DANIEL MORK, PH.D.

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EDUCATION

Colorado State University, Fort Collins, CO — 2017 - 2021
Ph.D. Statistics, *Thesis: Bayesian treed distributed lag models, Advisor: Ander Wilson*
M.S. Statistics

University of Saint Thomas, St. Paul, MN — 2011 - 2013
M.A. Mathematics Education
Certificate, Engineering Education

Saint Olaf College, Northfield, MN — 2007 - 2011
B.A. (*Cum Laude*) Mathematics, Psychology, Norwegian
Concentration, Nordic Studies

EXPERIENCE

Harvard T.H. Chan School of Public Health — Boston, MA
Research Associate, Department of Biostatistics — Aug 2022 -
Postdoctoral Research Fellow, Department of Biostatistics — Aug 2021 - Jul 2022
Mentors: Francesca Dominici, Danielle Braun, Antonella Zanobetti

Colorado State University — Fort Collins, CO
Graduate Research Assistant — May 2018 - Aug 2021
Graduate Teaching Assistant — Aug 2017 - Dec 2019

Graybill Statistics and Data Science Laboratory — Fort Collins, CO
Statistical Consultant — May 2019 - Dec 2020
Mentor: Julia Sharp

Greeley-Evans School District 6 — Greeley, CO
Mathematics Teacher, Greeley West High School — Aug 2013 - May 2017
Student Council Advisor, Greeley West High School — Aug 2013 - May 2017

Target Corporation — Minneapolis, MN
Reporting & Analytics, In-Store Marketing — Feb 2012 - Apr 2013
Logistics, In-Store Marketing — Oct 2011 - Feb 2012

PUBLICATIONS

1. **Mork, D.**, Kioumourtzoglou, M-A., Weisskopf, M., Coull, B. A., Wilson, A. (2022). Heterogeneous distributed lag models to estimate personalized effects of maternal exposures to air pollution. *Journal of the American Statistical Association, revision invited.* https://arxiv.org/abs/2109.13763

2. **Mork, D.**, Wilson, A. (2022). Estimating perinatal critical windows to environmental mixtures via structured Bayesian regression tree pairs. *Biometrics, in press.* https://doi.org/10.1111/biom.13568

3. **Mork, D.**, Wilson, A. (2022). Treed distributed lag nonlinear models. *Biostatistics*, 23(3), pg 754–771. https://doi.org/10.1093/biostatistics/kxaa051

4. Maitre, L., et. al., **The Exposome Data Challenge Participant Consortium [Mork, D., et. al.]** (2022). State-of-the-art methods for exposure-health studies: Results from the exposome data challenge event. *Environment International*, 168. https://doi.org/10.1016/j.envint.2022.107422

5. **Mork, D.**, Braun, D., Zanobetti, A. (2022) Time-lagged relationships between a decade of air pollution exposure and first hospitalization with Alzheimer's disease and related dementias. *Environment International, revision invited.*

6. Frances, P., Kawcak, C., McIlwraith, W., Keenan, D., Berk, J., **Mork, D.** (2022). Subchondral lucencies of the medial femoral condyle in yearling and two-year-old Thoroughbred sales horses: Prevalence, progression and associations with racing performance. *Under review at Equine Veterinary Journal.*

7. Frances, P., Kawcak, C., McIlwraith, W., Keenan, D., Berk, J., **Mork, D.** (2022). Radiological findings in the proximal sesamoid bones of yearling and two-year-old Thoroughbred sales horses: Prevalence, progression and associations with racing performance. *Under review at Equine Veterinary Journal.*

8. **Mork, D.**, Wilson, A. (2022). Incorporating prior information into distributed lag nonlinear models with zero-inflated monotone regression trees. *Submitted to Bayesian Analysis.*

9. Dong, S., Braun, D., Wu, X., Yitshak-sade, M., Blacker, D., Kioumourtzoglou, M.-A., **Mork, D.**, Schwartz, J., Dominici, F., Zanobetti, A. (2022). The impacts of air pollution on mortality and readmission among Medicare beneficiaries with Alzheimer's disease and Alzheimer's disease related dementias. *Submitted to Lancet: Planetary Health.*

10. **Mork, D.**, Puri, N., Kumar, A., Delaney, S., Zanobetti, A., Braun, D. (2022). Racial / ethnic disparities in health outcomes of Alzheimer's disease and related dementias among Medicare beneficiaries: A systematic literature review. *Submitted to Neuroepidemiology.*

11. **Mork, D.** (2021). Bayesian treed distributed lag models. Doctoral dissertation, Colorado State University. https://www.proquest.com/docview/2572884506?fromopenview=true

TO BE SUBMITTED

**student mentored* †*co-authored paper*

1. **Mork, D.**, Strawderman, R., Dominici, F., Ertefaie, A. (2022). Structural nested models to estimate the causal effects of time-varying exposure on recurrent adverse heath events. *To be submitted to Journal of the American Statistical Association.*

2. *Woodward, S., Wu, X., Zhewen, H., **Mork, D.**, Braun, D., Dominici, F. (2022). Combining aggregate and individual-level data to estimate individual-level associations between air pollution and COVID-19 mortality in the United States. *To be submitted to Journal of the Royal Statistical Society: Series C.*. Preprint: https://ssrn.com/abstract=4232123

3. *Cork, M., **Mork, D.**, Dominici, F. (2022). Curving emissions: Comparing methods for evaluating exposure response curves. *To be submitted to American Journal of Epidemiology.*

4. *Qin, M., †**Mork, D.**, Dominici, F., Braun, D., Zanobetti, A. (2022). Effects of air pollution on first Alzheimer's or dementia related hospitalization among Medicare beneficiaries. *To be submitted to Environmental Health Perspectives.*

5. Martenies, S., **Mork, D.**, Wilson, A., Starling, A., Adgate, J., Allshouse, W., Dabelea, D., Magzamen, S. (2022). Identifying critical windows of exposure in the relationship between ambient air pollution exposures and neonatal size and body composition. *To be submitted.*

FUNDING

Current

National Cohort Studies of Alzheimer's Disease, Related Dementias and Air Pollution. NIH/NIA R01 (04/01/2020 - 01/31/2025). Role: Postdoctoral researcher. PI: Zanobetti/Dominici.

The confluence of extreme heat cold on the health and longevity of an Aging Population with Alzheimers and related Dementia. NIH/NIA R01 (06/01/2022 - 05/31/2025). Role: Postdoctoral researcher. PI: Patel/Dominici/Estiri.

Pending

Susceptibility and adverse health outcomes related to climate-sensitive events among older Medicare beneficiaries with Alzheimer and Dementia. NIH/NIA R01. Role: Postdoctoral researcher. PI: Bell/Dominici.

Statistical methods to characterize causal mechanisms by which air pollution affects the recurrence of cardiovascular events. NIH/NIEHS R01. PI: Ertefaie/Strawderman/Dominici. Scored at 11%.

SOFTWARE FOR REPRODUCIBLE RESEARCH

R package: dlmtree https://github.com/danielmork/dlmtree

Bayesian regression tree software for distributed lag methods written in C++, efficient procedures for posterior sampling. Includes methods 'tdlnm' (Mork & Wilson, Biostatistics; Mork & Wilson, Bayesian Analysis, to be submitted), 'tdlmm' (Mork & Wilson, Biometrics), 'dlmtree' (Mork, Kioumourtzoglou and Other, JASA, in revision).

GitHub Repository: Air Pollution/ADRD/Distributed Lag

Code to create and analyze dataset for time-lagged pollution relationship with ADRD hospitalizations in a longitudinal study of over 27 million Medicare beneficiaries (Mork, Braun, Zanobetti, Environment International).

STATISTICAL CONSULTING EXPERIENCE

- Sorghum plant metabolomics, changes over time induced by water or nitrogen stress conditions
- Mass spectrometry data and machine learning methods for classification of coffee beans
- Radiology and ultrasonography analyses in thoroughbred race horses, associations between irregularities and race results
- Structural equation modeling of longitudinal relationships between meaningful activities and meaning in life for U.S. military veterans in college
- Estimating optimal therapeutic INR among patients with left ventricular assist devices
- Local dust storm prediction in the South-West United States
- Individual factors driving rural medical debt concerns
- Relationships between sleep and activity habits of practicing physicians
- Analysis of the presence of cataracts in Siberian Husky versus other dog breeds

PRESENTATIONS

Invited

Harvard T.H. Chan NIEHS Center for Environmental Health Retreat, *poster* 2022
NSAPH seminar series, Harvard T.H. Chan School of Public Health, *presentation* 2022
Symposium, International Society for Environment Epidemiology, *presentation* 2021
Jane Warren award webinar, Health Effects Institute, *presentation* 2021
Post-doctoral job talk, Harvard T.H. Chan School of Public Health, *presentation* 2021
3 minute challenge, Colorado State University, Vice-President for Research (video) 2021

Contributed

ENAR spring meeting, International biometrics society, *presentation* 2022
Statistics department showcase, Colorado State University, *poster* 2021
Research talk, Environmental biostatistics working group, Colorado State Univ., *presentation* 2021
ENAR spring meeting, International biometrics society, *presentation* 2021
Graduate student showcase, Colorado State University, *poster & presentation* 2020
Joint statistical meetings (JSM), *presentation* 2020
Statistics department showcase, Colorado State University, *poster* 2020
Graduate student showcase, Colorado State University, *poster* 2019
Colorado conference of teachers of mathematics, Denver, CO, *presentation* 2014
Minnesota undergraduate psychology conference, Northfield, MN, *presentation* 2011
Student showcase, Saint Olaf College, *poster* 2010

HONORS/AWARDS

Health Effects Institute, Jane Warren Trainee Conference Award 2021

Colorado State University

Vice president for research fellowship nominee/3-minute challenge participant 2021
College of natural sciences outstanding scholar award 2020
James R. zumBrunnen statistical collaboration award 2020
Statistics department poster competition: Best poster award 2020
Boes excellence in teaching award 2019

Greeley-Evans School District 6

District 6 star teacher 2015
Teacher of the month Nov 2013

Other

ETS Recognition of excellence: Mathematics 2013
NSF scholarship ($7,000/yr): Encouraging careers in mathematical sciences 2007 - 2011

TEACHING

Colorado State University

Courses

STAT 556: Directed statistical consulting (Graduate assistant) S20
STAT 315: Introduction to theory and practice of statistics S19, F20
STAT 301: Introduction to applied statistical methods F17, S18, F18

Workshops

Coding & Cookies Workshop: Data visualization using ggplot F19, F20, S21
Coding & Cookies Video Series: Data visualization using ggplot F20
Coding & Cookies Video Series: Tidy data in R F20
Coding & Cookies Workshop: Data wrangling in R F19, S20
Practical R on Summit high performance computing system (Graduate assistant) F18

Greeley-Evans School District 6

Courses

Pre-Algebra; Algebra I and II; Geometry; Trigonometry; Pre-Calculus; IB Math HL

Workshops

Personalized learning and standards-based grading: Theory and practice
Curriculum planning and design

MENTORING

Harvard University

Graduate Research Mentoring

Michael Cork, Biostatistics PhD, in progress (joint with Francesca Dominici) 2021 -

Amit Kumar, MPH 2022

Undergraduate Research Mentoring

Michelle Qin, in progress (thesis advisor) 2022 -

Sophie Woodward (thesis co-advisor 2021-2022), *now PhD student at Harvard T.H. Chan School of Public Health* 2021

Colorado State University

Graduate Statistical Consultant Mentoring

Connor Gibbs 2020

— *Machine learning methods for characterizing coffee beans using mass spectrometry data*

Mantautaus Rimkus 2020

— *Structural equation modeling of longitudinal relationships between meaningful activities and meaning in life for U.S. military veterans in college*

Emily Williams 2020

— *Relationships between sleep and activity habits of practicing physicians*

Graduate Teacher Mentoring

Bingying Dai, Troy Wixson, Wilson Wright 2020

Maddie Rainey, Gray Stanton, Zifeng Zhang 2019

Michael Creutzinger, Connor Gibbs, Hanxiao Jing, Mengting Lin 2018

Undergraduate Teacher Mentoring

Caroline Thomas 2019

Greeley-Evans School District 6

Probationary Teacher Mentoring

Scott Geels 2015

SERVICE & PROFESSIONAL MEMBERSHIP

Service

ENAR Council for Emerging and New Statisticians (CENS) 2021 - 2024

— Steering committee, Social media committee co-chair

Harvard T.H. Chan School of Public Health

National Studies on Air Pollution and Health research presentation series 2021, 2022

— Moderator, Discussant

Colorado State University

Teaching awards committee, graduate student representative, college of natural sciences 2020

Prospective graduate student visit day panelist and representative 2018, 2019, 2020

Probability casino, assistant, department of statistics 2018

Conference Organization

IMS New Researchers Conference, assistant organizer, Fort Collins, CO 2019

Conference Session Organization

ENAR 2022 spring meeting: *Interdisciplinary engagement as a Biostatistician: Maximizing collaboration skills*

Journal Reviewer

Environmental Health Perspectives

Environment International

International Journal of Public Health

Journal of the Royal Statistical Society: Series C

Scientific Reports

Grant Reviewer

MADRES Center for Environmental Health Disparities

Professional Membership

American Statistical Association

International Biometrics Society (ENAR)

The International Environmetrics Society

International Society for Bayesian Analysis

International Society for Environmental Epidemiology

Greeley-Evans School District 6

Innovation 2020: Personalized learning action team 2016 - 2017

Professional development committee 2014 - 2017

Mathematics curriculum vertical team 2014 - 2016

Hiring and interview team 2014 - 2016

Benchmark assessment committee 2014 - 2015