My background in clinical medicine and training as a statistician have given me a strong desire to pursue the skills needed to become an independent health services researcher. This background and experience have created a deep appreciation of the importance of healthy aging and the policies and programs that support this goal. As a PhD student in the University of Colorado's Health Services Research program, I have had the opportunity to learn common econometrics approaches (difference-in-differences, instrumental variables, regression discontinuity designs) and the fundamentals of health economics. However, as I begin to work toward development of a dissertation proposal, I find myself limited by the lack of mentorship in my department. While this faculty has diverse interests and deep knowledge in their respective fields, few are actively pursing topics within the area of aging, especially those trained as economists.

Over the last 10 years, I have provided statistical support for exercise trials among aging adults, an experience that has left me with a keen interest in understanding how best to translate and scale trial findings to more heterogenous populations. As such, I am most interested in policy and programs used to support healthy aging in older adults and the effect on associated economic outcomes. I would like to explore this topic in a variety of settings including community-level policy (work in-progress), as well as from health-system and insurer perspectives. I have a great interest in how interventions and policies looking to promote and preserve physical heath in older adults translate into longevity of work force engagement and ability to provide caretaking duties for household and non-household members. Additionally, as these interventions are often behaviorally focused, I have a growing interest in the deployment of AI-based tools by insurers and the potential of these tools to reduce costs.

I feel that the progress I have made in my program, and completion of nearly all required coursework, positions me to benefit greatly from this type of program. While I have a growing set of research tools and a desire to conduct research benefiting aging populations, the specification of my research themes and specific questions are underdeveloped. My goals for the coming academic year will be to use what I have learned to develop a strong proposal that will become the framework for my dissertation work. Preliminary work completed during the last two semesters has allowed me to identify some experience and knowledge gaps that are likely to present challenges during these next efforts. My primary interest is in receiving guidance on the development of a deep knowledge of current research at the intersection of aging and economics. I hope this may include training focused on things such as identification of potential data sources, health economics policy as it relates to aging population, emerging topics of particular importance and common funding mechanisms. Finally, despite my experience within the research field, I find assessments of timing, feasibility and appropriateness of scope a challenge as I work towards becoming an independent researcher.

I greatly appreciate your consideration of my interest in this program, and hope that the goals of my potential dissertation work align with the opportunities offered by this mentoring-based program. As healthy aging and economics is the field I am actively pursuing, I feel that I the guidance provided through this program would be invaluable to my development as a researcher in this important field.

Melissa P. Wilson

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Biostatistician and health services research PhD student with interest in promotion of healthy aging and associated economic outcomes.

Experience

BIOSTATISTICIAN | FEB 2020 – PRESENT | UNIVERSITY OF COLORADO, ANSCHUTZ CAMPUS

- Supported multiple RCTs (Exercise for Healthy Aging 2017-2020 (EHA); High-Intensity Exercise Study to Attenuate Limitations and Train Habits in Older Adults With HIV 2020-current) as a master's-level statistician
- Provided power calculations, methods sections, supporting figures for grant submissions; reviewed of statistical method plans and protocols
- Analyzed data generated by RCTs; generated associated publication materials including methods/results sections, figures/tables, abstract and poster presentations
- Supported teaching efforts including providing help session for students, preparation and presentation of teaching materials, mentoring junior team members
- Collaborated with multidisciplinary teams including physicians, research investigators, other domain experts, students, data support team members, etc.
- Used cloud computing platforms (Google BigQuery) to access electronic medical records (EHR) stored in relational tables
- Creation, cleaning and analysis of datasets derived from EHR data
- Participated in systematic evidence review, medical chart reviews to support research efforts
- Created documentation for code and other project material; used tools such as GitHub and GitLab to ensure reproducible research
- Implemented code review within lab to increase accuracy and as teaching tool to further team knowledge and technical skills

GRADUATE RESEARCH ASSISTANT | AUG 2017 – FEB 2020 | UNIVERSITY OF COLORADO, ANSCHUTZ CAMPUS

- Provided statistical support for HIV and aging exercise intervention RCT (EHA)
- Analyzed data generated by RCT using longitudinal analysis, logistic analysis, descriptive statistics, time-to-event analysis, power/sample size calculations for publication and grant submissions

Programming Languages

- **5+ years R**
- **3 years SQL (Google BQ)**
- **2 years Stata**

Research Skills

- **5+ years providing biostatistical consulting in an academic setting**
- **Effective collaboration and communication with multi-discipline teams**
- **Experience with publication process (first author), and presenting research findings (oral/poster)**
- **Creation of publication/ reporting quality figures, tables and other supporting materials**
- **Participation in grant planning activities**

Other Tools

- **Extensive experience with EHR clinical data including Epic accreditations (Cogito, Clarity, Caboodle, Clinical Data Model)**
- **Experience collaborating with university data warehouse and use of tools (Eureka, GBQ)**
- **Slack, Teamwork, Teams, Kanban, Microsoft Office, LaTex**

- Created content (text, figures, tables) for methods and/or result sections for publication and grant submissions including 1st author publication
- Presented research (posters and presentations) at clinical and statistical conferences
- Conducted data cleaning, evaluation of missing data, RCT monitoring and reporting, REDCap tool implementation.

ULTRASOUND TECHNICIAN | SEPT 2009 – AUG 2017

- Rose Medical Center - Denver, CO, April 2015- Aug 2017, full time; Montrose Memorial Hospital - Montrose, CO, Sept. 2009- March 2015, full time
- Extensive experience in clinical medicine, including understanding of common medical terminology and disease processes; extensive experience with radiology reporting and procedures
- Familiarity with EHR/PACS front-end user behavior, front-end medical provider processes, patient experience

OTHER CLINICAL EXPERIENCE | 2002 - 2009

- Veterinary Medicine Assistant 2006 – 2009 (Fillmore Veterinary Hospital - Colorado Springs, CO; North Boulder Community Pet Hospital - Boulder, CO); full time
- Certified Nurse Aide with Qualified Medication Administration Personnel training 2002-2006 (Balfour Retirement Community - Louisville, CO; The Academy - Boulder, CO); full time 2004-2006
- Extensive experience in clinical medicine, including understanding of common medical terminology, medication and disease processes in a range of medical settings (long-term care, non-acute, acute)

Education and Course Work

PHD STUDENT HEALTH SERVICES RESEARCH | 2024 - PRESENT| COLORADO SCHOOL OF PUBLIC HEALTH

- Econometrics/Health services research: Health Care Economics, Methods in Health Service Research I & II, Cost-Benefit-Effectiveness in Health Research, Clinical Outcomes and Applications, Intro to Health Policy Analysis, Dissemination & Implementation Science
- Research skill development: Ethics & Responsible Conduct of Research, Critical Appraisal Seminar, Research Design and Proposal Preparation, Federal Data and Health Research, SAS programming

MS BIOSTATISTICS | 2019 | COLORADO SCHOOL OF PUBLIC HEALTH

- Minor: Data Science Analytics
- Thesis topic: Effects of non-ignorable dropout on outcome-dependent sampling inference.

CERTIFICATE | 2009 | UNIVERSITY OF COLORADO - ANSCHUTZ

- Major: Diagnostic Medical Sonography
- RDMS – Abdomen & Small Parts; OB/GYN; RVT

BSA BIOLOGY | 2004 | UNIVERSITY OF COLORADO - BOULDER

- Major: Environmental, Populational and Organismal Biology

Research & Publications

1. Erlandson, M.K., S. Mawhinney, **M.P. Wilson**, L.M. Gross, T. S. McCandless, T.M. Campbell,W.M. Kohrt, R.M., Schwartz, T.M. Brown and C.M. Jankowski (2018). "Physical function improvements with moderate or high-intensity exercise among older adults with or without HIV infection." AIDS **32**(16): 2317-2326.

2. **Wilson, M.P.** (co-1st author with Goulding), D. Goulding, , S. MaWhinney, C. M. Jankowski and K. M. Erlandson (2020) "A Supervised Exercise Intervention Fails to Improve Depressive Symptoms and Quality of Life among Sedentary Older Adults with HIV Infection " AIDS Care. 32(6), 714-721, DOI: 10.1080/09540121.2019.1634788

3. Stabell, A. C., **M. Wilson,** C. M. Jankowski, S. MaWhinney, K. M. Erlandson (2020). The Impact of a Structured, Supervised Exercise Program on Daily Step Count in Sedentary Older Adults With and Without HIV, Journal of Acquired Immune Deficiency Syndromes: 84 (2): 228-233. doi: 10.1097/QAI.0000000000002326

4. Hixon, B., H.J. Burgess, **M.P. Wilson**, S. MaWhinney, C.M. Jankowski & K.M. Erlandson (2020) A supervised exercise intervention fails to improve subjective and objective sleep measures among older adults with and without HIV, HIV Research & Clinical Practice, 21:5, 121-129, DOI: 10.1080/25787489.2020.1839708

5. Jankowski C.M., S. Mawhinney, **M.P. Wilson**, et al. Body Composition Changes in Response to Moderate or High-Intensity Exercise Among Older Adults with or without HIV Infection (2020). J Acquir Immune Defic Syndr. doi:10.1097/QAI.0000000000002443

6. Erlandson K.M., **M.P. Wilson**, S. MaWhinney, et al. The Impact of Moderate or High-Intensity Combined Exercise on Systemic Inflammation among Older Persons with and without HIV (2020). J Infect Dis. 84(2); doi:10.1093/infdis/jiaa494

7. Jankowski, C.M, **M.P. Wilson**, S. MaWhinney, J. Reusch, L. Knaub, S. Hull, K. M. Erlandson, Blunted muscle mitochondrial responses to exercise training in older adults with HIV (2020); J Infect Dis. 224(4) jiaa799, https://doi.org/10.1093/infdis/jiaa799

8. Windham S., **M.P. Wilson,** C. Fling, D. Sheneman, T. Wand, L. Babcock, S. MaWhinney, K.M. Erlandson. Elevated glycohemoglobin is linked to critical illness in CoVID-19: a retrospective analysis. Ther Adv Infect Dis. 2021 Jun 25. doi: 10.1177/20499361211027390.

9. Dillon S.M., M.H. Abdo, **M.P. Wilson**, J. Liu , C.M. Jankowski, C.E. Robertson, Y. Tuncil, B. Hamaker, D.N. Frank, S. MaWhinney, C.C. Wilson, K.M. Erlandson. A Unique Gut Microbiome–Physical Function Axis Exists in Older People with HIV: An Exploratory Study. AIDS Research and Human Retroviruses 2021 37:7, 542-550

10. Roark C., **M.P. Wilson,** S. Kubes, D. Mayer, L.K. Wiley. Assessing the utility and accuracy of ICD10-CM non-traumatic subarachnoid hemorrhage codes for intracranial aneurysm research (2021). Learn Health Sys. e10257. https://doi.org/10.1002/lrh2.10257

11. Campbell, T.W, **M.P. Wilson**, H. Roder, S. MaWhinney, R.W. Georgantas, L.K. Maguire, J. Roder, K.M. Erlandson, Predicting prognosis in COVID-19 patients using machine learning and readily available clinical data, International Journal of Medical Informatics, Volume 155, 2021, https://doi.org/10.1016/j.ijmedinf.2021.104594

12. Wiley, L.K., J.A. Shortt, E.R. Roberts, J. Lowery, E. Kudron, M. Lin, D.A. Mayer, **M.P. Wilson**, et al. Building a Vertically-Integrated Genomic Learning Health System: The Colorado Center for Personalized Medicine Biobank. The American Journal of Human Genetics, Volume 111, Issue 1, 11 - 23

13. Bowman ER, **Wilson M**, Riedl KM, MaWhinney S, Jankowski CM, Funderburg NT, Erlandson KM. Lipidome Alterations with Exercise Among People With and Without HIV: An Exploratory Study. AIDS Res Hum Retroviruses. 2022 Jul;38(7):544-551. doi: 10.1089/AID.2021.0154. Epub 2022 Apr 21. PMID: 35302400; PMCID: PMC9297322.

14. Jolley S, Nordon-Craft A, **Wilson MP**, Ridgeway K, Rauzi MR, Capin J, Heery LM, Stevens-Lapsley J, Erlandson KM. Disparities in the allocation of inpatient physical and occupational therapy services for patients with COVID-19. J Hosp Med. 2022 Feb;17(2):88-95. doi: 10.1002/jhm.12785. Epub 2022 Feb 11. PMID: 35446466; PMCID: PMC9088325.

15. Jolley SE, Mowry CJ, Erlandson KM, **Wilson MP**, Burnham EL. Impact of Alcohol Misuse on Requirements for Critical Care Services and Development of Hospital Delirium in Patients With COVID-19 pneumonia. Crit Care Explor. 2023 Jan 23;5(1):e0829. doi: 10.1097/CCE.0000000000000829. PMID: 36713630; PMCID: PMC9876025.

16. Capin, J.J., **M.P. Wilson,** K. Hare, et al. Prospective telehealth analysis of functional performance, frailty, quality of life, and mental health after COVID-19 hospitalization (2022). BMC Geriatr 22(251). https://doi.org/10.1186/s12877-022-02854-6

17. Rauzi, MR, Ridgeway, KJ, **Wilson, MP**, Jolley, SE, Nordon-Craft, A, Stevens-Lapsley, JE, Erlandson, KM. Rehabilitation Therapy Allocation and Changes in Physical Function Among Patients Hospitalized Due to COVID-19: A Retrospective Cohort Analysis, *Physical Therapy*, Volume 103, Issue 3, March 2023, pzad007, https://doi.org/10.1093/ptj/pzad007

18. Damioli L, Shepard Z, **Wilson MP**, Erlandson KM. Retrospective analysis of the management of pelvic decubitus ulcers and their outcomes. *Therapeutic Advances in Infectious Disease*. 2023;10. doi:10.1177/20499361231196664

19. Jankowski, C. M., Konigsberg, I. R., **Wilson, M. P**., Sun, J., Brown, T. T., Julian, C. G., & Erlandson, K. M. (2024). Skeletal muscle DNA methylation: Effects of exercise and HIV. *Aging Cell*, 23, e14025. https://doi.org/10.1111/acel.14025

20. Durstenfeld, M.S., **Wilson, M.P**., Jankowski, C.M., Ditzenberger, G.L., Longenecker, C.T., Erlandson, K.M. Chronotropic Incompetence Among People With HIV Improves With Exercise Training in the Exercise for Healthy Aging Study, *The Journal of Infectious Diseases*, Volume 230, Issue 4, 15 October 2024, Pages 919–927, https://doi.org/10.1093/infdis/jiae284

21. Kousari, A. E., **Wilson, M. P**., Hawkins, K. L., Bandali, M. M., Henao-Martínez, A. F., Gardner, E. M., & Erlandson, K. M. (2024). Weight change with antiretroviral switch from integrase inhibitor or tenofovir alafenamide-based to Doravirine-Based regimens in people with HIV. *HIV Research & Clinical Practice*, *25*(1). https://doi.org/10.1080/25787489.2024.2339576

22. **Wilson, M.P**., Jankowski, C.M., Cook, P.F. *et al.* Effect of a Supervised Exercise Program on Exercise Self-Efficacy in Aging Adults With and Without HIV: A Secondary Analysis of the Exercise for Healthy Aging Study. *AIDS Behav* (2024). https://doi.org/10.1007/s10461-024-04537-2

23. Martz M, Akhverdyan N, **Wilson MP**, Walker J, Gorvetzian S, Chauhan L, Erlandson KM. Adherence to Bone Mineral Density Screening Recommendations in Older Adults with HIV. AIDS Res Hum Retroviruses. 2025 Sep;41(9):419-422. doi: 10.1089/aid.2025.0009. Epub 2025 Jun 9. PMID: 40488629; PMCID: PMC12411084.

24. Kulik, G.L., **Wilson, M.P**., Jankowski, C.M., Fourman, L.T., Erlandson, K.M., Examining the Heterogeneity of Exercise Response Among Sedentary Older Adults: A Descriptive Analysis, *Journal of Aging Research*, 2025, 6952002, 10 pages, 2025. **https://doi.org/10.1155/jare/6952002**

25. **Wilson, M.P**., Erlandson, K.M., Moore C.M., MaWhinney, S. The Effects of Missing Data on Longitudinal Analysis Inference Using Outcome-Dependent Sampling. Under review : International Journal of Epidemiology.

26. Wiley, L.K., L.V. Rasmussen, R.T. Levinson, J. Malinowski, S.M. Manemann, **M.P. Wilson**, M. Chapman, J.A. Pacheco, T.L. Walunas, J.B. Starren, S.J. Bielinski, R.L. Richesson, PhenoFit: a framework for determining computable phenotyping algorithm fitness for purpose and reuse, *Journal of the American Medical Informatics Association*, 2025;, ocaf195, https://doi.org/10.1093/jamia/ocaf195

27. Kulik, G.L., V.H.F. Oliveira, **M.P. Wilson**, V. Khuu, C.M. Jankowski, E. Iriarte, C. Horvat Davey, P. Cook, D. Ghosh, S. MaWhinney, A.R. Webel, K.M. Erlandson, Comparing the Effectiveness of High Intensity Interval Training vs. Continuous Moderate Intensity Exercise on Physical Function Among Older Adults with HIV, *Open Forum Infectious Diseases*, 2026;, ofag002, https://doi.org/10.1093/ofid/ofag002

28. Iriarte E, Hawkins KL, Wilson MP, et al. The Impact of Social Vulnerability on Exercise Outcomes: A Longitudinal Study of Physical Function in Older People With HIV. *Journal of the International Association of Providers of AIDS Care (JIAPAC)*. 2026;25. doi:10.1177/23259582261448699

29. GL Kulik, VHF Oliveira, MP Wilson, V Khuu, CM Jankowski, S Dillon, P Cook, S MaWhinney, D Ghosh, AR Webel, KM Erlandson, The effects of high-intensity interval training versus continuous moderate-intensity exercise on body composition among older adults with HIV, *The Journals of Gerontology: Series A*, Volume 81, Issue 6, June 2026, glag113, https://doi.org/10.1093/gerona/glag113

POSTER & ABSTRACT PRESENTATIONS:

1. W**ilson, M.P**., Catherine M Jankowski, Vincent Khuu, Vitor Oliveira, Aaron Beckwith, Debashis Ghosh, Allison Webel, Kristine M Erlandson .Fidelity to Endurance Exercise Training Prescriptions Among Older Adults with HIV within the HEALTH Study. HIV and Aging Workshop; Oral presentation: 2024 October 24-25th; Washington, D.C.
2. **Wilson, M.P**., David A Mayer, Luke V Rasmussen, Pramod Khanal, Maryam Nuriyeva, Michael McRae, Sridharan Raghavan, Laura K Wiley. Reusing EHR Phenotyping Algorithms in Practice: Developing the Colorado Diabetes EHR Research Repository (CODER). American Medical Informatics Association (AMIA) Informatics Summit. Poster presented: March 12-18th 2023, Seattle, WA. at AMIA
3. **Wilson M.P**., S. Mawhinney, J. Castillo-Mancilla, K.M. Erlandson. Outcome-Dependent Sampling Designs for Longitudinal Studies Utilizing Existing Cohort Studies: Quantifying Possible Biases Due to Study Dropout. Poster presented at: Statistics: Making an Impact. Joint Statistical Meeting; 2019 July 27- Aug 1; Denver, CO
4. **Wilson M.P**., S. Mawhinney, K.M. Erlandson. Outcome-Dependent Sampling Designs for Longitudinal Studies Utilizing Existing Cohort Studies: Quantifying Possible Biases Due to Study Dropout. Poster presented at: Western North American Region (WNAR) of the International Biostatistics Society Annual Meeting; 2019 June 23- 26; Portland, OR
5. **Wilson, M.P**., C. Jankowski, S. MaWhinney, R. Rapaport, W. Kohrt, T. Brown and K.M. Erlandson (2018). Exercise-Induced Inflammatory Changes among Older Adults with and without HIV [short abstract presentation]. HIV and Aging Conference, New York City, NY, USA.
6. **Wilson, M.P**., C. Jankowski, S. MaWhinney, R. Rapaport, W. Kohrt, T. Brown and K.M. Erlandson (2018). Acute Exercise-Induced Inflammatory Response among Older Adults with and without HIV. Poster presented at: HIV and Aging Conference, New York City, NY, USA.