE AMD USING THE LONGITUDINAL DATA IN AREDS .....	505
<i>Gregory C. Ghahramani, Matthew Brendel, Mingquan Lin, Qingyu Chen, Tiarnan D. Keenan, Kun Chen, Emily Y. Chew, Zhiyong Lu, Yifan Peng, Fei Wang</i>	
SIMULATING SCREENING FOR RISK OF CHILDHOOD DIABETES: THE COLLABORATIVE OPEN OUTCOMES TOOL (COOL) .....	515
<i>Mohamed Ghalwash, Eileen Koski, Riitta Veijola, Jorma Toppari, William Hagopian, Marian Rewers, Vibha Anand</i>	
ON THE EXPLAINABILITY OF HOSPITALIZATION PREDICTION ON A LARGE COVID- 19 PATIENT DATASET .....	525
<i>Ivan Girardi, Panagiotis Vagenas, Dario Arcos-Diaz, Lydia Bessaï, Alexander Büsser, Ludovico Furlan, Raffaello Furlan, Mauro Gatti, Andrea Giovannini, Ellen Hoeven, Chiara Marchiori</i>	

WEAK SUPERVISION FOR AFFORDABLE MODELING OF ELECTROCARDIOGRAM DATA.....	535
<i>Mononito Goswami, Benedikt Boecking, Artur Dubrawski</i>	
USING RADIOMICS AS PRIOR KNOWLEDGE FOR THORAX DISEASE CLASSIFICATION AND LOCALIZATION IN CHEST X-RAYS .....	545
<i>Yan Han, Chongyan Chen, Liyan Tang, Mingquan Lin, Ajay Jaiswal, Song Wang, Ahmed Tewfik, George Shih, Ying Ding, Yifan Peng</i>	
A FEDERATED MINING APPROACH ON PREDICTING DIABETES-RELATED COMPLICATIONS: DEMONSTRATION USING REAL-WORLD CLINICAL DATA .....	555
<i>Humayera Islam, Abu S. Mosa</i>	
A PROPOSED PATIENT-INCLUSIVE METHODOLOGY FOR DEVELOPING AND VALIDATING TELEHEALTH SURVEYS THAT INCLUDE SOCIAL DETERMINANTS OF HEALTH.....	564
<i>Mitchell Izower, Zoe Liao, Jeongeun Kim, Yuri Quintana</i>	
SEMANTIC EXPANSION OF CLINICIAN GENERATED DATA PREFERENCES FOR AUTOMATIC PATIENT DATA SUMMARIZATION.....	570
<i>Ashutosh Jadhav, Tyler Baldwin, Joy T. Wu, Vandana Mukherjee, Tanveer Syeda-Mahmood</i>	
LEARNING PREDICTIVE AND INTERPRETABLE TIMESERIES SUMMARIES FROM ICU DATA.....	580
<i>Nari Johnson, Sonali Parbhoo, Andrew Ross, Finale Doshi-Velez</i>	
UNSUPERVISED CHARACTERIZATION OF MAJOR DEPRESSIVE DISORDER MEDICATION TREATMENT PATHWAYS.....	590
<i>Barrett Jones, Colin G. Walsh</i>	
GENE-BASED ANALYSIS REVEALS SEX-SPECIFIC GENETIC RISK FACTORS OF COPD .....	600
<i>Jaehyun Joo, Blanca E. Himes</i>	
AUTOMATED MAPPING OF REAL-WORLD ONCOLOGY LABORATORY DATA TO LOINC.....	610
<i>Jonathan Kelly, Chen Wang, Jianyi Zhang, Spandan Das, Anna Ren, Pradnya Warnekar</i>	
HUMAN FACTORS CONSIDERATIONS IN TRANSITIONS IN CARE CLINICAL DECISION SUPPORT SYSTEM IMPLEMENTATION STUDIES .....	620
<i>Erin E. Kennedy, Kathryn H. Bowles</i>	

## VOLUME 2

INTRINSIC EVALUATION OF CONTEXTUAL AND NON-CONTEXTUAL WORD EMBEDDINGS USING RADIOLOGY REPORTS.....	630
<i>Mirza S. Khan, Bennett A. Landman, Stephen A. Deppen, Michael E. Matheny</i>	
MACHINE LEARNING PREDICTABILITY OF CLINICAL NEXT GENERATION SEQUENCING FOR HEMATOLOGIC MALIGNANCIES TO GUIDE HIGH-VALUE PRECISION MEDICINE.....	640
<i>Grace Y. E. Kim, Morteza Noshad, Henning Stehr, Rebecca Rojansky, Dita Gratzinger, Jean Oak, Rondeep Brar, David Iberri, Christina Kong, James Zehnder, Jonathan H. Chen</i>	
PREDICTING MOTOR RESPONSIVENESS TO DEEP BRAIN STIMULATION WITH MACHINE LEARNING .....	650
<i>Kevin J. Krause, Fenna Phibbs, Thomas Davis, Daniel Fabbri</i>	

TRUST AND CREDIBILITY OF INFORMATION SOURCES RELATED TO COVID-19 AMONG HIGH-RISK ETHNICALLY DIVERSE ADULTS AT THE ONSET OF THE NEW YORK CITY OUTBREAK: A CROSS-SECTIONAL SURVEY CONDUCTED VIA A COMMUNITY HEALTH PORTAL.....	659
<i>Rita Kukafka, Mari Millery, Samuel Pan, Thomas B. Silverman</i>	
AUTOMATIC ASSIGNMENT OF RADIOLOGY EXAMINATION PROTOCOLS USING PRE-TRAINED LANGUAGE MODELS WITH KNOWLEDGE DISTILLATION .....	667
<i>Wilson Lau, Laura Aaltonen, Martin L. Gunn, Meliha Yetisgen</i>	
HYBRID ENSEMBLE-RULE ALGORITHM FOR IMPROVED MEDLINE® SENTENCE BOUNDARY DETECTION.....	676
<i>Daniel X. Le, James G. Mork, Sameer Antani</i>	
STRATEGIES FOR DISEASE CONTAINMENT: A BIOLOGICAL-BEHAVIORAL-INTERVENTION COMPUTATIONAL INFORMATICS FRAMEWORK.....	686
<i>Eva K. Lee, Yifan Liu, Fan Yuan, Ferdinand H. Pietz</i>	
INCIDENCE AND IMPACT OF MISSING FUNCTIONAL ELEMENTS ON INFORMATION COMPREHENSION USING AUDIO AND TEXT .....	696
<i>Gondy Leroy, David Kauchak, Nick Kloehn</i>	
TEACHING MEDICAL STUDENTS HEALTH CARE FAILURE MODE AND EFFECT ANALYSIS: A CASE STUDY OF INPATIENT PAIN MANAGEMENT COMPUTERIZED DECISION SUPPORT .....	706
<i>Blake J. Lesselroth, William Dudney, Juell Homco, Melissa Van Cain, Savanna Smith, Audrey Corbett</i>	
VALIDATION OF REAL-WORLD DATA-BASED ENDPOINT MEASURES OF CANCER TREATMENT OUTCOMES .....	715
<i>Qian Li, Hansi Zhang, Zhaoyi Chen, Yi Guo, Thomas J. George, Yong Chen, Fei Wang, Jiang Bian</i>	
INTEGRATING MULTIMODAL ELECTRONIC HEALTH RECORDS FOR DIAGNOSIS PREDICTION .....	725
<i>Rui Li, Fenglong Ma, Jing Gao</i>	
TESTING OF A RISK-STANDARDIZED MAJOR BLEEDING AND VENOUS THROMBOEMBOLISM ELECTRONIC CLINICAL QUALITY MEASURE FOR ELECTIVE TOTAL HIP AND/OR KNEE ARTHROPLASTIES .....	735
<i>Troy Li, Mica R. Curtin-Bowen, Avery Pullman, Stuart Lipsitz, Ania Syrowatka, Michael Sainlaire, Tien Thai, Alexandra Businger, Aileen Davis, Jay Lieberman, Bonnie Blanchfield, David W. Bates, Patricia C. Dykes</i>	
IDENTIFYING SLEEP-RELATED FACTORS ASSOCIATED WITH COGNITIVE FUNCTION IN A HISPANICS/LATINOS COHORT: A DUAL RANDOM FOREST APPROACH .....	743
<i>Xiaojin Li, Licong Cui, Fei Wang, Paul E. Schulz, Guo-Qiang Zhang</i>	
IMPUTING LONGITUDINAL GROWTH DATA IN INTERNATIONAL PEDIATRIC STUDIES: DOES CDC REFERENCE SUFFICE?.....	753
<i>Zhiguo Li, Jorma Toppari, Markus Lundgren, Brigitte I. Frohnert, Peter Achenbach, Riitta Veijola, Vibha Anand</i>	

REDUCING PHYSICIANS' COGNITIVE LOAD DURING CHART REVIEW: A PROBLEM-ORIENTED SUMMARY OF THE PATIENT ELECTRONIC RECORD .....	762
<i>Jennifer J. Liang, Ching-Huei Tsou, Bharath Dandala, Ananya Poddar, Venkata Joopudi, Diwakar Mahajan, John M. Prager, Preethi Raghavan, Michele Payne</i>	
EXTRACTION OF ACTIVE MEDICATIONS AND ADHERENCE USING NATURAL LANGUAGE PROCESSING FOR GLAUCOMA PATIENTS .....	772
<i>Wei-Chun Lin, Jimmy Chen, Joel V. Kaluzny, Aiyin Chen, Michael Chiang, Michelle R. Hribar</i>	
DEVELOPMENT AND EVALUATION OF AN AUTOMATED APPROACH TO DETECT WEIGHT ABNORMALITIES IN PEDIATRIC WEIGHT CHARTS.....	782
<i>Lei Liu, Danny T. Wu, Stephen A. Spooner, Yizhao Ni</i>	
DE-IDENTIFYING SOCIOECONOMIC DATA AT THE CENSUS TRACT LEVEL FOR MEDICAL RESEARCH THROUGH CONSTRAINT-BASED CLUSTERING .....	792
<i>Yongtai Liu, Douglas Conway, Zhiyu Wan, Murat Kantarcioglu, Yevgeniy Vorobeychik, Bradley A. Malin</i>	
APPLICATION OF THE I-PARIHS FRAMEWORK IN THE IMPLEMENTATION OF SPEECH RECOGNITION TECHNOLOGY AS A WAY OF ADDRESSING DOCUMENTATION BURDEN WITHIN A MENTAL HEALTH CONTEXT .....	802
<i>Brian Lo, Khaled Almilaji, Damian Jankowicz, Lydia Sequeira, Gillian Strudwick, Tania Tajirian</i>	
UNDERSTANDING HEART-FAILURE PATIENTS EHR CLINICAL FEATURES VIA SHAP INTERPRETATION OF TREE-BASED MACHINE LEARNING MODEL PREDICTIONS .....	812
<i>Shuyu Lu, Ruoyu Chen, Wei Wei, Mia Belovsky, Xinghua Lu</i>	
IDENTIFYING ARDS USING THE HIERARCHICAL ATTENTION NETWORK WITH SENTENCE OBJECTIVES FRAMEWORK .....	822
<i>Kevin Lybarger, Linzee Mabrey, Matthew R. Thau, Pavan Bhatraju, Mark Wurfel, Meliha Yetisgen</i>	
TOWARD UNDERSTANDING CLINICAL CONTEXT OF MEDICATION CHANGE EVENTS IN CLINICAL NARRATIVES .....	832
<i>Diwakar Mahajan, Jennifer J. Liang, Ching-Huei Tsou</i>	
EXTRACTION OF ELECTRONIC HEALTH RECORD DATA USING FAST HEALTHCARE INTEROPERABILITY RESOURCES FOR AUTOMATED BREAST CANCER RISK ASSESSMENT .....	842
<i>Julia E. McGuinness, Tianmai Zhang, Kevin Cooper, Arusha Kelkar, Jill Dimond, Virginia Lorenzi, Katherine Crew, Rita Kukafka</i>	
ON PREDICTING RECURRENCE IN EARLY STAGE NON-SMALL CELL LUNG CANCER.....	852
<i>Sameh K. Mohamed, Brian Walsh, Mohan Timilsina, Vit Novacek, Maria Torrente, Fabio Franco, Mariano Provencio, Adrianna Janik, Luca Costabello, Pontus Stenetorp, Pasquale Minervini</i>	
WORD EMBEDDING AND CLUSTERING FOR PATIENT-CENTERED REDESIGN OF APPOINTMENT SCHEDULING IN AMBULATORY CARE SETTINGS .....	862
<i>Iman Mohammadi, Saeed Mehrabi, Bryce Sutton, Huanmei Wu</i>	
AGILE IMPLEMENTATION OF INNOVATIVE END TO END TECHNICAL SOLUTIONS FOR RESPIRATORY TESTING IN THE COVID-19 PANDEMIC .....	871
<i>Tamara D. Moores Todd, Kathryn G. Kuttler, Diego Ize-Ludlow</i>	

TOWARDS MORE PATIENT FRIENDLY CLINICAL NOTES THROUGH LANGUAGE MODELS AND ONTOLOGIES .....	880
<i>Francesco Moramarco, Damir Juric, Aleksandar Savkov, Jack Flann, Maria Lehl, Tessa Grafen, Kristian Boda, Vitalii Zhelezniak, Sunir Gohil, Alex Papadopoulos Korfiatis, Nils Hammerla</i>	
FIRST-LINE DRUG RESISTANCE PROFILING OF MYCOBACTERIUM TUBERCULOSIS: A MACHINE LEARNING APPROACH.....	890
<i>Stephanie J. Müller, Rebone Meraba, Gciniwe Dlamini, Darlington Mapiye</i>	
RECURRENT NEURAL NETWORK BASED TIME-SERIES MODELING FOR LONG-TERM PROGNOSIS FOLLOWING ACUTE TRAUMATIC BRAIN INJURY .....	899
<i>Amin Nayebi, Sindhu Tipirneni, Brandon Foreman, Jonathan Ratcliff, Chandan Reddy, Vignesh Subbian</i>	
SEMANTIC SEARCH FOR LARGE SCALE CLINICAL ONTOLOGIES .....	909
<i>Duy-Hoa Ngo, Madonna Kemp, Donna L. Truran, Bevan Koopman, Alejandro Metke-Jimenez</i>	
TOWARDS A FRAMEWORK FOR COMPARING FUNCTIONALITIES OF MULTIMORBIDITY CLINICAL DECISION SUPPORT: A LITERATURE-BASED FEATURE SET AND BENCHMARK CASES .....	919
<i>Dympna O'Sullivan, William Van Woensel, Szymon Wilk, Samson Tu, Wojtek Michalowski, Samina Abidi, Marc Carrier, Ruth Edry, Irit Hochberg, Stephen P. Kingswell, Alexandra Kogan, Martin Michalowski, Hugh O'Sullivan, Mor Peleg</i>	
PREDICTIVE AND CAUSAL ANALYSIS OF NO-SHOWS FOR MEDICAL EXAMS DURING COVID-19: A CASE STUDY OF BREAST IMAGING IN A NATIONWIDE ISRAELI HEALTH ORGANIZATION.....	929
<i>Michal Ozery-Flato, Ora Pinchasov, Miel Dabush-Kasa, Efrat Hexter, Gabriel Chodick, Michal Guindy, Michal Rosen-Zvi</i>	
DISCOVERING ASSOCIATIONS BETWEEN SOCIAL DETERMINANTS AND HEALTH OUTCOMES: MERGING KNOWLEDGE GRAPHS FROM LITERATURE AND ELECTRONIC HEALTH DATA .....	939
<i>Yoonyoung Park, Natasha Mulligan, Martin Gleize, Morten Kristiansen, Joao H. Bettencourt-Silva</i>	
IMPLEMENTATION MATTERS: HOW PATIENT EXPERIENCES DIFFER WHEN GENETIC COUNSELING ACCOMPANIES THE RETURN OF GENETIC VARIANTS OF UNCERTAIN SIGNIFICANCE .....	949
<i>Harsh V. Patel, Nora Henrikson, James D. Ralston, Kathleen A. Leppig, Aaron Scrol, Gail P. Jarvik, Shannon Devange, Eric Larson, Andrea Hartzler</i>	
CREATION OF A MAPPED, MACHINE-READABLE TAXONOMY TO FACILITATE EXTRACTION OF SOCIAL DETERMINANTS OF HEALTH DATA FROM ELECTRONIC HEALTH RECORDS.....	958
<i>Svati B. Patel, Nam Nguyen</i>	
CHARACTERIZATION OF ELECTRONIC HEALTH RECORD DOCUMENTATION SHORTCUTS: DOES THE USE OF DOTPHRASES INCREASE EFFICIENCY IN THE EMERGENCY DEPARTMENT?.....	968
<i>Rimma Perotte, Christina Hajicharalambous, Gregory Sugalski, Joseph Underwood</i>	

FEASIBILITY OF MOBILE AND SENSOR TECHNOLOGY FOR REMOTE MONITORING IN CANCER CARE AND PREVENTION.....	978
<i>Susan K. Peterson, Karen Basen-Engquist, Wendy Demark-Wahnefried, Alexander Prokhorov, Eileen Shinn, Stephanie L. Martch, Beth M. Beadle, Adam S. Garden, Emilia Farcas, G. B. Gunn, Clifton D. Fuller, William H. Morrison, David I. Rosenthal, Jack Phan, Cathy Eng, Paul Cinciripini, Maher Karam-Hage, Maria A. Camero Garcia, Kevin Patrick</i>	
EXTRACTING PATIENT-LEVEL SOCIAL DETERMINANTS OF HEALTH INTO THE OMOP COMMON DATA MODEL .....	988
<i>Jimmy Phuong, Elizabeth Zampino, Nicholas J. Dobbins, Juan Espinoza, Daniella Meeker, Heidi Spratt, Charisse Madlock-Brown, Nicole G. Weiskopf, Adam Wilcox</i>	
COGNITIVE FUNCTION CHARACTERIZATION USING ELECTRONIC HEALTH RECORDS NOTES.....	998
<i>Adrienne Pichon, Betina Idnay, Rebecca Schnall, Karen Marder, Chunhua Weng</i>	
NETWORKSIR AND ENVIRONMENTALSIR: EFFECTIVE, OPEN-SOURCE EPIDEMIC MODELING IN THE ABSENCE OF DATA.....	1008
<i>Madison A. Pickering, Subbarayan Venkatesan, Christoph U. Lehmann, Sameh Saleh, Richard J. Medford</i>	
EPILEPSY-CONNECT: AN INTEGRATED KNOWLEDGEBASE FOR CHARACTERIZING ALTERATIONS IN CONSCIOUSNESS STATE OF PHARMACORESISTANT EPILEPSY PATIENTS .....	1018
<i>Katrina Prantzalos, Jianzhe Zhang, Nassim Shafiabadi, Guadalupe Fernandez-Bacavaca, Satya S. Sahoo</i>	
INVESTIGATING HEALTH INFORMATION TECHNOLOGY USAGE BY SOCIODEMOGRAPHIC SUBPOPULATIONS TO INCREASE COMMUNITY ENGAGEMENT IN HEALTHCARE: AN ANALYSIS OF THE HEALTH INFORMATION NATIONAL TRENDS SURVEY .....	1028
<i>Geetanjali Rajamani, Lianne Kurina, Lisa G. Rosas</i>	
DL4BURN: BURN SURGICAL CANDIDACY PREDICTION USING MULTIMODAL DEEP LEARNING.....	1038
<i>Sirisha Rambhatla, Samantha Huang, Loc Trinh, Mengfei Zhang, Boyuan Long, Mingtao Dong, Vyom Unadkat, Haig Yenikomshian, Justin Gillenwater, Yan Liu</i>	
DEVELOPMENT OF AN ONLINE CONTRACEPTIVE DECISION AID FOR COLLEGE WOMEN .....	1048
<i>Molly Redman, Jenny Brian, Dongwen Wang</i>	
COMPARING SCRIBED AND NON-SCRIBED OUTPATIENT PROGRESS NOTES .....	1058
<i>Adam Rule, Sarah T. Florig, Steven Bedrick, Vishnu Mohan, Jeffrey A. Gold, Michelle R. Hribar</i>	
DESIGN OF DIGITAL WALKING PROGRAMS THAT ENGAGE PROSTATE CANCER SURVIVORS: NEEDS AND PREFERENCES FROM FOCUS GROUPS .....	1068
<i>Savitha Sangameswaran, Courtney Segal, Dori E. Rosenberg, Reggie Casanova-Perez, David J. Cronkite, John L. Gore, Andrea Hartzler</i>	
A FUSION NLP MODEL FOR THE INFERENCE OF STANDARDIZED THYROID NODULE MALIGNANCY SCORES FROM RADIOLOGY REPORT TEXT.....	1078
<i>Thiago Santos, Omar Kallas, Janice Newsome, Daniel Rubin, Judy W. Gichoya, Imon Banerjee</i>	

PREDICTORS OF RETENTION FOR COMMUNITY-BASED TELEHEALTH PROGRAMS: A STUDY OF THE TELEHEALTH INTERVENTION PROGRAM FOR SENIORS (TIPS) .....	1088
<i>Melody K. Schiaffino, Zhan Zhang, David Sachs, John Migliaccio, Jina Huh-Yoo</i>	
CROSS-VENDOR CT IMAGE DATA HARMONIZATION USING CVH-CT .....	1098
<i>Md Selim, Jie Zhang, Baowei Fei, Guo-Qiang Zhang, Gary Yeeming Ge, Jin Chen</i>	
COMPARING DEEP LEARNING AND CONVENTIONAL MACHINE LEARNING MODELS FOR PREDICTING MENTAL ILLNESS FROM HISTORY OF PRESENT ILLNESS NOTATIONS .....	1108
<i>Ingroj Shrestha, Padmini Srinivasan</i>	
BLOCKIOT: BLOCKCHAIN-BASED HEALTH DATA INTEGRATION USING IOT DEVICES .....	1118
<i>Manan M. Shukla, Jianjing Lin, Oshani Seneviratne</i>	
PREDICTION OF RESUSCITATION FOR PEDIATRIC SEPSIS FROM DATA AVAILABLE AT TRIAGE .....	1128
<i>Peter A. Stella, Elizabeth Haines, Yindalon Aphinyanaphongs</i>	
ASSESSING THE READABILITY OF APP DESCRIPTIONS AND INVESTIGATING ITS ROLE IN THE CHOICE OF MHEALTH APPS: RETROSPECTIVE AND PROSPECTIVE ANALYSES .....	1138
<i>Wu-Chen Su, Khyati Mehta, Kirandeep Gill, Peng Yeh, Ming-Yuan Chih, Danny T. Wu</i>	
THE ADDITION OF UNITED STATES CENSUS-TRACT DATA DOES NOT IMPROVE THE PREDICTION OF SUBSTANCE MISUSE .....	1148
<i>Daniel To, Cara Joyce, Sujay Kulshrestha, Brihat Sharma, Dmitriy Dligach, Matthew Churpek, Majid Afshar</i>	
INCREASED CLINICIAN TIME USING ELECTRONIC HEALTH RECORDS DURING COVID-19 PANDEMICX .....	1158
<i>Timothy Tsai, Mina Boazak, Eugenia R. McPeck Hinz</i>	
HEALTHY LIFESTYLE AND MOOD: A BIOMEDICAL INFORMATICS CITIZEN SCIENCE PROJECT IN A HIGH SCHOOL CLASSROOM .....	1168
<i>Jennifer Ushe, Doug Redd, Scarlyn Gutierrez Nunez, Eduardo A. Trujillo-Rivera, Senait Tekle, Stuart J. Nelson, Qing T. Zeng</i>	
A PRACTICAL APPROACH FOR MONITORING THE USE OF COPY-PASTE IN CLINICAL NOTES .....	1177
<i>David K. Vawdrey, William Cauthorn, Diane Francis, Kathy Hackenberg, Gerald Maloney, Benjamin Hohmuth</i>	
ENHANCING THE IDEAS FRAMEWORK WITH ONTOLOGY: DESIGNING DIGITAL INTERVENTIONS FOR IMPROVING CANCER PATIENTS' WELLBEING .....	1185
<i>Nicole Veggiotti, Lucia Sacchi, Mor Peleg</i>	
CREATING A HOME FOR GENOMIC DATA IN THE ELECTRONIC HEALTH RECORD .....	1195
<i>Nephi Walton, Darren Johnson, Bret Heale, Thomas Person, Marc Williams</i>	
AXES OF PROGNOSIS: IDENTIFYING SUBTYPES OF COVID-19 OUTCOMES .....	1197
<i>Emma Whitfield, Claire Coffey, Huayu Zhang, Ting Shi, Xiaodong Wu, Qiang Li, Honghan Wu</i>	
DESIGN AND DEVELOPMENT OF AN INFORMATICS-DRIVEN IMPLEMENTATION RESEARCH FRAMEWORK FOR PRIMARY CARE STUDIES.....	1207
<i>Jiancheng Ye</i>	

CHARACTERIZING BRAIN SIGNALS FOR EPILEPTIC PRE-ICTAL SIGNAL CLASSIFICATION.....	1214
<i>Hao Yu, Shize Jiang, Yan Huang, Xiaojin Li, Xiaoling Wang, Liang Chen, Jin Chen</i>	
A STUDY OF SOCIAL AND BEHAVIORAL DETERMINANTS OF HEALTH IN LUNG CANCER PATIENTS USING TRANSFORMERS-BASED NATURAL LANGUAGE PROCESSING MODELS .....	1224
<i>Zehao Yu, Xi Yang, Chong Dang, Songzi Wu, Prakash Adekkanattu, Jyotishman Pathak, Thomas J. George, William Hogan, Yi Guo, Jiang Bian, Yonghui Wu</i>	
VALIDATION OF ADMINISTRATIVE CODING AND CLINICAL NOTES FOR HOSPITAL-ACQUIRED ACUTE KIDNEY INJURY IN ADULTS .....	1233
<i>Jianqiu Zhang, Paul E. Drawz, Ying Zhu, Gretchen M. Hultman, Gyorgy Simon, Genevieve B. Melton</i>	
CHARACTERIZING BRAIN NETWORK DYNAMICS USING PERSISTENT HOMOLOGY IN PATIENTS WITH REFRACTORY EPILEPSY .....	1243
<i>Jianzhe Zhang, Roland Bauman, Nassim Shafiabadi, Nick Gurski, Guadalupe Fernandez-Bacavaca, Satya S. Sahoo</i>	
USER NEEDS AND CHALLENGES IN INFORMATION SHARING BETWEEN PRE-HOSPITAL AND HOSPITAL EMERGENCY CARE PROVIDERS.....	1253
<i>Zhan Zhang, Aleksandra Sarcevic, Karen Joy, Mustafa Ozkaynak, Kathleen Adelgais</i>	

### VOLUME 3

DATA AND MODEL BIASES IN SOCIAL MEDIA ANALYSES: A CASE STUDY OF COVID-19 TWEETS .....	1263
<i>Yunpeng Zhao, Pengfei Yin, Yongqiu Li, Xing He, Jingcheng Du, Cui Tao, Yi Guo, Mattia Prosperi, Pierangelo Veltri, Xi Yang, Yonghui Wu, Jiang Bian</i>	
TOWARDS DIGESTIBLE DIGITAL HEALTH SOLUTIONS: APPLICATION OF A HEALTH LITERACY INCLUSIVE DEVELOPMENT FRAMEWORK FOR PERIPARTUM DEPRESSION MANAGEMENT .....	1273
<i>Alexandra Zingg, Tavleen Singh, Sahiti Myneni</i>	

### **PODIUM ABSTRACT**

RACIAL REPRESENTATION ANALYSIS IN DERMATOLOGY ACADEMIC MATERIALS .....	1283
<i>Girmaw Abebe Tadesse, Celia Cintas, Roxana Daneshjou, Kush Varshney, Peter Staar, Skyler Speakman, Kenya Andrews, Chinyere Agunwa, Justin Jia, Elizabeth Bailey, Jules Lipoff, Ginikanwa Onyekaba, Veronica Rottemberg, Ademide Adekun, James Y. Zou</i>	
FEASIBILITY OF A SELF-ADMINISTRATED ELDER ABUSE DIGITAL SCREENING TOOL FOR USE IN EMERGENCY DEPARTMENT SETTINGS .....	1285
<i>Fuad Abujarad, Esther Choo, Michael Pantalon, Karen Jubanyik, Dziura James, Chelsea Edwards, Gail D'Onofrio, Thomas Gill</i>	
EXPLORING AUTOMATIC SUMMARIZATION OF THE HOSPITAL COURSE .....	1287
<i>Griffin Adams, Emily Alsentzer, Mert Ketenci, Jason Zucker, Noemie Elhadad</i>	



MULTI-SITE EVALUATION OF LONGITUDINAL CHANGES IN EJECTION FRACTION IN HEART FAILURE PATIENTS THROUGH DATA-DRIVEN PHENOTYPING.....	1289
<i>Prakash Adekkanattu, Jennifer A. Pacheco, Joseph Kabariti, Daniel Stone, Yue Yu, Parag Goyal, Faraz S. Ahmad, Guoqian Jiang, Yuan Luo, Luke V. Rasmussen, Pascal Brandt, Zhenxing Xu, Jie Xu, Fei Wang, Natalie C. Benda, Thomas R. Champion, Jyotishman Pathak</i>	
TOWARD PHENOTYPING OF VENTILATOR-INDUCED LUNG INJURY WITH A DAMAGE-INFORMED PULMONARY MODEL OF LUNG-VENTILATOR INTERACTION.....	1291
<i>David Albers, Deepak Agrawal, Bradford Smith, Peter Sottile, Tellen D. Bennett, Jake Stroh, George Hripcsak</i>	
IMPRECISION AND PREFERENCES IN INTERPRETATION OF VERBAL PROBABILITIES IN HEALTH: A SYSTEMATIC REVIEW .....	1293
<i>Katerina Andreadis, Ethan Chan, Minha Park, Natalie C. Benda, Mohit Manoj Sharma, Michelle Demetres, Diana Delgado, Elizabeth Sigworth, Qingxia Chen, Andrew Liu, Lisa Grossman Liu, Marianne Sharko, Brian Zikmund-Fisher, Jessica S. Ancker</i>	
SPILOVER EFFECTS FROM THE HITECH ACT ON INNOVATION IN MEDICAL INFORMATICS .....	1295
<i>Nate C. Apathy, A Jay Holmgren, Shane Greenstein</i>	
A GENERALIZABLE FRAMEWORK FOR COST-EFFECTIVENESS ANALYSIS OF ANTIHYPERTENSIVE DRUGS LEVERAGING REAL-WORLD EVIDENCE.....	1297
<i>Douglas Arneson, Rohit Vashisht, Vivek Rudrapatna, Atul Butte</i>	
DESIGN FOR HEALTH SYSTEM RESILIENCE IN CHALLENGING TIMES: A FRAMEWORK FOR REMOTE CANCER CARE THROUGH COMMUNITY CODESIGN .....	1299
<i>Elijah Aronoff-Spencer, Melanie McComsey, Alexandra Hubenko, Ming-Yuan Chih, Timothy Mullett, Corey E. Baker, John Kim, David K. Ahern, Michael C. Gibbons, Joseph Cafazzo, Pia Nyakairu, Robin C. Vanderpool, Bradford Hesse</i>	
ACCURATELY AND PRIVATELY REPORTING CROWDSENSED COVID-19 DATA.....	1301
<i>Hafiz Asif, Periklis A. Papakonstantinou, Stephanie Shiau, Vivek Singh, Jaideep Vaidya</i>	
APPLYING REAL WORLD DATA TO CDISC STANDARDS THROUGH THE JOINT FHIR® TO CDISC® MAPPING DOCUMENT .....	1303
<i>Rebecca L. Baker, Rhonda Facile, Bess Leroy</i>	
TOWARD PATIENT-CENTERED INFORMATICS SOLUTIONS: THE ROLE OF INTERSECTIONALITY .....	1305
<i>Emily Bascom, Reggie Casanova-Perez, Harshini Ramaswamy, Deepthi Mohanraj, Janice Sabin, Wanda Pratt, Andrea Hartzler</i>	
BEYOND ABSOLUTE ACUITY: CHANGES IN RELATIVE ACUITY DIRECT PROACTIVE RAPID RESPONSE TEAMS TOWARD MEANINGFUL INTERVENTIONS .....	1307
<i>Joseph Beals, Kathy Belk, Sheila Coonan, Jacqueline Laird</i>	
A FRAMEWORK TO SUPPORT DIVERSITY, EQUITY, AND INCLUSION WITHIN AMIA THROUGH STRENGTHENED PATHWAYS, SUPPORT AND LEADERSHIP.....	1309
<i>Oliver J. Bear Don'T Walk, Kevin K. Wiley, Lois Walters-Threat, Rebecca L. Rivera, Martin C. Were, Tiffani J. Bright</i>	
FORECASTING INPATIENT BED DEMAND TO RESPOND TO THE COVID-19 PANDEMIC.....	1311
<i>Biplab Sudhin Bhattacharya, Debdipto Misra, Eric Reich, Jason Puckey, David Vawdrey</i>	

L VHNET: DETECTING CARDIAC STRUCTURAL ABNORMALITIES WITH CHEST X- RAYS .....	1313
<i>Shreyas Bhave, Pierre Elias, Victor A. Rodriguez, Timothy Poterucha, Simi Mutasa, Jay Leb, Nir Uriel, Adler Perotte</i>	
MULTI-CHANNEL LSTM FOR MODELING IRREGULARLY SAMPLED TIME SERIES .....	1315
<i>Shreyas Bhave, Adler Perotte</i>	
LATINX ACCULTURATION SCALES: SCOPING REVIEW AND NOVEL SCALE SELECTION TOOL.....	1317
<i>Anweysha Bhowmik, Logan Cameron, Julia Ivanova, Stanley Haynes, Ariana Cano, George Runger, Anita Murcko</i>	
AUGMENTING BARBERSHOP INITIATIVE HEALTH PROMOTION WITH WEARABLES IN AFRICAN-AMERICAN POPULATIONS.....	1319
<i>Lisa Anne Bove, Stephanie Turrise</i>	
DEVELOPING AN ACADEMIC-INDUSTRY INTERNSHIP TO TRAIN NEXT-GENERATION BIOMEDICAL INFORMATICIANS .....	1321
<i>Tiffani J. Bright, Allison B. McCoy, Dilhan Weeraratne, Kim M. Unertl</i>	
HOW WILL AMIA LEAD? AN ENVIRONMENTAL SCAN OF DIVERSITY, EQUITY, AND INCLUSION ACTIVITIES WITHIN THE HEALTHCARE AND HEALTH IT SPACE .....	1323
<i>Tiffani J. Bright, Carolyn Petersen, Karen Wang, Clair Kronk, Patricia C. Dykes</i>	
TO DEEP OR NOT TO DEEP: COMPARISON OF TRADITIONAL AND DEEP LEARNING MODELS IN DISEASE PREDICTION FROM ELECTRONIC HEALTH RECORDS .....	1325
<i>Alon Brutzkus, Pinchas Akiva, Guy Amit</i>	
LINGUISTIC INDICATORS OF BEHAVIORAL ACTIVATION IN TEXT-BASED THERAPY SESSIONS ANTICIPATE CHANGES IN DEPRESSION SYMPTOMATOLOGY .....	1327
<i>Hannah A. Burkhardt, George Alexopoulos, Michael D. Pullmann, Thomas D. Hull, Patricia A. Areán, Trevor A. Cohen</i>	
OBESITY CLASSIFIER PERFORMANCE DISPARITIES BY DEMOGRAPHIC SUBGROUP .....	1329
<i>Elizabeth A. Campbell, Saurav Bose, Aaron J. Masino</i>	
CLINICAL DECISION SUPPORT WITH A COMPREHENSIVE IN-EHR PATIENT TRACKING SYSTEM TO IMPROVE INPATIENT GENETIC TESTING FOLLOW UP .....	1331
<i>Ian M. Campbell, Morgan L. McManus, David C. Junod, Fred C. Cusick, Sarah E. Sheppard, Eli M. Lourie, Eric D. Shelov, Anthony Luberti</i>	
DATA-DRIVEN PATTERNS IN PROTECTIVE EFFECTS OF IBUPROFEN AND KETOROLAC ON HOSPITALIZED COVID-19 PATIENTS .....	1333
<i>Rich Caruana, Benjamin J. Lengerich, Yindalon Aphinyanaphongs</i>	
DEEP LEARNING DETECTION OF RETICULAR PSEUDODRUSEN USING MULTI- MODAL, MULTI-TASK, AND MULTI-ATTENTION MECHANISMS: TOWARDS AUTOMATED AND ACCESSIBLE CLASSIFICATION OF AGE-RELATED MACULAR DEGENERATION.....	1335
<i>Qingyu Chen, Tiarnan D. Keenan, Emily Y. Chew, Zhiyong Lu</i>	
REPRODUCIBILITY IN BIOMEDICAL NATURAL LANGUAGE PROCESSING: A FAIR APPROACH TO WHAT WE NEED TO KNOW .....	1337
<i>Kevin B. Cohen, Anna M. Ripple, Asma Ben Abacha, Olivier Bodenreider, Orin Hargraves, Karin Verspoor, Pierre Zweigenbaum, Dina Demner-Fushman</i>	

EXAMINING THE SOCIOTECHNICAL PROCESS OF CLINICAL PHOTOGRAPHY TO ENCOURAGE PHOTO DIVERSITY IN MEDICAL EDUCATION.....	1339
<i>Benjamin Collins, Linda Felver, Pamela Pierce</i>	
A RETROSPECTIVE ANALYSIS OF MACHINE LEARNING DRIVEN ANTIBIOTIC SELECTION IN THE EMERGENCY DEPARTMENT .....	1341
<i>Conor K. Corbin, Arhana Chattopadhyah, Lillian Sung, Amy Chang, Stan Deresinski, Jonathan H. Chen</i>	
DEVELOPMENT AND VALIDATION OF A MACHINE LEARNING MODEL TO PREDICT CONTACT MOMENTS IN POST-MYOCARDIAL INFARCTION HOME MEASUREMENTS .....	1343
<i>Anne A. H. De Hond, Esmee Stoop, Nicole Van Keulen, Loes Van Winden, Ellen Poorter, Douwe Atsma, Ilse Kant, Ewout Steyerberg</i>	
USING GENOMIC ASSOCIATION REPLICATION RATES AS AN EHR QUALITY MEASURE VIA THE PHENOTYPE-GENOTYPE REFERENCE MAP (PGRM).....	1345
<i>Sarah Delozier, Josh F. Peterson, Joshua Denny, Lisa Bastarache</i>	
CAN REPRODUCIBILITY BE IMPROVED IN CLINICAL NATURAL LANGUAGE PROCESSING? A STUDY OF 7 CLINICAL NLP SUITES .....	1347
<i>William Digan, Aurelie Neveol, Antoine Neuraz, Maxime Wack, David Baudoin, Anita Burgun, Bastien Rance</i>	
ALERTING PRIMARY CARE TEAMS TO OUT-OF-NETWORK ACUTE CARE EVENTS USING HEALTH INFORMATION EXCHANGE: IMPACT ON TIMELY FOLLOW-UP.....	1349
<i>Brian E. Dixon, Kimberly M. Judon, Ashley Schwartzkopf, Vivian Guerrero Aquino, Nicholas Koufacos, Justine May, Cathy C. Schubert, Kenneth Boockvar</i>	
INFORMING SYMPTOM SCIENCE USING A CITIZEN SCIENCE APPLICATION IN THE COVID-19 PANDEMIC .....	1351
<i>Caitlin Dreisbach, Katherine South, Theresa Koleck, Veronica Barcelona, Lena Mamykina, Noemi Elhadad, Suzanne Bakken</i>	
CLINICAL DECISION SUPPORT IN THE PEDIATRIC ICU: A MULTI-INSTITUTION SURVEY .....	1353
<i>Adam C. Dziorny, Julia Heneghan, Moodakare A. Bhat, Dean Karavite, L. Nelson Sanchez-Pinto, Jennifer McArthur, Naveen Muthu</i>	
DEVELOPMENT AND GLOBAL USE OF A PLATFORM-INDEPENDENT MOBILE APP TO ENABLE CITIZEN-SCIENTIST DATA COLLECTION ON MASK-WEARING .....	1355
<i>Peter J. Embi, Marcelo A. Lopetegui, Joshua R. Vest</i>	
ADVANCING NATIONAL HIE MEASUREMENT BY USING SHARED PATIENTS VOLUME .....	1357
<i>Jordan Everson, Julia Adler-Milstein</i>	
THE RELATIONSHIP BETWEEN MULTIPLE METHODS USED TO OBTAIN HEALTH INFORMATION AND USE OF OUTSIDE INFORMATION BY HOSPITALS .....	1359
<i>Jordan Everson, Vaishali Patel</i>	
COLLECTING AND SHARING ECG DATA WITH PRIVACY PROTECTION .....	1361
<i>Liyue Fan, Zeyun Wu, Luca Bonomi</i>	
RADIOLOGY DICTATION ERRORS WITH COVID-19 PROTECTIVE EQUIPMENT: DOES WEARING A SURGICAL MASK INCREASE THE ERROR RATE WHEN USING SPEECH-RECOGNITION?.....	1363
<i>Abiola Femi-Abodunde, Kristen Olinger, Lauren Burke, Thad Benefield, Ellie Lee, Katrina McGinty, Benjamin Mervak</i>	

IDENTIFYING COMMUNICATION BEHAVIOR INDICATORS IN SECURE MESSAGES .....	1365
<i>Dezon K. Finch, Lina Bouayad, Timothy P. Hogan, Sarah Cutrona, Byron Wallace, Stephen L. Luther, Bridget Smith, Stephanie L. Shimada</i>	
HIGH-THROUGHPUT SEQUENCING OF SARS-COV-2 IN WASTEWATER PROVIDES INSIGHTS INTO CIRCULATING VARIANTS .....	1367
<i>Rafaela S. Fontenele, Simona Kraberger, James Hadfield, Erin M. Driver, Devin Bowes, Larinda A. Holland, Temitope O. Faleye, Sangeet Adhikari, Rahul Kumar, Rosa Inchausti, Wydale K. Holmes, Stephanie Deitrick, Philip Brown, Darrell Duty, Aruni Bhatnagar, Ray A. Yeager, Rochelle H. Holm, Kevin Dixon, Tim Constantine, Melissa A. Wilson, Efreem S. Lim, Xiaofang Jiang, Rolf U. Halden, Matthew Scotch, Arvind Varsani</i>	
CAN ICD-11 REPLACE ICD-10-CM FOR MORBIDITY CODING IN THE U.S.?.....	1369
<i>Kin Wah Fung, Julia Xu, Shannon McConnell-Lamprey, Donna Pickett, Olivier Bodenreider</i>	
MINING AND CHARACTERIZING LONG-COVID SYMPTOMS FROM SELF-REPORTS ON REDDIT .....	1371
<i>Yao Ge, Yuting Guo, Abeed Sarker</i>	
IMPACT OF A CLINICAL DECISION SUPPORT TOOL FOR CARDIOVASCULAR PREVENTIVE CARE IN COMMUNITY HEALTH CENTERS: RANDOMIZED TRIAL RESULTS.....	1373
<i>Rachel Gold, Patrick J. O'Connor, Annie Larson, Joann Sperl-Hillen, Dave Boston, Lauren Crain, Christina Shepler, Mary Middendorf, Ann Romer, John Heintzman, Deepika Appana</i>	
PATIENT PERSPECTIVES ON AN INTERACTIVE MHEALTH INTERVENTION TO IMPROVE SYMPTOM MANAGEMENT AND MEDICATION ADHERENCE IN EARLY-STAGE BREAST CANCER: EVIDENCE FROM THE THRIVE STUDY .....	1375
<i>Ilana Graetz, Rebecca Krukowski, Janeane Anderson, Mehmet Kocak, Teresa Waters, Edward Stepanski, Andrea Curry, Gregory A. Vidal, Andrew Robles, Lee Schwartzberg</i>	
EVALUATION OF TOKEN COLLECTIONS AND MATCHING MODELS TO SUPPORT PRIVACY-PRESERVING RECORD LINKAGE (PPRL).....	1377
<i>Shaun Grannis, Abel Kho, Jasmin Phua, Suranga N. Kasthurirathne</i>	
PRECISION VISSTA STUDY: MHEALTH PHYSICAL ACTIVITY PATTERNS AND PATIENT-REPORTED OUTCOMES IN PATIENTS WITH INFLAMMATORY BOWEL DISEASES .....	1379
<i>Ashley C. Griffin, Lucas Mentch, Feng-Chang Lin, Arlene E. Chung</i>	
EFFECT OF ABBREVIATION AND ACRONYM EXPANSION ON PATIENTS' COMPREHENSION OF THEIR HEALTH RECORDS: A RANDOMIZED TRIAL.....	1381
<i>Lisa Grossman Liu, Meghan Reading Turchioe, David Russell, Annie C. Myers, David Vawdrey, Ruth Masterson Creber</i>	
ASSESSING THE DOCUMENTATION OF SOCIAL NEEDS IN ELECTRONIC HEALTH RECORDS' UNSTRUCTURED DATA: A COLLABORATION OF JOHNS HOPKINS HEALTH SYSTEM AND KAISER PERMANENTE.....	1383
<i>Elham Hatef, Masoud Rouhizadeh, Claudia Nau, Fagen Xie, Ariadna Padilla, Lindsay Joe Lyons, Christopher Rouillard, Mahmoud Abu-Nasser, Hadi Kharrazi, Jonathan Weiner, Douglas Roblin</i>	
A HYBRID APPROACH TO SEMI-AUTOMATE THE SCREENING PROCESS FOR LIVING SYSTEMATIC REVIEWS AND META-ANALYSIS.....	1385
<i>Huan He, Irbaz Bin Riaz, Syed Arsalan Ahmed Naqvi, Rabbia Siddiqi, Noureen Asghar, Mohammad H. Murad, Hongfang Liu</i>	

INVESTIGATING THE NARRATIVES OF ANTI-ASIAN HATE SPEECH ON TWITTER DURING THE COVID-19 PANDEMIC .....	1387
<i>Lu He, Ya Cheng, Tianyang Zhou, Yongxu Xian</i>	
APPS FOR COVID-19 IN GERMANY: ASSESSMENT USING THE MOBILE APPLICATION RATING SCALE .....	1389
<i>Felix Holl, Fabian Flemisch, Walter J. Swoboda, Johannes Schobel</i>	
ASSESSING THE IMPACT OF COVID-19 ON CLINICIAN ELECTRONIC HEALTH RECORD USE .....	1391
<i>A Jay Holmgren, N. Lance Downing, Mitchell Tang, Christopher Sharp, Christopher A. Longhurst, Robert S. Huckman</i>	
PATIENT ASYNCHRONOUS RESPONSE TO CORONAVIRUS DISEASE 2019 (COVID-19): A RETROSPECTIVE ANALYSIS OF PATIENT PORTAL MESSAGES .....	1393
<i>Ming Huang, Aditya Khurana, George Mastorakos, Andrew Wen, Huan He, Liwei Wang, Sijia Liu, Yanshan Wang, Julie Prigge, Brian Costello, Nilay D. Shah, Henry Ting, Christi Patten, Jungwei Fan, Hongfang Liu</i>	
DEEP SIGNIFICANCE CLUSTERING (DICE) A HETEROGENOUS POPULATION .....	1395
<i>Yufang Huang, Yifan Liu, Peter A. Steel, Kelly M. Axsom, John R. Lee, Sri Lekha Tummalapalli, Alison Hermann, Rochelle Joly, Fei Wang, Jyotishman Pathak, Lakshminarayanan Subramanian, Yiye Zhang</i>	
LEVERAGING THE MEDDRA BIOMEDICAL TERMINOLOGY AND WEAK LABELING FOR MENTAL HEALTH SYMPTOM SURVEILLANCE FROM PATIENT NOTES.....	1397
<i>Marie Humbert-Droz, Suzanne Tamang, Olivier Gevaert</i>	
OPPORTUNITIES TO IMPROVE SOCIAL DETERMINANTS OF HEALTH SCREENING IMPLEMENTATION THROUGH TRAINING AND SUPPORT FOR PROVIDERS: IMPLICATIONS FOR HEALTH INFORMATION TECHNOLOGY .....	1399
<i>Bradley E. Iott, Jessica A. Pater, Shauna Wagner, Tammy Toscos, Tiffany Veinot</i>	
A DATA-DRIVEN ALGORITHM TO RECOMMEND INITIAL CLINICAL WORKUP FOR OUTPATIENT SPECIALTY REFERRAL .....	1401
<i>Wui Ip, Priya Prahalad, Jonathan Palma, Jonathan H. Chen</i>	
TUBERCULOSIS TREATMENT SUPPORT TOOLS: ITERATIVE REFINEMENT BASED ON A MIXED-METHOD RANDOMIZED CONTROLLED PILOT STUDY AND USABILITY TESTING .....	1403
<i>Sarah Iribarren, Kyle Goodwin, Alex Stabile, Alfie Vidrio, Rebecca Schnall, George Demiris</i>	
TEAMTAT: A COLLABORATIVE TEXT ANNOTATION TOOL FOR CREATING GOLD-STANDARD CORPORA .....	1405
<i>Rezarta Islamaj, Dongseop Kwon, Sun Kim, Zhiyong Lu</i>	
NLM-CHEM, A GOLD-STANDARD CORPUS FOR CHEMICAL ENTITY RECOGNITION IN PUBMED FULL TEXT LITERATURE.....	1407
<i>Rezarta Islamaj, Robert Leaman, David Cissel, Cathleen Coss, Carol Fisher, Rob Guzman, Preeti G. Kochar, Dorothy Trinh, Deborah Whitman, Keiko Sekiya, Zhiyong Lu</i>	
MEDICAL CURRICULUM ELECTIVE TO INTEGRATE CLINICAL ANALYTICS AND ARTIFICIAL INTELLIGENCE IN PREPARING PHYSICIANS FOR THE DIGITALLY ENABLED PRACTICE .....	1409
<i>Miriam Isola, Radhika Sreedhar, Linda F. Chang, Tushar Patel, Max Anderson, Jacob Krive</i>	

LEVERAGING PRECISIONFDA AND SYNTHETIC DATA TO IMPROVE VETERAN HEALTHCARE .....	1411
<i>Bocheng Jing, Anish Prasanna, Elaine Johanson, Sarah Stephens, Samir Lababidi, Ezekiel Maier, Amanda Purnell</i>	
RESPONDING TO A CRISIS OF VETERAN SUICIDE QUICKLY: A QUALITATIVE INTERDISCIPLINARY COLLABORATION .....	1413
<i>Andrea F. Kalvesmaki, Alec Chapman, Kelly S. Peterson, Mary Jo Pugh, Makoto Jones, Theresa Gleason</i>	
IMPROVING OUTCOMES FOR PEDIATRIC PATIENTS WITH METABOLIC CONDITIONS IN THE ED USING USER CENTERED DESIGN FOR ORDER SETS .....	1415
<i>Swaminathan Kandaswamy, Shabnam Jain, Dwight Chambers, William R. Wilcox, Beesan Agha, Sara Brown, Evan W. Orenstein</i>	
HOW ROBUST IS YOUR RISK MODEL? ASSESSING SUBPOPULATION PERFORMANCE HETEROGENEITY IN RISK MODELS BASED ON DISCRIMINATION, CALIBRATION, AND FAIRNESS MEASURES: AN ATRIAL FIBRILLATION USE CASE .....	1417
<i>Uri Kartoun, Shaan Khurshid, Bum Chul Kwon, Amit Khera, Patrick Ellinor, Steven Lubitz, Kenney Ng</i>	
INFORMATICS-DRIVEN COVID-19 VACCINE ENTERPRISE: LESSONS FOR THE FUTURE .....	1419
<i>Nitu Kashyap, Sarah Kelly, Rebecca McCray, Allen Hsiao</i>	
NLP-DRIVEN AUTOMATED NEWS MONITORING SOLUTION FOR COVID-19 RESPONSE .....	1420
<i>Mary Kennedy-Moore, Stephen A. Mustillo, Connor Kennedy, Zakir Hussain, Jessica D. Tenenbaum</i>	
COVID-19 CLINICAL AND SOCIAL SURVEILLANCE SYSTEM FOR AFTER SCHOOL PROGRAMS .....	1422
<i>Ellen K. Kerns, Russell McCulloh, Chad J. Abresch</i>	
IMPROVING THE PREDICTION OF HEALTHCARE COSTS AND UTILIZATION USING THE AREA DEPRIVATION INDEX AND STATEWIDE INSURANCE DATA .....	1424
<i>Hadi Kharrazi, Hsien-Yen Chang, Elham Hatef, Xiaomeng Ma, Jonathan Weiner</i>	
FHIREDAPP: A LEAP IN HEALTH INFORMATION TECHNOLOGY FOR PROMOTING PATIENT ACCESS AND HEALTH EQUITY .....	1426
<i>Anjum Khurshid, Eliel C. De Oliveira, Vidya Laskhminarayanan, Vishal Abrol</i>	
CLINICAL CONCEPT EXTRACTION USING CONTEXTUAL STRING EMBEDDINGS .....	1428
<i>Youngjun Kim, Paul M. Heider, Stephane Meystre</i>	
FEASIBILITY AND EFFICACY OF USING COMMERCIALY AVAILABLE MHEALTH TECHNOLOGIES AND TAILORED TEXT MESSAGES TO IMPROVE SELF-CARE IN PATIENTS WITH HEART FAILURE: PHASE I CLINICAL TRIAL OF THE ICARDIA4HF INTERVENTION .....	1430
<i>Spyros Kitsiou, Susan Pressler, Mayank Kansal, Susan Buchholz, Jinsong Chen, Jonathan Leigh, Ayomide Owoyemi, Ben S. Gerber</i>	
CHALLENGES AND SOLUTIONS TO PROMOTING EVALUATION PRACTICES IN SOFTWARE DEVELOPMENT PROCESS WITHIN AN ACADEMIC MEDICAL CENTER .....	1432
<i>Polina Kukhareva, Charlene Weir, Thomas Reese, Teresa Taft, Guilherme Del Fiol, Kensaku Kawamoto</i>	

IMPROVING MHC CLASS I ANTIGEN PROCESSING PREDICTION VIA REPRESENTATION LEARNING AND CLEAVAGE SITE-SPECIFIC KERNELS .....	1434
<i>Patrick J. Lawrence, Xia Ning</i>	
LONG COVID: A COMPREHENSIVE COLLECTION OF ARTICLES REGARDING LONG-HAUL SYMPTOMS IN COVID-19 SURVIVORS .....	1436
<i>Robert Leaman, Qingyu Chen, Alexis Allot, Zhiyong Lu</i>	
VA'S NATIONAL TELEHEALTH PROGRAM: CONTRASTING TELEHEALTH MODALITIES USED BY PRIMARY CARE AND MENTAL HEALTH SPECIALTIES DURING THE COVID-19 PANDEMIC .....	1438
<i>Lucinda B. Leung, Lisa Rubinstein, Erin Jaske, Chelle L. Wheat, Karin Nelson, Bradford L. Felker</i>	
IMPACT OF SEX AND GENDER DISPARITIES ON COMPUTATIONAL PHENOTYPING: A POTENTIAL BARRIER TO AN EQUITABLE LEARNING HEALTH SYSTEM.....	1440
<i>Rebecca T. Levinson, Jennifer R. Malinowski, Luke V. Rasmussen, Suzette J Bielinski, Veronique L. Roger, Quinn S. Wells, Laura K. Wiley</i>	
DIGITAL READINESS: ARE LOW-INCOME POPULATIONS PREPARED FOR TELEHEALTH? .....	1442
<i>Sunny C. Lin, Julie Reeder, Mary Vest, Kathy Harris, Jill Castek</i>	
COVID-19 MORTALITY PREDICTION AMONG PATIENTS WITH CANCER USING A LARGE NATIONAL COHORT.....	1444
<i>Feifan Liu, Noha Sharafeldin, Vithal Madhira, Kate Bradwell, Qianqian Song, Benjamin Bates, Yu R. Shao, Jing Su, Alfred J. Anzalone, Tim Bergquist, Sarah Cutrona, Ben S. Gerber, Peter Robinson, Justin Guinney, Umit Topaloglu</i>	
LEVERAGING TRANSFER LEARNING TO ANALYZE OPINIONS, ATTITUDES, AND BEHAVIORAL INTENTIONS TOWARD COVID-19 VACCINES .....	1446
<i>Siru Liu, Jialin Liu</i>	
A LONGITUDINAL STUDY OF BURNOUT AND CLINICAL WORKLOAD MEASURED WITH ELECTRONIC HEALTH RECORD AUDIT LOGS .....	1448
<i>Sunny Lou, Daphne Lew, Derek Harford, Chenyang Lu, Bradley Evanoff, Jennifer Duncan, Thomas Kannampallil</i>	
FEASIBILITY OF USING MACHINE LEARNING ON INSURANCE CLAIMS TO IDENTIFY CORRELATES OF LOWER EXTREMITY AMPUTATION IN INSURED ADULTS WITH TYPE 2 DIABETES WHO INITIATE TREATMENT WITH SODIUM-GLUCOSE CO-TRANSPORTER 2 (SGLT-2) INHIBITORS .....	1450
<i>Yuan Luo, Andrew J. Cooper, Raymond Kang, Ronald Ackermann</i>	
PATIENT PREFERENCES FOR ACCESSING, COMMUNICATING, AND SHARING HEALTH INFORMATION USING VISUALIZED PATIENT-REPORTED OUTCOMES .....	1452
<i>Sabrina Mangal, Leslie Park, Meghan Reading Turchioe, Lisa Grossman Liu, Annie C. Myers, Brittany N. Taylor, Parag Goyal, Lydia Dugdale, Ruth Masterson Creber</i>	
A DEEP LEARNING FRAMEWORK USING A PRE-TRAINED BERT MODEL TO PREDICT THE RISK OF PROGRESSION FROM MILD COGNITIVE IMPAIRMENT TO ALZHEIMER'S DISEASE .....	1454
<i>Chengsheng Mao, Jie Xu, Luke V. Rasmussen, Jennifer A. Pacheco, Guoqian Jiang, Fei Wang, Richard Isaacson, Jyotishman Pathak, Yuan Luo</i>	

INTEGRATING EVALUATIONS OF PREDICTIVE ALGORITHM-DRIVEN INTERVENTIONS INTO CLINICAL WORKFLOWS WITH THE DYNAMIC DISCONTINUITY DEPLOYMENT DESIGN.....	1456
<i>Ben J. Marafino, Alejandro Schuler, Vincent Liu, Art Owen, Gabriel J. Escobar, Michael Baiocchi</i>	
MANAGING HEALTH CARE KNOWLEDGE IN PREDICTIVE MODELING, CLINICAL DECISION SUPPORT AND METRIC REPORTING – EXECUTABLE LIBRARY ARCHITECTURE (XLA).....	1458
<i>Susana B. Martins, Cora L. Bernard, Suzanne Tamang, Jodie Trafton</i>	
LONGITUDINAL PERFORMANCE OF A MACHINE LEARNING NICU SEPSIS PREDICTOR.....	1460
<i>Aaron J. Masino, Mary C. Harris, Lakshmi Srinivasan, Robert W. Grundmeier</i>	
“THERE FOR YOU EVERY DAY”: PILOT STUDY OF AN AUTOMATED CONVERSATIONAL HEALTH COACH.....	1462
<i>Elliot G. Mitchell, Lena Mamykina</i>	
PRAGMATIC PATIENT REPORTED OUTCOMES VIA EHR PATIENT PORTAL VS. TELEPHONE: A PILOT RANDOMIZED CONTROLLED TRIAL AMONG ADULTS WITH EPILEPSY AND ANXIETY OR DEPRESSION SYMPTOMS .....	1464
<i>Heidi M. Munger Clary, Beverly M. Snively, Umit Topaloglu, Pamela Duncan, James Kimball, Halley Alexander, Gretchen A. Brenes</i>	
PREDICTING LEVEL OF CARE FOR EMERGENCY HOSPITAL ADMISSIONS TO OPTIMIZE TRIAGE.....	1466
<i>Minh Nguyen, Nicolai P. Ostberg, Conor K. Corbin, Tiffany Eulalio, Gautam Machiraju, Ben J. Marafino, Michael Baiocchi, Christian Rose, Jonathan H. Chen</i>	
DEVELOPING AN AUTOMATED RECIPIENT RISK PREDICTION TOOL FOR LIFE-LONG MORTALITY AFTER PEDIATRIC HEART TRANSPLANTATION.....	1468
<i>Yizhao Ni, Farhan Zafar, Alia Dani, David Morales, Lara Kanbar</i>	
EXPERIENCES OF DISCRIMINATION AND WITHHOLDING INFORMATION FROM PROVIDERS.....	1470
<i>Paige M. Nong, Alicia Williamson, Jodyn Platt, Denise Anthony</i>	
PHENOTYPE OBSERVED ENTITY BASELINE ENDORSEMENTS (PHOEBE) - RECOMMENDER SYSTEM FOR CONCEPT SELECTION IN PHENOTYPE ALGORITHM DEVELOPMENT .....	1472
<i>Anna Ostroplets, Patrick B. Ryan, George Hripcsak</i>	
EVALUATION OF THE PORTABILITY OF NATURAL LANGUAGE PROCESSING-BASED COMPUTABLE PHENOTYPES IN THE EMERGE NETWORK.....	1474
<i>Jennifer A. Pacheco, Luke V. Rasmussen, Ken Wiley, Thomas N. Person, David J. Cronkite, Sunghwan Sohn, Shawn N. Murphy, Justin H. Gundelach, Vivian Gainer, Victor M. Castro, Cong Liu, Todd Lingren, Frank Mentch, Agnes S. Sundaresan, Garrett Eickelberg, Valerie Willis, Al’Ona Furmanchuk, Roshan Patel, David S. Carrell, Marc S. Williams, Elizabeth W. Karlson, Jodell E. Linder, Yuan Luo, Chunhua Weng, Wei Wei-Qi</i>	
STATISTICAL MODELING OF MULTIPLE VITAL SIGN TRAJECTORIES TO ASSESS RISK OF POSTOPERATIVE COMPLICATIONS AND PREDICT READMISSION.....	1476
<i>Rema Padman, Sameera Kodi, Urmila Ravichandran, Nirav Shah</i>	



ADDRESSING DISPARITIES IN DIABETES USING TEMPORAL FAIRNESS MODELS .....	1478
<i>Joseph M. Plasek, Chunlei Tang, Xiaoxia Wang, Yun Xiong, Yangyong Zhu, Yanming He, Patricia C. Dykes, David W. Bates, Li Zhou</i>	
CONSEQUENCES OF RAPID TELEHEALTH EXPANSION IN US NURSING HOMES: EXPLORING STAKEHOLDER PERSPECTIVES .....	1480
<i>Kimbery R. Powell, Gregory L. Alexander</i>	
HOMELESSNESS AND CRIMINAL JUSTICE INVOLVEMENT IN VETERANS AFTER MILITARY SEPARATION.....	1482
<i>Mary Jo Pugh, Megan Amuan, Robert Graziano, Dina Hooshyar, Jack Tsai, Audrey Jones, Richard Nelson, Megan E. Vanneman, Eric Elbogen</i>	
PLANNING EQUITABLE CLINICAL TRIAL ENROLLMENT USING INTEGER PROGRAMMING.....	1484
<i>Miao Qi, Amar K. Das, Kristin P. Bennett</i>	
COVID19 HOSPITAL LENGTH OF STAY, READMISSION RATE, AND HOSPITAL DEATH TIED TO SOCIOECONOMIC AREA OF DEPRIVATION INDEX.....	1486
<i>Priya Ramaswamy, Phoebe Lu, Jen Gong, Travis Porco, Priya Shete, Seth Blumberg, Xinran Liu</i>	
COVRNN: PREDICTING OUTCOMES OF COVID-19 PATIENTS ON ADMISSION USING THEIR ELECTRONIC HEALTH RECORDS WITH MINIMAL DATA PROCESSING.....	1488
<i>Laila Rasmy, Masayuki Nigo, Bijun S. Kannadath, Ziqian Xie, Bingyu Mao, Khush A. Patel, Wanheng Zhang, Yujia Zhou, Angela Ross, Hua Xu, Degui Zhi</i>	
DIFFERENTIAL PRESENTATION AND DELAYS IN TREATMENT FOR ACUTE MYOCARDIAL INFARCTION ASSOCIATED WITH SEX AND RACE/ETHNICITY .....	1490
<i>Harry Reyes Nieva, Tony Sun, Sharon Gorman, Grace Mao, Noemie Elhadad</i>	
CHALLENGES TO PUBLIC HEALTH REPORTING EXPERIENCED BY HOSPITALS .....	1492
<i>Chelsea Richwine, Carmelita Marshall, Christian Johnson, Vaishali Patel</i>	
SIGNAL FROM THE NOISE: QUANTITATIVE MEASURES OF CONFORMITY AND VARIABILITY FROM PROCESS MINING MAPS .....	1494
<i>Christian C. Rose, Morteza Noshad, Jonathan H. Chen</i>	
CYBERCHONDRIA: DOES MHEALTH TECHNOLOGY REASSURE PATIENTS OR PROMOTE HYPERVIGILANCE? AN OBSERVATIONAL COHORT STUDY FOLLOWING TOTAL JOINT ARTHROPLASTY .....	1496
<i>Benjamin I. Rosner</i>	
THE EFFICIENT INPATIENT PROVIDER: WH-EHR TO FIND BEST PRACTICES .....	1498
<i>Benjamin I. Rosner, Robert Thombly, Wendi Zhao</i>	
PRE- AND INTRA-COVID-19 COMPARISON OF NURSING FLOWSHEET DOCUMENTATION BURDEN IN ACUTE AND CRITICAL CARE UNITS .....	1500
<i>Sarah Collins Rossetti, Graham Lowenthal, Christopher Knaplund, Min Jeoung Kang, Patricia C. Dykes, Sandy Cho, Po-Yin Yen, Kenrick Cato</i>	
MMRF CURECLOUD(R) DIRECT-TO-PATIENT REGISTRY: A WORKFLOW AND INTERIM RECRUITMENT UPDATE .....	1502
<i>Cartik R. Saravanamuthu, Michele Likens, Shaadi Mehr, Jen Yesil, Daniel Auclair, Hearn J. Cho, Steven E. Labkoff</i>	

SYSTEMATIC REPLICATION OF SMOKING DISEASE ASSOCIATIONS IN THE ALL OF US RESEARCH PROGRAM .....	1504
<i>David J. Schlueter, Lina Sulieman, Jacob Keaton, Tracey Ferrara, Kyle Webb, Ariel Williams, Francis Ratsimbazafy, Jun Qian, Lisa Bastarache, Andrea H. Ramirez, Joshua Denny</i>	
WA NOTIFY, A COVID-19 EXPOSURE NOTIFICATIONS TOOL: MODELING CASES AVERTED IN WASHINGTON STATE .....	1506
<i>Courtney Segal, Zhehao Zhang, Bryant Thomas Karras, Janet Baseman</i>	
ENHANCING CLINICAL DATA ANALYSIS BY EXPLAINING INTERACTION EFFECTS BETWEEN COVARIATES IN DEEP NEURAL NETWORK MODELS .....	1508
<i>Yijun Shao, Ali Ahmed, Edward Zamrini, Yan Cheng, Qing Zeng-Treitler</i>	
PRESCRIBING PHARMACOGENOMICS TESTING: ANALYZING THE ACCEPTANCE OF HEALTHCARE PROVIDERS THROUGH A SURVEY STUDY .....	1510
<i>Mohit Manoj Sharma, Yonaka Harris, Yiye Zhang, Jyotishman Pathak</i>	
OUTPATIENT PORTAL USE IN PREGNANT WOMEN FOR BLOOD GLUCOSE MANAGEMENT .....	1512
<i>Priti Singh, Pallavi Jonnalagadda, Evan Morgan, Naleef Fareed</i>	
USER EVALUATION OF INTERACTIVE LONGITUDINAL PRO VISUALIZATIONS DESIGNED BY PROSTATE CANCER SURVIVORS WITH LIMITED GRAPH LITERACY .....	1514
<i>Lauren E. Snyder, Daniel Phan, Sarah Connor, Sheba George, Kristen Williams, Jefersson Vilatoro, Ayan Saraf, Lorna Kwan, Nick Reid, John L. Gore, Mark S. Litwin, Andrea Hartzler</i>	
A SCOPING REVIEW OF INFORMATICS RESEARCH FOR CLINICAL PRACTICE VARIATION .....	1516
<i>Sunghwan Sohn, Sungrim Moon, Larry J. Prokop, Victor Montori, Jungwei Fan</i>	
PREDICTING HOSPITALIZATION OF COVID-19 POSITIVE PATIENTS USING MACHINE LEARNING METHODS .....	1518
<i>Wenyu Song, Linying Zhang, Michael Sainlaire, Mehran Karvar, Min Jeoung Kang, Avery Pullman, Anthony F. Massaro, Namrata Patil, Ravi Jasuja, Patricia C. Dykes</i>	
HARMONIZATION OF MEASUREMENT CODES FOR CONCEPT-ORIENTED LAB DATA RETRIEVAL .....	1520
<i>Matthew E. Spotnitz, Jason Patterson, Vojtech Huser, Chunhua Weng, Karthik Natarajan</i>	
MYEDCARE: EVALUATION OF A SMARTPHONE-BASED EMERGENCY DEPARTMENT DISCHARGE PROCESS .....	1522
<i>Peter A. D. Steel, David Bodnar, Maryellen Bonito, Jane Torres-Lavoro, Dona A. Bou Eid, Andrew Jacobowitz, Yifan Liu, Amos Shemesh, Robert Tanouye, Patrick Rumble, Daniel Dicello, Rahul Sharma, Brenna M. Farmer, Sandra Pomerantz, Yiye Zhang</i>	
EVALUATING PRIMARY CARE PROVIDER WORK OF MANAGING ASYNCHRONOUS MESSAGES THROUGH ELECTRONIC HEALTH RECORD ACCESS LOGS .....	1524
<i>Bryan D. Steitz, Adam Wright</i>	
FHIRTIME: STANDARDIZING TEMPORAL PATTERNS IDENTIFIED FROM CLINICAL NARRATIVES USING HL7 FHIR .....	1526
<i>Daniel Stone, Sijia Liu, Yuan Luo, Andrew Wen, Nansu Zong, Luke V. Rasmussen, Prakash Adekkanattu, Pascal Brandt, Jennifer A. Pacheco, Fei Wang, Cui Tao, Jyotishman Pathak, Hongfang Liu, Guoqian Jiang</i>	

PASC CKD: REVEALING THE PROGRESSION TRAJECTORIES OF SUSTAINED COVID-19-RELATED RENAL INJURY USING REAL-WORLD EVIDENCE .....	1528
<i>Jing Su, Pengyue Zhang, Zuoyi Zhang, Michael Eadon, Xiaochun Li, Tian He, Stanley Taylor, Travis Johnson, Zhaorui Liu, Ziyang Tang, Baijian Yang, Qianqian Song, Kun Huang</i>	
GENDER DIFFERENCES IN TIME TO DIAGNOSIS THROUGH FAIRNESS AND TIME VARIANT EVALUATION OF EHR DATA .....	1530
<i>Tony Y. Sun, Oliver Bear Don'T Walk Iv, Jenny Chen, Jaan Altosaar, Harry Reyes Nieva, Noemie Elhadad</i>	
PHYSICIANS WITH HYBRID SKILLSETS IN DIGITAL HEALTH AND INFORMATICS FACILITATE NECESSARY INNOVATION IN MENTAL HEALTH CARE DELIVERY: A PHYSICIAN ENGAGEMENT STRATEGY .....	1532
<i>Tania Tajirian, Brian Lo, Gillian Strudwick, Lydia Sequeira, Damian Jankowicz</i>	
UROLOGIST USE AND PERCEPTIONS OF THE EHR: PERSPECTIVES FROM A SURGICAL SPECIALTY .....	1534
<i>Hung-Jui Tan, Arlene E. Chung, David Gotz, Antonia Bennett, Allison Deal, Matthew E. Nielsen., Ethan M. Basch</i>	
ADNET: IDENTIFY BIOMARKERS OF ALZHEIMER DISEASE WITH MRI AND EMR DATA USING DEEP NEURAL NETWORKS.....	1536
<i>Ziyang Tang, Qianqian Song, Jing Su, Baijian Yang</i>	
PATIENT PERCEPTIONS OF RECEIVING COVID-19 TEST RESULTS VIA AN ONLINE PATIENT PORTAL.....	1537
<i>Robert W. Turer, Catherine Desroches, Liz Salmi, Tara Helmer, Samuel T. Rosenbloom</i>	
THE ADDED VALUE OF NATURAL LANGUAGE PROCESSING IN AUTOMATED ANALYSIS OF PATIENT EXPERIENCES .....	1539
<i>Marieke M. Van Buchem, Olaf M. Neve, Hileen Boosman, Ilse Kant, Erik F. Hensen</i>	
THE GA4GH VARIATION REPRESENTATION SPECIFICATION (VRS): A COMPUTATIONAL FRAMEWORK FOR THE PRECISE REPRESENTATION OF MOLECULAR VARIATION .....	1541
<i>Alex H. Wagner, Lawrence Babb, Melissa Cline, Helen Schuilenburg, Tristan Nelson, Robert R. Freimuth, Reece Hart</i>	
AN EVALUATION OF RACIAL DISPARITY IN 30-DAY HOSPITAL READMISSION MODELS .....	1543
<i>H. Echo Wang, Hadi Kharrazi</i>	
DEVELOPMENT OF A POST-ACUTE SEQUELAE OF COVID-19 (PASC) SYMPTOM LEXICON USING ELECTRONIC HEALTH RECORD CLINICAL NOTES .....	1545
<i>Liqin Wang, Dinah Foer, Erin Macphaul, Ying-Chih Lo, David W. Bates, Li Zhou</i>	
COMPARISON OF MACHINE LEARNING ALGORITHMS FOR EARLIER DETECTION OF COGNITIVE DECLINE FROM CLINICAL NOTES IN THE ELECTRONIC HEALTH RECORDS .....	1547
<i>Liqin Wang, John Laurentiev, Jie Yang, Ying-Chih Lo, Rebecca E. Amariglio, Gad Marshall, Li Zhou</i>	
THE IMPACT OF COVID-19 PANDEMIC ON HEALTH INFORMATION SHARING AND PATIENT-GENERATED HEALTH DATA: FINDINGS FROM THE HEALTH INFORMATION NATIONAL TRENDS SURVEY 2020 .....	1549
<i>Zidan Wang, Jiancheng Ye</i>	

COMPARING THE PHENOMIC PROFILE OF ALL OF US RESEARCH PROGRAM AND NATIONAL COVID COHORT COLLABORATIVE .....	1551
<i>Kyle P. Webb, David Schlueter, Jacob Keaton, Tracey Ferrara, Ariel Williams, Joshua Denny</i>	
ON CONSTRAINTS AND CONSIDERATIONS FOR EXTENDING SUPPORT FOR NATURAL LANGUAGE PROCESSING-BASED FHIR RESOURCE GENERATION .....	1553
<i>Andrew Wen, Luke V. Rasmussen, Daniel Stone, Sijia Liu, Prakash Adekkanattu, Pascal Brandt, Jennifer A. Pacheco, Yuan Luo, Fei Wang, Jyotishman Pathak, Hongfang Liu, Guoqian Jiang</i>	
PREDICTING COVID-19 REGIONAL CASE LOADS WITH SYNTHETIC DATA .....	1555
<i>Adam Wilcox, Noa Zamstein, Randi E. Foraker, Jason A. Thomas, Kenneth Wilkins, Jon D. Morrow</i>	
ENABLING DIGITAL COMPASSION IN A TECHNOLOGY-ENABLED HEALTHCARE ENVIRONMENT: A MODIFIED EDELPHI STUDY TO ESTABLISH PROFESSIONAL COMPETENCIES AND HEALTH INFORMATION TECHNOLOGY STANDARDS .....	1557
<i>David Wiljer, Gillian Strudwick, Rebecca Charow, Nelson Shen, Allison Crawford, Sanjeev Sockalingam, Peter Rossos</i>	
LESBIAN, GAY, AND BISEXUAL PATIENT PERCEPTIONS OF COLLABORATIVE COMMUNICATION: IMPLICATIONS FOR ACCESS TO HEALTH INFORMATION .....	1559
<i>Alicia Williamson, Lindsay Brown, Tiffany Veinot, Denise Anthony</i>	
IMPROVING CLINICAL DECISION SUPPORT BY EMPOWERING USERS: THE CLICKBUSTERS PROGRAM .....	1561
<i>Adam Wright, Elise Russo, Arianna E. Nimocks, Jon G. Jackson, Jonathan Wanderer, Neal Patel, Kevin B. Johnson, Allison B. McCoy</i>	
MULTI-HORIZON PREDICTION FOR EXTRACORPOREAL SUPPORT IN COVID-19 PATIENTS .....	1563
<i>Bing Xue, Neel Shah, Hanqing Yang, Charles Ziegenbein, Thomas Kannampallil, Philip Payne, Chenyang Lu, Ahmed S. Said</i>	
SYNTHETIC DATA TO SUPPORT ENGINEERING AND DEMONSTRATIONS IN THE ALL OF US RESEARCH PROGRAM .....	1565
<i>Chao Yan, Steve Nyemba, Kelsey R. Mayo, Ziqi Zhang, Francis Ratsimbazafy, Bradley A. Malin</i>	
A CONTINUOUS CROWD-SOURCED CHALLENGE FOR BENCHMARKING COVID-19 HEALTH OUTCOME PREDICTION .....	1567
<i>Yao Yan, Thomas Schaffter, Timothy Bergquist, Thomas Yu, Justin Prosser, Sean D. Mooney, Justin Guinney</i>	
IMPROVING PUBMED RETRIEVAL BY INTEGRATING ABSTRACT AND FULL TEXT SEARCH .....	1569
<i>Lana Yeganova, Won Kim, Donald C. Comeau, W. J. Wilbur, Zhiyong Lu</i>	
COMPARING AUTOMATED EXTRACTION TO MANUAL CHART REVIEW FOR COVID-SPECIFIC RESEARCH DATA ABSTRACTION: A CASE STUDY .....	1571
<i>Andrew L. Yin, Winston Guo, Evan Sholle, Mangala Rajan, Laura Pinheiro, Parag Goyal, Justin Choi, Mark Alshak, Han Li, Graham T. Wehmeyer, Mark Weiner, Monika Safford, Thomas R. Champion, Curtis Cole</i>	

PAGER-COV-RUN: AN ONLINE INTERACTIVE ANALYTICAL PLATFORM FOR COVID-19 FUNCTIONAL GENOMIC DOWNSTREAM ANALYSIS .....	1573
<i>Zongliang Yue, Nishant Batra, Hui-Chen Hsu, John Mountz, Jake Chen</i>	
CLINICAL TERM EMBEDDINGS FROM SNOMED CT .....	1574
<i>Fuad A. Zahra, Rohit J. Kate</i>	
EARLY DETECT COVID-19 PRESENTING SYMPTOMS AND CHARACTERISTICS USING NATURAL LANGUAGE PROCESSING ON ELECTRONIC HEALTH RECORDS .....	1576
<i>Juan Zhao, Monika E. Grabowska, Wei-Qi Wei</i>	
MODELING VARIANT ANNOTATION (VA) THERAPEUTIC ASSOCIATION STATEMENTS USING A SEPIO-BASED WORKFLOW .....	1578
<i>Yiqing Zhao, Matthew Brush, Hongfang Liu, Robert R. Freimuth</i>	
LESSONS LEARNED FROM AN ENTERPRISE-WIDE CLINICAL DATATHON .....	1580
<i>Andrew J. Zimolzak, Jessica A. Davila, Vamshi Punugoti, Katherine H. Sippel, Ashok Balasubramanyam, Paul Klotman, Laura A. Petersen, Ryan H. Rochat, Gloria Liao, Rory R. Laubscher, Lee Leiber, Christopher I. Amos</i>	
THE ROLE OF EHEALTH DEVELOPERS AND MEDICAL PROFESSIONALS IN REDUCING AGEISM AND GERIATRIC DIGITAL EXCLUSION .....	1582
<i>Dani Zoorob, Yasmin Hasbini, Victoria Wangia-Anderson, Brian Miller, Debi Brobst</i>	
<b><u>POSTER</u></b>	
NETWORK ANALYSES ON HYPERLINKED ONLINE RESOURCES FOR COVID-19 VACCINE .....	1584
<i>Meredith Abrams, Dongwen Wang</i>	
EXPLORING THE IMPACT OF PERCEIVED USABILITY AND COGNITIVE WORKLOAD ON OBJECTIVE PERFORMANCE USING SUPERVISED MACHINE LEARNING CLASSIFIERS .....	1585
<i>Karthik Adapa, Shiva Das, Prithima Reddy, Fei Yu, Carlton Moore, Lukasz Mazur</i>	
ASSESSING DATA QUALITY OF HIGHER FREQUENCY TIME SERIES VITAL SIGNS CAPTURED IN INTENSIVE CARE UNITS .....	1586
<i>Ali S. Afshar, Yijun Li, Zixu Chen, Yuxuan Chen, Jae Lee, Darius Irani, Aidan Crank, Digvijay Singh, Michael Kanter, Nauder Faraday, Hadi Kharrazi</i>	
DETECTING MAJOR DEPRESSIVE DISORDER FROM CLINICAL NOTES USING NEURAL LANGUAGE MODELS WITH DISTANT SUPERVISION .....	1587
<i>Bhavani Singh Agnikula Kshatriya, Nicolas A. Nunez, Manuel Gardea-Resendez, Euijung Ryu, Brandon J. Coombes, Sunyang Fu, Mark A. Frye, Joanna Biernacka, Yanshan Wang</i>	
BUILDING A SELF-SERVICE ANALYTICS ECOSYSTEM FOR PROGRAM DATA SHARING AND DASHBOARDS (NIH 'ALL OF US' PRECISION MEDICINE INITIATIVE) .....	1588
<i>Toufeeq Ahmed</i>	
MACHINE LEARNING FOR PREDICTING HOSPITAL ACQUIRED PRESSURE INJURIES IN ICU PATIENTS: FROM EXPLAINABLE AI TO ENSEMBLE SUPER LEARNERS .....	1589
<i>Jenny Alderden, Andrew Wilson, Sergey Krikov, Jonathan Dimas, Ryan Butcher, Tracey Yap</i>	
COLONIZING MICROBIOME AS A DETERMINANT OF COVID-19 OUTCOME: A PILOT STUDY .....	1590
<i>Alexander V. Alekseyenko, Bashir Hamidi, Stephane Meystre</i>	

EVALUATING THE UTILITY OF A PROTOTYPE CLINICAL DECISION SUPPORT TOOL FOR CHRONIC PAIN TREATMENT CHOICES IN PRIMARY CARE .....	1591
<i>Katie S. Allen, Elizabeth C. Danielson, Sarah M. Downs, Olena Mazurenko, Julie DiIulio, Burke Mamlin, Christopher A. Harle</i>	
EXTRACTING SOCIAL VARIABLES FROM CLINICAL DOCUMENTATION TO BETTER FACILITATE RESPONSE TO PATIENT NEED.....	1592
<i>Katie S. Allen, Daniel Hood, Jonathan Cummins, Suranga N. Kasthurirathne, Peter J. Embi, Joshua R. Vest</i>	
POLICY ALIENATION AS A SOURCE OF HITECH ACT-RELATED BURNOUT.....	1593
<i>Joseline Amado, Yousef Latif, Mustafa I. Hussain</i>	
UNDERSTANDING THE USE OF PHARMACOLOGICAL KNOWLEDGE BASES IN CLINICAL CARE.....	1594
<i>Shilo Anders, Laurie L. Novak, Nawshin Kutub, Carrie Reale, Daniel France, Christopher L. Simpson, Courtney A. Vanhouten, Karlis Draulis, Rubina F. Rizvi, Tiffani J. Bright, Gretchen P. Jackson, Anita M. Preininger</i>	
COVID-19 TRIAL ESOURCE DATA CAPTURE EFFICIENCIES USING ONESOURCE .....	1595
<i>Adam L. Asare, Alejandra Jauregui, Andrew D. Robinson, Cal Collins, Mitra Rocca, Heidi M. Collins, Laura J. Esserman, Kathleen Liu</i>	
IMPACT OF CORONAVIRUS-2019 ON PEDIATRIC AND ADULT HEART TRANSPLANTATION WAITLIST ACTIVITY AND MORTALITY IN THE UNITED STATES: A DESCRIPTIVE APPROACH .....	1596
<i>Awais Ashfaq, Geoffrey M. Gray, Jennifer Carapellucci, Ernest Amankwah, Luis M. Ahumada, Mohamed A. Rehman, Michael Puchalski, Andrew Smith, James Quintessenza, Alfred Asante-Korang</i>	
ENSURING COVID PATIENT END-OF-LIFE GOALS DOCUMENTED IN AN EMOLST ARE HONORED THROUGH A NOVEL AND SCALABLE HEALTH INFORMATION EXCHANGE .....	1597
<i>Jonathan Austrian, Alex Low, Victoria Javier, Christine Wilkins</i>	
A MACHINE LEARNING APPROACH TO IDENTIFY EHR-BASED COHORTS OF PAIN SENSITIVITY FOR GENETIC ANALYSIS .....	1598
<i>Amelia J. Averitt, Nilanjana Banerjee, Michael Cantor</i>	
A MONTE CARLO ESTIMATION OF THE NARROW-SENSE HERITABILITY OF COVID-19 INFECTION AND SEVERITY FROM ANCESTRYDNA SURVEY DATA .....	1599
<i>Amelia J. Averitt, Deepika Sharma, Michael Cantor</i>	
DASHBOARD FOR MACHINE LEARNING MODELS IN HEALTH CARE.....	1600
<i>Wejdan H. Bagais, Janusz Wojtusiak</i>	
USE OF GEOMAPPING AND DATA-DRIVEN PERSONAS TO TARGET INTERVENTION FOR AT-RISK PATIENTS WITH DIABETES .....	1601
<i>Adarsha S. Bajracharya, Soussan Djamassbi, Gaayathri Sankar, Qiming Shi, Daniel J. Amante</i>	
ELECTRONIC HEALTH RECORD USE FOR IMPROVING PATIENT OUTCOMES FOR SCHOOL-AGED CHILDREN WITH CHRONIC CONDITIONS .....	1602
<i>Christina Baker, Figaro Loresto</i>	
PLANNING CHANGE USING THE ADKAR MODEL: ESTABLISHING A DATA GOVERNANCE PROGRAM IN THE VHA OFFICE OF COMMUNITY CARE .....	1603
<i>Gina Baker, Francine Sandrow, Katharine Miller, Jianji Yang, Darby McKnight, Natalie Ngu</i>	

EVALUATING HL7 FHIR RESOURCES FOR SHARING RESEARCH CONSENT DATA .....	1604
<i>M Katie Banasiewicz, Mark McEver, Douglas Conway, Alex Cheng, Colleen Lawrence, Leah Dunkel, Paul Harris, Stephany Duda</i>	
PATIENT PERSPECTIVES ON ‘FH FAMILY SHARE,’ A TOOL TO INCREASE UPTAKE OF CASCADE TESTING FOR FAMILIAL HYPERCHOLESTEROLEMIA.....	1605
<i>Hana Bangash, Ahmed Makkawy, Justin H. Gundelach, Alexandra Miller, Aaron Leppin, Iftikhar J. Kullo</i>	
ASSESSING THE USE OF PRESCRIPTION DRUGS IN OBESE RESPONDENTS IN THE NATIONAL HEALTH AND NUTRITION EXAMINATION SURVEY .....	1606
<i>Laura A. Barrett, Aiwen Xing, Elizabeth Steidley, Terrence J. Adam, Rui Zhang, Zhe He</i>	
ASTHMATIC PATIENT PORTAL MESSAGING AND POLLUTION.....	1607
<i>Marily Barron, Matthew Zaragoza-Watkins, Melissa McPheeters, Samuel T. Rosenbloom</i>	
TOWARDS EFFECT ESTIMATION OF COVID-19 NON-PHARMACEUTICAL INTERVENTIONS .....	1608
<i>Vesna Barros, Victor Akinwande, Itay Manes, Osnat Bar-Shira, Celia Cintas, Yishai Shimoni, Michal Rosen-Zvi</i>	
TEXT MINING ON COVID-19 PUBLICATIONS.....	1609
<i>Mrigendra M. Bastola, Paul Fontelo</i>	
A MOBILE APP TO STRATIFY DETERIORATION RISK AT ADMISSION FOR COVID-19 PATIENTS USING THE ROTHMAN INDEX.....	1610
<i>Joseph Beals Iv, Jaime Barnes, Daniel Durand, Joan M. Rimar, Thomas Donohue, Mahfuz Hoq, Kathy Belk, Alpesh Amin, Michael Rothman</i>	
A PROCESS FOR MULTI-STAKEHOLDER GOVERNANCE OF PATIENT DATA RELEASES.....	1611
<i>Douglas S. Bell, Marianne Zachariah, Amanda L. Do, Carina V. Hampp, Karen Lopez, Michael A. Pfeffer</i>	
SUPPORTING EHR-BASED COHORT DISCOVERY THROUGH USER-CENTERED DESIGN: RESULTS OF AN EARLY FORMATIVE USABILITY STUDY.....	1612
<i>Natalie C. Benda, Pascal Brandt, Jessica S. Ancker, Jennifer A. Pacheco, Prakash Adekkanattu, Guoqian Jiang, Jyotishman Pathak, Luke V. Rasmussen</i>	
COLORECTAL POLYP EXTRACTION SYSTEM (COPEX): A NATURAL LANGUAGE PROCESSING PIPELINE TO EXTRACT COLORECTAL POLYP CHARACTERISTICS FROM PATHOLOGY REPORTS .....	1613
<i>Ryzen Benson, Candace Winterton, Maci Winn, Mei Liu, Noor Abu-El-Rub, John F. Hurdle, Mike Conway, Andrew Gawron, Sheetal Hardikar</i>	
PARENT AND PARAPROFESSIONAL USE OF COMMERCIAL AUGMENTATIVE AND ALTERNATIVE COMMUNICATION DEVICES WITH NON-VERBAL AUTISTIC YOUNG PEOPLE .....	1614
<i>Ariana Bernstein, Jina Huh-Yoo, Andrea Forte</i>	
UNDERSTAND THE ROLE OF HEALTH LITERACY IN RELATION TO SOCIAL DETERMINANTS OF HEALTH: A SYSTEMATIC REVIEW .....	1615
<i>Shwetha S. Bindhu, Anunita Nattam, Catherine Xu, Tiffany Grant, Hexuan Liu, Danny T. Wu</i>	

CASE STUDY IN THE DEVELOPMENT OF A FRAMEWORK FOR QUALITY AND REPRODUCIBILITY IN INNER-SOURCED PACKAGES AND SELF-SERVICE ANALYTIC DASHBOARDS TO ACCELERATE COMMON STUDY TYPES .....	1616
<i>James A. Black, Nayan Chaudhary, Adam J. Forys, Sriraman Madhavan, Matthew Secrest, Kamil Wais</i>	
CHALLENGES IN DESIGNING A NOTIFICATION SYSTEM FOR ELECTRONIC MEDICAL RECORDS: AN EXPLORATION OF USER EXPECTATIONS .....	1617
<i>Katherine Blondon</i>	
COMPARING PERFORMANCE OF HIP-WORN AND WRIST-WORN RESEARCH-GRADE ACTIVITY MONITORS FOR DAILY ACTIVITIES .....	1618
<i>Katrina Boles, Malaika Gallimore, Chuka Emezue, Chelsea Howland, Amy Grimsley, Chase Jo-Ana, Allison Anbari, Leanne Sherwin, Blaine Reeder</i>	
QUANTIFYING THE PERIOD PREVALENCE OF AUTOIMMUNE DISEASES ACROSS THE UNITED STATES .....	1619
<i>Gagana Borra, Joshua M. Landman, Randi E. Foraker</i>	
A COMPREHENSIVE PLATFORM FOR INDUCED PLURIPOTENT STEM CELL RESEARCH DATA .....	1620
<i>Kirill Borziak, Irena Parvanova, Joseph Finkelstein</i>	
CHALLENGES OF COMPREHENSIVE AUTOMATIC CODING OF PRESENTING COMPLAINTS .....	1621
<i>Annie E. Bowles, Hannah Eyre, Scott L. Duvall, Olga V. Patterson</i>	
AN OPEN-SOURCE ENGINE FOR DECISION SUPPORT AND WORKFLOW AUTOMATION .....	1622
<i>Aziz A. Boxwala, Mariano De Maio, Hank Wallace</i>	
EXPANDING THE SECONDARY USE OF PROSTATE CANCER REAL WORLD DATA: AUTOMATED CLASSIFIERS FOR CLINICAL AND PATHOLOGICAL STAGE .....	1623
<i>Selen Bozkurt, Tina Hernandez-Boussard</i>	
DEVELOPMENT OF A MULTI-CLASS DEEP-LEARNING ALGORITHM CAPABLE OF DIAGNOSING MANY HISTOPATHOLOGIC ENTITIES IN DIGITAL PATHOLOGY .....	1624
<i>Gregory T. Brown, Sudhir Sornapudi, Paul Fontelo</i>	
HOW ACCURATE IS THE ISABEL DIAGNOSTIC DECISION SUPPORT SYSTEM WITH PATIENTS PRESENTING WITH ACUTE SYMPTOMS OF HEART DISEASE? .....	1625
<i>Katherine A. Brown, Hamish S. Fraser</i>	
ESTIMATING EARLY WARNING SYSTEM ACCURACY PRIOR TO IMPLEMENTATION .....	1626
<i>Lusha Cao, Gerald Shaeffer, Meghan Galligan, Fuchiang Tsui, Robert W. Grundmeier, Vinay Nadkarni, Robert Sutton, Christopher Bonafide, Naveen Muthu</i>	
STRATEGIES TO ENGAGE TRADITIONALLY MARGINALIZED PATIENTS IN PATIENT PORTAL .....	1627
<i>Heidi Carpenter, Jacqueline Antoun, Roman Gusdorf, Austin Triana, Elisa Friedman, Samuel T. Rosenbloom</i>	
SEPSIS PREDICTION USING SEMI-SUPERVISED AND TRANSFER LEARNING.....	1628
<i>John R. Caskey, Fereshteh Bashiri, Anoop Mayampurath, Nicole Dussault, Jay Dumanian, Sivasubramaniam V. Bhavani, Kyle A. Carey, Emily R. Gilbert, Christopher J. Winslow, Nirav Shah, Dana P. Edelson, Majid Afshar, Matthew M. Churpek</i>	



AUTOMATIC DETECTION OF SURGICAL SITE INFECTIONS USING EHR DATA .....	1629
<i>Arjun Chakraborty, Kevin Lybarger, Dustin Long, Vikas O. Shah, Meliha Yetisgen</i>	
A GENERALIZABLE AND SCALABLE DISTRIBUTED PROCESSING ARCHITECTURE FOR GUIDELINE-BASED CLINICAL DECISION SUPPORT .....	1630
<i>Justin G. Chambers, Tanya Podchiyska, Samson Tu, Amy Robinson, Susana B. Martins, Michael Ashcraft, Mary K. Goldstein</i>	
EMRKBQA: CREATING A CLINICAL KNOWLEDGE-BASE QUESTION ANSWERING DATASET .....	1631
<i>Rachita Chandra, Preethi Raghavan, Jennifer J. Liang, Diwakar Mahajan, Peter Szolovits</i>	
TOWARDS CLINICALLY RELEVANT EXPLANATIONS FOR TYPE-2 DIABETES RISK PREDICTION WITH THE EXPLANATION ONTOLOGY .....	1632
<i>Shruthi Chari, Prithwish Chakraborty, Oshani Seneviratne, Mohamed Ghalwash, Daniel M. Gruen, Daby Sow, Deborah L. McGuinness</i>	
AM2BERT: ATTENTION GUIDED AND REGULARIZED TRANSFORMER-BASED MULTI- LABEL CLASSIFICATION MODEL FOR COVID-19 LITERATURE CURATION .....	1633
<i>Qingyu Chen, Jingcheng Du, Alexis Allot, Zhiyong Lu</i>	
LOCALIZE THE IMPLEMENTATION OF FDA LIST OF CONFUSABLE DRUG NAMES WITH THE APPLICATION OF TAIWAN NATIONAL HEALTH INSURANCE DATABASE: A STUDY OF TEXT SIMILARITY COMPUTATION WITH REAL-WORLD DATA .....	1634
<i>Ya-Lin Chen, Hsuan-Chia Yang, Der-Ming Liou</i>	
EARLY PREDICTION OF AUTISM SPECTRUM DISORDER USING HEALTH CLAIMS DATA.....	1635
<i>Yu-Hsin Chen, Qiushi Chen, Lan Kong, Guodong Liu</i>	
DATA COORDINATION FOR MULTI-SITE CLINICAL TRIALS USING THE REDCAP APPLICATION PROGRAMMING INTERFACE.....	1636
<i>Alex C. Cheng, Mark McEver, Francesco Delacqua, Adam Lewis, Patrick Newman, Paul Harris</i>	
ECONSENT PROCESS FRAMEWORK.....	1637
<i>Benjamin S. Chisum, Kevin M. Johnson, James Ruesch, Patti Spencer, Pallavi Ranadekharkar</i>	
USABILITY OF CLINICAL DECISION SUPPORT SYSTEM FOR NURSING CARE PLANNING IN PALLIATIVE CARE: HEURISTIC EVALUATION .....	1638
<i>Hwayoung Cho, Gail Keenan, Olatunde O. Madandola, Fabiana C. Dos Santos, Tamara Goncalves Rezende Macieira, Ragnhildur I. Bjarnadottir, Karen Priola, Karen Dunn Lopez</i>	
A QUALITATIVE EXPLORATION OF NURSES' NUMERACY AND UNDERSTANDING OF PREDICTIVE MODELS .....	1639
<i>Insook Cho, Meera Song, So Yun Shim, So Young Dan</i>	
DESIGNING A DATA QUALITY CHARACTERIZATION TOOL FOR FITNESS TRACKER DATA.....	1640
<i>Sylvia Cho, Karthik Natarajan</i>	
TRACKING THE EVOLUTION OF COVID-19 VIA TEMPORAL COMORBIDITY ANALYSIS FROM MULTI-MODAL DATA .....	1641
<i>Sutanay Choudhury, Khushbu Agarwal, Colby Ham, Pritam Mukherjee, Siyi Tang, Sindhu Tipirneni, Veysel Kocaman, Suzanne Tamang, Robert Rallo, Chandan Reddy</i>	

USING DEEP NEURAL NETWORK BINARY CLASSIFIERS TO INFER MESH PUBLICATION TYPES .....	1642
<i>Victor Cid, James G. Mork</i>	
NATIONAL COVID COHORT COLLABORATIVE (N3C) CASE-CONTROL BUDDIES.....	1643
<i>G. Marshall Clark, Adam M. Lee, Emily Pfaff, Kristin Kostka, Matvey B. Palchuk, Lora Lingrey, Michele Morris, Robert T. Miller</i>	
HEALTHCARE SYSTEM PERFORMANCE ON UNSAFE MEDICATION ORDERS IN THE 2019 CPOE EVALUATION TOOL .....	1644
<i>Zoe Co, Lisa Newmark, David Classen, Diane L. Seger, Melissa Danforth, Jessica Cole, David W. Bates</i>	
COMPARATIVE ANALYSIS OF TELEMEDICINE SERVICES BEFORE AND DURING PANDEMIC .....	1645
<i>Wanting Cui, Joseph Finkelstein</i>	
MACHINE LEARNING FOR TIME TO EVENT BIOMEDICAL RESEARCH.....	1646
<i>Ioana Danciu, Greeshma Agasthya, Janet Tate, Amy C. Justice, Benjamin McMahon, Olga Ovchinnikova</i>	
DISPARITIES IN CODED AND IMPUTED POST-TRAUMATIC STRESS DISORDER AND SELF-HARM AMONG US VETERANS.....	1647
<i>Sharon E. Davis, Praveen Kumar, Nicolas R. Lauve, Sharidan Parr, Daniel Park, Michael E. Matheny, Gerardo Villarreal, George Uhl, Yiliang Zhu, Mauricio Tohen, Douglas J. Perkins, Christophe G. Lambert</i>	
AN AI MODEL TO SCREEN FOR THE NOVEL CORONAVIRUS IN EMERGENCY DEPARTMENT CLINICAL NOTES .....	1648
<i>John Del Gaizo, Garrett Hayes, Jihad S. Obeid</i>	
LEVERAGING ONTOLOGIES FOR THE AGGREGATION OF NORMALIZED PHARMACY CONTENT .....	1649
<i>Michael Denton, Tosh J. Karchner, Jonathan Herbert, Dean Woolstenhulme</i>	
ASSESSING THE USE OF HL7® FHIR® AMONG HEALTHCARE APPS .....	1650
<i>Brian J. Douthit, Guilherme Del Fiol, Chloe Canon, Jessica Branski, Titus K. Schleyer, Rachel Richesson</i>	
DEVELOPMENT OF A DRUG ALLERGY ALERT TIERING ALGORITHM FOR PENICILLINS AND CEPHALOSPORINS.....	1651
<i>Heba Edrees, Diane L. Seger, Ying-Chih Lo, David W. Bates, Li Zhou</i>	
KEYS TO A SUCCESSFUL PUBLIC HEALTH INFORMATION SYSTEM IMPLEMENTATION: EXPERIENCE WITH COVID-19 VACCINE ORDERING SYSTEM DEVELOPMENT AND IMPLEMENTATION ACROSS THE UNITED STATES .....	1652
<i>Roua El Kalach, Lori Moore, Ulrica Andujar</i>	
RACE AND ETHNICITY AGREEMENT BETWEEN MEDICAID, HEALTH INFORMATION EXCHANGE, AND ELECTRONIC HEALTH RECORDS.....	1653
<i>Sarah El-Azab, Siu Hui, Heidi Hosler, Katie Allen</i>	
USABILITY AND ACCURACY EVALUATION OF THE FITBIT VERSA 3 SMART WATCH COMPARED TO RESEARCH-GRADE DEVICES .....	1654
<i>Chuka Emezue, Chelsea Howland, Malaika Gallimore, Katrina Boles, Amy Grimsley, Leeanne Sherwin, Allison Anbari, Chase Jo-Ana, Blaine Reeder</i>	

OBSERVATIONS ON DOCUMENTATION OF ALCOHOL USE IN REAL-WORLD DATA .....	1655
<i>Emilia Farcas, Mike Hogarth, Alison Moore</i>	
IMPLICATIONS OF CLINICAL BIAS WHEN BUILDING ELECTRONIC ALGORITHMS FOR MEDICAL RECORD PHENOTYPING: LESSONS FROM TYPE 2 DIABETES MELLITUS.....	1656
<i>Annika B. Faucon, Megan Shuey, Lea K. Davis, Nancy J. Cox</i>	
COHORT DISCOVERY WITH UNIFIED MEDICAL LANGUAGE SYSTEM QUERY EXPANSION .....	1657
<i>Robert J. Fawcett, Ahmad S. Halwani, Kyle R. Hansen, Vikas V. Patil, Kelli M. Rasmussen, Daphne Friedman, Andrew Post</i>	
SCHOOL DISTRICT COVID-19 RESPONSE POLICIES ACROSS DEMOGRAPHICS .....	1658
<i>Ricky Flores, Ellen K. Kerns, Russell McCulloh, Aubree Honcoop, Martina A. Clarke</i>	
COVID-19 CONCERNS AND INTERESTS DIFFER WITH SOCIOECONOMIC STATUS: TWITTER ANALYSIS.....	1659
<i>Samah J. Fodeh, Sabrina Su, Aarthi Venkat, Lisa Puglisi</i>	
SYMPTOM CLUSTERING OF PATIENTS WITH SUSPECTED ACUTE CORNARY SYNDROME AT EMERGENCY DEPARTMENT TRIAGE .....	1660
<i>Stephanie O. Frisch, Zeineb Bouzid, Jessica Zegre-Hemsey, Holli Devon, Harry Hochheiser, Ervin Sejdic</i>	
A MACHINE LEARNING APPROACH TO PREDICTING TIME NEEDED FOR OUTPATIENT SURGERY AND PATIENT RECOVERY AT A FREESTANDING AMBULATORY SURGERY CENTER.....	1661
<i>Rodney A. Gabriel, Bhavya Harjai</i>	
TELEHEALTH UPTAKE AND CONTINUING USAGE DURING THE COVID-19 PANDEMIC .....	1662
<i>Cheng Gao, Bradley A. Malin, You Chen</i>	
LEVERAGING ASSETS-ORIENTED, DATA-DRIVEN APPROACHES IN GLOBAL HEALTH INFORMATICS CURRICULA .....	1663
<i>Grace Gao, Christie L. Martin, Michelle Wang, Matthew Byrne, Joyce Brettner</i>	
APPLICATION OF A PHARMACY ALERT MANAGEMENT PROGRAM TO REDUCE NUISANCE MEDICATION CLINICAL DECISION SUPPORT ALERTS .....	1664
<i>Sean S. Garcia, Vera L. Taylor, Michael W. Mickan, Sandy Kyriakos, Nnaemeka G. Okafor</i>	
PATIENT-CENTERED CARE PRACTICES IN SECURE MESSAGING: QUALITATIVE ANALYSIS OF INTERVIEWS WITH VHA PRIMARY CARE TEAMS.....	1665
<i>Lynn A. Garvin, Emily Leonard, Linda Am, Timothy P. Hogan, Stephanie L. Shimada</i>	
A COMPARATIVE TIME-TO-EVENT ANALYSIS ACROSS HEALTH SYSTEMS .....	1666
<i>Mohamed Ghalwash, Prithwish Chakraborty, Akira Koseki, Hiroki Yanagisawa, Toshiya Iwamori, Ray Tokumasu, Masaki Makino, Ryosuke Yanagiya, Atsushi Suzuki, Michiharu Kudo, Daby Sow</i>	
UTILIZING ADVANCED VISUALIZATION TECHNOLOGY TO STUDY HOME CARE CHALLENGES.....	1667
<i>Denise Goldsmith, Sara Flash, Jim Holdnack, Patricia F. Brennan</i>	
SELF-REPORTED SYMPTOMS FOR COVID-19 PUBLIC HEALTH SURVEILLANCE: A WINDOW TO SOCIAL DETERMINANTS OF HEALTH .....	1668
<i>Hope G. Gray, Mohanraj Thirumalai, Wayne H. Liang, James J. Cimino, Sue Feldman</i>	

DESIGN, DEVELOPMENT, AND USABILITY OF A HYPERTENSION MEDICATION SELF-MANAGEMENT CONVERSATIONAL AGENT (MEDICAGENT).....	1669
<i>Ashley C. Griffin, Stacy Bailey, Saif Khairat, Yue Wang, Jaime Arguello, Arlene E. Chung</i>	
DIGITAL METHODOLOGY FOR MOBILE CLINICAL DECISION SUPPORT DEVELOPMENT .....	1670
<i>Amy Grimsley, Katrina Boles, Chelsea Howland, Chuka Emezue, Malaika Gallimore, Leeanne Sherwin, Chase Jo-Ana, Blaine Reeder, Allison Anbari</i>	
IMPACT OF COMORBIDITY PROFILES ON PAIN TRAJECTORIES IN BREAST CANCER PATIENTS BY USING ELECTRONIC HEALTH RECORD DATA.....	1671
<i>Jia-Wen Guo, Katherine A. Sward, Ann Lyons, Susan L. Beck, Gary W. Donaldson, Wendy Chapman, Lewis J. Frey</i>	
YOUTUBE VIDEO ANALYTICS FOR COVID-19 LITERACY .....	1672
<i>Yawen Guo, Xiao Liu, Anjana Susarla, Rema Padman</i>	
PARKINSON AND MOVEMENT DISORDERS ONTOLOGY FOR CLINICALLY-ORIENTED AND CLINICIANS-DRIVEN DATA MINING OF MULTI-CENTER COHORTS IN PARKINSON'S DISEASE.....	1673
<i>Deepak K. Gupta, Massimo Marano, Raj Aurora, James Boyd, Satya S. Sahoo</i>	
A MIXED-METHODS EVALUATION OF TELEHEALTH ADOPTION IN FRONTIER CRITICAL ACCESS HOSPITALS .....	1674
<i>Saira N. Haque, Alison Banger, Sydney Destephano, Regina Rutledge, Melissa Romaine</i>	
ENHANCING CLINICAL RELEVANCE OF HEALTH BEHAVIOR INSIGHTS VIA SEMANTICS .....	1675
<i>Jonathan Harris, Deborah L. McGuinness, Marco Monti, Oshani Seneviratne, Mohammed Zaki, Ching-Hua Chen</i>	
PROMOTING USE OF COMMON DATA ELEMENTS IN RESEARCH STUDIES .....	1676
<i>Paul A. Harris, Rob Taylor, Vaishali Jagtap, Douglas Conway, Stephany Duda, Alex Cheng</i>	
COVID-19 DASHBOARD: VISUAL EXPLORATION OF THE REGIONAL PANDEMIC TREND.....	1677
<i>Huan He, Liwei Wang, Andrew Wen, Ming Huang, Yanshan Wang, Hongfang Liu</i>	
OVERVIEW AND DESCRIPTIVE ANALYSIS OF A NEW ONTOLOGY FOR NORMALIZING SECTION TYPES IN UNSTRUCTURED CLINICAL NOTES.....	1678
<i>Paul M. Heider, Stephane Meystre</i>	
EVALUATING THE DOWNSTREAM PERFORMANCE IMPACT OF VARIOUS COMMON OFF-THE-SHELF CLINICAL NLP COMPONENTS .....	1679
<i>Paul M. Heider, Stephane Meystre</i>	
INTEGRATING MEDICAL AND DENTAL HISTORIES FOR TRANSLATIONAL SCIENCE.....	1680
<i>Darren W. Henderson, Malini S. Kirakodu, James R. Aaron, Tamela J. Harper, Daniel R. Harris, Jeffery C. Talbert, Luciana M. Shaddox</i>	
DEVELOPMENT OF A HEALTH EQUITY INTEGRATION DASHBOARD (HEID) USING RACE ETHNICITY AND LANGUAGE (REAL) DATA IN A PEDIATRIC HOSPITAL SETTING: LESSONS LEARNED IN VISUAL STRATEGIES AND KEY DATA ELEMENTS .....	1681
<i>Raquel G. Hernandez, Paola B. Dees, Joann Derosa, Fiorella Gonzalez, Christine Hammerschmidt, John Morrison, Benton Ng, Ashish B. Shah, Luis M. Ahumada</i>	

EXPANDING EXPOSURE NOTIFICATION VERIFICATION CODE ISSUANCE IN WA STATE .....	1682
<i>Amanda Higgins, Shannon O'Keefe, Bryant Thomas Karras</i>	
IDENTIFYING NARRATIVE DOCUMENTATION OF CLINICIAN CONCERN ABOUT PATIENT DETERIORATION IN HOME HEALTHCARE: A TEXT MINING STUDY .....	1683
<i>Mollie Hobensack, Jiyou Song, Maryam Zolnoori, Marietta Ojo, Kathryn H. Bowles, Sena Chae, Erin E. Kennedy, Margaret McDonald, Maxim Topaz</i>	
THE IMPACT OF QUALITY FEEDBACK AND REPORTING ON HOSPITAL EHR MEDICATION SAFETY IMPROVEMENT .....	1684
<i>A Jay Holmgren, David W. Bates</i>	
VALIDATING THE VALUE AND THE USABILITY OF REAL-TIME PRESCRIPTION BENEFIT DATA .....	1685
<i>Megan A. Holsopple, Kyle Campbell, Anna Baer, Mihir Parikh</i>	
EVALUATION OF THE EFFECTIVENESS OF AN OPIOID REVERSAL ALERT AT AN ACADEMIC MEDICAL CENTER .....	1686
<i>Bernard M. Hsia, Diana Schreier, Benjamin J. Anderson, Jenna K. Lovely</i>	
COVID-19-CATALYZED AND INFORMATICS-DRIVEN EVOLUTION TO A LEARNING HEALTH SYSTEM .....	1687
<i>Allen Hsiao, Lisa Stump, Nitu Kashyap</i>	
THE COMBINATION OF GRAPH NEURON NETWORK AND MULTI-TASK LEARNING MODEL FOR CANCER DRUG COMBINATION PREDICTION .....	1688
<i>Kang-Lin Hsieh, Xiaoqian Jiang, Yejin Kim, Yu-Chun Hsu</i>	
DISPARITY ANALYSIS OF PATIENT PORTAL MESSAGING USE FOR COVID-19 IN URBAN VERSUS RURAL LOCALITY .....	1689
<i>Ming Huang, Andrew Wen, Huan He, Liwei Wang, Sijia Liu, Yanshan Wang, Nansu Zong, Yue Yu, Julie Prigge, Brian Costello, Nilay D. Shah, Henry Ting, Chyke Doubeni, Jungwei Fan, Hongfang Liu, Christi Patten</i>	
ADDITION OF AUDITABLE TESTING RATIONAL PROVIDES REAL-TIME INFORMATION ON HOSPITAL PRACTICE PATTERNS .....	1690
<i>Michael S. Icardi, Larry Mole, Mark Holodniy</i>	
CHALLENGES AND OPPORTUNITIES OF INFORMATION TECHNOLOGY ADOPTION BY THE CAREGIVERS OF HOME CARE PATIENTS .....	1691
<i>Onimi Jademi, Abir Rahman, Gunes Koru</i>	
UTILITY OF THE OBSERVATIONAL MEDICAL OUTCOMES PARTNERSHIP COMMON DATA MODEL FOR REPRESENTATION OF NON-QUERY DATA MAPPINGS IN THE ARDEN SYNTAX .....	1692
<i>Robert A. Jenders</i>	
DISCOVERING DRUG-DRUG INTERACTIONS IN COVID-19 PATIENTS .....	1693
<i>Eugene Jeong, Anna Person, Joanna Stollings, Lang Li, You Chen</i>	
AUTOMATIC CONSTRUCTION OF BIOMEDICAL KNOWLEDGE GRAPH FROM COVID-19 LITERATURE .....	1694
<i>Chao Jiang, Victoria Ngo, Richard Chapman, Hongfang Liu, Guoqian Jiang, Nansu Zong</i>	

A CLINICAL DECISION SUPPORT SYSTEM (CDSS) ONTOLOGY TO FACILITATE PORTABLE VACCINATION CDSS RULES: PRELIMINARY RESULTS .....	1695
<i>Xia Jing, Hua Min, Yang Gong, James J. Cimino, David Robinson, Dean F. Sittig, Paul G. Biondich, Adam Wright, Christian Nøhr, Tim Law, Arild Faxvaag, Akash Indani, Nina Hubig, Ronald Gimbel, Lior Rennert</i>	
PATIENT-SPECIFIC MODELING WITH LAZY RANDOM FOREST (LAZYRF) .....	1696
<i>Adriana Johnson, Gregory F. Cooper, Shyam Visweswaran</i>	
CLINICAL RESEARCH COORDINATORS' PERCEPTIONS OF ELECTRONIC DATA CAPTURE SYSTEMS ADOPTED IN CLINICAL RESEARCH .....	1697
<i>Michelle E. Johnson, Fei Yu</i>	
EXPLORING EFFECTIVENESS OF DOMAIN AND TASK-ADAPTIVE PRETRAINING FOR CLINICAL INFORMATION EXTRACTION .....	1698
<i>Venkata Joopudi, Ananya Poddar, Bharath Dandala, Ching-Huei Tsou</i>	
PERCEPTIONS ON GRANULAR DATA SHARING IN BEHAVIORAL HEALTH POPULATIONS .....	1699
<i>Tina Kaing, George Karway, Julia Ivanova, Anita C. Murcko, Michael Franczak, Mary Jo Whitfield, Adela Grando</i>	
SYSTEMATIC STUDY OF PUBLICLY AVAILABLE RESOURCES ADDRESSING LEGAL DATA SHARING ISSUES .....	1700
<i>Mohammad Karim, Hye-Chung Kum, Cason D. Schmit</i>	
EXPANDING ACCESS AND CONTINUITY OF CARE DURING COVID CRISIS, IN SAFETY NET HOSPITAL SENTAYEHU KASSA, MD, BRETT MORAN, MD PARKLAND HEALTH & HOSPITAL SYSTEM DALLAS, TX .....	1701
<i>Sentayehu Kassa, Brett Moran</i>	
SYSTEMATIC IDENTIFICATION OF ACE2 EXPRESSION MODULATORS REVEALS CARDIOMYOPATHY AS A RISK FACTOR FOR MORTALITY IN COVID-19 PATIENTS .....	1702
<i>Navchetan Kaur, Boris Oskotsky, Atul Butte, Zicheng Hu</i>	
IMAGE-BASED PHENOTYPING FOR RISK STRATIFICATION IN THE NATIONAL LUNG SCREENING TRIAL .....	1703
<i>Mirza S. Khan, Kaiwen Xu, Stephen A. Deppen, Kim Sandler, Bennett A. Landman</i>	
DISSEMINATION AND IMPLEMENTATION OF A CHILD ABUSE CLINICAL DECISION SUPPORT SYSTEM .....	1704
<i>Sundas Khan, Isabel Barata, Dana Kaplan, Safiya Richardson, Francesca Bullaro, Sera Levy, Fatima Malik, Thomas McGinn, Emily Heineman, Rachel Berger</i>	
COVID-19 SCREENING SYSTEM UTILIZING DAILY SYMPTOM ATTESTATION HELPS IDENTIFY HOSPITAL EMPLOYEES WHO SHOULD BE TESTED TO PROTECT PATIENTS AND CO-WORKERS .....	1705
<i>Ellen Kim, Charles Morris, Michael Klompas, Haipeng Zhang, Adam B. Landman, Sunil Eappen, Hojjat Salmasian</i>	
INFORMATION NEEDS ANALYSIS OF DIABETES SELF-MANAGEMENT EDUCATION AND SUPPORT FOR OLDER PEOPLE WITH DIABETES .....	1706
<i>Min Soo Kim, Ploypun Narindrarangkura, Suzanne A. Boren, Uzma Z. Khan, Eduardo Simoes</i>	

ASSESSING ADDED VALUE OF VITAL SIGNS EXTRACTED FROM ELECTRONIC HEALTH RECORDS IN THE PERFORMANCE OF HEALTHCARE RISK ADJUSTMENT MODELS .....	1707
<i>Christopher Kitchen, Hsien-Yen Chang, Jonathan Weiner, Hadi Kharrazi</i>	
COMBINING CHART REVIEW AND HOSPITAL SYSTEM DYNAMICS FOR ELECTRONIC HEALTH RECORD PHENOTYPING IN AN INTERNATIONAL COVID-19 RESEARCH NETWORK .....	1708
<i>Jeffrey G. Klann, Griffin M. Weber, Emma Perez, William Yuan, Gabriel Brat, Shawn N. Murphy</i>	
U.S. COVID-19 SURVEILLANCE IN PCORNET® .....	1709
<i>Sheryl A. Kluberg, Thomas Carton, Charles Bailey, Julia A. Fearrington, Keith Marsolo, Kshema M. Nagavedu, Jon Puro, Jason P. Block</i>	
UNDERSTANDING ENTERPRISE DATA WAREHOUSES TO SUPPORT CLINICAL AND TRANSLATIONAL RESEARCH: INITIAL FINDINGS ON ENTERPRISE INFORMATION TECHNOLOGY RELATIONSHIPS, DATA GOVERNANCE, WORKFORCE, AND CLOUD COMPUTING .....	1710
<i>Boyd M. Knosp, Catherine K. Craven, David A. Dorr, Elmer V. Bernstam, Thomas R. Campion</i>	
BUILDING WITH CEDAR AND MAKING EVIDENCE MORE FAIR .....	1711
<i>Peter Krautscheid, Kathy Mikk, Mario Terán, Edwin Lomotan</i>	
RANDOMIZED USER TESTING OF RECOMMENDER SYSTEM CLINICAL DECISION SUPPORT .....	1712
<i>Andre Kumar, Rachael C. Aikens, Jason Horn, Lisa Shieh, Mark A. Musen, Michael Baiocchi, Russ B. Altman, Mary K. Goldstein, Steven Asch, Jonathan H. Chen</i>	
TRACKING THE COVID-19 OUTBREAK IN INDIA VIA TWITTER .....	1713
<i>Sahithi Lakamana, Abeed Sarker</i>	
COVID DENIERS: ANALYZING #SCAMDEMIC AND #PLANDEMIC TWEETS .....	1714
<i>Heather D. Lanier, Sameh Saleh, Christoph U. Lehmann, Richard J. Medford</i>	
A NEW CORPUS FOR CLINICAL FINDINGS IN RADIOLOGY REPORTS .....	1715
<i>Wilson Lau, David Wayne, Spencer Lewis, Ozlem Uzuner, Martin L. Gunn, Meliha Yetisgen</i>	
EVOLVING THE PCORNET DATA PIPELINE FOR NATIONAL COVID COHORT COLLABORATIVE (N3C) .....	1716
<i>Adam M. Lee, Marshall Clark, Sofia Z. Dard, Kellie M. Walters</i>	
PREDICTIVE MODELING OF HEALTHCARE UTILIZATION METRICS IDENTIFIES ADULT PATIENTS AT HIGH RISK FOR SUICIDE ATTEMPT IN THE PRIMARY CARE SETTING .....	1717
<i>Katherine Lee, Colin G. Walsh</i>	
ASSESSING CLINICAL STAFF USABILITY & SATISFACTION BEFORE AND AFTER AN ELECTRONIC HEALTH RECORDS IMPLEMENTATION USING HEALTH-ITUES .....	1718
<i>Rachel Y. Lee, Sarah C. Rossetti, Jonathan Elias, Amanda J. Moy, Eugene Lucas, Jessica Schwartz, Erika L. Abramson, Jessica S. Ancker, Susan B. Bostwick, Kenrick Cato</i>	

EXTRACTING SOCIAL ISOLATION INFORMATION FROM PSYCHIATRIC NOTES IN THE ELECTRONIC HEALTH RECORDS .....	1719
<i>Lauren A. Lepow, Braja G. Patra, Isotta Landi, Prakash Adekkanattu, Jyotishman Pathak, Mark Olfson, J J. Mann, Euijung Ryu, Joanna Biernacka, Girish N. Nadkarni, Priya Wickramaratne, Myrna Weissman, Benjamin S. Glicksberg, Alexander Charney</i>	
METHYLDRIFT: A SOFTWARE PACKAGE FOR CALCULATING AGE-RELATED EPIGENETIC DRIFT IN HUMAN TISSUES USING DNA METHYLATION DATA .....	1720
<i>McKenna C. Lewis, Niema Moshiri, Kit Curtius</i>	
CONTEXTUAL PREDICTORS OF MEDICATION PERSISTENCE FOR PATIENTS ON ORAL HYPOGLYCEMIC DRUGS .....	1721
<i>Zhiguo Li, Chandramouli Maduri, Ching-Hua Chen</i>	
AN EXPLORATION OF REASONS BEHIND DRUG DE-ESCALATION AND DISCONTINUATION EVENTS IN CLINICAL NOTES.....	1722
<i>Jennifer J. Liang, Diwakar Mahajan</i>	
CYCLE-CONSISTENT ADVERSARIAL NETWORK WITH CRITERION FOR COVID-19 CHEST X-RAY IMAGE GENERATION .....	1723
<i>Zhaohui Liang, Jimmy Huang</i>	
PROACTIVE DOCUMENTATION DESIGN TO MEET NEEDS NOW AND LATER.....	1724
<i>Zachary C. Liao, Michelle Stoffel, Michael Leu, J. P. Giliberto, Justin Birge, Laura Higdon, Angad P. Singh</i>	
INTEGRATING GAMING INTO VIRTUAL MEDICATION RECONCILIATION EDUCATION .....	1725
<i>Veena Lingam, Victor Garcia, Chao-Wei Tsai, Jacob Wooldridge, Rachel Wong</i>	
ADOPTION OF TELEMEDICINE DURING THE COVID-19 PANDEMIC: PERSPECTIVES OF PRIMARY HEALTHCARE PROVIDERS .....	1726
<i>Joe Lintz</i>	
BINARY AND CATEGORICAL MODELS FOR AUTOMATIC ACUTE RESPIRATORY DISTRESS SYNDROME DETECTION.....	1727
<i>Kirill Lipatov, Quan Do, Bradley Erickson, Brian W Pickering, Vitaly Herasevich</i>	
SURVIVAL ANALYSIS OF BREAST CANCER FROM DNA METHYLATION DATA .....	1728
<i>Guanghui Liu</i>	
YOUTUBE HEALTH VIDEO ANALYTICS: A HUMAN AUGMENTED UNDERSTANDABILITY ASSESSMENT FOR PATIENT EDUCATION .....	1729
<i>Xiao Liu, Anjana Susarla, Rema Padman</i>	
ENGAGING THE DISENGAGED: RECOMMENDATIONS FOR PARTNERING WITH TRANSITIONAL AGED YOUTH TO IMPROVE MENTAL HEALTH HELP-SEEKING IN THE DIGITAL AGE .....	1730
<i>Brian Lo, Jenny Shi, Howard W. Wong, Alexxa Abi-Jaoudé, Elisa Hollenberg, Andrew Johnson, David Wiljer</i>	
MONITORING THE EFFECTS OF THE PANDEMIC ON CANCER-RELATED PATIENT ENCOUNTERS.....	1731
<i>Jack W. London, Elnara Fazio-Eynullayeva, Matvey B. Palchuk, Peter J. Sankey, Christopher McNair</i>	



ORAL-HPV SCREENING TOOL FOR ASSESSING INDIVIDUALS AT RISK FOR HPV-ASSOCIATED OROPHARYNGEAL CANCER.....	1732
<i>Steven D. London, Paul Fontelo, Shadokht Boroumand, Bruce A. Dye</i>	
IDENTIFYING CRITERIA FOR ANTONYM GENERATION FROM COLLOCATES IN CORPORA.....	1733
<i>Chris J. Lu, Amanda Payne, James G. Mork</i>	
AN EXPLORATION OF INFORMATION EXTRACTION MODELS ON TRANSCRIBED PATIENT VISITS.....	1734
<i>Kevin Lybarger, Erica Qiao, Meliha Yetisgen</i>	
THE REAL-WORLD TREND ANALYSIS OF CANCER DRUGS EMPOWERED BY NATURAL LANGUAGE PROCESSING.....	1735
<i>Meng Ma, Kyeryoung Lee, Yun Mai, Chris Gilman, Zongzhi Liu, Mingwei Zhang, Minghao Li, Arielle Redfern, Tommy Mullaney, Tony Prentice, Paul McDonagh, Qi Pan, William Oh, Rong Chen, Eric Schadt, Xiaoyan Wang</i>	
EVALUATING SOCIAL DETERMINANTS OF HEALTH IN CLINICAL COMMUNICATIONS DATA.....	1736
<i>Diwakar Mahajan, Jennifer J. Liang, Ananya Poddar, Sasha Ballen, Ching-Huei Tsou</i>	
COVID-19 AS A CATALYST: RAPID DEVELOPMENT OF USABLE DIGITAL PATIENT SERVICES.....	1737
<i>Andrea N. Mahnke</i>	
QUANTIFYING CHANGES IN RESIDENT-PATIENT INTERACTIONS DURING THE COVID-19 PANDEMIC USING EHR AUDIT LOGS .....	1738
<i>Mark V. Mai, Naveen Muthu, Bryn Carroll, Anna Costello, Dan West, Adam Dziorny</i>	
PUBLIC PERSPECTIVES ON THE ETHICAL COLLECTION AND SHARING OF CONSUMER-GENERATED HEALTH INFORMATION.....	1739
<i>Sabrina Mangal, Leslie Park, Meghan Reading Turchioe, Lisa Grossman Liu, Annie C. Myers, Brittany N. Taylor, Parag Goyal, Lydia Dugdale, Ruth Masterson Creber</i>	
PAINRE-LIFE: A FHIR BASED HUB FOR THE MANAGEMENT AND SUPPORT OF PATIENTS WITH CHRONIC PAIN.....	1740
<i>Sara R. Marceglia, Vania Manzelli, Pierluigi D'Antrassi, Alfredo Cuzzocrea, Annamaria Caruso, Marco Prenassi, Chiara Savino, Maria Teresa De Pippo, Stefano Lenzi, Roberta Ferrucci, Costanza Conti, Giulia Candiani, Francesca Memini, Elda Judica, Massimo Corbo, Marianna Masiero, Gabriella Pravettoni</i>	
QUANTIFYING SPATIAL TUMOR HETEROGENEITY USING SINGLE-CELL PROTEOMICS.....	1741
<i>Adriano Martinelli, Aditya Kashyap, Anna Fomitcheva Khartchenko, Govind Kaigala, Maria Anna Rapsomaniki</i>	
IMPLEMENTATION OF A CLINICAL DECISION SUPPORT SYSTEM FOR AUTOMATED FALL-RISK IDENTIFICATION AND REFERRALS IN EMERGENCY DEPARTMENTS.....	1742
<i>Apoorva P. Maru, Gwen C. Jacobsohn, Collin Engstrom, Frank Liao, Margaret Leaf, Joel Galang, Gerald T. Pankratz, Alexis Eastman, Maureen A. Smith, Manish N. Shah, Brian W. Patterson</i>	

THERE IS VARIABILITY IN THE ACCURACY OF DIAGNOSIS CODES USED TO IDENTIFY COVID-19 PATIENTS .....	1743
<i>Jayson S. Marwaha, Elizabeth Eldridge, Sahr Syed, Perry L. Mar, Philip Ballentine, Denis Agniel, Nathan P. Palmer, Sadiqa Mahmood, Gabriel A. Brat</i>	
ANALYZING COVID-19 CASE REPORT FORMS DATA FROM THE ALL OF US PROGRAM .....	1744
<i>Craig S. Mayer, Nick Williams, Vojtech Huser</i>	
BARRIERS TO SEEKING TREATMENT AND ATTITUDES TOWARDS USING TELEHEALTH TO SUPPORT MANAGEMENT OF DEPRESSION AMONG BLACK WOMEN .....	1745
<i>Terika McCall</i>	
ADDRESSING THE SOCIAL DETERMINANTS OF HEALTH AND RESOURCE UTILIZATION AMONG AMBULATORY ONCOLOGY PATIENTS.....	1746
<i>Nadine J. McCleary, Ellana Haakenstad, Sunyi Zhang, Jessica L. Cleveland, Michael Manni, Deborah Schrag, Michael J. Hassett</i>	
ELECTRONIC HEALTH RECORD-BASED RISK STRATIFICATION FOR RECURRENCE OF KIDNEY STONES: A FEASIBILITY IMPLEMENTATION .....	1747
<i>Allison B. McCoy, Ryan Hsi</i>	
APPROACHES TO CLINICAL DECISION SUPPORT ALERT EVALUATION AND OPTIMIZATION .....	1748
<i>Allison B. McCoy, Adam Wright</i>	
ROLLING UP THE SLEEVE: EQUITABLE, EFFICIENT, AND SAFE COVID-19 MASS-IMMUNIZATION FOR ACADEMIC MEDICAL CENTER EMPLOYEES .....	1749
<i>Samuel McDonald, Mujeeb A. Basit, Seth Toomay, Christopher McLarty, Susan Hernandez, Chris Rubio, Bruce Brown, Mark Rauschuber, Ki Lai, Sameh Saleh, Duwayne L. Willett, Christoph U. Lehmann, Richard J. Medford</i>	
DESIGN AND FEASIBILITY OF A DIGITAL HEALTH PLATFORM FOR RURAL CALIFORNIA IN RESPONSE TO COVID-19.....	1750
<i>Scott P. McGrath, Cynthia Matsumoto, David Lindeman, Katherine K. Kim</i>	
NATURAL LANGUAGE PROCESSING AND COVID-19 PREDICTIVE ANALYTICS TO ENABLE AND OPTIMIZE SARS-COV-2 POOLED TESTING .....	1751
<i>Stephane Meystre, Paul M. Heider, Jihad S. Obeid, Alexander V. Alekseyenko, James Madory</i>	
TRANSPARENCY WITH SAFEGUARDS: SUPPRESSING NOTES FROM A PATIENT PORTAL .....	1752
<i>Chelsea L. Michael, Gilad Kuperman</i>	
PATIENT-REPORTED VISIT MODALITY PREFERENCES DURING A PANDEMIC .....	1753
<i>Andrea Millman, Jie Huang, Yazan Nagi, Judy Shan, Anjali Gopalan, Emilie Muelly, Catherine Lee, Loretta Hsueh, Ilana Graetz, Nayana Bhaskar, Mary Reed</i>	
AUTOMATED CLINICAL SHIFT SCHEDULE GENERATION FOR EMERGENT CARE SETTINGS .....	1754
<i>Azadeh Mobasher, Naqi Khan, David Elop, Zach Griffin, Naveen Valluri</i>	
LINKING U.S. ADMINISTRATIVE CLAIMS DATA AND ELECTRONIC HEALTH RECORDS TO DESCRIBE ASSOCIATION BETWEEN AMBULATORY CARE APPOINTMENT NO-SHOW AND HEALTHCARE RESOURCE USE AND COST .....	1755
<i>Iman Mohammadi, Zulkarnain Pulungan, Nathan Markward</i>	

DEVELOPMENT OF A CLINICAL QUESTION-ANSWERING CORPUS WITH REALISTIC MULTI-ANSWER CHALLENGES .....	1756
<i>Sungrim Moon, Huan He, Jungwei Fan</i>	
CHARACTERIZING OUTPATIENT PORTAL USE AMONG WOMEN RECEIVING OBSTETRIC AND HIGH-RISK PREGNANCY CARE.....	1757
<i>Evan Morgan, Shonda Vink, Pallavi Jonnalagadda, Priti Singh, Naleef Fareed</i>	
ASSESSING CONCERN: ANALYSIS OF APPLICATION LOG FILES TO INVESTIGATE THE UTILIZATION OF A CLINICAL DECISION SUPPORT TOOL FOR IDENTIFYING RISKY PATIENTS .....	1758
<i>Amanda J. Moy, Kenrick Cato, Christopher Knaplund, Patricia C. Dykes, Min Jeoung Kang, Graham Lowenthal, Sarah C. Rossetti</i>	
AN EXAMPLE OF LEVERAGING STATE CLAIMS DATA TO EVALUATE COVID-19 POLICY CHANGES REGARDING SUBSTANCE ABUSE DISORDER/OPIOID USE DISORDER PROGRAMS .....	1759
<i>Charles Mueller, Johnna Beane, Tsan-Yao Huang, Thomas Bias, Jennifer Mallow</i>	
INCORPORATING HEALTH EQUITY INTO THE EVALUATION OF HEALTH INFORMATICS ELECTRONIC HEALTH RECORD TICKETS: DESIGN AND INITIAL FINDINGS .....	1760
<i>Anoop N. Muniyappa, Colin T. Purnal, Jennifer Corbell, Susan Chim, Kendall Gross, Amy Kangwakij, Katie O'Connor, Kathleen Burke, Andrew Auerbach</i>	
ADDRESSING CHALLENGES AND STRATEGIES FOR VIRTUAL RECRUITMENT FOR LONGITUDINAL STUDIES.....	1761
<i>Annie C. Myers, Meghan Reading Turchioe, Sabrina Mangal, Leslie Park, Lisa Grossman Liu, Ruth Masterson Creber</i>	
DEVELOPING FRAMEWORK FOR HEALTHY COPING FEEDBACK MESSAGES EVALUATION FROM DIABETES MOBILE APPS.....	1762
<i>Ploypun Narindrarangkura, Qing Ye, Suzanne A. Boren, Uzma Z. Khan, Eduardo Simoes, Min Kim</i>	
MACHINE LEARNING IMPLEMENTATION RESULTS IN REDUCED VARIABLE COST OF ACUTE CARE VISITS DURING RADIOTHERAPY: SHIELD-RT COST ANALYSIS .....	1763
<i>Divya Natesan, Samantha Thomas, Eric Eisenstein, Neville Eclow, Nicole Dalal, Sarah Jo Stephens, Mary Malicki, Stacey Shields, Alyssa Cobb, Yvonne Mowery, Donna Niedzwiecki, Jessica D. Tenenbaum, Manisha Palta, Julian C. Hong</i>	
DIACHRONIC ANALYSIS OF THE EVOLUTION OF COVID-19 SCIENTIFIC LITERATURE.....	1764
<i>Denis R. Newman-Griffis, Venkatesh Sivaraman, Adam Perer, Eric Fosler-Lussier, Harry Hochheiser</i>	
QUALITATIVE CODING FRAMEWORK FOR ANALYZING ALERT NOTES FROM THE TELEHEALTH INTERVENTION PROGRAM FOR SENIORS (TIPS) .....	1765
<i>Phuong Nguyen, Hyung Wook Choi, Melody K. Schiaffino, Zhan Zhang, Jina Huh-Yoo</i>	
IDENTIFYING POSTS FROM REDDIT TALKING ABOUT AD/DR CARING EXPERIENCES USING MACHINE LEARNING .....	1766
<i>Congning Ni, Jonathan Hughes, Andrew Nam, Zhijun Yin</i>	
EVALUATING THE SCOPE OF COLLABORATION AMONG PRIMARY CARE TEAMS THROUGH ELECTRONIC ASYNCHRONOUS COMMUNICATION .....	1767
<i>Arianna E. Nimocks, Bryan D. Steitz, Adam Wright</i>	

TRANSFORMING DATA CAPTURE FOR CLINICAL CARE AND RESEARCH: EPRO ADVERSE EVENT REPORTING AND QUALITY OF LIFE IN A PHASE 2 BREAST CANCER STUDY.....	1768
<i>Anna Northrop, Michelle Melisko, Garry Peterson, Laura Sit, Anika Christofferson, Ebinoluwa Olunuga, Ananya Mittal, Adi Goldman, Ronak Ahir, Mitra Rocca, Lisa Weiss, Elizabeth Prager, Cal Collins, James Palazzolo, Laura J. Esserman, Adam L. Asare, Amrita Basu</i>	
CONSUMER PERCEPTION OF SMART SPEAKER-BASED MHEALTH TOOL .....	1769
<i>Hyunkyung Oh, Min Sook Park, Youngjoo Cho</i>	
TOWARDS IDENTIFICATION OF OPIATE USE DISORDER IN CLINICAL TEXT .....	1770
<i>John D. Osborne, Tobias O'Leary, Abdullateef I. Almudaifer, Whitney L. Covington, Caleb M. Carroll, Ellen F. Eaton, Rachel A. Lee, Sue Feldman, Lauren Walter</i>	
USABILITY TESTING OF MEDWISER3: A NOVEL, CARD-BASED ELECTRONIC HEALTH RECORD INTERFACE.....	1771
<i>Soheb Osmani, Katherine L. Dauber-Decker, Sundas Khan, Sera Levy, Jennifer Itty, Thomas McGinn, Jan Horsky, Yalini Senathirajah</i>	
METHODOLOGIES OF NURSING WORKFLOW STUDIES: A SCOPING REVIEW .....	1772
<i>Yennuten Paarima, Po-Yin Yen</i>	
COMPARISON OF A PATIENT COHORT AND PREDICTIVE MODELS DERIVED FROM LOCAL ACADEMIC MEDICAL CENTERS VERSUS A NATIONAL HEALTH DATABASE .....	1773
<i>Courtney Page, Conrad Sweitek, Cliona Molony, Karen Chandross, Benjamin Goldstein</i>	
APPLYING NLP TO EXTRACT CLINICIAN RECORDED AFFECT TO ADVANCE DEPRESSION CLINICAL RESEARCH: A PROOF OF CONCEPT.....	1774
<i>Vanessa Panaite, Dezon Finch, Andrew R. Devendorf, Lina Bouayad, Stephen L. Luther, Susan K. Schultz</i>	
PREDICTING BREAST CANCER TREATMENT OUTCOMES FOR MINORITY WOMEN IN CALIFORNIA USING MACHINE LEARNING.....	1775
<i>Jung In Park</i>	
TECHNOLOGY AND DATA SHARING PREFERENCES IN MHEALTH RESEARCH INTERVENTIONS .....	1776
<i>Leslie Park, Sabrina Mangal, Meghan Reading Turchioe, Annie C. Myers, Brittany N. Taylor, Ruth Masterson Creber</i>	
ASSESSING THE PREDICTIVE AND ECOLOGIC VALIDITY OF GEOGRAPHIC INDICES FOR SOCIAL DETERMINANTS OF HEALTH.....	1777
<i>Yoonyoung Park, Frank Yoon, William Kassler</i>	
USE OF A WIDELY AVAILABLE ELECTRONIC HEALTH RECORD TO FACILITATE COVID-19 VACCINATIONS .....	1778
<i>Mark A. Parkulo, Windell Smith, Williams Luanne, Jason Buckmeier, Marites Sayo, Jodi Rinken, John C. Ohoro</i>	
CORE OUTCOMES SETS DEVELOPMENT IN COVID-19 CLINICAL TRIALS .....	1779
<i>Irena Parvanova, Joseph Finkelstein</i>	
OPTIMIZING CLINICIAN ALERTS FOR CONCERNING SYMPTOMS IN AN ELECTRONIC PATIENT-REPORTED OUTCOMES (EPRO) SYSTEM IN COMMUNITY ONCOLOGY .....	1780
<i>Amila M. Patel, Lalan S. Wilfong, Ethan M. Basch, Angela Stover, Max Franklin, Ben Pearson, Debra A. Patt</i>	

FROM EMERGENCY DEPARTMENT TO ADMISSION: MAPPING REASONS FOR VISIT AND ADMIT DIAGNOSIS USING NATURAL LANGUAGE PROCESSING .....	1781
<i>Olga V. Patterson, Hannah Eyre, Kelly S. Peterson, Scott L. Duvall</i>	
IDENTIFYING EROSION DISEASE FROM RADIOLOGY REPORTS OF VETERANS WITH INFLAMMATORY ARTHRITIS USING NATURAL LANGUAGE PROCESSING .....	1782
<i>Shaobo Pei, Gopi Penmetsa, Brian Sauer, Bingjian Feng, Kevin Douglas, Jerry Clewell, Jodi Walker, Jessica Walsh</i>	
MODERNIZATION OF THE INTERMACS DATA WAREHOUSE: MOVING DATA MANAGEMENT FROM SAS TO SQL SERVER FOR ANALYTICS .....	1783
<i>John K. Pennington, Nick Timkovich, Bunyamin Ozaydin</i>	
COMPARISON OF POPULATION-WIDE EXPLANATIONS FOR PREDICTING THE OUTCOMES OF PATIENTS WITH COMMUNITY-ACQUIRED PNEUMONIA .....	1784
<i>Eddie Pérez Claudio, Shyam Visweswaran, Harry Hochheiser</i>	
EARLY PREDICTION OF POSITIVE CLOSTRIDIUM DIFFICILE TEST RESULTS.....	1785
<i>Anh Pham, Robert El-Kareh, Lucila Ohno-Machado, Tsung-Ting Kuo</i>	
INTEGRATING MOLECULAR AND CLINICAL DATA FOR REAL WORLD EVIDENCE RESEARCH IN PRECISION ONCOLOGY .....	1786
<i>Scott Phillips, Xiaojun Xu, Paulina Paul, Wenhong Zhu, Mike Hogarth, Olivier Harismendy</i>	
ONLINE HEALTH INFORMATION SEEKING, HEALTH LITERACY, AND HUMAN PAPILOMAVIRUS VACCINATION AMONG TRANSGENDER AND GENDER DIVERSE PEOPLE .....	1787
<i>Anthony Pho, Suzanne Bakken, Mitchell Lunn, Micah E. Lubensky, Annesa Flentje, Zubin Dastur, Juno Obedin-Maliver</i>	
LEVERAGING TRANSFORMER-BASED SEQUENTIAL SENTENCE MODELS FOR CLINICAL INFORMATION EXTRACTION .....	1788
<i>Ananya Poddar, Venkata Joopudi, Bharath Dandala, Ching-Huei Tsou</i>	
A RETURN TO WORKPLACE HEALTH ADVISOR IMPLEMENTING PUBLIC HEALTH GUIDANCE FOR SAFE RE-OPENING DURING A PANDEMIC.....	1789
<i>Anita M. Preininger, Fernando J. Suarez Saiz, Jaimie Gorman, Brian Gibbemeyer, Gretchen P. Jackson</i>	
MINING FOR PARAMETERS IN LITERATURE: THE CASE OF DEFINING ELECTRICAL STIMULATION PROTOCOLS.....	1790
<i>Marco Prenassi, Roberto Prandin, Viviana Paolini, Annamaria Caruso, Sara R. Marceglia</i>	
MULTI-SITE TESTING OF A PROLONGED OPIOID PRESCRIBING ELECTRONIC CLINICAL QUALITY MEASURE FOLLOWING ELECTIVE PRIMARY TOTAL HIP AND/OR TOTAL KNEE ARTHROPLASTIES .....	1791
<i>Avery Pullman, Mica R. Curtin-Bowen, Ania Syrowatka, Alexandra Businger, Michael Sainlaire, Stuart Lipsitz, Tien Thai, Troy Li, David W. Bates, Patricia C. Dykes</i>	
A DEMONSTRATION-PRACTICE BASED ELECTRONIC HEALTH RECORD EFFICIENCY TRAINING FOR RESIDENTS AND FELLOWS AT A LARGE MULTISITE HEALTHCARE SYSTEM.....	1792
<i>Raghuvveer Puttagunta, Spencer Tavares, Shikha Sinha, Leyla B. Warsame, Heather L. Marney, Bruce Levy</i>	

PREDICTION OF FIVE-YEAR BREAST CANCER RECURRENCE IN WOMEN TREATED WITH NEOADJUVANT CHEMOTHERAPY.....	1793
<i>Simona Rabinovici-Cohen, Xosé M. Fernández, Beatriz Grandal Rejo, Efrat Hexter, Oliver Hijano Cubelos, Juha Pajula, Harri Pölönen, Fabien Reyat, Michal Rosen-Zvi</i>	
AUTOMATIC DATA CURATION FROM UNSTRUCTURED TEXT .....	1794
<i>Protiva Rahman, Daniel Fabbri</i>	
PRIMARY CARE PROVIDERS' NEEDS FOR USABLE CLINICAL PREDICTION RULE PRESENTATIONS .....	1795
<i>Ivan Rahmatullah, Andrea Hartzler</i>	
INFORMATICS TO POWER POST-COVID CARE: A FRAMEWORK FOR PATIENT CARE AND SECONDARY DATA USE .....	1796
<i>Sriitha Rajupet, Rachel Wong, Donna Moller, Lisa Maldonado, Tricia Weiss, Tahsin Kurc, Janos Hajagos, Hasit Shah, Mary Saltz, Joel Saltz, Veena Lingam</i>	
FACTORS HISTORICALLY INFLUENCING TELEHEALTH USE IN SIX MEDICAL SPECIALTIES: A SYSTEMATIC REVIEW AND NARRATIVE SYNTHESIS .....	1797
<i>Pavani Rangachari, Swapandeep S. Mushiana, Krista Herbert</i>	
GENERALIZABLE GATED RECURRENT NEURAL NETWORK BASED MODEL TO PREDICT COVID-19 PATIENT OUTCOMES ON ADMISSION .....	1798
<i>Laila Rasmy, Bijun S. Kannadath, Masayuki Nigo, Ziqian Xie, Bingyu Mao, Khush A. Patel, Yujia Zhou, Xiao Dong, Hua Xu, Degui Zhi</i>	
CARDIAC PATIENTS' AND HEALTHCARE PROVIDERS' TELEHEALTH EXPERIENCES DURING THE COVID-19 PANDEMIC IN QUEENS, NEW YORK .....	1799
<i>Meghan Reading Turchioe, Alexander Volodarskiy, Jessica S. Ancker, Joshua Vapnik, Sushant Sunkaraneni, David Slotwiner</i>	
PILOTING FDA SHIELD'S LOINC TO IN VITRO DIAGNOSTIC (LIVD) SPECIFICATION IN FIVE MEDICAL CENTERS: IMPLICATIONS FOR INTEROPERABILITY .....	1800
<i>Greg Rehwoldt, Raja A. Cholan, Andrew Sills, I. Khalil Appleton, Timothy Williams, Natalie Scott, Gregory Pappas</i>	
USABILITY STUDY OF A DECISION SUPPORT WEBSITE TO SUPPORT PEOPLE LIVING WITH CYSTIC FIBROSIS IN SHARED DECISION MAKING ABOUT LUNG TRANSPLANT .....	1801
<i>Nick Reid, Kathleen J. Ramos, Mara R. Hobler, Lauren E. Bartlett, Siddartha Kapnadak, Andrea Hartzler</i>	
RELATIONSHIP BETWEEN SOCIAL DETERMINANTS OF HEALTH AND TOTAL JOINT ARTHROPLASTY COMPLICATIONS .....	1802
<i>Lauryn Remmers, Edward Kalpas, Priya Radhakrishnan, Anita Murcko</i>	
AN EVALUATION OF SOLOR AND ANF ASSIGNMENT TO HL7 KNOWLEDGE ARTIFACTS USING HIGH DEFINITION NATURAL LANGUAGE PROCESSING .....	1803
<i>Melissa P. Resnick, Frank D. Lehouillier, Steven H. Brown, Keith E. Campbell, Diane Montella, Peter L. Elkin</i>	
ARE SMARTPHONE-BASED INTERCONNECTED PERSONAL HEALTH RECORDS ACHIEVING THEIR PROMISE? .....	1804
<i>Tera L. Reynolds, Meghna Kaligotla, Kai Zheng</i>	

AN INTERACTIVE DATA EXTRACTION SYSTEM TO CREATE THE LIVING SYSTEMATIC REVIEWS AND META-ANALYSIS.....	1805
<i>Irbaz Bin Riaz, Huan He, Syed Arsalan Ahmed Naqvi, Rabbia Siddiqi, Noureen Asghar, Mohammad H. Murad, Hongfang Liu</i>	
AI ASSISTED MOBILE TRIAGE APP: ASSESSMENT OF TIME TO DECIDE, CHOICE OF COURSE OF ACTION, CONFIDENCE LEVEL, AND PERCEIVED USABILITY .....	1806
<i>Adam Rich, Camille Whicker, Phung Matthews, Charlene Weir, Damian A. Borbolla</i>	
ACTION-ORIENTED ARTIFICIAL INTELLIGENCE FOR SUICIDE RISK PREDICTION: PROSPECTIVE EHR-BASED VALIDATION IN A LARGE CLINICAL SYSTEM .....	1807
<i>Michael Ripperger, Drew Wilimitis, William W. Stead, Kevin B. Johnson, Colin G. Walsh</i>	
BEING SASKWELL: IMPLEMENTING A TWO-WAY TEXTING SERVICE TO SUPPORT MENTAL HEALTH AND WELLNESS CONNECTIVITY.....	1808
<i>Tracie Risling, Gillian Strudwick, Iman Kassam, Courtney Carlberg, John Tyler Moss</i>	
TOWARDS MEASURING REAL-WORLD VS. THEORETICAL IMPACT: EVALUATING HEALTH INFORMATION EXCHANGE (HIE) USING AN ENHANCED METHOD .....	1809
<i>Rebecca L. Rivera, Heidi Hosler, Saurabh Rahrurkar, Richard Holden, Joshua R. Vest, Jeong Hoon Jang, Jason Schaffer, Julia Adler-Milstein, Titus K. Schleyer</i>	
RECOMMENDATIONS ON BUILDING A SUSTAINABLE AMIA CENTERED AROUND DIVERSITY, EQUITY AND INCLUSION PRACTICES—A PRELIMINARY REPORT.....	1810
<i>Rubina F. Rizvi, Casey O. Taylor, Carl E. Johnson, Tiffani J. Bright</i>	
DESIGNING A CLINICAL DECISION SUPPORT FRAMEWORK FROM PRIMARY CARE QUALITY PERFORMANCE METRIC DASHBOARD TO INDIVIDUALIZED PATIENT RECOMMENDATION.....	1811
<i>Amy E. Robinson, Tanya Podchiyska, Samson Tu, Justin G. Chambers, Omar A. Usman, Vishal Duggal, Anju Sahay, Susana B. Martins, Michael Ashcraft, Mary K. Goldstein</i>	
CHRONIC MEDICAL CONDITIONS EFFECTS ON TELEMEDICINE IMPLEMENTATION DURING THE COVID-19 PANDEMIC IN SENIOR US ADULTS .....	1812
<i>Jorge M. Rodriguez-Fernandez, Emily Danies, William Galanter, Ayis Pyrros, Andrew Boyd, Karl Kochendorfer</i>	
IDENTIFYING OPEN-SOURCE HEALTH INFORMATION TECHNOLOGY TOOLS FOR HEALTHCARE RESEARCHERS .....	1813
<i>Ronald E. Romero Barrientos, Siddhartha Nambiar, Tracy Kim, Julia Sheehan, Laura C. Schubel, Sadaf Kazi, Kristen E. Miller</i>	
EVALUATING BRAIN AGE MODELS IN ADOLESCENTS WITH CHD .....	1814
<i>Joy Roy, Ashok Panigrahy, Rafael Ceschin</i>	
CONTENT ANALYSIS AND DEVELOPMENT OF A TAXONOMY FOR VALUE SET ISSUES .....	1815
<i>Elise M. Russo, Arianna E. Nimocks, Dean F. Sittig, Adam Wright</i>	
PREDICTION MODEL FOR DETECTING ASYMPTOMATIC COVID-19 INFECTION IN PREOPERATIVE PATIENTS.....	1816
<i>Amit K. Saha, Scott Segal</i>	
CHARACTERISTICS OF SAFETY DASHBOARDS USED BY HARVARD-AFFILIATED HOSPITALS .....	1817
<i>Hojjat Salmasian, Michelle Frits, Christine Iannacone, Sevan Dulgarian, Laura C. Myers, Merranda Logan, David Levine, Christopher Roy, Lynn A. Volk, David Shahian, Elizabeth Mort, David W. Bates</i>	

USER CENTERED DESIGN OF A CLINICAL DETERIORATION RESPONSE SYSTEM FOR OUTPATIENT CANCER PATIENTS .....	1818
<i>Megan E. Salwei, Laurie L. Novak, Shilo Anders, Kim M. Unertl, Carrie Reale, Joyce M. Harris, Jason M. Slagle, Leigh Anne Tang, Michelle Gomez, Zhoujun Sun, Madhavi Mani, Reena Zhang, Akhil Choudhary, Paromita Nath, Matthew B. Weinger, Daniel France</i>	
INCORPORATION OF AMERICAN HOSPITAL ASSOCIATION ANNUAL SURVEY DATA INTO A HEALTH SERVICES RESEARCH DATA WAREHOUSE .....	1819
<i>Nichole Samuy, Bunyamin Ozaydin, Ferhat D. Zengul</i>	
ANALYZING ASSOCIATED DATA TRACKING VIA PUBMED SECONDARY SOURCE ID.....	1820
<i>Amanda R. Sawyer, Vojtech Huser</i>	
UTILIZING A CLINICAL DECISION SUPPORT ALERT TO INCREASE NASAL MRSA PCR ORDERING AND REDUCE VANCOMYCIN COURSE DURATION .....	1821
<i>Diana J. Schreier, Patrick Wieruszewski</i>	
USING MOBILE INTEGRATED HEALTH AND TELEHEALTH TO SUPPORT TRANSITIONS OF CARE AMONG HEART FAILURE PATIENTS; MIGHTY HEART STUDY PROTOCOL.....	1822
<i>Leah Shafran Topaz, Brock Daniels, Kevin Munjal, Meghan Reading Turchioe, Rainu Kaushal, Ruth Masterson Creber</i>	
IMPACT OF SOCIAL DETERMINANTS OF HEALTH ON PREDICTIVE MODELS IN 30- DAY HOSPITAL READMISSION OR DEATH FOR PATIENTS WITH SEVERE OBESITY .....	1823
<i>Marianne Sharko, Yongkang Zhang, Yiye Zhang, Evan Sholle, Sajjad Abedian, Meghan Reading Turchioe, Jessica S. Ancker</i>	
A MULTI-LABEL CLASSIFIER TO SCREEN DIFFERENT TYPES OF SUBSTANCE MISUSE IN HOSPITALIZED PATIENTS.....	1824
<i>Brihat Sharma, Dmitriy Dligach, Hale Thomson, Matthew M. Churpek, Niranjana Karnik, Majid Afshar</i>	
RADIOGRAPHIC MANIFESTATIONS IN TUBERCULOSIS PATIENTS COINFECTED WITH DIABETES MELLITUS: A SYSTEMATIC REVIEW AND META-ANALYSIS.....	1825
<i>Lincoln R. Sheets, Leonardo Martinez, Trang H. Quach, Yang Ge, Rosina Marchan, Philip Hill, Henok G. Woldu</i>	
CONTENT IN CONTEXT – INDIVIDUALIZING KNOWLEDGE RESOURCES FOR DELIVERY AT THE POINT OF CARE.....	1826
<i>Jane L. Shellum, Davide Sottara, Robert R. Freimuth, Aaron Nathan, Adam M. Bartscher</i>	
DIGITAL MENTAL HEALTH PRIORITIES OF PEOPLE AFFECTED BY MENTAL HEALTH PROBLEMS: A PAN-CANADIAN SURVEY.....	1827
<i>Nelson Shen, Iman Kassam, Navi Boparai, Sheng Chen, Clement Ma, Wei Wang, Damian Jankowicz, Gillian Strudwick</i>	
ACCESSING ELECTRONIC MEDICAL RECORD DATA THROUGH A BREAST CANCER PREVENTION DECISION SUPPORT TOOL: USABILITY AND PILOT TESTING OF A SMART ON FHIR API.....	1828
<i>Thomas B. Silverman, Jacquelyn Amenta, Jill Dimond, Cynthia Law, Tarsha Jones, Katherine Crew, Rita Kukafka</i>	



INTEGRATIVE ANALYSES IDENTIFY SUSCEPTIBILITY GENES UNDERLYING COVID-19 HOSPITALIZATION.....	1829
<i>Kritika Singh, Gita Pathak, Tyne Miller-Flemming, Frank Wendt, Nava Ehsan, Kangcheng Hou, Ruth Johnson, Zeyun Lu, Shyamalika Gopalan, Loic Yang, Pejman Mohammadi, Bogdan Pasaniuc, Renato Polimanti, Lea Davis, Nicholas Mancuso</i>	
PREDICTIVE MODEL FOR INPATIENT MORTALITY.....	1830
<i>Joshua C. Smith, Allison B. McCoy, John A. Morris, Asli Weitekamp</i>	
TOWARD PRIVACY IMPLICATIONS IN DEVELOPING AND DEPLOYING CHATBOTS IN INFORMATICS RESEARCH: ANALYSIS OF CHATBOT DEVELOPMENT PLATFORMS .....	1831
<i>Diva Smriti, Rahil Rathod, Jina Huh-Yoo</i>	
LONGITUDINAL DATA OF CANCER PATIENTS WITH PRIOR MENTAL HEALTH DIAGNOSES SHOW DIFFERENCES IN DEMOGRAPHICS, EMERGENCY VISITS, AND SUICIDALITY RATES .....	1832
<i>Saira Somnay, William Chen, Lauren Boreta, Steve Braunstein, Julian C. Hong</i>	
NATURAL LANGUAGE PROCESSING ALGORITHM TO DETECT TERMS REPRESENTING RISK OF HOSPITALIZATION OR EMERGENCY DEPARTMENT VISITS DURING HOME HEALTH CARE .....	1833
<i>Jiyoun Song, Marietta Ojo, Margaret McDonald, Kenrick Cato, Sarah C. Rossetti, Yolanda Barron, Sri devi Sridharan, Sena Chae, Mollie Hobensack, Kathryn H. Bowles, Maxim Topaz</i>	
ARTIFICIAL INTELLIGENCE IDENTIFIES THE PROGRESSION OF CANCER PATIENTS WITH KIDNEY DISEASE.....	1834
<i>Qianqian Song, Jing Su</i>	
DEPLOYING CONVERSATIONAL AGENTS TO FACILITATE HOUSING ASSISTANCE NEEDS RESULTING FROM COVID-19.....	1835
<i>Brett R. South, Anita M. Preininger, Piyush Parmar, Rubina F. Rizvi, David Brotman, Shira Alevy, Mollie M. McKillop, Gretchen P. Jackson, William Kassler</i>	
AUTOMATIC STRATIFICATION OF TABULAR HEALTH DATA.....	1836
<i>Skyler Speakman, Girmaw Abebe Tadesse, Victor Akinwande, William Ogallo, Claire-Helene Mershon, Nosa Orobato, Daniel B. Neill</i>	
THE MISSING PIECE: UTILIZING SOCIAL WORK DOCUMENTATION FOR THE COLLECTION OF SOCIAL DETERMINANTS OF HEALTH.....	1837
<i>Amanda Steffon, Precious Faith H. Porter</i>	
COMPARING LANGUAGE MODEL VOCABULARY COVERAGE ON CLINICAL DOCUMENTS .....	1838
<i>Bryan D. Steitz, Adam Wright</i>	
USE OF THE ELECTRONIC HEALTH RECORD IN PEDIATRIC MEDICINE TO CAPTURE AND HIGHLIGHT GENDER IDENTITY IN ORDER TO BETTER ENSURE GENDER AFFIRMING CARE .....	1839
<i>Stacey T. Stokes, Jessica Herstek</i>	
INFOGRAPHIC USE LEADS TO BETTER HEALTH OUTCOMES AMONG LATINOS WITH HIV.....	1840
<i>Samantha Stonbraker, Gabriella Sanabria, Maureen George, Silvia Amesty, Ana F. Abraído-Lanza, Peter Gordon, Susan Olender, Tawandra Rowell-Cunsolo, Sophia Centi, Bryan McNair, Suzanne Bakken, Rebecca Schnall</i>	

SERVICE DELIVERY ADAPTATIONS: TELEHEALTH CREATIVE ARTS THERAPY IN THE VETERANS HEALTH ADMINISTRATION .....	1841
<i>Kristin M. Story, Sheri L. Robb, Alaina Preddie, Mindy E. Flanagan, Teresa M. Damush</i>	
A MACHINE LEARNING APPROACH FOR IDENTIFYING EMERGENT PHENOTYPES ASSOCIATED WITH A PREVIOUS COVID INFECTION .....	1842
<i>Zachary H. Strasser, Hossein Estiri, Shawn N. Murphy</i>	
MEASURING THE CORRECTNESS OF ALL OF US PHYSICAL MEASUREMENT .....	1843
<i>Lina Sulieman, Karthik Natarajan, Qingxia Chen, Robert J. Carroll, Kayla Marginean, Paul Harris, Andrea H. Ramirez</i>	
GENERATING LONGITUDINAL SYNTHETIC EHR DATA WITH RECURRENT AUTOENCODERS AND GENERATIVE ADVERSARIAL NETWORKS .....	1844
<i>Siao Sun, Fusheng Wang, Sina Rashidian, Tahsin Kurc, Kayley Abell-Hart, Janos Hajagos, Wei Zhu, Mary Saltz, Joel Saltz</i>	
EXTRACTION OF AMBIGUOUS PHRASES FOUND WITHIN ADVERSE DRUG EVENT MENTIONS USING A NATURAL LANGUAGE PROCESSING-BASED ANNOTATION TOOL .....	1845
<i>Zhoujun Sun, Rubina F. Rizvi, Shilo Anders, Brett R. South, Elisabeth Scheufele, Karlis Draulis, Henry J. Feldman</i>	
HOW CAN ARTIFICIAL INTELLIGENCE TOOLS BE USED TO MANAGE FUTURE PANDEMICS? A SCOPING REVIEW OF KEY USE CASES .....	1846
<i>Ania Syrowatka, Masha Kuznetsova, Ava Alsubai, Adam L. Beckman, Paul A. Bain, Kelly J. Thomas Craig, Jianying Hu, Gretchen P. Jackson, Kyu Rhee, David W. Bates</i>	
TRAUMA TRIAGE IN AN INFORMATION RICH ENVIRONMENT .....	1847
<i>Douglas A. Talbert, Steve Talbert</i>	
SUPERVISED MACHINE LEARNING OF NURSING FLOWSHEET DATA TO IDENTIFY A SIGNAL OF RACIAL BIAS .....	1848
<i>Brittany N. Taylor, Christopher Knaplund, Sarah C. Rossetti, Kenrick Cato</i>	
TELEHEALTH ADOPTION AND HEALTHCARE UTILIZATION DURING THE COVID-19 PANDEMIC: TOWARD UNDERSTANDING WHAT FOLLOWS FOR VULNERABLE GROUPS .....	1849
<i>Casey Overby Taylor, Ilia Rattsev, Jeremy A. Epstein, Jiawei Bai, Natalie Flaks-Manov</i>	
TOWARDS BUILDING A RECOMMENDER SYSTEM: ANALYZING RESOURCE SHARING ON AN ONLINE OVARIAN CANCER COMMUNITY .....	1850
<i>Khushboo M. Thaker, Susan Birkhoff, Vivian Hui, Zhendong Wang, Peter L. Brusilovsky, Daqing He, Young Ji Lee</i>	
ASSESSMENT OF FAST HEALTHCARE INTEROPERABILITY RESOURCES RESPONSE TIMES IN A PRODUCTION ELECTRONIC HEALTH RECORD EMBEDDED VISUALIZATION .....	1851
<i>Jeritt G. Thayer, Megan O. Lewis, Jonathan Spergel, Robert W. Grundmeier</i>	
VANCOMYCIN DOSING IN CRITICALLY ILL PATIENTS: A MACHINE LEARNING APPROACH.....	1852
<i>Mohammad Samie Tootooni, Erin F. Barreto, Kalyan Pasupathy, Kianoush Kashani</i>	
EXTRACTING DAILY DOSAGE FROM MEDICATION INSTRUCTIONS IN EHRs: AN AUTOMATED APPROACH AND LESSONS LEARNED .....	1853
<i>Ching-Huei Tsou, Diwakar Mahajan, Jennifer J. Liang</i>	

INCONSISTENCIES IN HANDLING MISSING DATA ACROSS STAGES OF PREDICTION MODELLING: A REVIEW OF METHODS USED .....	1854
<i>Antonia D. Tsvetanova, Glen Martin, Matthew Sperrin, Niels Peek, Iain Buchan, Stephanie Hyland</i>	
COMPARISON OF THREE PHRASE CHUNKING APPROACHES ON MEDICAL CONCEPT COVERAGE IN CLINICAL TEXT .....	1855
<i>Grace K. Turner, Meliha Yetisgen</i>	
ADVANCE CARE PLANNING DOCUMENTS SHOULD BE ‘FAIR’: TOWARDS FINDABLE, ACCESSIBLE, INTEROPERABLE, AND REUSABLE ADVANCE CARE PLANNING DOCUMENTATION .....	1856
<i>Elizabeth Umberfield, Susan E. Hickman, Titus K. Schleyer</i>	
DEVELOPING CLINICAL PREDICTION MODELS USING PRIMARY CARE ELECTRONIC HEALTH RECORD DATA – THE IMPACT OF METHODOLOGICAL CHOICES ON MODEL PERFORMANCE .....	1857
<i>Hendrikus J. A. Van Os, Jos P. Kanning, Marieke J. H. Wermer, Niels H. Chavannes, Mattijs E. Numans, Ynte M. Ruijgrok, Erik W. Van Zwet, Ewout Steyerberg, Hein Putter, Rolf H. H. Groenwold</i>	
QUANTIFYING UNCERTAINTY IN PATIENT COUNT METRICS DERIVED FROM IMPERFECT EHR-BASED PHENOTYPES .....	1858
<i>Jack Vanschaik, Sundandan Chakraborty</i>	
INTEGRATING HOSPITAL COMPARE DATA INTO THE HEALTH SERVICES RESEARCH DATA WAREHOUSE .....	1859
<i>Madison Vinson, Bunyamin Ozaydin</i>	
REDHOT OMOP: FACILITATING SEMANTIC INTEROPERABILITY IN REDCAP WITH FHIR AND THE OMOP CDM .....	1860
<i>Salvatore G. Volpe, Karthik Natarajan</i>	
DS-DETERMINED: USING PCORNET AND REFERRAL CODE LINKAGE TO EXPAND THE NIH DS-CONNECT REGISTRY AND ASSESS DOWN SYNDROME PARTICIPANTS' SELF-DETERMINATION .....	1861
<i>Lemuel R. Waitman, Sravani Chandaka, Daniel W. Connolly, Jud Rhode, Debbie Jae, Evan Dean</i>	
A RESPONSIVE DATA CURATION AND INTEGRATION PIPELINE FOR RARE DISEASE DATA .....	1862
<i>Ramona L. Walls, Jeffery S. Barrett, Alexandre Betourne, Emily Hartley, Jane Larkindale, Daniel Olson, William T. Roddy, Amanda Borens</i>	
THE REPRESENTATIVENESS OF “PEOPLE ALSO ASK” OF GOOGLE WEB SEARCH ON THE INFORMATION NEEDS CONCERNING ALZHEIMER’S DISEASE AND RELATED DEMENTIAS .....	1863
<i>Lu Wang, Jina Huh-Yoo</i>	
FACTORS AFFECTING TELEMEDICINE UTILIZATION AMONG CARDIOVASCULAR DISEASE PATIENTS DURING THE COVID-19 PANDEMIC .....	1864
<i>Suwei Wang, Hu Huang, Elisabeth Scheufele, Gretchen P. Jackson, Irene Dankwa-Mullan</i>	
ACTIVE LEARNING BASED USER-DEFINED CHEST X-RAY DIAGNOSIS SYSTEM LEVERAGING 5G INFRASTRUCTURE FOR COVID-19 VARIANT DETECTION .....	1865
<i>Ying Wang, Janusz Wojtusiak</i>	

A NOVEL DATA PORTAL TO ENABLE COVID-19 DATA INTEGRATION AND ANALYSIS .....	1866
<i>Nich Wattanasin, Victor M. Castro, Vivian Gainer, Barbara Benoit, Andrew Cagan, Reeta Metta, Shawn N. Murphy</i>	
THE PROVEN COORDINATING HUB TO ACCELERATE RESEARCH ABOUT ELECTRONIC HEALTH RECORD MODERNIZATION IN THE U.S. DEPARTMENT OF VETERANS AFFAIRS.....	1867
<i>Michael Weiner, Elizabeth M. Yano, Jessica A. Davila, Catherine Brayton, Alison M. Cogan, Seppo Rinne, Steven R. Simon</i>	
NURSING DATA IN A COVID-19 VACCINATION CLINIC.....	1868
<i>Luann Whittenburg, Virginia K. Saba</i>	
COMPLEMENTING AUTOMATED RISK PREDICTION WITH FACE-TO-FACE SCREENING IMPROVES SUICIDE RISK PREDICTION .....	1869
<i>Drew Wilimitis, Robert W. Turer, Michael Ripperger, Allison B. McCoy, Sarah H. Sperry, Colin G. Walsh</i>	
CLASSIFYING INFECTION RISK FOLLOWING PEDIATRIC CARDIAC SURGERY .....	1870
<i>Kaitlin C. Williamson, Daniel Fabbri</i>	
EXPLORING EHR DIAGNOSIS RECORDING PATTERN CHANGES DURING A PANDEMIC .....	1871
<i>Kala S. Wilson, Brian Wells, Jyoti Gangur, Kristin M. Lenoir, Maria E. Mayorga, Franck Diaz-Garelli</i>	
PREDICTION OF SMALL BOWEL OBSTRUCTION OUTCOMES WITH MACHINE LEARNING.....	1872
<i>Tanner B. Wilson, Gilles Clermont, Harry Hochheiser</i>	
THE USE OF INTEGRATED MEDICAL DEVICES AND CLINICAL DECISION SUPPORT IN THE ACUTE CARE SETTING: A SCOPING REVIEW .....	1873
<i>Jennifer B. Withall, Jessica Schwartz, John Usseglio, Kenrick Cato</i>	
DO CLUSTERS AND SEQUENCE OF SYMPTOMS PREDICT COVID-19 TEST RESULTS? .....	1874
<i>Janusz Wojtusiak, Wejdan Bagais, Hedyeh Mobahi, Elina Guralnik, Amira Roess, Farrokh Alemi</i>	
IMPLEMENTING REAL-TIME PRESCRIPTION BENEFIT TOOLS: EARLY EXPERIENCES AT 5 ACADEMIC CENTERS.....	1875
<i>Rachel Wong, Tanvi Mehta, Jeremy Schwartz, Jeremy A. Epstein, Erika Smith, Nitu Kashyup, Fasika Woreta, Bradley Crotty, Kristian Feterik, Michael Fliotsos, Jing Luo</i>	
AN INTERACTIVE COVID-19 VACCINATION APPOINTMENT DASHBOARD.....	1876
<i>Theodore B. Wright, Charlene Davis, Connor J. Rossier</i>	
THE SPECTRUM OF ENGAGEMENT IN CHRONIC KIDNEY DISEASE CARE AT A LARGE HEALTHCARE SYSTEM.....	1877
<i>Yifan Wu, Adam Wilcox</i>	
DEVELOPMENT AND VALIDATION OF A SURVIVAL SCORE FOR THE EMERGENCY DEPARTMENT IN SINGAPORE.....	1878
<i>Feng Xie, Bibhas Chakraborty, Nan Liu, Marcus Eng Hock Ong</i>	
RISK STRATIFYING HEART FAILURE READMISSIONS OF VAD-ELIGIBLE PATIENTS USING LABORATORY DATA.....	1879
<i>Jinchen Xie, Arman Kilic, Rema Padman</i>	

HAND HYGIENE MONITORING BY POSITIONING TECHNOLOGY UTILIZING IOT DEVICES .....	1880
<i>Keiko Yamashita, Shintaro Oyama, Satoshi Yamashita, Chiaki Funada, Kikue Sato, Taiki Furukawa, Aki Sugano, Daisuke Kobayashi, Hiroshi Tomozawa, Yuji Sakamoto, Yoshinori Ideno, Kensaku Mori, Yoshimune Shiratori</i>	
UNDERSTANDING ALGORITHMIC BIAS IN CLINICAL PREDICTION MODELS .....	1881
<i>Mengying Yan, Michael Pencina, Benjamin Goldstein</i>	
IMPLEMENTATION OF MEDICATION ALERTS TO REDUCE WRONG-DRUG AND WRONG-PATIENT ERRORS IN CPOE SYSTEMS .....	1882
<i>Yuyang Yang, David M. Liebovitz, William Galanter, Jason Adelman, Thomas Byrd</i>	
USING MULTIVARIATE MODELS TO EXAMINE THE IMPACT OF COVID-19 PANDEMIC AND GENDER DIFFERENCES ON HEALTH AND HEALTH CARE .....	1883
<i>Jiancheng Ye, Zhimei Ren</i>	
PREDICTING-30 DAY ALL-CAUSE UNPLANNED HOSPITAL READMISSION OF PATIENTS THAT DEVELOPED ACUTE KIDNEY INJURY DURING INTENSIVE CARE UNIT STAY .....	1884
<i>Zaid K. Yousif, Mike Hogarth, Linda Awdishu</i>	
ELECTRONIC HEALTH RECORDS REVEAL STATINS PRESCRIPTION TRENDS AMONG SMALL TO MEDIUM SIZED PRACTICES .....	1885
<i>Jingzhi Yu, Ann A. Wang, Huyen Vu, Nicholas Soulakis, Yacob Tedla, Abel N. Kho</i>	
PREDICTION OF COVID-19 CASE SEVERITY USING SYNTHETIC DATA DERIVED FROM THE NATIONAL COVID COHORT COLLABORATIVE .....	1886
<i>Noa Zamstein, Andrew J. Neumann, Randi E. Foraker, Jason A. Thomas, Adam Wilcox, Jon D. Morrow</i>	
IMPROVING COVID-19 VACCINE UPTAKE OF MENTAL ILLNESS PATIENTS USING LEARNING HEALTH SYSTEM FRAMEWORK .....	1887
<i>Xiaoming Zeng, Austin Hall, Victoria Jeffries, Stacey Burgin, John Gilmore, Elizabeth Rossi, Thava Mahadevan</i>	
DEVELOPING AN ONTOLOGY FOR SOCIAL AND BEHAVIORAL DETERMINANTS OF HEALTH .....	1888
<i>Hansi Zhang, Xi Yang, Thomas J. George, William Hogan, Jiang Bian, Yonghui Wu</i>	
PREDICTING NEXT-DAY DISCHARGE VIA ELECTRONIC HEALTH RECORD AUDIT LOGS .....	1889
<i>Xinmeng Zhang, Chao Yan, Mayur Patel, Bradley A. Malin, You Chen</i>	
CCF-CL: FORECASTING THE CLINICAL STATUS OF A PATIENT THROUGH CONTRASTIVE LEARNING .....	1890
<i>Ziqi Zhang, Chao Yan, Xinmeng Zhang, Steve Nyemba, Bradley A. Malin</i>	
DEEP LEARNING APPROACHES FOR BREAST CANCER CHARACTERISTICS EXTRACTION FROM ELECTRONIC HEALTH RECORDS .....	1891
<i>Sicheng Zhou, Liwei Wang, Nan Wang, Sunyang Fu, Chetan Shenoy, Anne Blaes, Hongfang Liu, Rui Zhang</i>	
COMPARISON OF NATURAL LANGUAGE PROCESSING APPROACHES IDENTIFYING OPIOID OVERDOSE FROM CLINICAL NOTES FOR EMERGENCY DEPARTMENT .....	1892
<i>Vivienne Zhu, Jingqi Wang, Jenna McCauley, Jennings Lindsey, Hua Xu, Kathleen Brady, Leslie A. Lenert</i>	

FEASIBILITY STUDY OF AUDIO RECORDING PATIENT-CLINICIAN VERBAL COMMUNICATIONS IN HOME HEALTHCARE SETTINGS .....	1893
<i>Maryam Zolnoori, Sasha Vergez, Zoran Kostic, Siddhartha R. Jonnalagadda, Maxim Topaz</i>	

## **SYSTEMS DEMONSTRATION**

SHARE-NW: SOLUTIONS IN HEALTH ANALYTICS FOR RURAL EQUITY ACROSS THE NORTHWEST, AN INNOVATIVE PUBLIC HEALTH INFORMATICS TOOL.....	1894
<i>Uba Backonja, Anne M. Turner, Betty Bekemeier</i>	

ONESOURCE: REGULATORY-GRADE AUTOMATED DATA CAPTURE IN MULTICENTER TRIALS .....	1895
<i>Cal Collins, Adam L. Asare, Mitra Rocca</i>	

HISTOCARTOGRAPHY: A PIPELINE FOR HISTOLOGY IMAGE ANALYSIS .....	1896
<i>Antonio Foncubierta-Rodriguez, Pushpak Pati, Guillaume Jaume, Maria Gabrani</i>	

GENERALIZING DYNAMIC DASHBOARDS FOR COMMUNITY-ENGAGED INTERVENTIONS .....	1897
<i>Daniel R. Harris, Daniel Redmond, Jeffery C. Talbert</i>	

INTEGRATING INFORMATICS FOR INTEGRATING BIOLOGY AND THE BEDSIDE WITH TRANSMART: FLEXIBLE DATA WAREHOUSING WITH COMPLEX ANALYTICS .....	1898
<i>Jeffrey G. Klann, Michael Mendis, Peter Rice, Rudy Potenzzone, Louisa May Klann, Griffin M. Weber, Diane Keogh, Shawn N. Murphy</i>	

INTERACTIVE MODEL REPORT CARD FOR VISUAL EXPLORATION OF PERFORMANCE HETEROGENEITY AND BIASES ON POPULATION SUBGROUPS .....	1899
<i>Bum Chul Kwon, Uri Kartoun, Shaan Khurshid, Amit Khera, Patrick Ellinor, Steven Lubitz, Kenney Ng</i>	

THE SMART CUMULUS TEXT-TO-FHIR NLP PIPELINE .....	1900
<i>Timothy A. Miller, Bin Mao, Dan Gottlieb, Kenneth D. Mandl</i>	

IS YOUR CLINICAL DECISION SUPPORT MOVING THE NEEDLE ON OUTCOMES THAT MATTER? NOVEL SOFTWARE FOR EVALUATING QUALITY IMPROVEMENT INITIATIVES .....	1901
<i>Evan W. Orenstein, Naveen Muthu, Marc Tobias</i>	

VITAL: A SEMANTIC SEARCH ENGINE FOR CLINICAL TEXT .....	1902
<i>Jingqi Wang, Yaoyun Zhang</i>	

## **Author Index**