

Melanie M. Wilkinson (Spillane)

Health Data Scientist at the United States Agency for International Development, Bureau for Global Health

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Education

MPH in Epidemiology and Biostatistics

Master's degree program

National University of Ireland, Cork

2017-2019

BS in Biology and Chemistry

Bachelor's degree program

Rivier University

2013-2017

Member of Eta Delta Chapter of TriBeta National Biological Honor Society

High School Diploma

Secondary Education

Alvirne High School

2010-2013

Highlighted skills

Research skills:

Scientific writing, systematic review and meta-analyses, analyzing quantitative and qualitative data, designing and conducting interviews, statistical analysis, presentations/public speaking, tailoring the communication of data insights to diverse audiences, collaboration and fostering positive stakeholder relationships

Programming:

Fluency in R, working skill level in SQL, JavaScript, HTML, CSS, and basics in Python

Data visualization tools:

R Shiny, Microsoft Power BI, Tableau

DBMS:

Azure, Microsoft SQL Server, REDCap

OS proficiency:

Windows, Mac

Version control:

Github, GitLab

IDEs:

R Studio, Visual Studio Code

Research interests

- Closing the gaps to global health disparities and inequities
- Data visualization methods, design principles, and communication
- Human-centered design computing
- Technology ethics pertaining to the spread of misinformation
- Antimicrobial stewardship and other modern environmental health challenges
- Leadership and management in a transforming data culture

Work experience

Health Data Scientist

09/2023 - Present

United States Agency for International Development (USAID),

Bureau for Global Health

- Supports the Bureau for Global Health's office of Policy, Programs, and Planning (P3), Data Analytics Hub
- Serves as an Agreement Officers Representative (AOR) or Contracting Officers Representative (COR) for cooperative agreements or contracts managing the Global Health (GH) Data Award
- Provides technical expertise and analytical skills regarding strategic information systems and data analytics to maximize/accelerate progress towards epidemic control in overseas localities
- Conducts statistical analyses and visual data exploration to increase understanding of a range

of complex data management and analytic issues and predict/assess potential outcomes and effects of solutions for use

- Expertly collaborates data research, analysis, visualization and quality improvement with USAID stakeholders
- Assists in the formulation of data science and analytics strategies, implements requirements and management guidelines for complex and changing data ingestion, access, storage, and analytics

Health Data Scientist

05/2022 - 09/2023

Centers for Disease Control and Prevention (CDC)

- Led data visualization activities
- Managed time-sensitive and high-priority data analytics requests for senior leadership
- Supported the DataMosaic program by providing guidance and mentorship to research fellows
- Supported the COVID-19, MPX, Marburg, and Ebola emergency responses
- Served as an integral member of the Data Visualization Statistical Advisory Group (SAG), data Modernization Initiative (DMI) data science podcast initiative
- Managed databases and data quality at each stage of the pipeline
- Designed and implemented machine learning, statistical modeling, AI algorithms, and advanced visualizations that supplement epidemiological analyses
- Developed creative, interactive, 508-compliant dataviz products
- Managed and fostered positive stakeholder relationships
- Developed training curriculum and hosted workshops
- Delivered technical presentations and analytical demonstrations
- Used data mining techniques to incorporate large datasets (from CDC, propriety sources, government data, and open source) into analyses coherently
- Communicated data insights to diverse audiences and guide the direction of public health
- Designed and conducted major scientific surveys/studies to identify and solve public health issues
- Prepared publishable reports and meta-analyses of surveillance data, literature reviews, and other data sources

Scientist II.

03/2021 - 05/2022

Kapili Services Inc. Contractor to Centers for Disease Control and Prevention (CDC)

- Guided the data flow process from partnership development, data collection, linkage, coding, classification, analysis, and effective communication of results
- Advanced knowledge of data science methods and tools in public health to identify and create solutions to public health challenges
- Conducted surveys and studies using healthcare, syndromic surveillance, electronic health records, vitals, and social media and unstructured web scraped data
- Wrote research proposals that align with data and policy priorities
- Developed user-friendly, audience-tailored public health communication tools

Epidemiologist Fellow

03/2019 - 03/2021

Oak Ridge Institute for Science and Education, Centers for Disease Control and Prevention (CDC)

- Analyzed data from epidemiological studies carried out by the CDC and state health departments
- Designed both public-facing and internal, interactive data visualization tools using syndromic

surveillance data for vector-borne diseases

- Conducted major scientific surveys/studies or projects to identify and solve public health issues
- Contributed to writing manuscripts, protocols, and public health guidelines
- Performed epidemiological statistical analyses
- Interviewed ill patients to gather data for a COVID-19 Case-Control Study
- Applied infectious disease metabolomics techniques to develop a biosignature for Lyme disease
- Synthesized genomics, proteomics, and metabolomics data using statistical software
- Presented a poster at the 2019 Advanced Molecular

Diagnostics conference at CDC Atlanta, GA

- Developed prevention interventions for vector-borne diseases
- Served in 3 deployments to CDC's emergency operational response to COVID-19
- Generated descriptive analyses of surveillance systems

Analytical Chemistry Lab Leader

01/2018 - 05/2019

National University of Ireland, Cork

- Guided analytical chemistry students through their lab procedures and calculations
- Graded student assignments and reports
- Provided leadership and mentorship to students

Biopharma Chemical Engineering Intern

05/2017 - 08/2017

Lonza Biologics

- Assisted with the validation/qualification stages of new facility equipment and technology
- Operated equipment and instrument interfaces
- Edited and reviewed cGMP documentation, performing laboratory and utility chemical sampling
- Updated SOP work instructions
- Generated a visual process flow for customer presentation
- Assisted with buffer and optimization studies in the MSAT laboratory

Health Scientist/Epi Intern

01/2017 - 05/2018

Nashua Public Health Department

- Collaborated with environmental health scientists and epidemiologists at the local and state public health departments
- Collected and analyzed data aiming to improve the efficacy of the food safety inspection process which is routinely performed at all local food-selling establishments
- Formally presented the analysis of my findings to the department via PowerPoint presentation
- Search, synthesize, and interpret information to find solutions to public health problems
- Deepened knowledge of infectious diseases, immunology, microbiology, and pathology

Veterinary Technician

02/2013 - 06/2016

Amherst Animal Hospital

- Worked in the wards, reception, and lab areas of the animal hospital
- Fed, walked and provided care to animals
- Monitored IV fluid pumps and administered medications as directed by Veterinarians
- Assisted with handling, examining, and interpreting patient samples
- Supported the Veterinarians for more efficient, streamlined operations to heighten standards and delivery of care to animals

Organic Chemistry Lab Assistant

08/2015 - 12/2015

River University

- Prepared the laboratory environment for students
- Set up all necessary apparatuses, prepared solutions, and cleaned equipment
- Obtained IR and NMR spectrums of samples for interpretation
- Guided and answered students' questions regarding course material and demo-ed solutions

Animal Physical Therapy Intern

05/2014 - 08/2014

Horse 'N Hound PT

Assisted Veterinarians and Physical Therapists in delivering treatments to injured animals (hydro and lazer therapies as well as other methods to promote mobility)

Customer Service Representative

08/2009 - 06/2017

Market Basket

- Assisted customers, answered phones, managed revenue and balanced the cash drawers, entered data into the computer system, managed financial reports

Leadership and service

Director

2022-2023

*Women Who Code, Fort Collins Chapter***Executive board member**

2020-2023

*CDC's Data Visualization Statistical Advisory Work Group***Secretary and leadership board member**

2020-2021

*Junior League of Fort Collins***Public health emergency response volunteer**

2020-2021

*COVID-19 Recovery Center (CRC) in Boulder, CO***Student mentor**

2018-2019

*UCC PLUS School Outreach Organization***Fundraiser**

2018-2019

*UCC's Friends of MSF Society Friends of Me decins Sans Frontieres/
Doctors without Borders (MSF)*

Homeless shelter volunteer

2016-2016

*Ann Marie House***Events planner**

2015-2017

*American Cancer Society***Animal care volunteer**

2013-2015

Nashua Humane Society

Publications

- Marx G, Spillane M, Beck A, Stein Z, Kite Powell A, Hinckley A. Syndromic surveillance of emergency department visits for tick bites – United States, January 2017 – December 2019 MMWR
- Marshall K, Vahey GM, McDonald E, Tate JE, Herlihy R, Midgley CM, Kawasaki B, Killerby ME, Alden NB, Staples JE; **Colorado Investigation Team**. Exposures Before Issuance of Stay-at-Home Orders Among Persons with Laboratory-Confirmed COVID-19 - Colorado, March 2020. MMWR Morb Mortal Wkly Rep. 2020 Jul 3;69(26):847-849. doi: 10.15585/mmwr.mm6926e4. PMID: 32614809; PMCID: PMC7332095
- P Hansen, M Spillane, SA Niesobecki, H Rutz, JI Meek, L Niccolai, AF Hinckley, SA Hook. Barriers to the uptake of tick-borne disease prevention measures: Connecticut, Maryland 2016-2017. ICLB Abstract
- (Pending) Jennifer J. Fowler, DVM1, Shannon Gearhart, MD1, Colby Mitchell, MPH, Estephania Hernandez, Ardath W. Grills, PhD, Stephanie M. Morrison, DrPH, Melanie Spillane, MPH, Sabrina Hansen, MPH, Jeffrey Mullis, RN, Nicole J. Cohen, MD, Deborah Christensen, PhD, Seseni A. Nu Clarke, MPH, Ar'Reil Smithson, MPH, Emma Shearer, MPH, Danielle Gilliard-Pella, MPH, Joseph D. Morris, MPH, Andre Berro, MPH, Hugh Mainzer, DVM, Ramona Byrkit, MPH, Daniel Kim, MS, Francisco Alvarado-Ramy, MD, Shahrokh Roohi, MPH, Clive M. Brown, MBBS, Alida M. Gertz, MD, Outcomes of public health monitoring of travelers from Uganda arriving in the United States during the 2022 Uganda Ebola outbreak. Target Journal- MMWR Full report
- (Pending) Emma Taylor-Salmon, Verity Hill, Lauren M. Paul, Robert T. Koch2, Mallery I. Breban, Chrispin Chaguza, Afeez Sodeinde, Joshua L. Warren, Sylvia Bunch, Natalia Cano, Marshall Cone, Sarah Eysoldt, Alezaundra Garcia, Nicadia Gilles, Andrew Hagy, Lea Heberlein, Rayah Jaber, Elizabeth Kassens, Pamela Colarusso, Amanda Davis, Samantha Baudin, Edhelene Rico, Álvaro Mejía-Echeverri, Blake Scott, Danielle Stanek, Rebecca Zimler, Jorge L. Muñoz-Jordán, Gilberto A. Santiago, Laura E. Adams, Gabriela Paz-Bailey, Melanie Spillane, Volha Katebi, Robert Paulino-Ramírez, Sayira Mueses, Armando Peguero, Nelissa Sánchez, Francesca F. Norman, Juan-Carlos Galán, Ralph Huits, Davidson H. Hamer, Chantal B.F. Vogels, Andrea Morrison9, Scott F. Michael3, Nathan D. Grubaugh, Travel surveillance uncovers dengue virus dynamics and introductions in the Caribbean. Target journal - medRxiv

Highlighted projects and presentations

- Masters dissertation titled: "Are There Elevations of Pro-Inflammatory Cytokines IL-6, IL-8, and THF-a in Women with Preeclampsia? A Systematic Review and Meta Analysis"
- Presented a poster titled: "Development of a Lyme disease-specific metabolic biosignature using dried blood spots" at the 2019 Advanced Molecular Diagnostics Conference at CDC Atlanta, GA
- Presented R Shiny and Power BI Dashboards at CDC's DataViz Day Conference "Moving the needle in data modernization"
- Designed and delivered an interactive workshop on data visualization best practices and dashboard development for CDC's Division of Global Migration and Quarantine staff

Language proficiency

English	Fluent, mother-tongue
Spanish	Intermediate