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Education

University of California, Los Angeles, B.S. Applied Mathematics, 1986
University of California, Los Angeles, M.S. Biostatistics, 1988
University of California, Los Angeles, Ph.D. Biostatistics, 1991

Professional Experience

2015-present Senior Statistician, RAND Corporation
2008-2014 Senior Investigator, Group Health Research Institute*
2012-2014 Affiliate Member, Fred Hutchinson Cancer Research Center
2009-2014 Affiliate Professor, Departments of Biostatistics & Health Services, University of Washington
2003-2008 Lead Biostatistician, Center for Health Studies Biostatistics Group*
2002-2008 Associate Investigator, Group Health Center for Health Studies*
2002-2009 Affiliate Associate Professor, Departments of Biostatistics & Health Services, University of Washington
1995-2002 Assistant Investigator, Group Health Center for Health Studies*
1995-2002 Affiliate Assistant Professor, Department of Biostatistics, University of Washington
1992-1994 Research Fellow, Department of Health Care Policy, Harvard Medical School
1991-1992 Senior Statistician, Department of Biomathematics, UCLA School of Medicine
1990-1991 Special Reader, Department of Biostatistics, UCLA School of Public Health
1989-1991 Assistant Statistician, University of California School of Public Health
1988-1989 Assistant Statistician, University of California School of Dentistry

**Group Health Center for Health Studies was renamed Group Health Research Institute. In February 2017, Kaiser Permanente acquired Group Health, at which point Group Health Research Institute became Kaiser Permanente Washington Health Research Institute.*

Honors and Awards

2010 Fellow, American Statistical Association
1990 Ruth F. Richards Outstanding Student Award,
UCLA School of Public Health Alumni Association

Professional Societies

American Statistical Association, International Biometrics Society (Western Division),
Society for Medical Decision Making

Professional Activities

Editorial Board: *Medical Decision Making* (2010-2020)

Associate Editor: *Statistics in Medicine* (2017-2020)

Guest Editor: Special Issue of *Epidemiology Research International* focusing on microsimulation (2011/2012)

Current Reviewer (2019):

Annals of Applied Statistics (1), *Annals of Epidemiology* (1), *Biometrics* (1), *BMJ Open* (1), *Cancer* (1), *Cancer Epidemiology, Biomarkers & Prevention* (1), *Journal of the American Medical Association* (5), *Journal of Medical Screening* (1), *Medical Decision Making* (4), *Millbank Quarterly* (1), *PharmacoEconomics* (1), *Value in Health* (1)

Past reviewer for:

- AHRQ: *Health Care Quality and Effectiveness Research Study Section* (2005-2009)
- AHRQ: CHOICE RFA grant review (2010)
- AHRQ *Comparative Effectiveness Report* (2011)
- *Academic Radiology* (2000,2004,2005,2009-2015)
- *Annals of Applied Statistics* (2010,2019)
- *Annals of Internal Medicine* (2011-2012,2014)
- *American Journal of Epidemiology* (2002,2016,2019)
- *American Journal of Gastroenterology* (2014)
- *American Journal of Preventive Medicine* (2014,2018)
- *Biometrics* (2000,2003,2010-2013,2017,2018,2019)
- *BMC Public Health* (2012)
- *BMJ Open* (2014, 2016,2019)
- *Cancer* (2015,2019)
- *Cancer Control* (2018)
- *Cancer Epidemiology, Biomarkers and Prevention* (2006-2008,2010,2013-2017,2019)
- *Centers for Disease Control Peer Review Panel on Breast and Colorectal Cancer Screening* (2008)
- *Circulation* (2004,2005)
- *Computational Statistics and Data Analysis* (2004,2005)
- *Computer Methods and Programs in Biomedicine* (2015)
- *Epidemiology* (2016)
- *Computational and Mathematical Methods in Medicine* (2011)
- *Health Services and Outcomes Research* (2010)
- *Health Services Research* (2010)
- *International Journal of Microsimulation* (2016,2017)
- *Journal of the American Medical Association* (2003,2006,2009,2012,2013,2017-2019)
- *Journal of the American Statistical Association* (2012,2014-2016)
- *Journal of Clinical Epidemiology* (2003)
- *Journal of Clinical Oncology* (2012)
- *Journal of General Internal Medicine* (2006,2007,2009)
- *Journal of Medical Screening* (2016,2017,2019)
- *Journal of the National Cancer Institute (JNCI)*, 2006,2007,2011-2014,2017)
- *Journal of the Royal Statistical Society – A* (2008)
- *Journal of the Royal Statistical Society – C* (2006,2007,2013,2014)
- *Journal of Statistical Planning and Inference* (2001)
- *Medical Care* (2010,2011)

- *Medical Decision Making (2006-2019)*
 - *Millbank Quarterly (2019)*
 - *National Institutes of Health:*
 - *program project review/site visitor (2001,2002)*
 - *ad hoc reviewer, NIMH (2002-2004)*
 - *ad hoc grant review for Biostatistical Methods and Research Design (BMRD, 2006-2008)*
 - *ad hoc grant reviewer for NCI "Bridging the Gap" U54 Applications (2014)*
 - *ad hoc grant review for Special Emphasis Panels "Modeling of Social Behavior" and "Systems Science and Health in the Behavioral and Social Sciences" (2016)*
 - *Mayo Clinic Proceedings (2009)*
 - *Operations Research (2010)*
 - *PharmacoEconomics (2003-2005,2010,2016,2019)*
 - *Population Health Metrics (2014)*
 - *Preventive Medicine (2018)*
 - *Research Synthesis Methods (2012)*
 - *Statistical Modeling (2010,2011)*
 - *Statistics in Medicine (2000-2010,2012,2014-2018)*
 - *Statistical Methods in Medical Research (2013)*
 - *Social Science in Medicine (2001)*
 - *Trials (2011)*
 - *Value in Health (2000,2001)*
- 1999 Invited participant: American Cancer Society Workshop on Interpretive Skills in Mammography. June 11-13, 1999.
- 1999-2003 Publications Officer for the Health Policy Statistics Section of the *American Statistical Association*, January 1999 –October 2003.
- 1999 Planning committee for 2001: International Conference on Health Policy Research.
- 2001 Co-Chair, planning committee for 2003 International Conference on Health Policy Research.
- 2004-2006 Chair for the Health Policy Statistics Section of the *American Statistical Association*, January 2005 –December 2005 (Chair-Elect 2004, Past Chair 2006).
- 2006-2009 Member of the Health Care Quality and Effectiveness Research study section of the Agency for Healthcare Research and Quality (October 2006 – September 2009).
- 2007 Executive Committee for the 2008 International Conference on Health Policy Research.
- 2009 Organizing Committee: RSNA/NIBIB Workshop on Comparative Effectiveness Research for Diagnostic Imaging, February 11-12, 2010.
- 2010 Program Chair, WNAR 2010 Meetings (Seattle, WA).
- 2010-2018 Member, Conference Advisory Committee for the International Biometrics Society
- 2014 Advisory Board, planning committee for 2015 International Conference on Health Policy Research.
- 2016-2018 Chair for the Health Policy Statistics Section of the American Statistical Association (Chair-elect 2016, Chair 2017, Past-Chair 2018)

Articles in Peer Reviewed Journals

1. Golding JM, Karno M, **Rutter CM**. Symptoms of major depression among Mexican-Americans and non-Hispanic whites, *American Journal of Psychiatry*, 1990; 147(7):861-866. PMID: 2356871.
2. Aneshensel CS, **Rutter CM**, Lachenbruch PA. Social structure, stress, and mental health: competing conceptual and analytic models, *American Sociological Review*, 1991; 56:166-178.
3. **Rutter C**, Flack V, Lachenbruch P. Bias in error rate estimates in discriminant analysis when stepwise variable selection is employed, *Communications in Statistics- Simulation and Computation*, 1991; 20:1-22.
4. Sorenson SB, **Rutter CM**, Aneshensel CS. Depression in the community: an investigation into age of onset. *Journal of Consulting and Clinical Psychology*, 1991; 59(4):541-546. PMID: 1918558.
5. Sorenson SB, **Rutter CM**. Transgenerational patterns of suicide attempt, *Journal of Consulting and Clinical Psychology*, 1991; 59(6):861-866. PMID: 1774371.
6. **Rutter CM**, Elashoff RM. Analysis of longitudinal data: random coefficient regression modelling, *Statistics in Medicine*, 1994; 13(12):1211-1231. PMID: 7973203.
7. **Rutter CM**, Gatsonis, CG. Regression methods for meta-analysis of diagnostic test data, (with discussion) *Academic Radiology*, 1995; 2(Suppl 1):S48-S56. PMID: 9419705
8. Ozaki CK, Contreras M, Phaneuf M, Sheppeck RA, **Rutter CM**, Quist WC, LoGerfo FW. Platelet activation by healing ePTFE grafts, *Journal of Biomedical Materials Research*, 1995; 29(5):647-653. PMID: 7622550
9. Baum RA, **Rutter CM**, Sunshine JH, Blebea JS, Blebea J, Carpenter JP, Dickey KW, Quinn SF, Gomes AS, Grist TM, McNeil BJ for the American College of Radiology rapid technology assessment group. Multi-center trial to evaluate vascular magnetic resonance angiography of the lower extremity, *Journal of the American Medical Association*, 1995; 274(11):875-880. PMID: 7674500.
10. Zerhouni EA, **Rutter C**, Hamilton SR, Balf DM, Megibow AJ, Francis IR, Moss AA, Heiken JP, Tempany CM, Aisen AM, Weinreb JC, Gatsonis C, McNeil BJ. CT and MR imaging in the staging of colorectal carcinoma: report of the Radiologic Diagnostic Oncology Group II, *Radiology*, 1996; 200:443-451. PMID: 8685340.
11. Unützer J, Patrick D, Simon G, Grembowski D, Walker E, **Rutter C**, Katon W. Depressive symptoms and the cost of health services in HMO patients age 65 and older. A four-year prospective study, *Journal of the American Medical Association*, 1997; 277(20):1618-1623. PMID: 9168292.
12. Goldberg DP, Gater R, Sartorius N, Ustun TB, Piccinelli M, Gureje O, **Rutter C**. The validity of two versions of the GHQ in the WHO study of mental illness in general health care, *Psychological Medicine*, 1997; 27(1):191-197. PMID: 9122299.
13. Shlansky-Goldberg RD, VanArsdalen KN, **Rutter CM**, Soulen MC, Haskal ZJ, Baum RA, Cope C, Pentecost MJ. Percutaneous varicocele embolization versus surgical ligation for the treatment of infertility: changes in seminal parameters and pregnancy outcomes, *Journal of Vascular and Interventional Radiology*, 1997; 8(5):759-767. PMID: 9314365.
14. Pepe MS, Urban N, **Rutter C**, Longton G. Design of a study to improve accuracy in reading mammograms, *Journal of Clinical Epidemiology*, 1997; 50(12):1327-1338. PMID: 9449936.
15. Newton KM, LaCroix AZ, Leveille SG, **Rutter C**, Keenan NL, Anderson LA. Women's beliefs and decisions about hormone replacement therapy, *Journal of Women's Health*, 1997; 6(4):459-465. PMID: 9279834.

16. Lin E, Katon W, Simon G, Von Korff M, Bush T, **Rutter C**, Saunders K, Walker E. Achieving guidelines for the treatment of depression in primary care: is physician education enough? *Medical Care*, 1997; 35(8):831-842. PMID: 9268255.
17. Von Korff M, Moore JE, Lorig K, Cherkin DC, Saunders K, Gonzalez VM, Laurent D, **Rutter C**, Comite F. A randomized trial of a lay person-led self-management group intervention for back pain patients in primary care, *Spine*, 1998; 23(23):2608-2615. PMID: 9854760.
18. Simon GE, Katon W, **Rutter C**, VonKorff M, Lin E, Robinson P, Bush T, Walker EA, Ludman E, Russo J. Impact of improved depression treatment in primary care on daily functioning and disability, *Psychological Medicine*, 1998; 28(3):693-701. PMID: 9626725.
19. Newton KM, Lacroix AZ, Leveille SG, **Rutter C**, Keenan NL, Anderson LA. The physician's role in women's decision making about hormone replacement therapy, *Obstetrics and Gynecology*, 1998; 92(4 pt 1):580-584. PMID: 9764632.
20. Lin EH, Katon WJ, VonKorff M, Russo JE, Simon GE, Bush TM, **Rutter CM**, Walker EA, Ludman E. Relapse of depression in primary care. Rate and clinical predictors, *Archives of Family Medicine*, 1998; 7(5):443-449. PMID: 9755737.
21. Halpern EJ, **Rutter CM**, Gardiner GA Jr, Nazarian LN, Wechsler RJ, Levin DB, Kueny-Beck M, Moritz MJ, Carabasi RA, Kahn MB, Smullens SN, Feldman HI. Comparison of Doppler US and CT angiography for evaluation of renal artery stenosis, *Academic Radiology*, 1998; 5(8):524-532. PMID: 9702262.
22. Walker EA, Unutzer J, **Rutter C**, Gelfand A, Saunders K, Von Korff M, Koss MP, Katon W. Costs of health care use by women HMO members with a history of childhood abuse and neglect, *Archives of General Psychiatry*, 1999; 56(7):609-613. PMID: 10401506.
23. Simon GE, Von Korff M, **Rutter C**, Wagner E. Randomized trial of monitoring, feedback, and management of care by telephone to improve treatment of depression in primary care, *BMJ*, 2000; 320(7234):550-554. PMCID: PMC27299.
24. **Rutter CM**, Taplin S. Assessing mammographers' accuracy. A comparison of clinical and test performance, *Journal of Clinical Epidemiology*, 2000; 53(5):443-450. PMID: 10812315.
25. Taplin S, **Rutter CM**, Elmore JG, Seger D, White E, Brenner RJ. Accuracy of screening mammography using single versus independent double interpretation, *AJR American Journal of Roentgenology*, 2000; 174(5):1257-1262.
26. Katon W, **Rutter C**, Lin E, Simon G, Von Korff M, Bush T, Walker E, Ludman E. Are there detectable differences in quality of care or outcome of depression by primary care providers? *Medical Care*, 2000; 38(6):552-561. PMID: 10843308.
27. **Rutter CM**, Bootstrap estimation of diagnostic accuracy using patient-clustered data, *Academic Radiology*, 2000; 7(6):413-419. PMID: 10845400.
28. Mandelson MT, Curry SJ, Anderson LA, Nadel MR, Lee NC, **Rutter CM**, LaCroix AZ. Colorectal cancer screening participation by older women, *American Journal of Preventive Medicine*, 2000; 19(3):149-154. PMID: 11020590.
29. **Rutter CM**, Mandelson MT, Laya MB, Seger DJ, Taplin S. Changes in breast density associated with initiation, discontinuation, and continuing use of hormone replacement therapy (HRT), *JAMA*, 2001; 285(2):171-176. PMID: 11176809.

30. Katon W, **Rutter C**, Ludman EJ, Von Korff M, Lin E, Simon G, Walker E, Unützer J, Bush T. A Randomized trial of relapse prevention of depression in primary care, *Archives of General Psychiatry*, 2001; 58(3):241-247. PMID: 11231831.
31. Simon GE, Von Korff M, **Rutter CM**, Peterson DA. Treatment process and outcomes for managed care patients receiving new antidepressant prescriptions from psychiatrists and primary care physicians, *Archives of General Psychiatry*, 2001; 58(4):395-401. PMID: 11296101.
32. Lehman CD, Miller L, **Rutter CM**, Tsu V. Effect of training with the American College of Radiology breast imaging reporting and data system lexicon on mammography interpretation skills in developing countries, *Academic Radiology*, 2001; 8(7):647-650. PMID: 11450966.
33. **Rutter CM**, Gatsonis CA. A hierarchical regression approach to meta-analysis of diagnostic test accuracy evaluations, *Statistic in Medicine*, 2001; 20(19):2865-2884. PMID: 11568945.
34. Simon GE, Katon WJ, Von Korff M, Unützer J, Lin EHB, Walker EA, Bush T, **Rutter C**, Ludman E. Cost-effectiveness of a collaborative care program for primary care patients with persistent depression, *American Journal of Psychiatry*, 2001; 158(10):1638-1644. PMID: 11578996.
35. Bradley KA, Bush KR, Davis TM, Dobie DJ, Burman ML, **Rutter CM**, Kivlahan DR. Binge drinking among female Veterans Affairs patients: prevalence and associated risks, *Psychology of Addictive Behaviors*, 2001; 15(4):297-305. PMID: 11767260.
36. Taplin SH, **Rutter CM**, Finder C, Mandelson MT, Houn F, White E. Screening mammography: clinical image quality and the risk of interval breast cancer, *AJR American Journal of Roentgenology*, 2002; 178(4):797-803. PMID: 11906848.
37. Ludman EJ, Simon GE, **Rutter CM**, Bauer MS, Unützer J. A measure for assessing patient perception of provider support for self-management of bipolar disorder, *Bipolar Disorders*, 2002; 4(4):249-253. PMID: 12190714.
38. Simon GE, VonKorff, M, Ludman EJ, Katon W, **Rutter C**, Unutzer J, Lin EHB, Bush T, Walker E. Cost-effectiveness of a program to prevent depression relapse in primary care, *Medical Care*, 2002; 40(10):941-50. PMID: 12395027.
39. **Rutter CM**, Miglioretti DL. Estimating the accuracy of psychological scales using longitudinal data, *Biostatistics*, 2003; 4:97-107. PMID: 12925332.
40. Carney PA, Miglioretti DL, Yankaskas BC, Kerlikowske K, Rosenberg R, **Rutter C**, Geller BM, Abraham LA, Taplin, SH, Dignan M, Cutter G, Ballard-Barbash R. Individual and combined effects of age, breast density, and hormone replacement therapy use on the performance of screening mammography, *Annals of Internal Medicine*, 2003; 138(3):168-175. PMID: 12558355.
41. Katon W, Von Korff M, Lin E, Simon G, Ludman E, Bush T, Walker E, Ciechanowski P, **Rutter C**. Improving primary care treatment of depression among patients with diabetes mellitus: the design of the pathways study. *General Hospital Psychiatry*, 2003; 25(3):158-168. PMID: 12748028.
42. Lin EH, Von Korff M, Ludman EJ, **Rutter C**, Bush TM, Simon GE, Unutzer J, Walker E, Katon WJ. Enhancing adherence to prevent depression relapse in primary care, *General Hospital Psychiatry*, 2003; 25(5):303-310. PMID: 12972220.
43. Ludman E, Katon W, Bush T, **Rutter C**, Lin E, Simon G, Von Korff M, Walker E. Behavioral factors associated with symptom outcomes in a primary care-based depression prevention intervention trial, *Psychological Medicine*, 2003; 33(6):1061-1070. PMID: 12946090.

44. **Rutter CM**, Simon G. A Bayesian method for relating cross-sectional and longitudinal measures, *Journal of the Royal Statistical Society, Series C: Applied Statistics*, 2004; 53(2):341-353.
45. Rulyak SJ, Mandelson MT, **Rutter CM**, Wagner EH. Clinical and sociodemographic factors associated with colon surveillance among patients with a history of colorectal cancer, *Gastrointestinal Endoscopy*, 2004; 59(2):239-247. PMID: 14745398.
46. Liu LL, Gallaher MM, Davis RL, **Rutter CM**, Lewis TC, Marcuse EK. Use of a respiratory clinical score among different providers, *Pediatric Pulmonology*, 2004; 37(3):243-248. PMID: 14966818.
47. Miglioretti DL, **Rutter CM**, Geller BM, Cutter G, Barlow WE, Rosenberg R, Weaver DL, Taplin SH, Ballard-Barbash R, Carney PA, Yankaskas BC, Kerlikowske K. Effect of breast augmentation on the accuracy of mammography and cancer characteristics, *JAMA*, 2004; 291(4):442-450. PMID: 14747501.
48. Lin EH, Katon W, Von Korff M, **Rutter C**, Simon GE, Oliver M, Ciechanowski P, Ludman EJ, Bush T, Young B. Relationship of depression and diabetes self-care, medication adherence, and preventive care, *Diabetes Care*, 2004; 27(9):2154-2160. PMID: 15333477.
49. Bush T, **Rutter C**, Simon G, Von Korff M, Katon W, Walker E, Lin E, Ludman E. Who benefits from more structured depression treatment? *International J of Psychiatry in Medicine*, 2004; 34(3):247-258. PMID: 15666959.
50. Von Korff M, Katon W, Lin EH, Simon G, Ludman E, Oliver M, Ciechanowski P, **Rutter C**, Bush T. Potentially modifiable factors associated with disability among people with diabetes, *Psychosomatic Medicine*, 2005; 67(2):233-240. PMID: 15920047.
51. Simon GE, Ludman EJ, Unützer J, Bauer MS, Operskalski B, **Rutter C**. Randomized trial of a population-based care program for people with bipolar disorder, *Psychological Medicine*, 2005; 35(1):13-24. PMID: 15842025.
52. Von Korff M, Katon W, Lin EH, Simon G, Ciechanowski P, Ludman E, Oliver M, Rutter C, Young B. Work disability among individuals with diabetes, *Diabetes Care*, 2005; 28(6):1326-1332. PMID: 15920047.
53. Katon WJ, **Rutter C**, Simon G, Lin EHB, Ludman E, Ciechanowski P, Kinder L, Young B, Von Korff M. The association of comorbid depression with mortality in patients with type 2 diabetes, *Diabetes Care*, 2005; 28(11):2668-2672. PMID: 16249537.
54. Boudreau D, Buist D, **Rutter C**, Fishman P, Beverly, Taplin ST. Impact of hormone therapy on false-positive recall and costs among women undergoing screening mammography, *Medical Care*, 2006; 44(1):62-69. PMID: 16365614.
55. Velicer CM, Heckbert SR, **Rutter C**, Lampe JW, Malone K. Association between antibiotic use prior to breast cancer diagnosis and breast tumor characteristics, *Cancer Causes and Control*, 2006; 17(3):307-313. PMID: 16489538.
56. Lin EH, Katon W, **Rutter C**, Simon GE, Ludman EJ, Von Korff M, Young B, Ciechanowski P, Kinder L, Walker E. Effects of enhanced depression treatment on diabetes self-care, *Annals of Family Medicine*, 2006; 4(1):46-53. PMID: PMC1466986.
57. Boudreau D, **Rutter CM**, Buist D. The influence of statin use on breast density, *Cancer Epidemiology, Biomarkers and Prevention*, 2006; 15(5):1026-1029. PMID: PMC2066203

58. Taplin SH, **Rutter CM**, Lehman C. Testing the effect of computer-assisted detection on interpretive performance in screening mammography, *AJR American Journal of Roentgenology*, 2006; 187(6):1475-1482. PMID: 17114540.
59. Fulton-Kehoe D, Rossing MA, **Rutter C**, Mandelson MT, Weiss NS. Use of antidepressant medications in relation to the incidence of breast cancer, *British Journal of Cancer*, 2006; 94(7):1071-1078. PMCID: PMC2361224.
60. **Rutter CM**, Yu, O, Miglioretti DM. A hierarchical non-homogeneous Poisson model for meta-analysis of adenoma counts, *Statistics in Medicine*, 2007; 26(1):98-109. PMCID: PMC4189839.
61. Simon GE, Katon WJ, Lin EHB, **Rutter C**, Manning WG, Von Korff M, Ciechanowski P, Ludman EJ, Young BA. Cost-effectiveness of systematic depression treatment among people with diabetes mellitus, *Archives of General Psychiatry*, 2007; 64(1):65-72. PMID: 17199056.
62. Simon GE, **Rutter CM**. Accuracy of recall for mania symptoms using a three month timeline follow-back interview, *Journal of Affective Disorders*, 2008; 107(1-3):271-274. PMCID: PMC2292840.
63. Lehman CD, **Rutter CM**, Eby PR, White E, Buist DSM, Taplin SH. Lesion and patient characteristics associated with malignancy after a probably benign finding on community practice mammogram, *AJR American Journal of Roentgenology*, 2008; 190(2):511-515. PMID: 18212240.
64. Miglioretti DL, **Rutter CM**, Bradford SC, Zauber AG, Kessler LG, Feuer EJ, Grossman DC. Improvement in the diagnostic evaluation of a positive fecal occult blood test in an integrated health care organization, *Medical Care*, 2008; 46(9 Suppl 1):S91-S96. PMCID: PMC4227983.
65. Von Korff M, Saunders K, Ray GT, Boudreau D, Campbell C, Merrill J, Sullivan MD, **Rutter CM**, Silverberg M, Banta-Green C, Weisner C. De facto long-term opioid therapy for noncancer pain, *Clinical Journal of Pain*, 2008; 24(6):521-527. PMCID: PMC3286630.
66. Simon GE, **Rutter CM**, Crosier M, Scott J, Operskalski BH, Ludman E. Are comparisons of consumer satisfaction with providers biased by nonresponse or case-mix differences? *Psychiatric Services*, 2009; 60(1):67-73. PMCID: PMC2804.
67. Ralston JD, **Rutter CM**, Carrell D, Hecht J, Rubanowice D, Simon G. Patient use of secure electronic messaging with a shared medical record: a cross-sectional study, *Journal of General Internal Medicine*, 2009; 24(3):349-355. PMCID: PMC2642567.
68. Braden JB, Sullivan MD, Ray GT, Saunders K, Merrill J, Silverberg MJ, **Rutter CM**, Weisner C, Banta-Green C, Campbell C, Von Korff M. Trends in long-term opioid therapy for noncancer pain among persons with a history of depression, *General Hospital Psychiatry*, 2009; 31(6):564-570. PMCID: PMC2774904.
69. Williams LH, **Rutter CM**, Katon WJ, Reiber GE, Ciechanowski P, Heckbert SR, Lin EH, Ludman EJ, Oliver MM, Young BA, Von Korff M. Depression and incident diabetic foot ulcers: a prospective cohort study, *Journal of Investigative Dermatology*, 2009; 129:S61. PMCID: PMC2913143.
70. Lin HBE, Heckbert SR, **Rutter CM**, Katon WJ, Ciechanowski P, Ludman EJ, Oliver M, Young BA, McCulloch DK, Von Korff M. Depression and increased mortality in diabetes: unexpected causes of death, *Annals of Family Medicine*, 2009; 7(5):414-421. PMCID: PMC2746517.
71. Simon GE, Ludman EJ, **Rutter CM**. Incremental benefit and cost of telephone care management and telephone psychotherapy for depression in primary care, *Archives of General Psychiatry*, 2009; 66(10):1081-1089. PMID: 19805698.

72. Gensichen J, Von Korff M, **Rutter CM**, Seelig MD, Ludman EJ, Lin EHB, Ciechanowski P, Young BA, Wagner EH, Katon WJ. Physician support for diabetes patients and clinical outcomes, *BMC Public Health*, 2009; 9:367. PMID: PMC2762989.
73. Boudreau D, Von Korff M, **Rutter CM**, Saunders K, Ray GT, Sullivan MD, Campbell C, Merrill J, Silverberg M, Banta-Green C, Weisner C. Trends in long-term opioid therapy for chronic non-cancer pain, *Pharmacoepidemiology and Drug Safety*, 2009; 18(12):1166-1175. PMID: PMC3280087.
74. Lin EHB, **Rutter CM**, Katon WJ, Heckbert SR, Ciechanowski P, Oliver M, Ludman EJ, Young BA, McCulloch DK, Von Korff M. Depression and advanced complications of diabetes: a prospective cohort study, *Diabetes Care*, 2009; 33(2):264-269. PMID: PMC2809260.
75. Zauber AG, Knudsen AB, **Rutter CM**, Lansdorp-Vogelaar I, Savarino JE, van Ballegooijen M, Kuntz KM. Cost-Effectiveness of CT Colonography to Screen for Colorectal Cancer: Report to Center for Medicare and Medicaid Services from Cancer Intervention and Surveillance Modeling Network (CISNET), *Gastroenterology*, 2009; 136(5): A52-A52. PMID: 25834880.
76. **Rutter CM**, Miglioretti DL, Savarino JE. Bayesian calibration of microsimulation models, *Journal of the American Statistical Association*, 2009; 104(488):1338–1350. PMID: PMC2805837.
77. Dunn KM, Saunders KW, **Rutter CM**, Banta-Green CJ, Merrill JO, Sullivan MD, Weisner CM, Silverberg MJ, Campbell CI, Psaty BM, Von Korff. Opioid prescriptions for chronic pain and overdose: a cohort study, *Annals of Internal Medicine*, 2010; 152(2):85-92. PMID: PMC3000551.
78. Heckbert SR, **Rutter CM**, Oliver M, Williams LH, Ciechanowski P, Lin EHB, Katon WJ, Von Korff M. Depression in relation to long-term control of glycemia, blood pressure, and lipids in patients with diabetes, *Journal of General Internal Medicine*, 2010; 26(5):524-529. PMID: PMC2869429.
79. Katon WJ, Lin EH, Williams LH, Ciechanowski P, Heckbert SR, Ludman E, **Rutter C**, Crane PK, Oliver M, Von Korff M. Comorbid depression is associated with an increased risk of dementia diagnosis in patients with diabetes: a prospective cohort study, *Journal of General Internal Medicine*, 2010; 25(5):423-429. PMID: PMC2855007.
80. Young BA, Von Korff M, Heckbert SR, Ludman EJ, **Rutter C**, Lin EH, Ciechanowski PS, Oliver M, Williams L, Himmelfarb J, Katon WJ. Association of major depression and mortality in Stage 5 diabetic chronic kidney disease, *General Hospital Psychiatry*, 2010; 32(2):119-124. PMID: PMC3488265.
81. **Rutter CM**, Savarino JE. An evidence-based microsimulation model for colorectal cancer, *Cancer Epidemiology Biomarkers and Prevention*, 2010; 19(8):1992-2002. PMID: PMC2919657.
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Other Publications

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2. Zauber AG, Knudsen AB, **Rutter CM**, Landsdorp-Vogelaar I, Savarino JE, van Ballegooijen M, Kuntz KM. Cost-Effectiveness of CT Colonography to Screen for Colorectal Cancer, January 22, 2009, AHRQ Technology Assessment Program, for the NCA for Screening Computed Tomography Colonography (CTC) for Colorectal Cancer (CAG-00396N). PMID: 25834880.
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12. Parast L, **Rutter CM**. Discussion of “A risk-based measure of time-varying prognostic discrimination for survival models,” by C. Jason Liang and Patrick J. Heagerty. *Biom*, 73: 742–744. doi:10.1111/biom.12630
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Articles Under Review

1. Alarid-Escudero F, Gulati R, **Rutter CM**. Validation of Microsimulation Models Used for Population Health Policy, to appear in *Complex Systems And Population Health: A Primer*, Apostolopoulos Y, Hassmiller Lich K, Lemke MK, eds. Oxford University Press, June 2019.
2. Chrysanthopoulou S, **Rutter CM**, Gatsonis C. Bayesian versus Empirical Calibration of Microsimulation Models: a Comparative Analysis, in review, July 2019.
3. **Rutter CM**, Knudsen AB, Lin JS, Bouskill K. Evidence for Racial Differences Natural History of Colorectal Cancer: A Narrative Review, in review October 2019.

Funded Projects (as PI)

I maintained full funding on NIH grants from 1995 through 2015. I had a brief gap in funding in 2016, the year I transitioned to RAND, after which I have been fully funded through a combination of grants and contracts. The list of projects, below, is restricted to those as Principal Investigator.

Methods for Evaluating Mammographic Imaging

Department of Defense Career Development Award, 1997-2001

The major goal of this project was to support Dr. Rutter in learning about the epidemiology and disease processes of breast cancer and provide time to carry out statistical research focusing on receiver operating characteristic (ROC) analysis.

Modeling Clinical and Functional Depression Outcomes (NIMH: R03MH064516)

December 2001-November 2003

The focus of this project was to combine information across a series of longitudinal information across several studies carried out at Group Health that examined treatment for depression using similar outcome measures.

Colorectal Cancer Screening: Evaluating Trends & Outcomes (NCI: U01CA097427)

August 2002-July 2005

The major goals of this project were to develop a new microsimulation model for colorectal cancer that would allow specification of distributions for unknown model parameters, and then to apply this model to examine the impact of screening and polypectomy on observed trends in CRC incidence and mortality.

Assessing the Impact of Colorectal Cancer Screening (NCI: U01CA097427)

August 2005-July 2010

The major goals of this project were to estimate the effect of screening and polypectomy on trends in colorectal cancer (CRC) incidence and mortality, to incorporate risk factors into our microsimulation model, and to collaborate with CISNET members and outside investigators to address policy-relevant questions related to CRC screening.

Assessing the Impact of Colorectal Cancer Screening – competitive supplement

September 2009-August 2011

The major goal of this supplement is to modify our existing microsimulation model for colorectal cancer to examine the impact of extracolonic findings on the cost-effectiveness of CT colonography.

Modeling Effective Health Policies for Colorectal Cancer (NCI: U01CA152959)

September 2010-August 2015

The major goals are to develop extensions of the CRC-SPIN screening model and to execute analysis exploring the impact of different screening modalities on colorectal cancer incidence and mortality.

SUCCESS: Studying Colorectal Cancer: Effectiveness of Screening Strategies (NCI: U54 CA163261)

September 2011-May 2016

The overarching goal of SuCESS is to develop evidence to inform personalized screening recommendations, with a focus on identifying optimal screening regimens that maintain most or all of the benefits of intensive regimens while minimizing risks and costs and respecting patient preferences. This goal will be achieved through execution of 3 related projects. Project 1, Comparative effectiveness of colorectal cancer screening as practiced, will provide information to guide patient, provider, purchasers, and policy maker decisions about screening regimens. Project 2, Personalizing colorectal cancer screening and surveillance, will focus on

identifying low-risk individuals who could benefit from less intensive screening, to decrease potential risks related to screening and improve the efficiency of the screening process. Project 3, Modeling the long-term comparative effectiveness of CRC screening, will use simulation models to build on results from Projects 1 and 2 to predict long-term effectiveness of screening as practiced that will be useful for policy decisions.

Comparative Modeling of Colorectal Cancer: Informing Health Policies and Prioritizing Future Research (NCI: U01CA199335)

September 2015-August 2020

The long-term goal of our proposed project is to reduce the population burden of CRC by providing the information needed to address key policy questions and prioritize future research. To accomplish this goal we will work to: 1) Inform emerging issues in health policy across the CRC-control spectrum; 2) Guide CRC research priorities and study design using a value of information (VOI) framework; and 3) Engage stakeholders, train modelers, and promote model transparency to ensure high-quality evaluation of CRC control measures, now and in the future. Our team will fill critical gaps in knowledge, enabling decision makers to act. Important gaps in knowledge include the impact of failures in screening and treatment processes on CRC burden; the potential to safely reduce screening and surveillance intensity among some patients based on currently available tools for risk-stratification; the potential benefit of new targeted screening approaches based on patient-level information (i.e., “precision medicine”); and the importance of clinical management of diminutive polyps.

Conferences and Symposiums, beginning in 2001

- March 2001 **Contributed Presentation** (competitive): *Changes in Breast Density Associated with Initiation, Discontinuation, and Continuing use of Hormone Replacement Therapy (HRT)*, American Society for Preventive Oncology, New York, New York.
- March 2001 **Contributed Presentation:** *Estimating the Accuracy of Screening Scales using Longitudinal Data*, Eastern North American Region (ENAR) Biometrics Meetings, Charlotte, North Carolina
- June 2001 **Invited Presentation:** *Estimating the Accuracy of Psychological Screening Scales using Longitudinal Data*, UCLA Biostatistics Seminar
- August 2001 **Invited Presentation:** *Estimating the Accuracy of Screening Scales using Longitudinal Data*, Joint Meetings of the American Statistical Association, Atlanta, Georgia.
- June 2002 **Contributed Presentation:** *A Bayesian Model for Estimating Agreement Between Cross-Sectional and Recall-Based Depression States*, The Hawaii International Conference on Statistics
- July 2002 **Contributed presentation:** *A Bayesian Model for Estimating Agreement Between Cross-Sectional and Recall-Based Depression States*, International Biometric Society Conference, Freiburg, Germany.
- September 2002 **Invited Presentation:** *Agreement between current state and recalled measures of Depression*, University of Washington Social Development Research Group
- January 2005 **Invited Seminar:** *Likelihood-based Calibration for Microsimulation Models*, Harvard Center for Risk Analysis and Decision Making, Boston

- June 2006 **Invited Presentation:** *Propensity Adjusted Survival Models*, part of a panel on “Methods for Analyzing Incomplete and Observational Data” Academy Health Meetings, Seattle
- March 2007 **Seminar:** *Likelihood-based calibration of Microsimulation Models*, Fred Hutchinson Cancer Research Center, Seattle WA
- January 2008 **Invited Workshop:** *Microsimulation Modeling*, International Conference on Health Policy Statistics, Philadelphia
- March 2008 **Roundtable Leader:** *Development and Use of Microsimulation Models in Health Policy*, Eastern North American Region (ENAR) Biometrics Meetings, Washington DC
- August 2008 **Invited Presentation:** *Bayesian Meta-Analysis of Diagnostic Test Accuracy Studies: Recent Developments*, Joint Statistical Meetings, Denver CO
- October 2008 **Seminar:** *Bayesian Calibration of Microsimulation Models*, University of Washington Department of Biostatistics, Seattle WA.
- November 2008 **Invited Seminar:** *Microsimulation Models to Evaluate Cancer Control Measures*, University of Michigan
- January 2010 **Invited Workshop:** *Microsimulation Modeling*, International Conference on Health Policy Statistics, Washington DC
- June 2010 **Invited Discussant:** *Statistical Challenges in Comparative Effectiveness Research, 2010 Western North American Region (WNAR) Biometrics Meetings*, Seattle, WA.
- August, 2010 **Invited Seminar:** *Bayesian Calibration of Microsimulation Models*, 2010 Joint Statistical Meetings, Vancouver, BC, Canada
- November, 2010 **Invited Keynote Presentation:** *Microsimulation Models: Integrating Evidence for Health Policy*, Meetings of the Radiologic Society of North America, Chicago IL
- January, 2011 **Invited Presentation:** *Simulation Models to Inform Health Policy: Colorectal Cancer Screening*, Bayesian Biostatistics Conference, Houston TX
- April, 2011 **Invited Presentation:** *Simulation Models to Inform Health Policy* National Institute of Statistical Sciences (NISS) Survey Microsimulation Workshop, Washington DC
- October, 2011 **Invited Seminar:** *Simulation Models to Inform Health Policy* Institute for Health Metrics and Evaluation, Seattle, WA
- November, 2011 **Invited Keynote Presentation:** *Simulation Models for the Comparative Effectiveness of Diagnostic Tests: The Case of CTC*, Meetings of the Radiologic Society of North America, Chicago IL
- April, 2012 **Invited Seminar:** *Methods for Assessing Diagnostic Tests* FDA Center for Drug Evaluation and Research, Washington DC
- May, 2012 **Invited Presentation:** *Comparative Effectiveness Based on Long-Term Outcomes: The Role of Simulation Models*, Comparative Effectiveness Research: Controversies and Opportunities, Harvard School of Public Health – Merck Workshop, Boston MA

- June, 2013 **Invited Presentation:** *Statistical Issues in CER for Screening Tests based on Observational Data*, 2013 Western North American Region (WNAR) Biometrics Meetings, Los Angeles, CA.
- August 2013 **Organizer and Chair:** *Microsimulation models for health policy: advances and applications*, Joint Statistical Meetings (JSM), Montreal, Canada.
- November 2013 **Invited Seminar:** *Estimating the Comparative Effectiveness of Screening Tests*, RAND, Santa Monica, CA.
- February 2014 **Invited Seminar:** *Two Phase Studies*, Health Services Research Methodology Seminar in the Department of Psychiatry & Behavioral Sciences at the University of Washington
- August 2014 **Invited Presentation:** *Microsimulation Models: Calibration, Validation, and Belief in Model Predictions*, Joint Statistics Meetings (JSM), Boston MA.
- May 2015 **Invited Presentation:** *Role of Calibration and Validation in Developing Microsimulation Models*, Eastern North American Region (ENAR) Biometrics Meetings, Miami FL
- July 2016 **Invited Presentation:** *The Impact of Time to Diagnostic Assessment on Screening Efficacy*, International Biometrics Conference, Victoria CAN.
- October 2017 **Oral Presentation:** *Incremental Mixture Importance Sampling to Calibrate Microsimulation Models: Lessons Learned*. Meetings of the Society for Medical Decision Making, Pittsburg, PA.
- October 2019 **Poster Presentation:** . Meetings of the Society for Medical Decision Making, The RAND Alcohol Policy Platform (RAPP) Model, Portland, OR.
- March 2020 **Oral Presentation:** *Quantitative Approaches to Summarizing the Benefits and Risks of Screening*, Workshop on Advancing Progress in the Development and Implementation of Effective, High-Quality Cancer Screening, National Cancer Policy Forum of the National Academies of Sciences, Engineering, and Medicine, Washington DC (via Zoom)

University of Washington Service

2008/2009	Member, search committee Joint faculty hire, University of Washington School of Public Health Departments of Biostatistics and Health Services
2008/2010	Chair, Affiliate Committee University of Washington School of Public Health, Biostatistics Dept.
2008-2011, 2013, 2014	Member, Applied Exam Committee University of Washington School of Public Health, Biostatistics Dept.

Teaching History

2001	HSERV 509: Introduction to Biostatistics for Health Services
2002, 2004	HSERV 590: Health Survey Research, Guest Lecture: <i>Hierarchical Modeling</i>
2004	Health Services Doctoral Seminar Guest Lecture: <i>Basics of Bayesian Methods</i>
2004, 2005	Biostatistics Block of the Community-Oriented Public Health Practice (COPHP) program (6 week course section)
2010	Biostatistics Student Seminar Guest Lecture: <i>Grant Writing 101</i>
2004-2012	HSERV 523: Advanced Health Services Research Methods I Annual Guest Lecture: <i>Propensity Scores & Selection Bias</i>
2007-2014	EPI 533 / PHARM 533, Guest Lecture: <i>Propensity Scores & Selection Bias</i>
2009	Biostatistics Student Seminar (joint with Holly Janes)
2010	Directed Readings on Microsimulation with Biostatistics student Jane Lange
2011, 2012	HSERV583 / PHARM534, Guest Lecture: <i>Microsimulation Models for Health Policy Decisions</i>
2011	Directed Readings on Microsimulation with Biostatistics student Wenying Zheng
2011	BIOST 590: Biostatistical Consulting (Winter Quarter)
2013, 2014	BIOST 111: Guest Lecture: Microsimulation for Health Policy
2014	PHARM536, Guest Lecture: <i>Microsimulation Model Calibration and Validation</i>

Advising and Formal Mentoring

PhD Committees in Non-Chair Role

Deb Fulton-Kehoe
University of Washington, School of Public Health, Dept. of Epidemiology
Title: Antidepressant Use and Breast Cancer
2005 PhD graduate
Chair: Mary A. Rossing, Epidemiology

Michael Sachs
University of Washington, School of Public Health, Dept. of Biostatistics
Title: Statistical Methods to Assess the Prospective Predictive Accuracy of a Medical Test
PhD graduation date: July 2012
Chair: Hua Andrew Zhao, Biostatistics

David Liss
University of Washington, School of Public Health, Dept. of Health Services
PhD graduation date: October 2012
Co-Chairs: Paul Fishman and Rob Reid, Health Services

Stavroula Chrysanthopoulou
Brown University, Dept. Biostatistics
PhD graduation date: September 2013
Chair: Constantine Gatsonis

Renu Garg
University of Washington, School of Public Health, Dept. of Epidemiology
PhD graduation date: January 2014
Role: Graduate School Representative
Chair: Andy Stergachis, Epidemiology

Michael Passarelli
University of Washington, School of Public Health, Dept. of Epidemiology
PhD graduation date: August 2014
Chair: Polly Newcomb, Epidemiology

Informal Advising

Wenying Zheng
University of Washington, School of Public Health, Dept. of Biostatistics
Research Associate examining sojourn time for colorectal cancer, supported by U01CA097427.

Tracey Marsh
University of Washington, School of Public Health, Dept. of Biostatistics
Research Associate examining calibration of microsimulation models for colorectal cancer, supported by U01CA097427.