CURRICULUM VITAE

MARY REGINA BOLAND, MA, MPHIL, PhD, FAMIA

(Last updated November 27, 2022)

PERSONAL

Work Mailing Address:
423 Guardian Drive
421 Blockley Hall
Perelman School of Medicine
University of Pennsylvania
Philadelphia, PA 19104-6116
Office: 215-573-7394

Electronic Addresses:
Email: bolandm@upenn.edu
Web: http://www.med.upenn.edu/bolandlab/
Twitter: @maryrboland

EDUCATION

2013-2017 Columbia University Ph.D. in Biomedical Informatics
New York, NY
Dissertation: "Systems-Level Approach to Understand the Seasonal Factors of Early Development with Clinical and Pharmacological Applications"
Mentor: Dr. Nicholas P Tatonetti, Department of Biomedical Informatics
Committee Members: Dr. Nicholas P Tatonetti, Dr. Dennis Vitkup, Dr. George Hripcsak, Dr. Andrew Gelman, Dr. Pierre Gentine

2013-2016 Columbia University M.Phil. in Biomedical Informatics
New York, NY
Mentor: Dr. Nicholas P Tatonetti, Department of Biomedical Informatics

2010-2012 Columbia University M.A. in Biomedical Informatics
New York, NY
Dissertation: "Associating Periodontal Diseases with Medical Conditions by Linking Medical and Dental Records"
Mentors: Dr. Chunhua Weng and Dr. George Hripcsak, Department of Biomedical Informatics

2006 - 2010 Saint Vincent College B.S. in Bioinformatics
Latrobe, Pennsylvania
Dissertation: "Functional Annotation of Putatively Conserved Non-Coding Regions in *B. floridae*"
Mentor: Dr. Michael L Sierk, Department of Chemistry
College Scholar of the Honors Program, Graduated *Magna cum laude*

POSTDOCTORAL TRAINING

none

LICENSURE AND CERTIFICATION

none

ACADEMIC APPOINTMENTS - PRIMARY

2017-present Assistant Professor of Informatics (tenure-track)
Perelman School of Medicine
University of Pennsylvania, Philadelphia, Pennsylvania

2017-present Senior Fellow, Institute for Biomedical Informatics (IBI)
Member, Genomics and Computational Biology (GCB) Graduate Group
Member, Graduate Group in Epidemiology and Biostatistics (GGEB)

ACADEMIC APPOINTMENTS - SECONDARY

2017-present Member (Adjunct Assistant Professor), Department of Biomedical and Health Informatics
The Children's Hospital of Philadelphia, Pennsylvania

2017-present Affiliate Member, Center of Excellence in Environmental Toxicology (CEET),
Perelman School of Medicine
University of Pennsylvania, Philadelphia, Pennsylvania

MAJOR COMMITTEE ASSIGNMENTS AND CONSULTATIONS

International, National and Regional

International

2020 Scientific Program Committee, IEEE International Conference on Health Informatics (IEEE ICHI), Oldenburg, **Germany**

2022 Scientific Program Committee, Artificial Intelligence in Medicine (AIME), Halifax, **Canada**

2022 Scientific Program Committee, AINurse22: 1st Workshop on Artificial Intelligence in Nursing: Advances, Methods and Path Forward, Halifax, **Canada**

2022 Doctoral Consortium Committee, Artificial Intelligence in Medicine (AIME), Halifax, **Canada**

2022 Grant Reviewer, 'Artificial Intelligence Applications in Health and Medicine' study section, Israeli Ministry of Innovation, Science and Technology, Government of **Israel**, Aug-Oct 2022

2022 Grant Reviewer, United Kingdom Research Institute (UKRI) Medical Research Council (MRC), **United Kingdom,** October 2022

National

2015-2016 Co-Manager, Journal of American Medical Informatics Association Journal Club, American Medical Informatics Association, Washington DC, USA

2015 Year-in-Review Work Group, American Medical Informatics Association, San Francisco, CA, USA

2017 Scientific Program Committee, AMIA Annual Conference (AMIA 2017), American Medical Informatics Association, Washington DC, USA

2017 Scientific Program Committee, AMIA Translational Bioinformatics Summit (AMIA Informatics Summit), American Medical Informatics Association, San Francisco, CA, USA

2018 Scientific Program Committee, IEEE International Conference on Health Informatics (IEEE ICHI), New York, NY USA

2018 Scientific Program Committee, Pervasive Health and Personalized Medicine Crossroads: Challenges and Opportunities Workshop (Pervasive PerMed), New York, NY USA

2018 Scientific Program Committee, AMIA Informatics Summit, American Medical Informatics Association, San Francisco, CA, USA

2018 Scientific Program Committee, AMIA Annual Conference (AMIA 2018), American Medical Informatics Association, San Francisco, CA, USA

2018 Grant Reviewer, "TRISH Biomedical Research Advances for Space Health", 800,000 award for 2-year period, National Aeronautics and Space Administration (NASA) Translational Research Institute for Space Health (TRISH)

2018-present Awards Committee, American Medical Informatics Association

2018-present Community Leader, American Society for Clinical Pharmacology & Therapeutics (ASCPT)

2019 Scientific Program Committee, AMIA Informatics Summit 2019, American Medical Informatics Association, San Francisco, CA, USA

2019 Scientific Program Committee, AMIA Annual Conference (AMIA 2019), American Medical Informatics Association, Washington DC, USA

2019 Session Chair, Penn Conference on Big Data in Population Health Sciences Conference Program Committee, Philadelphia, PA

2019 Reviewer, High-School Informatics Program, AMIA Annual Conference (AMIA 2019), American Medical Informatics Association, Washington DC, USA

2019 Scientific Program Committee, 1st International Symposium on Mathematical and Computational Oncology, Lake Tahoe, Nevada, USA

2020 Scientific Program Committee, AMIA Informatics Summit 2020, American Medical Informatics Association, Houston, TX, USA

2020 Doctoral Consortium Chair, Artificial Intelligence in Medicine (AIME), Minneapolis, Minnesota

2020 Scientific Program Committee, 2nd International Symposium on Mathematical and Computational Oncology, San Diego, CA, USA

2021 Grant Reviewer, Behavioral Genetics and Epidemiology Study Section (BGES), National Institutes of Health, Meeting dates 03/10/2021-03/11/2021

2022 Vice Chair of Data Science, AMIA Informatics Summit 2022, American Medical Informatics Association, Chicago, IL, USA

2022 Grant Reviewer, Post COVID Conditions Collaborative Merit Aware Study Section, Veterans Affairs Office of Research and Development, Meeting dates June 2022

2022 Scientific Program Committee, IEEE International Conference on Bioinformatics and Biomedicine (BIBM), December 6-8, 2022, Las Vegas, NV, USA (https://ieeebibm.org/BIBM2022/)

2023 Scientific Program Committee, AMIA Informatics Summit 2023, American Medical Informatics Association, Seattle, WA, USA

Institutional

2010-2012 Departmental Representative, Graduate Student Advisory Council, Graduate School of Arts and Sciences, Columbia University

2011-2012 President's and Provost's Student Event Fund Committee, Columbia University

2017-2018 Courtesy seminars in the Departments of Biostatistics, Epidemiology & Informatics, Center for Clinical Epidemiology & Biostatistics, Center for Excellence in Environmental Toxicology, University of Pennsylvania

2017-2018 Courtesy seminars in the Center for Pediatric Clinical Effectiveness & Policy Lab, Children's Hospital of Philadelphia

2018-present Epidemiology Academic Advising Committee, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania

2017-present Research Day Committee, Department of Biostatistics, Epidemiology & Informatics, University of Pennsylvania

2018-present Departmental Recruitment Committee, Department of Biostatistics, Epidemiology & Informatics, University of Pennsylvania
2018-present Internal Advisory Board for Graduate Group in Informatics, Institute of Biomedical Informatics, University of Pennsylvania
2018-present Masters in Informatics Admissions Committee, Institute of Biomedical Informatics, University of Pennsylvania
2018-present Executive Committee for Masters in Informatics (MBMI) Program, Institute of Biomedical Informatics, University of Pennsylvania
2018-present Chair, Advising and Curriculum Committee for Masters in Informatics (MBMI) Program, Institute of Biomedical Informatics, University of Pennsylvania
2019-present Awards Committee, Department of Biostatistics, Epidemiology & Informatics, University of Pennsylvania
2019-present Exam Committee, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania
2019 Grant Reviewer, "CRIC Opportunity Pool Program applications", University of Pennsylvania
2019-present Senator, Medical Faculty Senate Steering Committee, Representative of the Basic Sciences, Perelman School of Medicine, University of Pennsylvania (elected position)
2020-present Senate Nominating Committee, University-Wide Senate Committee, University of Pennsylvania
2020-present At-Large Member, Senate Executive Committee, University-Wide Senate Committee, University of Pennsylvania
2020-present Founding Member, University of Pennsylvania Equity and Diversity Initiative (EDI), Graduate Group in Genomics & Computational Biology (GCB), University of Pennsylvania
2020-present Associate Director, Masters in Biomedical Informatics Program, University of Pennsylvania
2021-2022 Co-Chair, Research Day Committee, Department of Biostatistics, Epidemiology & Informatics, University of Pennsylvania
2021-2023 Recruitment and Outreach Committee, PREVAIL, Biomedical Graduate Studies (BGS), University of Pennsylvania
2021-2023 Secretary, Medical Faculty Senate Steering Committee, Representative of the Basic Sciences, Perelman School of Medicine, University of Pennsylvania (elected position)
2021-present Professionalism Committee, Department of Biostatistics, Epidemiology & Informatics, University of Pennsylvania
2022 Search Committee for a Vice Chair of Faculty Professional Development, Department of Biostatistics, Epidemiology & Informatics, University of Pennsylvania

MEMBERSHIPS IN PROFESSIONAL SOCIETIES

2010-2012 American Guild of Organists, New York City Chapter (AGO), *2 years*
2008-2020 Institute of Electrical and Electronics Engineers (IEEE) Women in Engineering, *11 years*
2008-2019 IEEE Engineering in Medicine and Biology, *11 years*
2010-2018 The New York Academy of Sciences (NYAS), *8 years*
2010-present American Medical Informatics Association (AMIA), *12 years*
2011-2020 American Association for the Advancement of Science (AAAS), *9 years*
2015-2020 American Society for Clinical Pharmacology & Therapeutics, *5 years*
2016-2020 American Society of Human Genetics (ASHG), *4 years*
2017-2020 The European Society of Human Genetics (ESHG), *3 years*
2017-2020 American Geophysical Union (AGU), *3 years*
2018-2020 American Society for Reproductive Medicine (ASRM), *2 years*

EDITOR / EDITORIAL BOARDS

2015-2017 Student Editorial Board for Journal of American Medical Informatics Association (JAMIA)
2018-present Managing Editor for BioData Mining

2018-present Editorial Board for Journal of American Medical Informatics Association Open (JAMIA Open)
2020-present Editorial Board for Journal of American Medical Informatics Association (JAMIA)
2021-2022 Associate Editor for Journal of American Medical Informatics Association (JAMIA) Special issue on Informatics for Sex- and Gender-Related Health: Understanding the problems, developing new methods, and designing new solutions

AWARDS AND HONORS

2006-2010 Academic and Leadership Scholarship Recipient, Saint Vincent College
2006-2010 Graduate of Honors Scholars Program, Saint Vincent College
2006-2010 Dean's List (8 consecutive semesters: Fall 2006-Spring 2010), Saint Vincent College
2006-2010 Member of Alpha Lambda Delta Honors Society, Saint Vincent College
2009-2010 National SMART Grant Recipient
2009-2010 AJ Palumbo Research Grant Recipient (Wrote and Received)
2010 Who's Who for American Colleges and Universities
2010 Poster Presentation of Distinction, Saint Vincent College Undergraduate Research Symposium
2010 Graduated Magna cum laude, Saint Vincent College
2010 Award for Excellence in Bioinformatics, Departmental Award, Saint Vincent College
2011 Distinguished Paper Award: 2011 AMIA Translational Summit (co-author)
2013 Nominated for Student Paper Award: 2013 AMIA Annual Meeting (co-author)
2013 Key Paper from 2013, AMIA Clinical Research Informatics Year-in-Review (first-author)
2013 Nominated for Distinguished Paper Award: 2013 AMIA Translational Summit (co-author)
2013 Top Paper in the Practice of Clinical Informatics, AMIA Annual 2013 Symposium (first author)
2013-2014 Columbia University Dean's Fund, PhD Fellowship, Graduate School of Arts and Sciences
2015 Who's Who in America, 69th Edition
2014-2016 National Library of Medicine, PhD Fellowship, Columbia University
2015 1st Place Winner of Distinguished Student Paper Award 2015, AMIA Translational Summit (first-author)
2015 Travel Award ($500) to attend and present work at the Symposium on Advances in Genomics, Epidemiology and Statistics (SAGES) 2015 held at the Center for Genetics and Complex Traits (CGACT), University of Pennsylvania, Perelman School of Medicine
2015 Mario Stefanelli Best Student Paper Award at the 2015 Conference on Artificial Intelligence in Medicine (co-author)
2015 Scientist of the Week by Laboratory Equipment, written by Lily Barback and published on July 9, 2015
2015 Editor's Choice Article for Journal of American Medical Informatics Association (JAMIA) (first-author)
2015 Most Downloaded Paper in the History of the journal (including older papers) for the Journal of American Medical Informatics Association (JAMIA) (first-author)
2016 Who's Who in America, 70th Edition
2016-2017 National Institutes of Health, PhD Fellowship for Precision Medicine (TL1), Columbia University
2016 Finalist for Distinguished Student Paper Award 2016 AMIA Translational Summit (first-author)
2018 Top Scoring Poster Award, ASCPT Annual Meeting (first-author)
2018 Invited Flash Presentation, Quantitative Pharmacology Network Meeting, ASCPT Annual Meeting (first-author)
2019 Early Stage Investigator Poster Presentation Award, National Institute of Environmental Health Sciences, National Institutes of Health

2019 American Society for Reproductive Medicine Corporate Member Council In-Training Travel Awards

2019 American Society for Reproductive Medicine, 1st Place Scientific Program Prize Papers
S Alur-Gupta, **MR Boland**, MD Sammel, K Barnhart, A Dokras. Higher incidence of postpartum complications in women with PCOS.

2020 Fellow of the American Medical Informatics Association (FAMIA)

2022 Member of Sigma Xi, Scientific Research Honor Society

2022 Top Informatics Presentation, University of Pennsylvania, Department of Biostatistics Epidemiology & Informatics Research Day, April 27, 2022 (senior author)

JOURNAL REFEREE ACTIVITIES

2014-present referee for Science Advances, Briefings in Bioinformatics, Clinical Pharmacology & Therapeutics, International Journal of Epidemiology, Pediatrics, Molecular Psychiatry, Nature Medicine, Nature Metabolism, Journal of the American Medical Informatics Association (JAMIA), Journal of Biomedical Informatics, PLOS Computational Biology, Journal of the Association for Information Science and Technology, BMC Bioinformatics, Scientific Reports, Computer Methods and Programs in Biomedicine, Health Informatics Journal, Journal of the American Medical Informatics Association (JAMIA) Open, American Journal of Human Biology, BioData Mining, PLOS One, Cancers, Lancet Rheumatology.

CONFERENCE REFEREE ACTIVITIES

2014-present referee for American Medical Informatics Association Annual Conference, American Medical Informatics Association Translational Summits Conference, American Society for Clinical Pharmacology & Therapeutics Annual Conference, Institute for Electrical and Electronics Engineers (IEEE) International Conference on Health Informatics (ICHI), American Medical Informatics Association (AMIA) Clinical Informatics Summit, Pacific Symposium on Biocomputing.

RESEARCH FUNDING
(dollar amounts are only provided for Dr. Mary Regina Boland's contribution)

Past

2009-2010 Department of Education
National SMART Grant Recipient
Awarded only in the 3rd-5th year undergraduate, requirements for Grant include GPA>3.0 and majoring in a technical STEM field. Also had to be a Pell Grant Recipient.
Role: Trainee
Awarded $10,000

2009-2010 AJ Palumbo Research Grant Recipient
Role: Principal Investigator
Awarded $2,000

2011-2013 National Library of Medicine (P.I. – Weng)
R01 LM009886
Bridging the Semantic Gap Between Research Eligibility Criteria and Clinical Data

Role: Research Associate

2011-2013 National Center for Advancing Translational Sciences (P.I. – Ginsberg)
UL1 TR000040
Clinical and Translational Science Award
Role: Research Associate

2011-2013 National Center for Advancing Translational Sciences (P.I. – Ginsberg)
UL1 RR024156
Clinical and Translational Science Award; Adapting the RAO Model to Four Types of Community-Based Providers
Role: Research Associate

2012-2013 National Library of Medicine (P.I. – Bigger)
R01 LM010815
Developing Flexible EHR Plug-ins to Re-Engineer Clinical Care and Research Workflow
Role: Research Associate

2013 National Institute of Health, Agency for Healthcare Research and Quality (P.I. – Bakken)
R01 HS019853
Washington Heights Initiative Community-based Comparative Effectiveness Research
Role: Research Associate

2013-2015 National Library of Medicine (P.I. – Hripcsak)
R01 LM006910
Discovering and Applying Knowledge in Clinical Databases
Role: Research Associate and Trainee

2013-2014 Columbia University – Dean's Fund
Competitive 1-Year PhD Fellowship
Role: Trainee
Awarded $80,000 for 1 year ($34,000/year stipend) – **total value $80,000**. **Amount of Award Received: $80,000**

2014-2016 National Library of Medicine (P.I. – Hripcsak)
T15 LM007079
Training in Biomedical Informatics at Columbia University
Role: Trainee
Awarded $82,500 per year for 5 years ($35,000/year stipend) – **total value $412,500**. **Amount of Award Received: $165,000** (because I received other grants and transitioned from this award)**.**

2014-2017 National Institute for General Medical Sciences (P.I. – Tatonetti)
R01 GM107145
Drug Effect Discovery Through Data Mining and Integrative Chemical Biology
Role: Trainee

2016-2017 TL1 Precision Medicine Training Program (P.I. – Chung)
TL1 TR001875-01
The TRANSFORM TL1 Precision Medicine (PM) Program provides training and mentorship in methods and applications of PM to pre-docs, post-docs, junior faculty and a wide range of research personnel.

Role: Trainee
Awarded $83,500 per year for 1 year ($36,000/year stipend) with optional second year extension– **total value $167,000**. **Amount of Award Received: $83,500** (because I graduated and transitioned off the grant)

2018-2023 NIH R01-HL134015 (P.I. – Pack & Robishaw)
$574,434.00
R01 HL134015
Approaches to Genetic Heterogeneity of Obstructive Sleep Apnea
Role: Co-Investigator (10% effort, starting in Jul 2018)

2018-2021 NIH R01-LM010098 (P.I. – Moore)
$1,764,375
R01 LM010098
Bioinformatics Strategies for Genome Wide Association Studies
Role: Co-Investigator (10% effort, starting in Nov 2018)

2018-2020 NIH P30-ES013508 (P.I. – Penning)
$50,000
Pilot Grant for Chester Healthy Infant Research-to-Action Partnership (CHIRP)
Role: Co-PI on Pilot Award for Research Funds

2020-2021 PISC (**P.I. - Boland**)
$16,000
Pilot Grant for Postpartum Depression and Concussion
Role: PI on Pilot Award for Research Funds

Present

2017-present Perelman School of Medicine, University of Pennsylvania
Startup Funds
Role: Principal Investigator

2019-2024 NIH U54-NS115322 (P.I. – Smith & Wiebe)
$1,802,951
Connect TBI
Role: Co-Investigator (10% effort)

2021-2026 NIH UL1 - TR001878 (P.I. – FitzGerald)
$12,481,951
Institutional Clinical and Translational Science Award
Role: Co-Investigator (10% effort)

2021-2025 NIH R01-LM013519 (P.I. – Chen)
$1,399,658
PheBC: bias correction methods for EHR derived phenotype
Role: Co-Investigator (8.6% effort)

2020-2024 PCORI (P.I. – Chen)
$1,071,927
ME-2019C3-18315

An Efficient Distributed Learning Framework for Integrating Evidence in Clinical Research
Role: Co-Investigator (5% effort)

2020-2024 NIH R01- HL157160 (P.I. – Burris and South)
$1,071,927
The Role of Neighborhood Greenspace in Reducing Risk of Hypertensive Disorders of Pregnancy, Chronic Hypertension and Racial Disparities in Maternal Morbidity
Role: Co-Investigator (11.5% effort)

Submitted
Numerous Submissions Under Review

TEACHING EXPERIENCE/CURRENT TEACHING RESPONSIBILITIES

Perelman School of Medicine, University of Pennsylvania

Courses and Lectures

2018 "Informatics Mentor", for Proposal Development (MTR 602), part of the Masters in Translational Research Program, University of Pennsylvania Medical School.
2018 "Precision Medicine", module director for Special Topics in Biomedical and Health Informatics (BMIN 504), University of Pennsylvania Medical School.
2018 "Use of Statistics Methods and Machine Learning for Population-Level Analysis Using Electronic Health Records", lecture for Medical Informatics (FRO 519), University of Pennsylvania Medical School.
2019 "Precision Medicine and Health Policy" (BMIN 505-401), **course director/instructor**, University of Pennsylvania Medical School. New course, first offered Spring 2019.
2019 "Precision Medicine", module director for Special Topics in Biomedical and Health Informatics (BMIN 504), University of Pennsylvania Medical School.
2020 "Precision Medicine and Health Policy" (BMIN 505-401), **course director/instructor**, University of Pennsylvania Medical School. First offered Spring 2019.
2020 "Precision Medicine", module director for Special Topics in Biomedical and Health Informatics (BMIN 504), University of Pennsylvania Medical School.
2021 "Precision Medicine and Health Policy" (BMIN 505-401), **course director/instructor**, University of Pennsylvania Medical School. First offered Spring 2019.
2021 "Precision Medicine", module director for Special Topics in Biomedical and Health Informatics (BMIN 504), University of Pennsylvania Medical School.
2022 "Precision Medicine and Health Policy" (BMIN 505-401), **course director/instructor**, University of Pennsylvania Medical School. First offered Spring 2019.
2022 "Precision Medicine", module director for Special Topics in Biomedical and Health Informatics (BMIN 504), University of Pennsylvania Medical School.
2022 "Capstone" (BMIN 9900), **course co-director/instructor** with Dr. John H Holmes, University of Pennsylvania Medical School.
2023 "Precision Medicine and Health Policy" (BMIN 505-401), **course director/instructor**, University of Pennsylvania Medical School. First offered Spring 2019.

Seminars

2020-2021 "Health Disparities, Race and Informatics", **seminar director/instructor**, University of Pennsylvania. First seminar offered Spring 2021.

High-School Students Mentored

2019-present Owen Wetherbee, Lower Merion High-School

Undergraduate Students Mentored

2018 Ashley Cukier, Medical Anthropology major, University of Pennsylvania
2018-2020 Caroline DeVoto, Computer Science major, Notre Dame
2019-2020 Phiwinhlanhla Ndebele-Ngwenya, Summer Undergraduate Minority Research Program, LDI, University of Pennsylvania
2020-2021 Jessica Liu, University of Pennsylvania
2020-2021 Sarah Tadlock, University of Pennsylvania
2020-2022 Rebecca Morse, University of Pennsylvania, **Obtained Fulbright Scholarship to attend a Masters program in Switzerland**
2020-present Ella Poole, University of Pennsylvania

Masters Students Mentored

2017-2018 Jiadi Xiong, Data Science Masters Program, University of Pennsylvania
2017-2019 Aditya Kashyap, Data Science Masters Program, University of Pennsylvania

PhD Rotation Students Mentored

2019 Jessica Meeker (Joint with Dr. Heather Burris), Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania
2020 Bernadette D'Alonzo, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania
2021 Kelli Williams, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania
2022 Chloe Paris, Graduate Group in Genomics & Computational Biology, University of Pennsylvania

PhD Students Mentored

2019-2021 Jessica Meeker, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania, Started as fulltime mentor: Summer 2019; Defense Date: March 18, 2021, Graduation Date: May 17, 2021. Current: Epidemic Intelligence Service (EIS) Postdoctoral Fellow at the CDC in Reproductive Epidemiology
2019-Current Aditya Kashyap (Joint with Dr. Chris Callison-Burch), Graduate Group in Computer Science, SEAS, University of Pennsylvania. Started as fulltime mentor: Fall 2019, Expected Graduation: May 2023

Medical School Students Mentored (Elizabeth Blackwell Society)

2017 Y. Ally Wang, class of 2018
2018 Robin H Wang, class of 2022

Post-doctoral Student Scientists Mentored

2018-2020 Ray Bai, Department of Biostatistics, Epidemiology & Informatics, University of Pennsylvania (Joint with Dr. Yong Chen) (starting as tenure-track Assistant Professor of Statistics at University of South Carolina in Aug 2020)
2018-2022 Silvia Canelon, Department of Biostatistics, Epidemiology & Informatics, University of Pennsylvania

Ph.D. Student, Academic Advising

2018-2021 Jessica Meeker, Graduate Group in Epidemiology and Biostatistics, University of Pennsylvania
2019-2021 Tuhina Srivastava, Graduate Group in Epidemiology and Biostatistics, University of Pennsylvania
2020-2022 Dominique Medaglio, Graduate Group in Epidemiology and Biostatistics, University of Pennsylvania

Ph.D. Candidacy Exams Served On

2018 David Lee, Title: *Alternative Splicing in Inflammatory Bowel Disease,* Graduate Group in Genomics and Computational Biology, University of Pennsylvania
2019 Chi-Yun Wu, Title: *TBA,* Graduate Group in Genomics and Computational Biology, University of Pennsylvania
2021 Vivek Sriram, Title: *Exploring Genetic Drivers of Disease Complications through Network-based Integration of EHR-linked Biobank Data,* Graduate Group in Genomics and Computational Biology, University of Pennsylvania
2021 Brenda Xiao, Title: *Integrating Various Risk Factors with Polygenic Risk Scores for Preeclampsia,* Graduate Group in Genomics and Computational Biology, University of Pennsylvania

Ph.D. Qualifying Exams Served On

2019 Neal Dhopeshwa, Graduate Group in Epidemiology and Biostatistics, University of Pennsylvania
2019 Jessica Meeker, Graduate Group in Epidemiology and Biostatistics, University of Pennsylvania
2019 Tara Klingner, Graduate Group in Epidemiology and Biostatistics, University of Pennsylvania
2019 Alexa Woodward, Graduate Group in Epidemiology and Biostatistics, University of Pennsylvania
2019 Stephanie Teeple, Graduate Group in Epidemiology and Biostatistics, University of Pennsylvania
2020 Lanair Lett, Graduate Group in Epidemiology and Biostatistics, University of Pennsylvania
2020 Tuhina Srivastava, Graduate Group in Epidemiology and Biostatistics, University of Pennsylvania
2020 Kuldeep Yadav, Graduate Group in Epidemiology and Biostatistics, University of Pennsylvania
2021 Bernadette D'Alonzo, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania
2021 Emily Acton, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania
2021 Dominique Medaglio, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania
2021 Brinkley Raynor, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania
2021 Danielle Kellier, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania
2022 Kelli Williams, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania
2022 Wilhelm van der Mei, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania
2022 Kira Nightinggale, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania

Ph.D. Dissertation Committees Served On

2018-2020 Rui Duan, Title: *EHR + X: Challenges, Methods and Inference in Integrating EHR data with Other Sources,* Graduate Group in Epidemiology and Biostatistics, University of Pennsylvania

2020-2021 Mackenzie Edmondson, Title: *Privacy-Preserving Distributed Regression Algorithms for Analysis of Multi-Site Real-World Data,* Graduate Group in Epidemiology and Biostatistics, University of Pennsylvania. Defended: June 2021, Graduated: October 2021

2021- Current Brenda Xiao, Title: *Integrating Various Risk Factors with Polygenic Risk Scores for Preeclampsia,* Graduate Group in Genomics and Computational Biology, University of Pennsylvania. Defended: TBD, Graduated: TBD.

2022-Current Danielle Kellier, Title: TBD, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania

2022-Current Karl Keat, Title: TBD, Graduate Group in Genomics and Computational Biology, University of Pennsylvania. Defended: TBD, Graduated: TBD.

Masters Science Clinical Epidemiology Students Mentored

2018-2020 Snigdha Alur-Gupta, MSCE program, University of Pennsylvania (co-mentor: Dr. Dokras)

2020-2022 Adina Goldberg, MSCE program, University of Pennsylvania (co-mentor: Dr. Levine)

Masters Translational Research (MTR) Students Mentored

2018-2020 Courtney Quinlan, MTR program, University of Pennsylvania

Masters Biomedical Informatics Program (MBMI)

2020- Current Faculty Associate Director of Masters in Biomedical Informatics (MBMI) Program

2021- Current Capstone Oversight Mentors (joint with Dr. Holmes) for Masters in Biomedical Informatics (MBMI) Program

College of Physicians and Surgeons, Columbia University

Courses and Lectures

2011-2013 "Ontologies", module director and lecturer for Symbolic Methods of Biomedical Informatics (G4003), Columbia University College of Physicians and Surgeons

2014 "Introduction to Translational Bioinformatics" (G4006), teaching assistant and course designer, Columbia University College of Physicians and Surgeons

2015 "Translational Bioinformatics" (G4006), teaching assistant, Columbia University College of Physicians and Surgeons

2016 "Biological Sequence Analysis" (G4013), teaching assistant, Columbia University College of Physicians and Surgeons

Jefferson University

Tutor

2014-2016 "Research Methods", tutor, Nursing School, Jefferson University

American Society of Health-System Pharmacists (ASHP)

Courses and Lectures

2016 "Data Mining for Drug Safety", teaching assistant and lecturer, Continuing Education course for American Society of Health-System Pharmacists
2016 "Connecting the EHR to Biomedical Discoveries", teaching assistant and lecturer, Continuing Education course for American Society of Health-System Pharmacists

American Medical Informatics Association (AMIA)

Courses and Lectures

2015-2016 "JAMIA Journal Club", co-manager, Continuing Education course for American Medical Informatics Association

Saint Vincent College

Courses and Lectures

2008-2009 "General Chemistry I Laboratory", teaching assistant, Chemistry Department, Saint Vincent College
2008-2009 "General Chemistry II Laboratory", teaching assistant, Chemistry Department, Saint Vincent College

Tutor

2008-2009 "General Chemistry I", tutor, Chemistry Department, Saint Vincent College
2008-2009 "General Chemistry II", tutor, Chemistry Department, Saint Vincent College
2008-2009 "Organic Chemistry I", tutor, Chemistry Department, Saint Vincent College
2008-2009 "Organic Chemistry II", tutor, Chemistry Department, Saint Vincent College
2008-2009 "General Chemistry I Laboratory", tutor, Chemistry Department, Saint Vincent College
2008-2009 "General Chemistry II Laboratory", tutor, Chemistry Department, Saint Vincent College
2008-2009 "Organic Chemistry I Laboratory", tutor, Chemistry Department, Saint Vincent College
2008-2009 "Organic Chemistry II Laboratory", tutor, Chemistry Department, Saint Vincent College

INVITED PRESENTATIONS

2013 "Discovering Medical Conditions Associated with Periodontitis Using Linked Electronic Health Records" Department of Biomedical Informatics, Researcher Seminar, Columbia University, New York, NY. January 24, 2013.
2014 "SeaWAS: Season-Wide Association Study" Department of Biomedical Informatics, Student Seminar, Columbia University, New York, NY. November 06, 2014.
2015 "Birth Month Affects Lifetime Disease Risk: A Phenome-Wide Method" Department of Systems Biology, Student Seminar, Columbia University, New York, NY. May 05, 2015.
2016 "Electronic Health Records and Precision Medicine: Enabling Large-Scale Discoveries Using Phenome-Wide Approaches" IMPACT Symposium IV – Statistical Challenges and Opportunities in Precision Cancer Medicine, Cary NC. November 18, 2016.

2016 “A Systems-Level Approach to Understand the Seasonal Factors of Early Development with Clinical and Pharmacological Applications” Institute for Biomedical Informatics, University of Pennsylvania Philadelphia, PA. December 13, 2016.

2017 “A Systems-Level Approach to Understand the Seasonal Factors of Early Development with Clinical and Pharmacological Applications” Department of Biomedical Informatics, University of Pittsburgh Pittsburgh, PA. February 17, 2017.

2017 “Lessons from Smith-Lemli-Opitz Syndrome that Can Help All Kids – How SLOS Can Inform Us About Birth Month – Disease Risk Dependencies”, Smith-Lemli-Opitz Family Medical Conference, Cincinatti, Ohio. June 23, 2017.

2017 “Prenatal/Perinatal Exposures – Latent and Overt – and Their Lifetime Effect”, Center for Pediatric Clinical Effectiveness & Policy Lab Seminar Series, Children’s Hospital of Philadelphia, Philadelphia, PA. September 15, 2017.

2017 “Uncovering Exposures Responsible for Birth Season – Disease Effects: A Global Study”, Observational Health Data Sciencces and Informatics Symposium. Bethesda, MD. October 18, 2017.

2017 “Climate Classification is an Important Factor in Assessing Quality-of-Care Across Hospitals”, 2017 Fall Meeting, American Geophysical Union, New Orleans, LA. December 11-15, 2017.

2018 “Prenatal/Perinatal Exposures – Latent and Overt – and Their Lifetime Effect”, Center for Excellence in Environmental Toxicology, University of Pennsylvania, Philadelphia, PA. February 15, 2018.

2018 “Prenatal/Perinatal Exposures – Latent and Overt – and Their Lifetime Effect”, Center for Clinical Epidemiology & Biostatistics, University of Pennsylvania, Philadelphia, PA. February 15, 2018.

2018 “Development of A Machine Learning Algorithm to Classify Drugs of Unknown Fetal Effect”, American Society of Clinical Pharmacology & Therapeutics, Orlando, FL. March 21-24, 2018.

2018 “Contributions from Informatics and Data Science to Environmental Health and Exposome Research”. Medical Informatics in Europe (MIE). Gottenburg, Sweden, April 24-27, 2018. Panel member with F Martin-Sanchez, R Bellazzi.

2018 “First Trimester Exposure to Fine Air Particulate and Increased Risk of Cardiovascular Disease”, Center for Excellence in Environmental Toxicology, External Advising Committee, University of Pennsylvania, Philadelphia, PA. April 19, 2018.

2018 “First Trimester Exposure to Fine Air Particulate and Increased Risk of Cardiovascular Disease”, Informatics Day, Department of Biostatistics, Epidemiology & Informatics, University of Pennsylvania, Philadelphia, PA. May 31, 2018.

2018 “Using Electronic Health Records to Explore Relationships with OSA and Cardiovascular Disease”, Sleep Apnea Global Interdisciplinary Consortium (SAGIC) – Reykjavik, Iceland. September 23, 2018.

2018 “Can your birth month predict your risk of heart disease?”, Undergraduate Bioinformatics Program, Saint Vincent College, Latrobe, PA, USA. October 11, 2018.

2018 “Condition Coding Practice Differences Between USA, Asia and Europe”, Observational Health Data Sciences and Informatics (OHDSI) Symposium. Bethesda, MD, USA. October 12, 2018.

2018 “Construction of PEPPER: Prenatal Exposure Pubmed ParsER”, American Medical Informatics Association, San Francisco, CA. Nov. 2018.

2018 “Mapping Regional Effects of Exposure to Hydraulic Fracturing Fluid and Linking with Information on Toxicity”, 2018 Fall Meeting, American Geophysical Union, Washington DC, December 10-14 2018.

2019 “ODAL: A one-shot distributed algorithm to perform logistic regressions on electronic health records data from multiple clinical sites”, Pacific Symposium in Biocomputing, Kona, Hawaii. Jan. 2019.

2019 “Construction of PEPPER: Prenatal Exposure Pubmed ParsER”, Pacific Symposium in Biocomputing, Kona, Hawaii. Jan. 2019.

2019 “Investigating the Effects of Pharmacological Drug Exposure on Pregnancy Outcomes”, Center for Research on Reproduction and Women’s Health (CRRWH). May 29, 2019 University of Pennsylvania, Philadelphia, PA.

2019 “Mapping Regional Effects of Exposure to Hydraulic Fracturing Fluid and Linking with Information on Toxicity”, Environmental Health Sciences Core Center 2019 Meeting, University of Iowa, Iowa City, Iowa, June 20-21 2019.

2019 “Developing Informatics Methods that Enable Reproducible Results”, Personalized Health Informatics Group, Swiss Institute of Bioinformatics, Basel Switzerland. July 17, 2019.

2019 “Approaches to Obtaining Outcomes Data for Sleep Studies”, Sleep Apnea Global Interdisciplinary Consortium (SAGIC) – Vancouver, Canada. September 20, 2019.

2020 “Developing Informatics Methods to Study Maternal and Child Health Outcomes and their Environmental Contributions"– University of Texas Medical Center, Houston, TX, March 20, 2020. **Cancelled Due to Coronavirus.**

2020 “The Difficulties, Pitfalls & Importance of Studying Exposures During Pregnancy”, Food & Drug Administration, May 6, 2020.

2020 “Experiences in Informatics: My Career Path"– Department of Biomedical Informatics, Columbia University, New York, NY, September 9, 2020. **Virtual Session.**

2020 “Developing Informatics Methods to Study Maternal and Child Health Outcomes and their Environmental Contributions"– School of Biomedical Informatics (SBMI) University of Texas Medical Center, Houston, TX, September 30, 2020. **Virtual Session.**

2021 “Turn Right Here: A Journey through the Pathways of AMIA Q & A Session for Students"– Invited by AMIA leadership to present at the AMIA 2021, March 23, 2021. **Virtual Session.**

2021 “International Workshop on AI in Health: Transferring and INtegrating Knowledge for Better Health"– Invited Guest Speaker to present at The Web Conference 2021, April 19, 2021. **Virtual Session.**

2021 "Studying Neighborhood Effects on Human Health Using Electronic Health Record Data"- Invited Guest Speaker to present at Humboldt State University, California, September 29, 2021. **Virtual Session.**

2021 "Studying Neighborhood Effects on Human Health Using Electronic Health Record Data"- Invited Guest Speaker to present at Morehouse College, Atlanta, GA, October 8, 2021. **Virtual Session.**

2021 "Studying Neighborhood Effects on Human Health Using Electronic Health Record Data"- Invited Guest Speaker to present at University of California Berkeley - SEED Scholar program, California 2021, October 27, 2021. **Virtual Session.**

2021 "Identifying Residential Mobility Using Electronic Health Record Data"- Invited Guest Speaker to present at University of California San Francisco, California, November 05, 2021. **Virtual Session.**

2022 "Studying Hydraulic Fracturing Chemicals and Affects on Human Health"- Invited Guest Speaker for Community Engagement Core, Stakeholder Advisory Board Meeting, Center for Excellence in Environmental Toxicology, University of Pennsylvania, Philadelphia, PA, January 20, 2022. **Virtual Session.**

2022 "Methods and Considerations for Studying Neighborhood Effects and Environmental Exposures on Human Health Using Electronic Health Record Data "- Guest Speaker to present at North Carolina A&T, November 02, 2022. **Virtual Session.**

2022 "Impact of Climate Change on the Timing of Menarche"- Invited Guest Speaker for Center for Excellence in Environmental Toxicology Symposium, University of Pennsylvania, Philadelphia, PA, November 18, 2022. **Virtual Session.**

2022 "Studying Disparities through the Integration of Environmental Exposures with Health Outcomes using Electronic Health Records"- Invited Guest Speaker for Cedars-Mount Sinai, Los Angeles, CA, December 14, 2022. **Virtual Session.**

SERVICE

2009-2010 Ovarian Cancer National Alliance™ Benefit Concert Organizer, Saint Vincent Basilica, Latrobe PA

2011 Student Volunteer for the AMIA Fall 2011 Annual Conference, Washington DC

2014-2015 Big Brother/Big Sister Program, Graduate Student Organization, Columbia University, New York, NY

BIBLIOGRAPHY

Impact Summary (11/20/2022 – Source: Google Scholar)

Total publications = 70
Total citations = 1615
Average citations per paper ~ 23.07

H-index = 24
i10-index = 41

Publications cited >= 10 times = 41
Publications cited >= 20 times = 30
Publications cited >= 50 times = 8
Publications cited >= 100 times = 2

NCBI Account:
https://www.ncbi.nlm.nih.gov/myncbi/1BEwu-YaGomAK/bibliography/public/

Google Scholar:
https://scholar.google.com/citations?user=AJKKzMAAAAAJ&hl=en&oi=ao

Referred Publications

Journal Articles

1. L Davidson, S Canelon, **MR Boland**. A Medication-Wide Association Study (MWAS) on Repurposed Drugs for COVID-19 with Pre-pandemic Prescription Medication Exposure and Pregnancy Outcomes. *Scientific Reports* **2022**; *In Press*.
2. L Davidson, S Canelon, **MR Boland**. Prescription Medication Exposures and Multi-Fetal Pregnancies: Medication-Wide Association Study (MWAS) Using Electronic Health Record Data. *Journal of Medical Internet Research (JMIR)* **2022**; *In Press*.
3. A Bushong, T McKeon, **MR Boland,** J Field. Publicly available data reveals association between asthma hospitalizations and unconventional natural gas development in Pennsylvania. *PloS One*. 2022; *In press.*
4. R Morse, AC Breitzin, S Canelon, B D'Alonzo, ALC Schneider, **MR Boland**. Design and Evaluation of a Postpartum Depression Ontology. *Applied Clinical Informatics*. 2022; *In press.*
5. R Bai, GE Moran, J Antonelli, Y Chen*, **MR Boland*.** Spike-and-Slab Group Lassos for Grouped Regression and Sparse Generalized Additive Models. *Journal of American Statistical Association (JASA) Applications*. **2022**: 117:537, 184-197. *Joint Senior Author
6. **MR Boland,** N Elhadad, W Pratt. Informatics for Sex- and Gender-Related Health: Understanding the Problems, Developing New Methods and Designing New Solutions. *Journal of American Medical Informatics Association (JAMIA)*. 2021; *In press.*
7. JR Meeker, HH Burris, R Bai, LD Levine, **MR Boland**. Neighborhood deprivation increases the risk of post-induction cesarean delivery. *Journal of American Medical Informatics Association (JAMIA)*. 2021; *In press.*
8. S Canelon, S Butts, **MR Boland**. Evaluation of Stillbirth Among Pregnant People with Sickle Cell Trait. *JAMA Network Open*. 2021; 4(11):e2134274.
9. **MR Boland,** L Davidson, S Canelon, J Meeker, T Penning, JH Holmes, J Moore. Harnessing Electronic Health Records to Study Emerging Environmental Disasters: A Proof of Concept with Perfluoralkyl Substances (PFAS). *Nature Digital Medicine.* 2021; 4(1):122.

10. JH Holmes, J Beinlich, **MR Boland,** K Bowles, Y Chen, T Cook, G Demiris, M Draugelis, L Fluharty, P Gabriel, R Grundmeier, C Hanson, D Herman, B Himes, R Hubbard, C Kahn Jr., D Kim, R Koppel, Q Long, N Mirkovic, J Morris, D Mowery, M Ritchie, R Urbanowicz, JH Moore. Why is the Electronic Health Record so Challenging for Research and Clinical Care? *Methods of Information in Medicine*. 2021; 60(1-02):32-48.
11. JR Meeker, HH Burris, **MR Boland**. An Algorithm to Identify Residential Mobility from Electronic Health Record Data. *International Journal of Epidemiology*. 2021; *In press.*
12. JR Meeker, SP Canelon, R Bai, LD Levine, **MR Boland**. Individual- and Neighborhood-Level Risk Factors for Severe Maternal Morbidity. *Obstetrics & Gynecology*. 2021; 137(5):847-854.
13. L Davidson, **MR Boland**. Towards Deep Phenotyping Pregnancy: A Systematic Review on Artificial Intelligence and Machine Learning Methods to Improve Pregnancy Outcomes. *Briefings in Bioinformatics*. 2021; 22(5):bbaa369.
14. S Canelon, HH Burris, LD Levine, **MR Boland**. Development and Evaluation of MADDIE: Method to Acquire Delivery Date Information from Electronic Health Records. *International Journal of Medical Informatics.* **2020;** 145:104339.
15. S Alur-Gupta, **MR Boland**, K Barnhart, M Sammel, A Dokras. Postpartum Complications Increased in Women with Polycystic Ovary Syndrome. *American Journal of Obstetrics & Gynecology.* **2021**; 224(3): 280.e1-280.e13
16. O Wetherbee, J Meeker, C DeVoto, T Penning, J Moore, **MR Boland**. WellExplorer: An Integrative Resource Linking Hydraulic Fracturing Chemicals with Targeted Proteins, Hormonal Pathways and Geographic Location. *Database*. **2020**; *In press.* DOI: 10.1093/database/baaa053
17. JH Moore, I Barnett, **MR Boland,** Y Chen, G Demiris, G Gonzalez-Hernandez, DS Herman, BE Himes, RA Hubbard, D Kim, JS Morris, DL Mowery, MD Ritchie, L Shen, R Urbanowicz, JH Holmes. Ideas for how informaticians can get involved with COVID-19 research. *BioData Mining.* **2020;** 13:3.
18. L Davidson, **MR Boland**. Enabling Pregnant Women and their Physicians to Make Informed Medication Decisions Using Artificial Intelligence. *Journal of Pharmacokinetics and Pharmacodynamics.* **2020;** 47(4):305-318.
19. R Duan, C Luo, MJ Schuemie, J Tong, JC Liang, HH Chang, **MR Boland**, J Bian, H Xu, JH Holmes, CB Forrest, SC Morton, JA Berlin, JH Moore, KB Mahoney, Y Chen. Learning from local to global-an efficient distributed algorithm for modeling time-to-event data. *J Am Med Inform Assoc.* **2020;** 27(7):1028-1036.
20. S Canelon, **MR Boland**. A Systematic Literature Review on Factors Affecting the Timing of Menarche: Potential for Climate Change to Impact Women's Health. *International Journal of Environmental Research and Public Health.* **2020;** 17(5): 1703. **IF: 2.5**
21. A Kashyap, H Burris, C Callison-Burch, **MR Boland**. The CLASSE GATOR (CLinical Acronym SenSE disambiGuATOR): A Method for Predicting Acronym Sense from Neonatal Clinical Notes. *International Journal of Medical Informatics.* **2020;** 137:104101. **IF: 3.2**
22. **MR Boland**, M Fieder, LH John, P Rijnbeek, S Huber. Female Reproductive Performance and Maternal Birth Month: A Systematic Review and Meta-Analysis Exploring Multiple Seasonal Mechanisms. *Scientific Reports.* **2020;** 10:555. **IF: 4.3**
23. **MR Boland,** ML Casal, M Kraus, AR Gelzer. Applied Veterinary Informatics: Development of a Semantic and Domain-Specific Method to Construct a Canine Data Repository. *Scientific Reports.* **2019;** 9(1):18641. **IF: 4.3**
24. R Duan, **MR Boland,** Z Liu, Y Liu, HH Chang, H Xu, H Chu, CH Schmid, CB Forrest, JH Holmes, MJ Schuemie, JA Berlin, JH Moore, Y Chen. Learning from Electronic Health Records Across Multiple Sites: A Communication Efficient and Privacy Preserving Distributed Algorithm. *J Am Med Inform Assoc*. **2020;** 27 (3): 376-385. **IF: 4.5**
25. **MR Boland,** S Alar-Gupta, L Levine, P Gabriel, G Gonzalez. Disease Associations Depend on Visit Type: Results from a Visit-Wide Association Study. *BioData Mining.* **2019**; 12(1):15. **IF: 1.9**
26. J Moore, **MR Boland,** P Camara, G Gonzalez, B Himes, D Mowery, M Ritchie, L Shen, R Urbanowicz, J Holmes. Preparing next generation scientists for biomedical big data: Artificial intelligence approaches. *Personalized Medicine.* **2019;** 6(3):247-257. **IF: 1.0**

27. **MR Boland,** NP Tatonetti. Relative Age and Attention Deficit-Hyperactivity Disorder and Month of School Enrollment. *NEJM.* **2019;** 380 (7): 692-693. **IF: 79.26**
28. **MR Boland**. A Model Investigating Environmental Factors that Play a Role in Female Fecundity or Birth Rate. *PLOS ONE.* **2018**; 13(11):e0207932. **IF: 2.77**
29. **MR Boland,** A Kashyap, J Xiong, JH Holmes, S Lorch. Development and Validation of the PEPPER Framework (Prenatal Exposure PubMed ParsER) with Applications to Food Additives. *J Am Med Inform Assoc.* **2018**; 25(11):1432-1443. **IF: 3.43**
30. **MR Boland,** MS Kraus, E Dziuk, AR Gelzer. Cardiovascular Disease Risk Varies by Birth Month in Canines. *Scientific Reports*. **2018;** 8:7130. **IF: 4.3 Altmetric: 317** ***Covered by News Outlets from N America, Europe, Asia, and Middle East.***
31. **MR Boland,** F Polubriginof, NP Tatonetti. Development of A Machine Learning Algorithm to Classify Drugs of Unknown Fetal Effect. *Scientific Reports.* **2017**; 7(1):12839. **IF: 4.3**
32. **MR Boland,** P Parhi, L Li, R Miotto, R Carroll, U Iqbal, P-A Nguyen, M Schuemie, SC You, D Smith, S Mooney, P Ryan, Y-C Li, RW Park, J Denny, JT Dudley, G Hripcsak, P Gentine, NP Tatonetti. Uncovering Exposures Responsible for Birth Season – Disease Effects: A Global Study. *J Am Med Inform Assoc.* **2018**; 25(3):275-288. **IF: 3.50**
33. **MR Boland,** P Parhi, P Gentine, NP Tatonetti. Climate Classification is an Important Factor in Assessing Quality-of-Care Across Hospitals. *Scientific Reports.* **2017**; 7:4948. **IF: 4.3**
34. **MR Boland,** K Karczewski, NP Tatonetti. 10 Simple Rules to Enable Multi-Site Collaborations Through Data Sharing. *PLOS Computational Biology.* **2017**; 13(1): e1005278**. IF: 4.59**
35. L Li*, **MR Boland*,** R Miotto*, NP Tatonetti, J Dudley. Replicating Cardiovascular Condition-Birth Month Associations. *Scientific Reports.* **2016**; 6: 33166. **IF: 4.3 *Joint Contribution First-Author**
36. **MR Boland,** NP Tatonetti. Investigation of 7-DeHydroCholesterol Reductase Pathway to Elucidate Off-Target Prenatal Effects of Pharamceuticals: A Systematic Review. *The Pharmacogenomics Journal*. **2016**; 16:411-429. **IF: 4.23**
37. K Roberts, **MR Boland**, L Pruinelli, JD Cruz, A Berry, M Georgsson, R Hazen, RF Sarmiento, U Backonja, K-H Yu, Y Jiang, PF Brennan. Biomedical informatics advancing the national health agenda: The AMIA 2015 Year-in-Review in clinical & consumer informatics. *J Am Med Inform Assoc.* **2016**; 24(e1):e185-e190. **IF: 3.50**
38. K Gayvert, E Dardenne, C Cheung, **MR Boland**, T Lorberbaum, J Wanjala, Y Chen, M Rubin, NP Tatonetti, D Rickman, O Elemento. A Computational Drug Repositioning Approach for Targeting Oncogenic Transcription Factors. *Cell Reports.* **2016;** 15(11): 2348-2356. **IF: 8.36**
39. N Nissim, **MR Boland**, NP Tatonetti, Y Elovici, G Hripcsak, Y Shahar, R Moskovitch. Improving Condition Severity Classification with an Efficient Active Learning Based Framework. *Journal of biomedical informatics*. **2016**; 61:44-54. **IF: 2.19**
40. **MR Boland*,** A Jacunski*, T Lorberbaum*, J Romano, R Moskovitch, NP Tatonetti. Systems Biology Approaches for Identifying and Understanding Adverse Drug Events. *WIREs Systems Biology and Medicine.* **2016;** 8:104-122. *Equal contribution first-author **IF: 3.21**
41. A Oellrich*, N Collier*, T Groza*, N Shah*, D Rebholz-Schuhmann*, O Bodenreider, **MR Boland**, I Georgiev, H Liu, K Livingston, A Luna, A-M Mallon, P Manda, P Robinson, G Rustici, M Simon, L Wang, R Winnenburg, M Dumontier. The digital revolution in phenotyping. *Briefings in Bioinformatics*. **2016**; 17(5): 819-830. *Equal contribution first-author **IF: 9.62**
42. BA Kidd, A Wroblewska, **MR Boland,** J Agudo, M Merad, NP Tatonetti, BD Brown, JT Dudley**.** Mapping the effects of drugs on the immune system. *Nature Biotechnology*. **2016**; 34(1):47-54. **IF: 41.51**
43. **MR Boland**, Z Shahn, D Madigan, G Hripcsak, NP Tatonetti. Birth Month Affects Lifetime Disease Risk: A Phenome-Wide Method. *J Am Med Inform Assoc.* **2015**; 22(5):1042-53**. IF: 3.50** ***Covered By Over 450 Different News Outlets from N America, Europe, Asia, Middle East, Australia, Africa. Rated No. 1 By Altmetric for articles published in J Am Med Inform Assoc.***
44. **MR Boland**, NP Tatonetti, G Hripcsak. Development and Validation of a Classification Approach for Extracting Severity Automatically from Electronic Health Records. *Journal of Biomedical Semantics (JBMS).* **2015;** 6:14. ***Highly Accessed*. IF: 2.26**

45. T Hao, A Rusanov, **MR Boland,** C Weng. Clustering clinical trials with similar eligibility criteria features. *Journal of biomedical informatics*. **2014**; 52:112-120. **IF: 2.19**
46. **MR Boland**, A Rusanov, Y So, C Lopez-Jimenez, L Busacca, RC Steinman, S Bakken, JT Bigger, C Weng. From expert-derived user needs to user-perceived ease of use and usefulness: A two-phase mixed-methods evaluation framework. *Journal of biomedical informatics*. **2014**; 52:141-150. **IF: 2.19**
47. **MR Boland**, G Hripcsak, Y Shen, WK Chung, C Weng. Defining a comprehensive verotype using electronic health records for personalized medicine. *J Am Med Inform Assoc.* **2013**;20(e2):e232-8. **IF: 3.50**
48. C Weng, Y Li, S Berhe, **MR Boland**, J Gao, GW Hruby, RC Steinman, C Lopez-Jimenez, L Busacca, G Hripcsak, S Bakken, JT Bigger. An Integrated Model for Patient Care and Clinical Trials (IMPACT) to support clinical research visit scheduling workflow for future learning health systems. *Journal of biomedical informatics.* **2013**;46(4):642-52**. IF: 2.19**
49. **MR Boland,** R Miotto**,** J Gao, C Weng. Feasibility of Feature-based Indexing, Clustering, and Search of Clinical Trials: A Case Study of Breast Cancer Trials from ClinicalTrials.gov. *Methods of Information in Medicine.* **2013**; 52(4):382-394. **IF: 2.25**
50. **MR Boland,** G Hripcsak, DJ Albers, Y Wei, A Wilcox, J Wei, J Li, S Lin, M Breene, R Myers, J Zimmerman, PN Papapanou, C Weng. Discovering Medical Conditions Associated with Periodontitis Using Linked Electronic Health Records**.** *Journal of Clinical Periodontology.* **2013** May; 40(5):474-482. **Top Paper in the Practice of Clinical Informatics for 2013 by AMIA. IF: 4.01**
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52. C Weng, X Wu, Z Luo, **MR Boland**, D Theodoratos, SB Johnson. EliXR: An Approach to Eligibility Criteria Extraction and Representation. *J Am Med Inform Assoc.* **2011** Dec; 18 Suppl 1:i116-i124. **Distinguished Paper of the 2011 AMIA Translational Summit. IF: 3.50**

Conference/Workshop Proceedings

53. S Tadlock, C Phillips, ML Casal, MC Kraus, AR Gelzer, **MR Boland**. Development of an Informatics Algorithm to Link Seasonal Infectious Diseases to Birth-Dependent Diseases Across Species: A Case Study with Osteosarcoma. *AMIA Informatics Summit* **2021; *In press.***
54. **MR Boland,** J Liu, C Balocchi, JR Meeker, R Bai, I Mellis, D Mowery, D Herman. A Method to Link Neighborhood-Level Covariates to COVID-19 Infection Patterns in Philadelphia Using Spatial Regression. *AMIA Informatics Summit* **2021; *In press.***
55. S Canelon, **MR Boland**. Not all C-sections Are the Same: Investigating Emergency vs. Election C-section Deliveries as an Adverse Pregnancy Outcome. *Pacific Symposium on Biocomputing* **2021; *In press.***
56. **MR Boland**, K Verspoor, MG Kann, S Golder, L Levine, K O'Connor, N Villanueva-Rosales, G Gonzalez-Hernandez. Advanced Methods for Big Data Analytics in Women's Health. *Pacific Symposium on Biocomputing* **2021; *In press.***
57. L Davidson, **MR Boland**. Comparative Analysis and Evaluation of State-of-the-Art Medication Mapping Tools to Transform a Local Medication Terminology to RxNorm. *AMIA Informatics Summit* **2020,** Houston, Tx, USA (full paper). ***In press.***
58. R Duan, **MR Boland*,** JH Moore, Y Chen. ODAL: A one-shot distributed algorithm to perform logistic regressions on electronic health records data from multiple clinical sites. *Pacific Symposium on Biocomputing* **2019; 30-41.** *Equal-contribution first-author
59. G Gonzalez-Hernandez, Z Lu, R Leaman, D Weissenbacher, **MR Boland,** Y Chen, J Du, J Fluck, CS Greene, J Holmes, A Kashyap, RL Nielsen, Z Ouyang, S Schaaf, JN Taroni, C Tao, Y Zhang, H Liu. PSB 2019 Workshop on Text Mining and Visualization for Precision Medicine. *Pacific Symposium on Biocomputing*; **2019**; 449-454.
60. **MR Boland,** NP Tatonetti. In Search of 'Birth Month Genes': Using Existing Data Repositories to Locate Genes Underlying Birth Month-Disease Relationships. *AMIA Summits on Translational Science*

Proceedings; **2016**; 189-198. **Finalist for Distinguished Student Paper Award 2016 AMIA Translational Summit.**

61. N Nissim, **MR Boland**, R Moskovitch, NP Tatonetti, Y Elovici, Y Shahar, G Hripcsak. Active Learning Framework for Efficient Condition Severity Classification. *Artificial Intelligence in Medicine.* **2015**; 13-24. **Mario Stefanelli Best Student Paper Award**
62. **MR Boland**, NP Tatonetti. Are All Vaccines Created Equal? Using Electronic Health Records to Discover Vaccines Associated With Clinician-Coded Adverse Events. *AMIA Summits on Translational Science Proceedings*; **2015**; 196-200.
1st Place Winner of Distinguished Student Paper Award 2015 AMIA Translational Summit.
63. V Agarwal, P LePendu, T Podchiyska, R Barber, **MR Boland**, G Hripcsak, N Shah. Using narratives as a source to automatically learn phenotype models. *Data Mining for Medicine and Healthcare (DMMI) Proc.* **2014;** Washington DC, USA.
64. N Nissim, **MR Boland**, R Moskovitch, NP Tatonetti, Y Elovici, Y Shahar, G Hripcsak. CAESAR-ALE: An Active Learning Enhancement for Conditions Severity Classification. *SIGKDD* **2014**, New York, NY, USA.
65. **MR Boland**, NP Tatonetti, G Hripcsak. CAESAR: a Classification Approach for Extracting Severity Automatically from Electronic Health Records. *Intelligent Systems for Molecular Biology Phenotype Day.* **2014**; Boston, MA.
66. C Weng, **MR Boland**, Y So, A Rusanov, C Lopez-Jiminez, R Steinman, L Busacca, S Bakken, JT Bigger. Using Software to Elicit User Needs for Clinical Research Visit Scheduling. *AMIA Summits on Translational Science Proceedings.* **2014**: 109-115.
67. CL Gordon, S Pouch, LG Cowell, **MR Boland**, HL Platt, A Goldfain, C Weng. Design and evaluation of a bacterial clinical infectious diseases ontology**.** *AMIA Annu Symp Proc*. **2013**;2013:502-11. **Nominated for Student Paper Award AMIA 2013 Annual Meeting.**
68. **MR Boland***, R Miotto*, C Weng. A method for probing disease relatedness using common clinical eligibility criteria. *Studies in health technology and informatics*. **2013**;192:481-5. *Equal Contribution first-author
69. G Hruby, **MR Boland,** JJ Cimino, J Gao, AB Wilcox, J Hirschberg, C Weng. Characterizing Research Data Query Mediation at a Urology Department. *AMIA Summits on Translational Science Proceedings* **2013**: 89-93. **Nominated for Distinguished Paper Award 2013 AMIA Translational Summit.**
70. **MR Boland,** S Tu, S Carini, I Sim, C Weng. EliXR-TIME: A Temporal Knowledge Representation for Clinical Research Eligibility Criteria. *AMIA Summits on Translational Science Proceedings* **2012**: 71-80.

Editor of Book Chapter

71. P Orzechowski, M Stauffer, JH Moore, **MR Boland**. Personalized Medicine (chapter 1). In: Simulations in Medicine Computer-Aided Diagnostics and Therapy. April 20, **2020**. Edited by Irena Roterman-Konieczna.

Scientific Reports

1. L Davidson, S Canelon, **MR Boland**. Is Hydroxychloroquine Safe During Pregnancy? Observations from Penn Medicine. 2020.
2. YJ Lee, **MR Boland**, S Bakken, C Weng. Ontology Alignment for Linking a Homegrown Research Networking System to VIVO: Findings and Implications for Standards Development. 2013.
3. **MR Boland,** S Trembowelski, DC Dine, RC Steinman, S Bakken, C Weng. How Are Research Networking Systems Used and by Whom? A Case Study Using Google Analytics. 2013.

<u>Referred Conference/Workshop/Symposium Presentations</u>

1. S Noor, LM Davidson, **MR Boland**. Linking Social Vulnerability and Alzheimer's Disease Among Females. *ABRCMS (Annual Biomedical Research Conference for Minoritized Scientists) 2022.* November 9-12, 2022. Anaheim CA (poster).
2. A Allen, A Nadgauda, N Koepler, JR Meeker, D Shah, **MR Boland**, S Butts, S Senapti. Investigating the Effect of Social Vulnerability Index on Fibroid Recurrence and Metabolic Dysfunction. *Endocrine Society (ENDO 2022).* Atlanta, Georgia. June 11-14, 2022.
3. B D'Alonzo, R Morse, AC Bretzin, ALC Schneider, S Canelon, **MR Boland**. Identifying Traumatic Brain Injury in Females from Electronic Health Records: Considerations for Defining a Cohort. *SAVIR (Society for advancement of violence and injury research) 2022.* Washington, DC (podium).
4. B D'Alonzo, R Morse, AC Bretzin, ALC Schneider, S Canelon, **MR Boland**. Identifying Traumatic Brain Injury in Females from Electronic Health Records: Considerations for Defining a Cohort. *AMIA Informatics Summit 2022.* Chicago Illinois (podium).
5. JR Meeker, HH Burris, R Bai, LD Levine, **MR Boland**. Neighborhood deprivation increases the risk of post-induction cesarean delivery. *AMIA Informatics Summit 2022.* Chicago Illinois (podium).
6. S Alur-Gupta, **MR Boland**, A Dokras. Impact of PCOS on coronavirus disease 2019 (COVID-19) incidence and severity in the United States. Androgen Excess-PCOS 19th Annual Meeting. Virtual Conference (podium). November 12-14, 2021.
7. S Tadlock, C Phillips, ML Casal, MC Kraus, AR Gelzer, **MR Boland**. Development of an Informatics Algorithm to Link Seasonal Infectious Diseases to Birth-Dependent Diseases Across Species: A Case Study with Osteosarcoma. *AMIA Informatics Summit 2021.* Virtual Conference (paper).
8. **MR Boland,** J Liu, C Balocchi, JR Meeker, R Bai, I Mellis, D Mowery, D Herman. A Method to Link Neighborhood-Level Covariates to COVID-19 Infection Patterns in Philadelphia Using Spatial Regression. *AMIA Informatics Summit 2021.* Virtual Conference (paper).
9. S Canelon, S Butts, **MR Boland.** The Impact of Sickle Cell Status on Adverse Delivery Outcomes Using Electronic Health Record Data. *AMIA Informatics Summit 2021.* Virtual Conference (podium).
10. S Lynch, E South, D Mowery, **MR Boland**. Comparison and Analysis of Concordance for Two Popular Geocoding Methods Applied to Electronic Health Record Data. *AMIA Informatics Summit 2021.* Virtual Conference (poster).
11. ***MR Boland,** L Davidson, S Canelon, J Meeker, T Penning, JH Holmes, J Moore. Harnessing Electronic Health Records to Study Emerging Environmental Disasters: A Proof of Concept with Perfluoralkyl Substances (PFAS). *AMIA Annual Meeting 2020***,** Virtual Conference (podium).
12. SP Canelon, H Burris, L Levine, **MR Boland**. Development and Evaluation of an Algorithm to Automatically Extract Delivery Episodes from Electronic Health Records. *AMIA Annual Meeting 2020***,** Virtual Conference (poster).
13. J Meeker, H Burris, **MR Boland**. An Algorithm to Identify Patient Relocation Events ('Moves') from EHR Data. *AMIA Annual Meeting 2020***,** Virtual Conference (poster).
14. O Wetherbee, J Meeker, C DeVoto, T Penning, J Moore, **MR Boland**. WellExplorer: An Integrative Resource Linking Hydraulic Fracturing Chemicals with Targeted Proteins, Hormonal Pathways and Geographic Location. *AMIA Annual Meeting 2020***,** Virtual Conference (poster).
15. J Meeker, **MR Boland**. The association between neighborhood level exposures and progression to labor. *American Public Health Association (APHA) Annual Meeting 2020***,** Virtual Conference (poster).
16. ***MR Boland,** ML Casal, M Kraus, A Gelzer. Applied Veterinary Informatics: Development of a Canine Data Repository to Uncover Disease-Breed Associations. *AMIA Informatics Summit 2020***,** Houston, Tx, USA (podium). **Cancelled Due to Coronavirus.**
17. J Meeker, H Burris, **MR Boland.** An Algorithm to Identify Patient Relocation Events ('Moves') from Electronic Health Records Data. *AMIA Informatics Summit 2020***,** Houston, Tx, USA (poster). **Cancelled Due to Coronavirus.**
18. L Davidson, **MR Boland**. Comparative Analysis and Evaluation of State-of-the-Art Medication Mapping Tools to Transform a Local Medication Terminology to RxNorm. *AMIA Informatics Summit 2020***,** Houston, Tx, USA (full paper). **Presentation Cancelled Due to Coronavirus.**

19. P Ndebele-Ngwenya, S Canelon, JA Peterson, S Butts, **MR Boland**. Investigating the Relationship Between Income and Housing Quality on Women's Risk of Preterm Birth. *Society for Advancement of Chicanos/Hispanics and Native Americans in Science 2019* (poster).
20. S Canelon, **MR Boland**. Investigating Pregnancy-Related Health Outcomes Among Patients with Sickle Cell Disease and Linking with Health Disparities. *AMIA 2019,* November 16-20, Washington DC, USA. (poster presentation).
21. R Bai, GE Moran, J Antonelli, Y Chen, **MR Boland.** Spike-and-Slab Group Lassos for Grouped Regression and Sparse Generalized Additive Models. *Joint Statistical Meetings in Colorado 2019,* July 26 – August 1, Denver Colorado (USA) (podium presentation).
22. S Alur-Gupta, **MR Boland**, MD Sammel, K Barnhart, A Dokras. Higher incidence of postpartum complications in women with PCOS. *Fertility and Sterility 2019;* 112(3):e39
23. S Alur-Gupta, **MR Boland**, MD Sammel, K Barnhart, A Dokras. Higher incidence of postpartum complications in women with PCOS. *American Society for Reproductive Medicine 2019.* (podium presentation). **Won Top Award ASRM**
24. ***MR Boland,** S Alar-Gupta, L Levine, P Gabriel, G Gonzalez. Importance of Visit Type in Understanding Results from Phenome-Wide Association Studies: Results from a Visit-WAS. *ISMB* **2019, July 21-25,** Basel, Switzerland. (poster presentation).
25. R Duan, **MR Boland*,** JH Moore, Y Chen. ODAL: A one-shot distributed algorithm to perform logistic regressions on electronic health records data from multiple clinical sites. *In Press* at **2019** *Pacific Symposium on Biocomputing*. *Equal-contribution first-author (oral presentation).
26. G Gonzalez-Hernandez, Z Lu, R Leaman, D Weissenbacher, **MR Boland*,** Y Chen, J Du, J Fluck, CS Greene, J Holmes, A Kashyap, RL Nielsen, Z Ouyang, S Schaaf, JN Taroni, C Tao, Y Zhang, H Liu. PSB 2019 Workshop on Text Mining and Visualization for Precision Medicine. *Pacific Symposium on Biocomputing*; **2019**; 449-454 (oral presentation).
27. ***MR Boland,** C DeVoto. Mapping Regional Effects of Exposure to Hydraulic Fracturing Fluid and Linking with Information on Toxicity. **Presented** at 2018 Fall Meeting, AGU, Washington DC, 10-14 December. (poster presentation)
28. ***MR Boland,** LH John, PR Rijnbeek. Condition Coding Practice Differences Between USA, Asia and Europe. **Presented** at *Observational Health Data Sciences and Informatics Symposium* 2018, October 12*,* Bethesda MD, USA (podium presentation).
29. ***MR Boland,** A Kashyap, J Xiong, JH Holmes, S Lorch. Construction of PEPPER: Prenatal Exposure Pubmed ParsER. *AMIA Annu Symp Proc*. *2018,* San Francisco, CA, USA. *In Press.* (podium presentation)
30. F Martin-Sanchez, R Bellazzi, ***MR Boland,** G Lopez-Campos. Contributions from Informatics and Data science to Environmental Health and Exposome Research. *Medical Informatics in Europe (MIE)* 2018; Gottenburg, Sweden, 24-27 April. (panel presentation)
31. ***MR Boland,** F Polubriginof, NP Tatonetti. Development of A Machine Learning Algorithm to Classify Drugs of Unknown Fetal Effect. *American Society of Clinical Pharmacology & Therapeutics.* 2018; Orlando, FL, 21-24 March. **Top Scoring Poster Award.** (poster and flash talk presentation)
32. ***MR Boland,** P Parhi, P Gentine, NP Tatonetti. Climate Classification is an Important Factor in Assessing Quality-of-Care Across Hospitals. Presented at 2017 Fall Meeting, AGU, New Orleans, LA, 11-15 December.
33. ***MR Boland,** P Parhi, R Miotto, R Carroll, U Iqbal, P-A Nguyen, M Schuemie, SC You, D Smith, S Mooney, P Ryan, Y-C Li, RW Park, J Denny, JT Dudley, G Hripcsak, P Gentine, NP Tatonetti. Uncovering Exposures Responsible for Birth Season – Disease Effects: A Global Study. *Observational Health Data Sciences and Informatics Symposium* 2017, October 18*,* Bethesda MD, USA (presentation).
34. ***MR Boland**, NP Tatonetti. Assessing the Mutational Spectrum of 7-DeHydroCholesterol Reductase and the Toxicological Effects of Pharmacological Inhibition During the Prenatal Period; (Abstract / Prenatal, Perinatal and Reproductive Genetics #3260T). Presented at the 66th Annual Meeting of The American Society of Human Genetics, October 20, 2016, Vancouver, Canada.
35. ***MR Boland**, P Parhi, U Iqbal, A Nguyen, M Schuemie, SC You, P Ryan, J Li, RW Park, G Hripcsak, NP Tatonetti. A Climate-Wide Journey to Explore Mechanisms Underlying Birth Month-Disease Risk

Associations: Preliminary Results. *Observational Health Data Sciences and Informatics Symposium 2016,* Washington DC, USA (poster).

36. ***MR Boland**, L Li, R Miotto, J Dudley, NP Tatonetti. Cardiovascular Disease Risk And Birth Month? Discovering and Replicating Novel Birth Month Associations. *Data Science Day at Columbia University*, New York, NY, USA (poster), April 3, 2016
37. ***MR Boland,** NP Tatonetti. In Search of 'Birth Month Genes': Using Existing Data Repositories to Locate Genes Underlying Birth Month-Disease Relationships. *AMIA Summits on Translational Science Proceedings 2016,* San Francisco, CA, USA.
38. F Polubriaginof, A Perotte, **MR Boland**, D Vawdrey. Quality of Race and Ethnicity Data in Electronic Health Records. *AMIA Summits on Translational Science Proceedings 2016***,** San Francisco, CA, USA (podium).
39. ***MR Boland**, G Hripcsak, P Ryan, NP Tatonetti. A Climate-Wide Journey to Explore Mechanisms Underlying Birth Month-Disease Risk Associations: A Call for Collaboration. *Observational Health Data Sciences and Informatics Symposium 2015,* Washington DC, USA (poster).
40. ***MR Boland**, Z Shahn, D Madigan, G Hripcsak, NP Tatonetti. Using Electronic Health Records to Uncover Disease-Birth Month Dependencies. *National Library of Medicine Informatics Trainee Conference 2015,* National Library of Medicine, Bethesda, MD, USA (focus session)**.**
41. ***MR Boland**, Z Shahn, D Madigan, G Hripcsak, NP Tatonetti. Using Electronic Health Records to Uncover Disease-Birth Month Dependencies. *2015 Symposium on Advances in Genomics, Epidemiology and Statistics (SAGES),* University of Pennsylvania Perelman School of Medicine, Philadelphia, PA, USA (poster)**. Travel Award Received.**
42. N Nissim, **MR Boland**, R Moskovitch, NP Tatonetti, Y Elovici, Y Shahar, G Hripcsak. Active Learning Framework for Efficient Condition Severity Classification. *Conference on Artificial Intelligence in Medicine (AIME).* **2015**; Pavia, Italy**.**
43. ***MR Boland**, NP Tatonetti. Are All Vaccines Created Equal? Using Electronic Health Records to Discover Vaccines Associated With Clinician-Coded Adverse Events. *AMIA Summits on Translational Science Proceedings 2015***,** San Francisco, CA, USA**.**
44. ***MR Boland**, Z Shahn, D Madigan, G Hripcsak, NP Tatonetti. Using Electronic Health Records to Uncover Disease-Birth Month Dependencies. *AMIA Summits on Translational Science Proceedings 2015*, San Francisco, CA, USA (poster)**.**
45. B Kidd, A Wroblewska, **MR Boland**, J Agudo, M Merad, NP Tatonetti, B Brown, J Dudley. Systematic integrative analysis of immune pharmacology. *AMIA Summits on Translational Science Proceedings 2015*, San Francisco, CA, USA (poster)**.**
46. V Agarwal, P LePendu, T Podchiyska, R Barber, **MR Boland**, G Hripcsak, N Shah. Using narratives as a source to automatically learn phenotype models. *Data Mining for Medicine and Healthcare (DMMI) Proc. 2014*, Washington DC, USA.
47. N Nissim, **MR Boland**, R Moskovitch, NP Tatonetti, Y Elovici, Y Shahar, G Hripcsak. CAESAR-ALE: An Active Learning Enhancement for Conditions Severity Classification. *SIGKDD* 2014, New York, NY, USA.
48. ***MR Boland**, NP Tatonetti, G Hripcsak. CAESAR: a Classification Approach for Extracting Severity Automatically from Electronic Health Records. *Intelligent Systems for Molecular Biology Phenotype Day.* **2014**; Boston, MA.
49. **MR Boland**, R Miotto, C Weng. A method for probing disease relatedness using common clinical eligibility criteria. ***MEDINFO*** 2013, Copenhagen, Denmark.
50. YJ Lee, **MR Boland,** S Bakken, C Weng. Ontology Alignment for Linking a Homegrown Research Networking System to VIVO: Findings and Implications for Standards Development. *AMIA Summits on Translational Science Proceedings 2013* p.99 (poster).
51. ***MR Boland,** S Trembowelski, DC Dine, RC Steinman, S Bakken, C Weng. Using Google Analytics to Elucidate Research Networking System Usage. *Clinical and Translational Science Award Annual Meeting 2012* (poster).

52. YJ Lee, **MR Boland,** S Bakken, C Weng. Aligning One CTSA's Research Networking System to VIVO. *Clinical and Translational Science Award Annual Meeting 2012* (podium).

53. ***MR Boland,** G Hripcsak, DJ Albers, Y Wei, A Wilcox, J Wei, M Breene, J Zimmerman, C Weng. Linked Records Reveal Associations between Oral and Overall Health. *Clinical and Translational Science Award Annual Meeting 2012* (poster).

54. ***MR Boland,** SB Johnson, S Trembowelski, DC Dine, RC Steinman, S Bakken, C Weng. An Initial Log-based Usage Analysis of Research Networking Systems. *AMIA Summits on Translational Science Proceedings 2012,* p.103 (podium).

55. ***MR Boland,** S Tu, S Carini, I Sim, C Weng. EliXR-TIME: A Temporal Knowledge Representation for Clinical Research Eligibility Criteria. *AMIA Summits on Translational Science Proceedings* **2012**: 71-80 (oral presentation).

56. ***MR Boland,** ML Sierk. Annotation of Putatively Conserved Non-Coding Regions in Branchiostoma Floridae. *National Conference for Undergraduate Research 2010,* Missoula, MT (poster).

57. ***MR Boland,** R Parker**.** Optimizing Cancer Chemotherapy Administration: Effect of Model Structure on Treatment Cost and Effect. *Undergraduate Research in Tissue Engineering (Pittsburgh-Based Affiliate Research Institutes) 2009***,** Pittsburgh, PA (Poster No. 3).

58. ***MR Boland,** M Raab, M Sangimino. Data design & Flow for RAE: An interactive web-based biomedical informatics system for pediatric orthopedic patients. *Duquesne University Summer Research Symposium 2008,* Pittsburgh, PA. (Poster No. 84).

***Mary Regina Boland Gave Oral Presentation of Research**

MEDIA COVERAGE
Selected Research

Environmental-Related Research

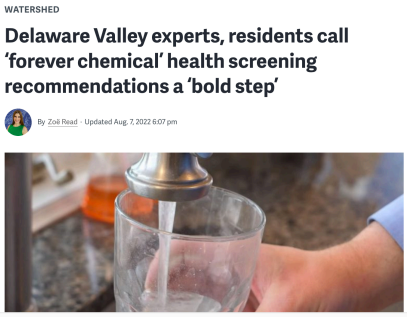
Per-FluoroAlkyl Substances (PFAS)

MR Boland, L Davidson, S Canelon, J Meeker, T Penning, JH Holmes, J Moore. Harnessing Electronic Health Records to Study Emerging Environmental Disasters: A Proof of Concept with Perfluoralkyl Substances (PFAS). ***Nature Digital Medicine***. 2021; 4(1):122.

Excerpts of Coverage:

Delaware Valley experts, residents call 'forever chemical' health screening recommendations a 'bold step'

by Zoe Read, published on August 07, 2022. WHYY


WATERSHED

Delaware Valley experts, residents call 'forever chemical' health screening recommendations a 'bold step'

By Zoë Read · Updated Aug. 7, 2022 6:07 pm

*"....**Dr. Mary Regina Boland**, a biomedical informatics researcher who studies environmental health risks at the University of Pennsylvania's Perelman School of Medicine, said if the patients getting tested discovered the source of their exposure, they could lower their health risks. "I see this as being useful in that if you find that your blood levels are high, then maybe you can filter your water and then your blood levels will go down. And then a lot of the risk for these diseases will then go away — not completely, but to some extent," she said. **Boland** added that some people may relocate to a new residence before their neighborhood is discovered to be contaminated with PFAS. Therefore, it's a good idea for anyone to consider getting tested."*

Hydraulic Fracturing Chemicals

O Wetherbee, J Meeker, C DeVoto, T Penning, J Moore, **MR Boland**. WellExplorer: An Integrative Resource Linking Hydraulic Fracturing Chemicals with Targeted Proteins, Hormonal Pathways and Geographic Location. ***Database***. 2020; *In press*. DOI: 10.1093/database/baaa053

Excerpts of Coverage:

Is Your Drinking Water Toxic? This App May Help You Find Out

by Lauren Ingeno, published on September 22, 2020. PennMedicine News


News Release

Is Your Drinking Water Toxic? This App May Help You Find Out.

A new tool developed by Penn Medicine researchers informs users about their potential exposure to hydraulic fracturing chemicals

September 22, 2020

PROPORTION OF WELLS WITH CHEMICALS THAT TARGET TESTOSTERONE PATHWAYS

*"...The chemical mixtures used in fracking are known to regulate hormonal pathways, including testosterone and estrogen, and can therefore affect human development and reproduction," **Boland** said. "Knowing about these chemicals is important, not only for researchers who may be studying health outcomes in a community, but also for individuals who may want to learn more about possible health implications based on their proximity to a well. They can then potentially have their water tested...."*

Seasonal Exposure Research

MR Boland, MS Kraus, E Dziuk, AR Gelzer. Cardiovascular Disease Risk Varies by Birth Month in Canines. *Scientific Reports*. **2018;** 8:7130.

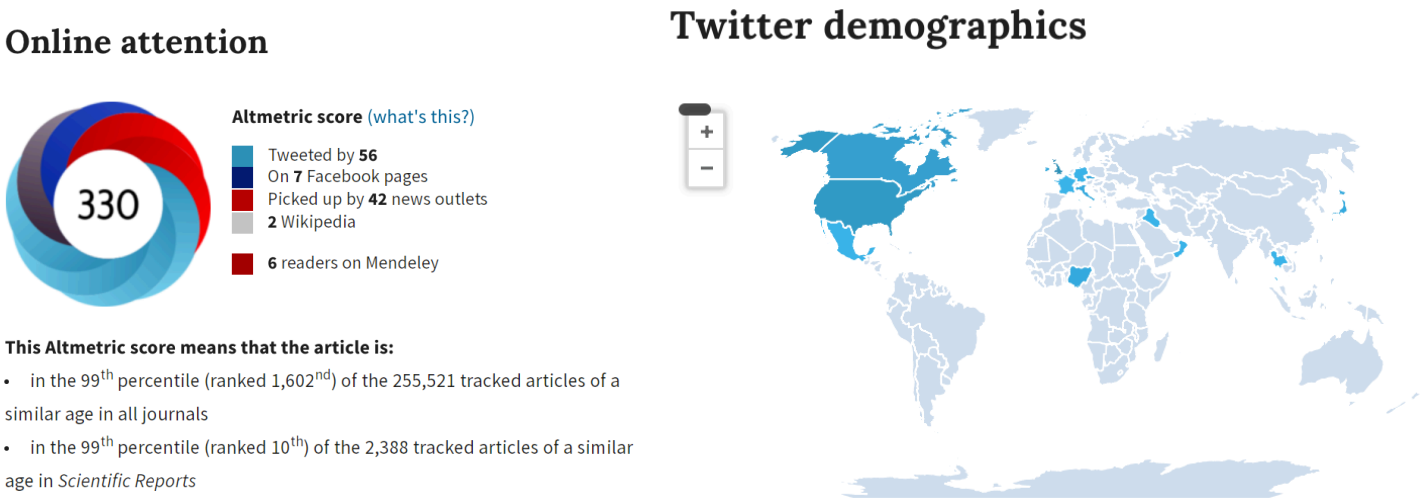


Figure 1. Altmetric Profile with Score of 330 as of November 2018 Along with Twitter Breakdown of Individuals Talking about this Work. Altmetric has tracked 6,591,263 research outputs across all sources so far. Compared to these Boland et al. has done particularly well and is in the **99th percentile for all articles tracked of a similar age!**

Excerpts of Coverage:

Daily Mail

How a Dog's birth month impacts its health by Joseph Pinkstone, published on May 18, 2018. Daily Mail

"*….There is evidence that the time of year an animal is born causes a predisposition to a variety of illnesses and conditions. This is not limited to dogs, and also includes all species – even humans. For example, previous research found that people born in the northern hemisphere in January and April are at the highest risk of coronary heart disease. This is believed to be as a result of exposure to sunlight, pollution or the flu virus after birth.* ***Dr. Boland believes this is the most likely cause of the disparity in heart attack rates amongst dogs. She said 'It looks like it could be early gestational exposure to air pollution'****."*

The Philadelphia Inquirer

Penn study: Summer puppies more prone to heart disease by Stacey Burling, published on May 21, 2018. Philadelphia Inquirer

"*…The research, published recently in Scientific Reports, has implications for people, whose hearts are remarkably similar to those of dogs, said* ***Mary Regina Boland****, an assistant professor of informatics in the biostatistics, epidemiology, and informatics department at the Perelman School of Medicine. Previous research has shown seasonal differences in human births and risk for heart disease. Boland's hypothesis is that the culprit in canines is exposure to outdoor air pollution – fine air particulates, including dust and pollen – early in a puppy's development. Pollution peaks in summer and winter, though time spent outdoors is much less then. Some genetic interaction with an environmental factor is likely, she said.*"

Psychology Today

A Dog's Birth Month May Predict Its Cardiovascular Health by Stanley Coren, published on May 23, 2018. Psychology Today

"…Dogs, overall, tend to be much less susceptible to heart diseases than humans; however their cardiovascular system is similar enough to people so that dogs have traditionally been used in research on various medical procedures for heart problems. For example, the first angiograms and the first pacemakers were tested on laboratory dogs. Given the similarity between humans and canines, a team of researchers headed by ***Mary Regina Boland*** *from the Perelman School of Medicine at the University of Pennsylvania in Philadelphia, decided to see if a dog's birthday was associated with its heart health in ways that are similar to those found in people and this research ust recently appeared in Scientific Reports."*

MR Boland, Z Shahn, D Madigan, G Hripcsak, NP Tatonetti. Birth Month Affects Lifetime Disease Risk: A Phenome-Wide Method. *J Am Med Inform Assoc.* **2015**; 22(5):1042-53.

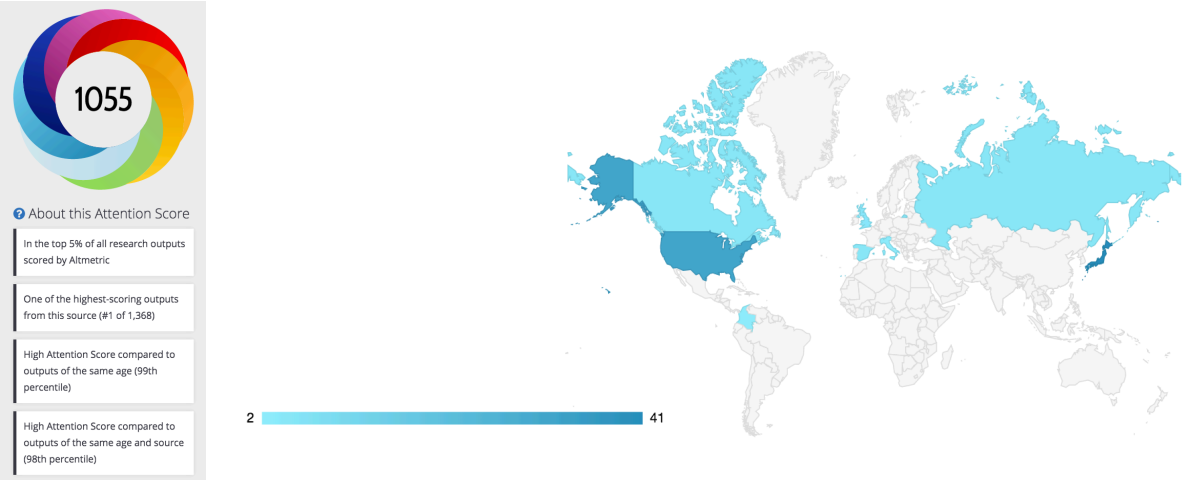


Figure 2. Altmetric Profile with Score of 1055 as of November 2016 Along with Twitter Breakdown of Individuals Talking about this Work. Altmetric has tracked 6,591,263 research outputs across all sources so far. Compared to these Boland et al. has done particularly well and is in the 99th percentile: it's **in the top 5% of all research outputs ever tracked** by Altmetric (across all journals).

Excerpts of Coverage:

U.S.News & World Report

What's the Healthiest Month to Be Born In? Written by Anna Medaris Miller, published on August 31, 2016. U.S. News and World Report

"*Astrology aside, scientists are finding strong links between birth season and health risks. **Mary Regina Boland** is a Halloween baby – a scary birthday not only for the superstitious, but in some ways also for the health-conscious. In resent research, Boland, a Ph.D. fellow at Columbia University Medical Center, and colleagues found that babies born in October and November had among the highest risk of developing diseases, while those born in some spring and summer months were generally better protected."*

The Washington Post

Scientists have discovered how the month you're born matters for your health. Written by Ana Swanson, published on June 15, 2015. Washington Post's wonkblog.

*"For much of history, astronomy and astrology were a big part of medicine. Nearly 2,500 years ago, Hippocrates, the father of Western medicine, observed a connection between the movements of the stars and disease,writing that "the contribution of astronomy to medicine is not a small one but a very great one indeed."... The study also has impressive implications for how researchers can use the massive amounts of data that are currently being collected on people's health to expand our understanding of disease. Because of certain provisions in the Affordable Care Act, public health records are now being collected on a daily basis around the United States, says **Mary Regina Boland,** the study's first author, who is doing the research as part of her dissertation. "So in the future, there will be an unprecedented amount of data that will be available to use to for these kind of analysis.""*

YAHOO! PARENTING

How the Month You Were Born Can Shape Your Life. Written by Esther Crain, published on June 10, 2015. Yahoo Parenting

"A summer birthday means warm weather, outdoor fun… and maybe problems in school.
If you knew that children born during a certain time of year were at a higher risk for educational delays or specific health issues, would you try to time conception to give birth during a particular month? The concept is not that crazy. That's because two new studies demonstrate the different ways that the season of a baby's birth can influence his or her odds of developing certain diseases and conditions, as well as the likelihood that the child will lag behind his or her peers during the first year of school."

COSMOPOLITAN

The Shocking Things Your Birthday Says About Your Health. Some months are dicier than others. Written by Elizabeth Narins, published on June 10, 2015. Cosmopolitan. 17,300 shares

*"The study ruled out more than 1,600 associations between birth month and disease risk, but the data confirmed 39 suspected links between birthday and disease risk — and uncovered 16 new associations, including nine kinds of heart disease. The researchers even performed math~*mAgIc*~ to rule out any factors that could skew the results….The study authors attribute the risks to your mom's environment when she was pregnant, which could compromise your immune system, explains co-study author **Mary Regina Boland**, a Ph.D. student at Columbia University Medical Center. For instance, some research suggests that pregnant woman who contract the flu have babies who are more prone to cardiovascular disease."*

How your birth month determines if you will get sick: Researchers reveal the ailments you are most at risk from. Published on June 9, 2015. 6,500 shares

"The month you were born does have an impact on how likely you are to become ill, researchers have claimed. They created software to scour birth and medical records to look for links…. 'Faster computers and electronic health records are accelerating the pace of discovery,' said the study's lead author, ***Mary Regina Boland,*** *a graduate student at Columbia. 'We are working to help doctors solve important clinical problems using this new wealth of data.'"*

Birth month may correlate to some diseases (bad news, October). Columbia University scientists find correlations between certain birth months and the risk of contracting 55 diseases. Because birthdays aren't depressing enough on their own. Written by Danny Gallagher, published on June 8, 2015. CNet

"I feel sorry for people born in or near December. The holidays and their birthdays are almost right on top of each other, so those folks have to wait almost a whole year for their next gift avalanche. Now I've found another reason to pity those birthed around the end of the year, especially those born in October. They might be more susceptible to certain diseases later in life, according to a new study. ***Columbia University scientists*** *compiled the birthdays and medical records of patients from New York City databases and found that people with May birthdays may have the healthiest outcomes, while people born in October might be at the highest risk for certain diseases."*

Dissertation Work Mentioned in:

Can Big Data Tell Us What Clinical Trials Don't written by Veronique Greenwood, published on October 3, 2014
New York Times article
"In the past, researchers noticed that being born in certain months or seasons appears to be linked to a higher risk of some diseases. In the Northern Hemisphere, people with multiple sclerosis tend to be born in the spring, while in the Southern Hemisphere they tend to be born in November; people with schizophrenia tend to have been born during the winter. There are numerous correlations like this, and the reasons for them are still foggy — a problem Tatonetti and a graduate assistant, ***Mary Boland****, hope to solve by parsing the data on a vast array of outside factors"*

MR Boland, G Hripcsak, DJ Albers, Y Wei, A Wilcox, J Wei, J Li, S Lin, M Breene, R Myers, J Zimmerman, PN Papapanou, C Weng. Discovering Medical Conditions Associated with Periodontitis Using Linked Electronic Health Records**.** ***Journal of Clinical Periodontology***. **2013** May; 40(5):474-482.

How Integrated EHRs can help guide clinical care written by Kathy Kincade www.drbicuspid.com on Feb. 8, 2013

"this is one of the first studies to demonstrate how a combined medical and dental EHR system can be used to identify associations between oral disease and multiple medical conditions in a large patient population….. "This study demonstrates that vast amounts of clinical data made available by EHRs for both medical and dental care are useful and usable for discovering hidden disease knowledge, such as disease associations," lead author ***Mary Regina Boland****"*

Electronic Records Catching on in Dentistry by Mike Uretz for www.dentalsoftwareadvisor.com on Jan. 20, 2013

*"****Mary Regina Boland****… 'It highlights the importance of supporting interoperability among EHRs used across different disciplines so that we can better integrate such data to further research and clinical care, and it serves as a terrific case study showing the value of interdisciplinary collaboration in life science.'"*