

CURRICULUM VITAE

Weiwei Zhu

BIOGRAPHICAL INFORMATION

Weiwei Zhu, M.S.

Senior Biostatistician

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EDUCATION:

Jan. 2006 – Dec. 2007 Master of Science in Statistics
Texas A&M University, College Station, Texas, USA

EXPERIENCE:

Nov. 2025 – present Biostatistician IV/Principal Collaborative Biostatistician
Apr. 2019 – Nov. 2025 Biostatistician III/ Senior Collaborative Biostatistician
Kaiser Permanente Washington Health Research Institute
Apr. 2013 – Apr. 2019 Biostatistician II
Group Health Research Institute/Kaiser Permanente Washington
Health Research Institute
Oct. 2009 – Apr. 2014 Biostatistician I
Group Health Research Institute
Feb. 2008 – Oct. 2009 Biostatistician
Moffitt Cancer Center and Research Institute

PEER REVIEWED PUBLICATIONS:

- [1]. Florez-Acevedo S, Greenwood-Hickman MA, **Zhu, W.**, Cook AJ, Delaney K, Green BB, Arterburn DE, McClure JB, Rosenberg DE. Exploratory Analysis of Mental Health and Quality of Life Outcomes in a Randomized Controlled Trial to Reduce Sitting Time in Older Adults with Obesity. *Journal of Aging and Physical Activity*. 2025 Nov 12:1-12. doi: 10.1123/japa.2024-0387.
- [2]. Greenwood-Hickman, M., **Zhu, W.**, Idu, A., Harrington, L., McCurry, S., LaCroix, A., Shaw, P., Rosenberg, D., Associations Between 10-Year Physical Performance and Activities of Daily Living Trajectories and Physical Behaviors in Older Adults, *Int J Environ Res Public Health*. 2025 Apr 29;22(5):704. doi: 10.3390/ijerph22050704.
- [3]. Henderson, L., **Zhu, W.**, Onega, T., Kerlikowske, K., Miglioretti, M., Bowles, E., Sprague, B., Weaver, D, Tosteson, A., Lee, C., Diagnostic Management Pathways for Workup of Abnormal Screening With Digital Mammography Versus Digital Breast Tomosynthesis, *J Am Coll Radiol*. 2025 Aug;22(8):897-904. doi: 10.1016/j.jacr.2025.04.008. Epub 2025 Apr 10.
- [4]. Lawson, M., **Zhu, W.**, Miglioretti, M., Henderson, L., Rauscher, G., Kerlikowske, K.,

- Sprague, B., Bowles, E., Bowles, E., Tosteson, A., diFlorio-Alexander, R., Hubbard, R. Lee, J., Lee, C., Disparities in Standard-of-Care, Advanced, and Same-Day Diagnostic Services among Patients with Abnormal Screening Mammography, *Radiology*. 2025 Feb;314(2):e241673. doi: 10.1148/radiol.241673.
- [5]. Rosenberg, D., **Zhu, W.**, Gernwood-Hickman, M., Cook, A., Acevedo S., McClure, J., Arternum, D., Cooper, J., Owen, N., Dunstan, D., Perry, S., Yarborough, L., Mettert, K., Green, B., Sitting time reduction and blood pressure in older adults: A randomized clinical trial. *JAMA Netw Open*. 2024;7e: 243234. doi:10.1001/jamanetworkopen.2024.3234
- [3]. Kerlikowske, K., **Zhu, W.**, Su, Y., Sprague, B., Onega, T., O'Meara, E., Henderson, L., Tosteson, A., Wernly, K., Miglioretti, D., Supplemental magnetic resonance imaging plus mammography compared with magnetic resonance imaging or mammography by extent of breast density, *JNCI: Journal of the National Cancer Institute*, 024 Feb 8;116(2):249-257. doi: 10.1093/jnci/djad201.
- [4]. Onega, T., **Zhu, W.**, Kerlikowske, K., Miglioretti, M., Lee, C., Henderson, L., Tosteson, A., Wernli, K., diFlorio, R. Weaver, D., Buist, D., Preoperative MRI in breast cancer: effect of breast density on biopsy rate and yield, *Breast Cancer Research and Treatment*, 2021 Oct 22. doi: 10.1007/s10549-021-06418-x.
- [5]. Advani, S., **Zhu, W.**, Demb, J., Sprague B., Onega T., Henderson, L., Buist, D., Zhange, D., Schousboe, J., Walter, L., Kerlikowske, K., Miglioretti, D., Braithwaite, D.. Breast Cancer Risk by Breast Density, Body Mass Index and Age Among Older Women, *JAMA Network Open*, 2021; 4(8):e2122810. doi: 10.1001/jamanetworkopen.2021.22810
- [6]. Yeung K, **Zhu, W.**, McCurry SM, Von Korff M, Wellman R, Morin CM, Vitiello MV. Cost-effectiveness of telephone cognitive behavioral therapy for osteoarthritis-related insomnia, *Journal of the American Geriatrics Society* 2021 Oct 11. doi: 10.1111/jgs.17469
- [7]. Vitiello MV, **Zhu W.**, Von Korff M, Wellman R, Morin CM, Yeung K, McCurry SM. Long-term improvements in sleep, pain, depression, and fatigue in older adults with comorbid osteoarthritis pain and insomnia. *Sleep*, 2022 Feb 14;45(2):zsab231. doi: 10.1093/sleep/zsab231.
- [8]. McCurry SM, **Zhu W.**, Von Korff M, Wellman R, Morin CM, Thakral, M., Yeung K, Vitiello MV. Effect of Telephone Cognitive Behavioral Therapy for Insomnia in Older Adults With Osteoarthritis Pain. *JAMA Internal Medicine*. 2021; 181(4): 530-538. doi:10.1001/jamainternmed.2020.9049
- [9]. Lee, C., **Zhu, W.**, Onega, T., Henderson, L., Kerlikowske, K., Sprague, B., Rauscher, G., O'Meara, E., Tosteson, A., Haas, J., diFlorio-Alexander, R., Kaplan, C., Miglioretti, D., Comparative Access to and Use of Digital Breast Tomosynthesis Screening by Women's Race, Ethnicity, and Socioeconomic Status, *JAMA Network Open*, 2021 Feb 1;4(2):e2037546. doi: 10.1001/jamanetworkopen.2020.37546.
- [10]. McCurry, SM, Von Korff M, Morin CM, Cunningham A, Pike KC, Thakral M, Wellman R, Yeung K, **Zhu, W.**, Vitiello MV. Telephone interventions for co-morbid insomnia and

osteoarthritis pain: The OsteoArthritis and therapy for sleep (OATS) randomized trial design. *Contemporary Clin Trials*. 2019 Dec;87:105851. doi: 10.1016/j.cct.2019.105851

- [11]. Henrikson, N., **Zhu, W.**, Baba, L., Nguyen, M., Berthoud, H., Gundersen, G., Hofstetter, A., Outreach and reminders to improve HPV vaccination in an integrated primary care system: randomized trial, *Clin Pediatr (Phila)*. 2018 Nov;57(13):1523-1531. doi: 10.1177/0009922818787868. Epub 2018 Jul 13
- [12]. Lee, C., **Zhu, W.**, Onega, T., Germino, J., O'Meara, E., Lehman, C., Henderson, L., Haas, J., Kerlikowske, K., Sprague, B., Rauscher, G., Tosteson, A., Alford-Teaster, J., Wernli, K., Miglioretti, D., The Effect of Digital Breast Tomosynthesis Adoption on Facility-Level Breast Cancer Screening Volume, *AJR Am J Roentgenol*. 2018 Nov;211(5):957-963. doi: 10.2214/AJR.17.19350. Epub 2018 Sep 20.
- [13]. Groeneweg, M., Forrester, S. Arnold, B., Palazzo, L., **Zhu, W.**, Yoon, P., Scarce, T., One-Year Outcomes of an Integrated Multiple Sclerosis Disease Management Program, *Jouranal of Manag Care Spec Pharm*. 2018 May;24(5):458-463. doi: 10.18553/jmcp.2018.24.5.458.
- [14]. Braithwaite, D., Miglioretti, D., **Zhu, W.**, Demb, J., Dietz, A., Sprague, B., Tice, J., Onega, T., Henderson, L., Walter, L., Kerlikowske, K., Family History and Breast Cancer Risk Among Older Women in the Breast Cancer Surveillance Consortium Cohort, *JAMA Intern Med*. 2018;178(4):494-501. doi:10.1001/jamainternmed.2017.8642
- [15]. Onega T, **Zhu W.**, Weiss JE, Goodrich M, Tosteson ANA, DeMartini W, Virnig B, Henderson L, Buist DSM, Wernli K, Kerlikowske K, Hubbard R, Preoperative breast MRI and mortality among older women with breast cancer, *Breast Cancer Research and Treatment*, 2018 Jul;170(1):149-157. doi: 10.1007/s10549-018-4732-z.
- [16]. Miles, R., Wan, F., Onega, T., Lenderink-Carpenter, A., O'Meara, E., **Zhu, W.**, Henderson, L., Haas, J., Hill, D., Tosteson, A., Wernli, K., Alford-Teaster, J., Lee, J., Lehman, C., Lee, C., Underutilization of Supplemental MRI Screening Among Patients at High Breast Cancer Risk, *Journal of Womens Health (Larchmt)*. 2018 Jun;27(6):748-754. doi: 10.1089/jwh.2017.6623.
- [17]. Henderson, L., Hubbard, R., **Zhu, W.**, Weiss J., Wernli, K., Goodrich, M., Kerlikowske, K., DeMartini, W., Ozanne, E., Onega, T., Pre-operative breast MRI use by breast density and family history of breast cancer, *J Womens Health (Larchmt)*. 2018 Aug;27(8):987-993. doi: 10.1089/jwh.2017.6428.
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- [19]. Miglioretti, D., **Zhu, W.**, Kerlikowske, K., Sprague BL, Onega, T., Buist, D., Henderson, L., Smith, RA., Breast Tumor Prognostic Characteristics and Biennial vs Annual Mammography, Age, and Menopausal Status. *JAMA Oncol*. 2015 Nov;1(8):1069-77. doi:10.1001/jamaoncol.2015.3084

- [20]. Kerlikowske K., **Zhu W.**, Tosteston A.N.A., Sprague BL, Tice JA, Lehman CD, Miglioretti DL. Identifying Women with Dense Breasts at High Risk of Interval Cancers. *Ann Intern Med.* 2015;162(10):673-681. doi:10.7326/M14-1465
- [21]. Henderson, L., Hubbard, R., Sprague, B., **Zhu, W.**, Kerlikowske, K., Increased risk of developing breast cancer after a false positive screening mammogram. *Cancer Epidemiol Biomarkers Prev.* 2015;24(12):1882-9. doi: 10.1158/1055-9965.EPI-15-0623.
- [22]. Chubak J, Onega T, **Zhu W**, Buist DS, Hubbard RA.; An electronic health record-based algorithm to ascertain the date of second breast cancer events.; *Med Care.* 2017 Dec;55(12):e81-e87. doi: 10.1097/MLR.0000000000000352.
- [23]. Hubbard, R., Benjamin-Johnson, R., Onega, T., Smith-Bindman, R., **Zhu W.**, Fenton JJ. Classification accuracy of claims based methods for identifying providers failing to meet performance targets. *Stat Med.* 2015 Jan 15;34(1):93-105. doi: 10.1002/sim.6318. Epub 2014 Oct 10.
- [24]. Hubbard, R., **Zhu, W.**, Balch, S., Onega, T., Fenton, J., Identification of abnormal screening mammogram interpretation using Medicare claims data. *Health Serv Res.* 2015 Feb;50(1):290-304. doi: 10.1111/1475-6773.12194.
- [25]. Fenton, J., **Zhu, W.**, Balch, S., Smith-Bindman, R., Lindfors, K., Fishman, P., Hubbard, R., Distinguishing Screening from Diagnostic Mammograms using Medicare Claims Data. *Medical Care,* 2014 Jul;52(7):e44-51. doi: 10.1097/MLR.0b013e318269e0f5.
- [26]. O'Meara, E., **Zhu, W.**, Hubbard, R., Kerlikowske, K., Braithwaite, d., Dittus, K., Geller, B., Weaver, D., Wernli, K., Miglioretti, DL. Mammographic screening interval in relation to tumor characteristics and false-positive risk by race/ethnicity and age. *Cancer,* 2013 Nov 15;119(22):3959-67. doi: 10.1002/cncr.28310.
- [27]. Dittus, K., Geller, B., Weaver, D., Kerlikowske, K., **Zhu, W.**, Hubbard, R., Braithwaite, D., O'Meara, E., Miglioretti, D., Impact of mammography screening interval on breast cancer diagnosis by menopausal status and BMI. *J Gen Intern Med.* 2013 Nov;28(11), 1454-1462. <https://doi.org/10.1007/s11606-013-2507-0>.
- [28]. Fenton JJ, Onega T, **Zhu W**, Balch S, Smith-Bindman R, Henderson L, Sprague BL, Kerlikowske K, Hubbard RA.; Validation of a Medicare claims-based algorithm for identifying breast cancers detected at screening mammography.; *Med Care.* 2016 Mar;54(3):e15-22. doi: 10.1097/MLR.0b013e3182a303d7.
- [29]. Kerlikowske, K., **Zhu, W.**, Hubbard, R., Geller, B., Dittus, K., Braithwaite, D., Werni, K., Miglioretti, DL, O'Meara, E., Benefits and Harms of Screening Mammography Frequency by Age, Breast Density, Postmenopausal Hormone Therapy. 2013 May 13;173(9):807-16. doi: 10.1001/jamainternmed.2013.307.
- [30]. Hubbard, R., **Zhu, W.**, Horbyluk, R., Karliner, L., Sprague, B., Henderson, L., Lee, D., Onega, T., Buist, D., Sweet, A., Diagnostic imaging and biopsy pathways following abnormal screen-film and digital screening mammography. *Breast Cancer Res Treat.* 2013 Apr;138(3):879-87. doi: 10.1007/s10549-013-2466-5. Epub 2013 Mar 8

- [31]. Braithwaite, D., **Zhu, W.**, Hubbard, R., O'Meara, E., Miglioretti, D., Geller, B., Dittus, K., Moore, Dan., Wernli, K., Mandelblatt, J., Kerlikowske, K., Screening outcomes in older U.S. women undergoing multiple mammograms in community practice: does interval, age or comorbidity score affect tumor characteristics or false positive rates? *2013 Mar 6;105(5):334-41. doi: 10.1093/jnci/djs645. Epub 2013 Feb 5.*
- [32]. Henderson, L., Onega, T., Hubbard, R., **Zhu, W.**, Tosteson, A., Buist, D., Fishman, P., Assessing health care use and cost consequences of a new screening modality: the case of digital mammography. *Medical Care. 2012 Dec;50(12).*
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- [34]. Cook, A., Elmore, J., **Zhu, W.**, Jackson, S., Carney, P., Flowers, C., Onega, T., Geller, B., Rosenberg, R., Miglioretti, DL, Mammographic interpretation: radiologists' ability to accurately estimate their performance and compare it with that of their peers. *AMERICAN JOURNAL OF ROENTGENOLOGY. 2012 Sep;199(3):695-702.*
- [35]. Yasmeen, S., Hubbard, R., Romano, P., **Zhu, W.**, Geller, B., Onega, T., Yankaskas, B., Miglioretti, DL, Kerlikowske, K., Risk of Advanced Stage Breast Cancer Among Older Women with Comorbidities. *Cancer Epidemiology, Biomarkers & Prevention. 2012 Sep;21(9):1510-9. Epub 2012 Jun 28*
- [36]. Fenton, J., **Zhu, W.**, Balch, S., Smith-Bindman, R., Lindfors, K., Fishman, P., Hubbard, R., External Validation of Medicare Claims for Digital Mammography and Computer-Aided Detection. *Cancer Epidemiology, Biomarkers & Prevention. 2012 Aug;21(8):1344-7. Epub 2012 Jun 13*
- [37]. Mahajan K, Coppola D, Chen YA, **Zhu W.**, Lawrence HR, Lawrence NJ, Mahajan NP. Ack1 tyrosine kinase activation correlates with pancreatic cancer progression. *Am J Pathol. 2012 Apr;180(4):1386-1393.*
- [38]. Shan, L., Chen, YA., Davis, L., Han, G., **Zhu, W.**, Molina, A., Arango, H., LaPolla, J., Hoffman, M., Sellers, T., Kirby, T., Nicosia, S., Sutphen, R., Measurement of Phospholipids Improves Diagnostic Accuracy in Ovarian Cancer. *PLoS ONE. 2012;7(10): e46846. doi: 10.1371/journal.pone.0046846. Epub 2012 Oct 17*
- [39]. Hubbard, R., Kerlikowske, K., Flower, C., Yankaskas, B., **Zhu, W.**, Miglioretti, DL, Cumulative risk of false-positive recall or biopsy recommendation after 10 years of screening mammography. *Ann Intern Med. 2011;155(8):481-92.*
- [40]. Bello, C.M., Yu, D., Komrokji R.S., **Zhu, W.**, Wetzstein, G.A., List A.F. and Lancet, J.E., Outcomes after induction chemotherapy in patients with acute myeloid leukemia arising from myelodysplastic syndrome. *Cancer. 2011 Apr 1;117(7):1463-9. Epub 2010 Nov 8*
- [41]. Kharfan-Dabaja, MA, Chavez, JC, Yu, D., **Zhu, W.**, Fernandez-Vertiz, EI, Perkins, J., Shapiro, J., Bookout, R., Perez, L., Fernandez, HF, Komrokji, RS, Lancetf, J., Brand, L., Field, T., Ayala, E., Janssen, W., List, AF, Anasetti, C., Severe hypoalbuminemia at day 90 predicts worse non-relapse mortality and overall survival after allogeneic hematopoietic stem cell

transplantation for acute myeloid leukemia and myelodysplastic syndrome. *Biol Blood Marrow Transplant.* 2010 Jul

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- [43]. Hunter, S., Love, K., Abdulla, R., **Zhu, W.**, Lee, J., Wells, K., Roetzheim, R., Sun Protection at Elementary Schools, A Cluster Randomized Trial. *JNCI Journal of the National Cancer Institute* 2010 102(7):484-492;
- [44]. Mahajan, K., Coppola, D., Challa, S., Fang, B., Chen, YA, **Zhu, W.**, Lopez, AS, Koomen, J., Engelman, RW., Rivera, C., Muraoka-Cook, RS, Cheng, JQ, Schnbrunn, E., Sebti, SM, Earp, HS, Mahajan, NP. Ack1 Mediated AKT/PKB Tyrosine 176 Phosphorylation Regulates Its Activation. *PLoS One.* 2010;5(3): e9646.
- [45]. Wang, W., Lau, R., Yu, D., **Zhu, W.**, Korman, A., Weber, J., PD1 Blockade Reverses the Suppression of Melanoma Antigen-Specific CTL by CD4+CD25(Hi) Regulatory T cells. *International Immunology*, 2009 Sep;21(9):1065-77. doi: 10.1093/intimm/dxp072.
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- [47]. Tanvetyanon, T., Qin, D., Padhya, T., McCaffrey, J., **Zhu, W.**, Boulware, D., DeConti, R., Trotti, A., Outcomes of post-operative concurrent chemoradiotherapy for locally advanced major salivary gland carcinoma. *Archive of Otolaryngology and Head & Neck Surgery*, 2009 Jul. 135(7): 687-92
- [48]. Tanvetyanon, T., Padhya, T., McCaffrey, J., **Zhu, W.**, Boulware, D., DeConti, R., Trotti, A., Prognostic factors for survival after salvage re-irradiation of head and neck cancer. *Journal of Clinical Oncology*, 2009 Apr 20;27(12):1983-91. doi: 10.1200/JCO.2008.20.0691.

NON-PEER-REVIEWED PUBLICATIONS

- [1]. Yarborough, B., Boudreau, D., **Zhu, W.**, Janoff, S., Fujii, M., A prospective investigation of the risks of opioid misuse, abuse, and addiction among patients treated with extended-release/long acting (ER/LA) opioids for the treatment of chronic pain, *report of FDA ER/LA Opioid Post-Marketing Requirement Studies, October 2020*
- [2]. Hubbard, R., Milton, J., **Zhu, W.**, Wang, L., Chubak, J., Accounting for Differential Error in Time-to-Event Analyses Using Imperfect Electronic Health Record-Derived Endpoints, *In book: New Advances in Statistics and Data Science, pp.239-255*

PROFESSIONAL SERVICE:

- [1]. Kaiser Permanente Washington Health Research Institute ISD Director Search Committee (2024-2025)
- [2]. Kaiser Permanente Washington Health Research Institute Safety committee (2017-2022, 2024-present)
- [3]. Mentor for SeattleStatGROWS program (2024, 2025)
- [4]. Kaiser Permanente Washington Health Research Institute ISC (2020-2021)
- [5]. Lead KPWHRI Biostat MVV workgroup (2020)
- [6]. Reviewer for Cancer (2020)
- [7]. Lecturer, "Basic Biostatistics" in Epidemiology 101 courses, March 2019, Kaiser Permanente Washington Health Research Institute
- [8]. UW biostatistics student seminar (2018, 2019)
- [9]. Kaiser Permanente Washington Health Research Institute SAC (2018-2019)
- [10]. Reviewer: Cancer, Journal of Preventive Medicine, JAMA Internal Medicine, Annals of Internal Medicine
- [11]. Kaiser Permanente Washington Health Research Institute faculty recruitment committee (2017-2018)
- [12]. Consulting on GHQ (2017)
- [13]. Consulting on Master's thesis for UW Epidemiology student (2016)
- [14]. Consulting on GHRI faculty (2016)
- [15]. GHRI IT director recruitment committee (2016)
- [16]. Course Monitor at JSM (2015)
- [17]. GHRI Methods Strategy Implementation Subgroup (2012)

AWARD:

- [1]. Group Health Research Institute: Extraordinary Achievement Award (2011)
- [2]. KPWHRI "Spot Bonus" Award (2024)

RESEARCH ACTIVITY: Member of American Statistical Association