

# AASTHAA BANSAL

Curriculum Vitae

Last Updated: November 2022

## CONTACT INFORMATION

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## EDUCATION

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- Ph.D. Biostatistics, University of Washington, Seattle, WA 2011  
*Title:* Combining Biomarkers to Improve Performance in Diagnostic Medicine
- M.S. Biostatistics, University of Washington, Seattle, WA 2008
- B.Math. Honors Computer Science: Bioinformatics Option, University of Waterloo, Waterloo, ON 2006

## RESEARCH & PROFESSIONAL EXPERIENCE

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- Joint Associate Professor, Division of Public Health Sciences, Fred Hutchinson Cancer Research Center 2020-Present
- Associate Professor, Department of Pharmacy, University of Washington 2019-Present
- Joint Assistant Member, Division of Public Health Sciences, Fred Hutchinson Cancer Research Center 2015-Present
- Assistant Professor, Department of Pharmacy, University of Washington 2018-2019
- Research Assistant Professor, Department of Pharmacy, University of Washington 2013-2018
- Post-doctoral Senior Fellow, Department of Biostatistics, University of Washington 2012-2013
- Research Assistant, Center for Biomedical Statistics, University of Washington 2009-2011
- Research Assistant, Biostatistics & Biomathematics, Fred Hutchinson Cancer Research Center 2007-2009
- Research Assistant, Department of Biostatistics, University of Washington 2006-2007

## AWARDS & HONORS

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- Bernie J. O'Brien New Investigator Award, International Society for Pharmacoeconomics and Outcomes Research (ISPOR) 2020
- Method to Extend Research In Time (MERIT) Award, National Cancer Institute 2018-2025
- Outstanding Mentor Award Nominee, School of Pharmacy, University of Washington 2017
- Best New Investigator Poster Presentation, ISPOR Annual Meeting 2016
- Best New Investigator Podium Presentation, ISPOR Annual Meeting 2015
- Research Starter Grant in Health Outcomes, Pharmaceutical Research and Manufacturers of America (PhRMA) Foundation 2015
- Young Investigator Award, Section on Statistics in Epidemiology, American Statistical Association 2011
- Student Oral Presentation 2<sup>nd</sup> place, Western North American Region, International Biometric Society 2010
- Best Student Poster (voted by faculty), Department of Biostatistics, University of Washington 2009
- Best Student Poster (voted by 1<sup>st</sup> year students), Department of Biostatistics, University of Washington 2009
- Ireland Canada University Foundation Scholarship 2005
- Work-term Report Award, Faculty of Mathematics, University of Waterloo 2003
- University of Waterloo Entrance Scholarship 2001
- Queen Elizabeth II Aiming for the Top Scholarship, Government of Ontario 2001-2006

**ARTICLES IN REFEREED JOURNALS** (\*TRAINEE AUTHOR, +SENIOR AUTHOR)

1. Canestaro WJ\*, Devine EE, **Bansal A**, Sullivan SD, Carlson JJ. Adjustment of publication bias via a cumulative meta-analytic framework. *International Journal of Technology Assessment in Health Care*, in press.
2. Bell-Brown A, Watabayashi K, Kreizenbeck K, **Bansal A**, Barlow WE, Lyman G, Hershman DL, Mercurio A, Segarra B, Sullivan SD, Ramsey SD. An Evaluation of Stakeholder Engagement in Comparative Effectiveness Research: Lessons Learned from SWOG S1415CD. *Journal of Comparative Effectiveness Research*, in press.
3. Wang WJ, **Bansal A**, Bennette CS, Basu A (2022). Mimicking clinical trials using real-world data – A novel method and applications. *Medical Decision Making*, in press.
4. Hershman DL, **Bansal A**, Sullivan SD, Barlow WE, Arnold KB, Watabayashi K, Bell-Brown A, Le-Lindqwister NA, Dul CL, Brown-Glaberman UA, Behrens RJ, Vogel V, Alluri N, Ramsey SD (2022). A Pragmatic Cluster-Randomized Trial of a Standing Order Entry Intervention for Colony Stimulating Factor Use among Patients at Intermediate Risk for Febrile Neutropenia. *Journal of Clinical Oncology*, Oct 13;JCO2201258. doi: 10.1200/JCO.22.01258. Online ahead of print.
5. Ramsey SD, **Bansal A**, Sullivan SD, Lyman G, Barlow WE, Arnold K, Watabayashi K, Bell-Brown A, Kreizenbeck K, Le-Lindqwister NA, Dul CL, Brown-Glaberman UA, Behrens RJ, Vogel V, Alluri N, Hershman D (2022). Effects of a Guideline-Informed Clinical Decision Support System Intervention to Improve Colony-Stimulating Factor Prescribing: A Cluster Randomized Clinical Trial. *JAMA Network Open*, 5(10):e2238191. doi:10.1001/jamanetworkopen.2022.38191.
6. Bacci J, Rodriguez PJ, Hansen R, Marcum Z, **Bansal A**, Odegard P (2022). Community pharmacy intervention to close stain gaps in diabetes care: The GuIDE-S study. *Journal of the American Pharmacists Association*. S1544-3191(22)00295-3. doi: 10.1016/j.japh.2022.08.025. Online ahead of print.
7. Lee W\*, Schwartz N\*, **Bansal A**, Khor S, Hammarlund N, Basu A, Devine B. A scoping review of the use of machine learning in health economics and outcomes research: Part 1 – Data from wearable devices. *Value in Health*. 2022;S1098-3015(22)02145-3. doi:10.1016/j.jval.2022.08.005. Online ahead of print.
8. Lee W\*, Schwartz N\*, **Bansal A**, Khor S, Hammarlund N, Basu A, Devine B. A scoping review of the use of machine learning in health economics and outcomes research: Part 2 – Data from non-wearables. *Value in Health*, 2022;S1098-3015(22)02107-6. doi:10.1016/j.jval.2022.07.011. Online ahead of print.
9. Ramos KJ, Wai TH, Stephenson AI, Sykes J, Stanojevic S, Rodriguez PJ, **Bansal A**, Mayer-Hamblett N, Goss CH, Kapnadak SG (2022). Prognostic model of 2-year death or lung transplant for severe cystic fibrosis lung disease. *Chest*, 162(4):757-767.
10. Watabayashi K, Bell-Brown A, Kreizenbeck K, Egan K, Lyman G, Hershman D, Arnold K, **Bansal A**, Barlow WE, Sullivan SD, Ramsey SD (2022). Successes and challenges of implementing a cancer care delivery intervention in community oncology practices: lessons learned from SWOG S1415CD. *BMC Health Services Research*, 22(1):432.
11. Rodriguez P\*, Veenstra DL, Goss CH, Heagerty PJ, Ramos KJ, **Bansal A+** (2022). A framework for using real-world data and health outcomes modelling to evaluate ML risk prediction models. *Value in Health*, 25(3): 350-358.
12. **Bansal A**, Heagerty PJ, Inoue LYT, Veenstra DL, Wolock CJ, Basu A (2022). A value of information framework for personalizing the timing of surveillance testing. *Medical Decision Making*, 42(4): 474-486.
13. Suh K\*, Shankaran V, **Bansal A+** (2022). Surveillance test utilization and value among commercially insured colorectal cancer patients. *American Journal of Managed Care*, 28(5): e163-e169
14. Wang WJ\*, Ramsey SD, Bennette CS, **Bansal A+** (2021). Racial disparities in the availability of prostate cancer clinical trials: A county-level analysis. *JNCI Cancer Spectrum*, 6(1):pkab093. doi:10.1093/jncics/pkab093.eCollection 2022 Feb.
15. Kim A\*, Devine EE, Campbell J, Shirmeshan E, Zhao C, **Bansal A+** (2021). Characterizing the healthcare resource utilization and costs in patients with geographic atrophy secondary to age-related macular degeneration stratified by disease severity. *Clinical Ophthalmology*, 15: 2643-2651.

16. Hendrix ND\*, Hauber A, Lee CI, **Bansal A**, Veenstra DL (2021). Artificial intelligence in breast cancer screening: Primary care provider preferences. *Journal of the American Medical Informatics Association*, 28(6): 1117-1124.
17. Wang WJ\*, Devine EE, **Bansal A**, White HS, Basu A (2021). Meta-analyzing count events over varying durations using the convoluted Poisson model: The case for post stroke seizures. *Research Synthesis Methods*, 12(3): 347-356.
18. Clark S\*, Marcum ZA, Radich J, **Bansal A+** (2021). Predictors of trajectories of tyrosine kinase inhibitor adherence in patients with newly diagnosed chronic myeloid leukemia. *Journal of Oncology Pharmacy Practice*, 27(8): 1842-1852.
19. Chen S\*, Graff J, Yun S, Ta JT, **Bansal A**, Carlson JJ, Veenstra DL, Basu A, Devine EE (2021). Online tools to synthesize real-world evidence of comparative effectiveness research to enhance formulary decision-making. *Journal of Managed Care & Specialty Pharmacy*, 27(1): 95-104. (2021 Health Economics and Outcomes Research Excellence - Application Award, International Society for Pharmacoeconomics and Outcomes Research (ISPOR))
20. Othus M, **Bansal A**, Erba H, Ramsey SD (2020). Bias in mean survival from fitting cure models with limited follow-up. *Value in Health*, 23(8): 1034-1039. doi:10.1016/j.jval.2020.02.015.
21. Ramsey SD, Hall IJ, Smith JL, Ekwueme DU, Fedorenko CR, Kreizenbeck K, **Bansal A**, Thompson IM, Penson DF (2020). A Comparison of general, genitourinary, bowel, and sexual quality of life among long term survivors of prostate, bladder, colorectal, and lung cancer. *Journal of Geriatric Oncology*, in press.
22. **Bansal A**, Mayer-Hamblett N, Goss CH, Chan LN, Heagerty PJ (2019). Evaluating the value of updating markers over time for risk prediction in cystic fibrosis. *Epidemiology (Sunnyvale)*, 9: 375.
23. **Bansal A**, Heagerty PJ (2019). A comparison of landmark methods and time-dependent ROC methods to evaluate the time-varying performance of prognostic markers for survival outcomes. Invited article, *Diagnostic and Prognostic Research*, 3: 14. <https://doi.org/10.1186/s41512-019-0057-6>
24. Miles RC, Lee CI, Sun Q, **Bansal A**, Fedorenko C, Specht JM, Ramsey SD, Lyman GH, Lee JM (2019). Predictors of advanced imaging use during breast cancer surveillance. *Journal of the National Comprehensive Care Network*, 17(7): 813-820.
25. Higa S\*, Devine EE, Baradaran S, Patel V, **Bansal A+** (2019). Psoriasis treatment patterns: A retrospective claims study. *Curr Med Res Opin.* 35(10):1727-1733.
26. Goulart B, Silgard ET, Baik CS, **Bansal A**, Sun Q, Durbin EB, Hands I, Kavuluru R, Shah D, Arnold SM, Ramsey SD, Schwartz S (2019). Validity of Natural Language Processing for Ascertainment of EGFR and ALK Test Results in SEER Cases of Stage IV Non-Small Cell Lung Cancer. *JCO Clinical Care Informatics*, 3: 1-15.
27. **Bansal A**, Sullivan SD, Lin V, Purdum A, Navale L, Cheng P, Ramsey SD (2019). Estimating long-term survival for patients with relapsed or refractory aggressive Non-Hodgkin Lymphoma treated with Anti-CD19 Chimeric Antigen Receptor T-cell therapy: A comparison of standard and mixture cure models. *Medical Decision Making*, 39(3): 294-298.
28. **Bansal A**, Heagerty PJ (2018). A tutorial on evaluating time-dependent discrimination accuracy for censored survival outcomes. *Medical Decision Making*, 38(8): 904-916.
29. Roth JA, Sullivan SD, Lin V, **Bansal A**, Purdum A, Navale L, Cheng P, Ramsey SD (2018). Cost-Effectiveness of Axicabtagene Ciloleucel for Adult Patients with Relapsed or Refractory Large B-Cell Lymphoma in the United States. *Journal of Medical Economics*, 21(12): 1238-1245.
30. **Bansal A**, Koepf LM, Fedorenko CR, Li C, Smith JL, Hall IJ, Penson DJ, Ramsey SD (2018). Information seeking and satisfaction with information sources among spouses of men with newly diagnosed local stage prostate cancer. *Journal of Cancer Education*, 33(2):325-331.
31. McDermott CL\*, **Bansal A**, Ramsey SD, Lyman GH, Sullivan SD (2018). Depression and healthcare utilization at end-of-life among older adults with advanced non-small cell lung cancer. *Journal of Pain and Symptom Management*, 56(5): 699-708. e1.

32. Burnett-Hartman AN, Adams SV, **Bansal A**, McDougall JA, Shiovitz S, Karnopp A, Warren-Mears V, Ramsey SD (2018). Indian Health Service care system and cancer stage in American Indians and Alaska Natives. *Journal of Health Care for the Poor and Underserved*, 29(1): 245-252.
33. Canestaro WJ\*, Hendrix N, **Bansal A**, Sullivan SD, Devine EB, Carlson JJ (2017). Favorable and publicly-funded studies are more likely to be published: A systematic review and meta-analysis. *Journal of Clinical Epidemiology*, 92: 58-68.
34. Yeung K\*, Suh K, Basu A, Garrison LP, **Bansal A**, Carlson JJ (2017). Paying for Cures: How Can We Afford It? Managed Care Pharmacy Stakeholders' Perceptions of Policy Options to Address Affordability of Prescription Drugs. *Journal of Managed Care & Specialty Pharmacy*, 23(10): 1084-1090.
35. **Bansal A**, Sullivan SD, Lyman G, Hershman D, Barlow WE, McCune J, Ramsey SD (2017). A Stakeholder-Informed Randomized, Controlled Comparative Effectiveness Study of an Order Prescribing Intervention to Improve Colony Stimulating Factor use for Cancer Patients Receiving Myelosuppressive Chemotherapy, (SWOG S1415CD): The TrACER Study. *Journal of Comparative Effectiveness Research*, 6(5): 461-470.
36. Dardas T, Kim M, **Bansal A**, Heagerty PJ, Cheng R, Mokadam N, Pal J, Smith J, Mahr C, Levy W (2017). Agreement between risk and heart transplant priority: Effects of the geographic allocation rule and status assignment. *Journal of Heart and Lung Transplantation*, 36(6): 666-672.
37. Tung A\*, Hepp Z, **Bansal A+**, Devine B+ (2017). Characterizing healthcare utilization, direct costs, and comorbidities associated with Interstitial Cystitis: A retrospective claims analysis. *Journal of Managed Care and Specialty Pharmacy*, 23(4): 474-482.
38. Othus M, **Bansal A**, Koepl L, Wagner S, Ramsey S (2017). Accounting for cured patients in cost-effectiveness analysis. *Value in Health*, 20(4): 705-709.
39. Bounthavong M\*, Pruitt LD, Smolenski DJ, Gahm GA, **Bansal A**, Hansen RN (2016). Economic evaluation of In-Home Telehealth compared to In-Person Treatment Delivery for managing depression, pii: 1357633X16678147. [Epub ahead of print]
40. Boldenow E, Gendrin C, Ngo L, Bierle C, Vornhagen J, Merillat S, Armistead B, Whidbey C, Alishetti V, Ogle J, Gough M, Srinouanprachanh S, MacDonald JW, Bammler TK, **Bansal A**, Liggitt HD, Rajagopal L, Adams Waldorf KM (2016). Group B Streptococcus circumvents neutrophils and neutrophil extracellular traps during amniotic cavity invasion and preterm labor. *Science Immunology*, 1(4). pi: eaah4576.
41. Adams SV, Burnett-Hartman AN, Karnopp A, **Bansal A**, Cohen SA, Warren-Mears V, Ramsey SD (2016). Cancer stage in American Indians and Alaska Natives enrolled in Medicaid. *American Journal of Preventive Medicine*, 51(3): 368-372.
42. Adams SV, **Bansal A**, Burnett-Hartman AN, Cohen S, Karnopp A, Warren-Mears V, Ramsey SD (2016). Cancer treatment delays in American Indians and Alaska Natives enrolled in Medicare. *Journal of Health Care for the Poor and Underserved*, 28(1): 350-361.
43. McDougall JA\*, **Bansal A**, Goulart B, Sullivan S, McCune J, Karnopp A, Fedorenko C, Valderrama A, Seal B, Ramsey SD (2016). The clinical and economic impacts of skeletal related events among Medicare enrollees with prostate cancer metastatic to bone. *The Oncologist*, 21(3): 320-326.
44. Ramsey SD, **Bansal A**, Fedorenko CR, Blough DK, Overstreet KA, Shankaran V, Newcomb P. Financial insolvency as a risk factor for early mortality among patients with cancer (2016). *Journal of Clinical Oncology*, 34(9): 980-986.
45. **Bansal A**, Radich JP (2016). Is cure for CML possible in the TKI era? *Current Opinion in Hematology*, 23(2): 115-120.
46. Berriochoa CA, Hibbard D, Morcos M, **Bansal A**, Comstock B, Pellegrini C, Shankaran V, Patel S (2015). Tumor length as a prognostic factor in esophageal cancer management. *Journal of Radiation Oncology*, 4(1): 71-77.
47. Adams Waldorf KM, Singh N, Mohan AR, Young RC, Ngo L, Das A, Tsai J, **Bansal A**, Paoella L, Herbert BR, Sooranna SR, Gough M, Astley C, Vogel K, Baldessari AE, Bammler TK, MacDonald J, Gravett MG, Rajagopal

- L, Johnson M (2015). Uterine overdistention induces preterm labor mediated by inflammation: Observations in pregnant women and nonhuman primates. *American Journal of Obstetrics & Gynecology*, 213(6): 830.e1-830.e19.
48. Ramsey SD, Fedorenko CR, Chouhan R, McGee R, Lyman G, Kreizenbeck K, **Bansal A** (2015). Adherence to ASCO/ABIM Choosing Wisely Initiative among cancer patients enrolled in a large regional commercial health insurer. *Journal of Oncology Practice*, 11(4): 338-43.
49. Shiovitz S, **Bansal A**, Burnett-Hartman AN, Karnopp A, Adams SV, Korenbot C, Warren-Mears V, Ramsey SD (2015). Cancer-directed therapy and hospice care for metastatic cancer in American Indians and Alaska Natives. *Cancer Epidemiology, Biomarkers & Prevention*, 24(7): 1138-1143.
50. Solorio R, **Bansal A**, Comstock B, Ulatowski K (2015). Impact of a chronic care coordinator intervention on diabetes quality of care in a community health center. *Health Services Research*, 50(3): 730-749.
51. Danielson J, Kim A, **Bansal A**, Weber S (2014). An Interprofessional education fingerprint for APPEs: Developing metrics for collaborative interactions. *AACP Experiential Education (Interprofessional Education Integration - Best Practices)*, 2(1): 1.
52. Shankaran V, Mummy D, Kopel L, **Bansal A**, Mirich DK, Yu E, Morlock R, Ramsey SD (2014). Survival and lifetime costs associated with first-line bevacizumab use in older patients with metastatic colorectal cancer. *The Oncologist*, 19(8): 892-899.
53. Khandelwal N, Hough CL, **Bansal A**, Veenstra DL, Treggiari MM (2014). Long-term survival in patients with severe acute respiratory distress syndrome and rescue therapies for refractory hypoxemia. *Critical Care Medicine*, 42(7): 1610-1618.
54. Weinert C, Cudney S, Comstock B, **Bansal A** (2014). A computer-based intervention for illness self-management among rural women with chronic health conditions: A randomized parallel-group study. *Canadian Journal of Nursing Research*, 46(1): 26-43.
55. Vanderhoeven J, McAdams RM, Beyer RP, Bammler TK, Farin FM, Rajagopal L, Kapur RP, **Bansal A**, Spencer M, Deng M, Gravett MG, Rubens CE, Adams Waldorf KM (2014). Group B streptococcal infection of the choriodecidua induces dysfunction of the cytokeratin network in amniotic epithelium: A pathway to premature membrane rupture. *PLoS Pathogens*, 10(3): e1003920.
56. Novotny SC, Perusek GP, Rice AJ, Comstock BA, **Bansal A**, Cavanagh PR (2013). A harness for enhanced comfort and loading during treadmill exercise in space. *Acta Astronautica*, 89: 205-214.
57. Salk JJ, **Bansal A**, Lai LA, Crispin DA, Ussakli CH, Horwitz MS, Bronner MP, Brentnall TA, Loeb LA, Rabinovitch PS, Risques RA (2013). Clonal expansions and shortened telomeres in non-dysplastic mucosa are associated with neoplasia in early-onset, but not late-onset, ulcerative colitis. *Inflammatory Bowel Diseases*, 19(12): 2593-2602.
58. **Bansal A**, Pepe MS (2013). Estimating improvement in prediction with matched case-control designs. *Lifetime Data Analysis*, 19(2): 170-201.
59. **Bansal A**, Pepe MS (2013). When does combining markers improve classification performance and what are implications for practice? *Statistics in Medicine*, 32(11): 1877-1892. ([Young Investigator Award, Section on Statistics in Epidemiology, American Statistical Association](#))
60. Kerr KF, **Bansal A**, Pepe MS (2012). Comment on 'Interpreting incremental value of markers added to risk prediction models'. *American Journal of Epidemiology*. 176(6): 482-487.
61. Larson-Meyer DE, Palm S, **Bansal A**, Austin KJ, Hart AM, Alexander BM (2012). Influence of running and walking on hormonal regulators of appetite in women. *Journal of Obesity*, vol. 2012, Article ID 730409.
62. Adams Waldorf KM, Gravett MG, McAdams RM, Paolella LJ, Gough GM, Carl DJ, **Bansal A**, Liggitt HD, Kapur RP, Reitz FB, Rubens CE (2011). Choriodecidual group B streptococcal inoculation induces fetal lung injury without intra-amniotic infection and preterm labor in *Macaca Nemestrina*. *PLoS ONE*, 6(12): e28972.

63. Weinert C, Cudney S, Comstock B, **Bansal A** (2011). Computer intervention impact on psychosocial adaptation of rural women with chronic conditions. *Nursing Research*, 60(2), 82-91.
64. Soltes G, Hust M, Ng K, **Bansal A**, Field J, Dübel S, Cha S, Wiersma EJ (2007). On the influence of vector design on antibody phage display. *Journal of Biotechnology*, 127(4), 626-37.

#### **OTHER ARTICLES** (\*TRAINEE AUTHOR, +SENIOR AUTHOR)

---

1. Khor S\*, Bansal A+ (2022). The Promise and Biases of Prediction Algorithms in Health Economics and Outcomes Research. *Value & Outcomes Spotlight magazine*. 8(1): 27-29.
2. Basu A, Hammarlund N, Khor S, Bansal A. Understanding Algorithmic Discrimination in Health Economics Through the Lens of Measurement Errors. National Bureau of Economic Research Working Paper, October 2021. [link](#)

#### **BOOK CHAPTERS**

---

1. **Bansal A**, Pepe MS (2013). Estimating improvement in prediction with matched case-control designs. In MLT Lee, M Gail, G Satten, T Cai, A Gandy, R Pfeiffer (Ed.) *Risk assessment and evaluation of predictions*. Springer.

#### **SUBMITTED MANUSCRIPTS** (\*TRAINEE AUTHOR, +SENIOR AUTHOR)

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1. Rodriguez P\*, Heagerty PJ, Clark S, Haupt E, Hahn EE, Shankaran V, Khor S, Chen Y, **Bansal A+**. Using change in longitudinal biomarker to predict recurrence risk among colorectal cancer survivors.
2. Khor S\*, Haupt E, Hahn EE, **Bansal A+**. Examining the effect on racial bias of omitting race from risk prediction models for colorectal cancer recurrence.
3. Rodriguez P\*, Goss CH, Heagerty PJ, Veenstra DL, Ramos KJ, Hee-Wai T, **Bansal A+**. Development of a prediction model for mortality in cystic fibrosis using machine-learning methods.
4. Hendrix ND, **Bansal A**, Buist D, Lee CI, Veenstra DL. Health outcomes modeling to assess artificial intelligence diagnostics: An application in breast cancer screening.
5. **Bansal A**, Basu A. Trouble with the Curve: Cure fraction modeling and optimal follow-up.
6. Naranjo D, Beaver K, Doll J, Maynard C, **Bansal A**, Helfrich CD. Practice pattern variation in adoption of innovative techniques for percutaneous coronary intervention.
7. Chen Y\*, Shankaran V, Haupt E, Hahn EE, **Bansal A+**. Predictors of Real-world Utilization and Survival Outcomes of Adjuvant Chemotherapy in Stage II and III Colorectal Cancer.

#### **MANUSCRIPTS IN PREPARATION** (\*TRAINEE AUTHOR, +SENIOR AUTHOR)

---

1. **Bansal A**, Rodriguez P, Clark S, Haupt E, Hahn EE, Shankaran V, Khor S, Chen Y, Heagerty PJ. Addressing challenges in the development of clinical risk prediction algorithms due to intermittent patient follow-up in electronic health record data.
2. **Bansal A**, Rodriguez P, Clark S, Khor S, Chen Y, Henry C, Haupt E, Hahn EE, Shankaran V, Basu A, Veenstra DL, Inoue LYT, Heagerty PJ. Personalizing the timing of surveillance testing among colorectal cancer survivors.
3. **Bansal A**, Heagerty PJ. Dynamic placement values: A basis for evaluating prognostic potential.
4. **Bansal A**, Liu Y, Binkley J, Emond M, Brentnall T, Risques RA. Mitochondrial dysfunction is associated with cancer progression in ulcerative colitis: Validation using NanoString expression analysis.
5. **Bansal A**, Rodriguez P\*, Heagerty PJ. Strategies for recovering biomarker trajectories from electronic medical records data subject to multiple sources of truncation.
6. Rodriguez PJ\*, Clark S, Heagerty PJ, Basu A, Veenstra DL, Haupt E, Hahn EE, Shankaran V, **Bansal A+**. Recovering Colorectal Cancer Recurrence Natural History from Electronic Health Record Data.

7. Khor S\*, Heagerty PJ, Basu A, Haupt E, Lyons LJ, Hahn EE, **Bansal A+**. Racial and ethnic bias in a electronic health record-based proxy for cancer recurrence.
8. Khor S\*, Heagerty PJ, Basu A, Haupt E, Hahn EE, **Bansal A+**. Using biased proxy as outcomes for prediction models – Are we (re)producing health inequalities?
9. **Bansal A**, Heagerty PJ, Haupt E, Hahn EE, Shankaran V. Physician characteristics impacting surveillance testing among colorectal cancer survivors.
10. Ramsey SD, **Bansal A**, Fuchs EJ, O'Donnell PV, Eapen M, Shah ND, Sangaralingham LR, ThaoV, Steuten LMG, Roth JA. Cost Effectiveness of Reduced Intensity (RIC) Conditioning and Transplantation of Unrelated Umbilical Cord Blood (UCB) versus HLA Haploidentical Related Bone Marrow (haplo-BM) for Patients with Hematologic Malignancies.
11. Naranjo D, Doll J, Maynard C, Beaver K, Petrescu-Prahova M, **Bansal A**, Gugerty MK, Helfrich CD. Impact of radial-first arrival at low-adoption sites on use of the transradial approach: A retrospective study of clinical data in interventional cardiology across VHA Hospitals.
12. Naranjo D, Beaver K, Doll J, Maynard C, Petrescu-Prahova M, **Bansal A**, Gugerty MK, Helfrich CD. Career Stage and Adoption of PCI Procedures Over Time: An Observational Study Among PCI Operators in VA Hospitals.
13. Ramsey SD, **Bansal A**, Barlow WE, Arnold K, Sullivan SD, Lyman G, Hershman D. Patient knowledge of colony stimulating factors and febrile neutropenia at the time of chemotherapy prescribing.
14. Adamson BJ\*, Radich JP, **Bansal A+**. An approach for developing microsimulation models that incorporate longitudinal biomarker trajectories and dynamic decision making. (Lee B. Lusted Student Prize Finalist and Podium Presentation, Society for Medical Decision Making Annual Meeting).
15. **Bansal A**, Radich JP. Early prediction of treatment response in CML patients using the rate of decline of BCR-ABL transcript levels as a prognostic marker.
16. **Bansal A**, Basu A. Economic implications of modeling and extrapolating survival curves with unusual bend.
17. Suh K\*, Bennette CS, **Bansal A+**. Profiling cancer clinical trials participation by facility designation, 2014-2015.
18. McDermott CL\*, **Bansal A**, Ramsey SD, Lyman GH, Sullivan SD. Imaging, treatment, and mortality in lung cancer patients in Washington State, 2002-2010.
19. Liu Y, **Bansal A**, Binkley J, Emond M, Brentnall T, Risques RA. The field effect of mitochondrial dysfunction in ulcerative colitis cancer: a study using NanoString expression analysis.
20. Canestaro WJ\*, **Bansal A**, Devine EB, Sullivan SD, Carlson JJ. Framework for Assessing the Impact of unpublished Research (FAIR Framework): A proposed framework with demonstration in two notable cases.

## GRANT SUPPORT

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### Active

1. **Personalized Risk Adaptive Surveillance in Cancer (PRAISE)** (40%)  
 Role: PI  
 Sponsor, Type: NIH - NCI, R37 Period: 9/1/2018 – 7/31/2025

### Completed

1. **Community Pharmacist Intervention to Close Statin Gaps in Diabetes Care** (7%)  
 Role: Co-I (PIs: Odegard, Bacci, Department of Pharmacy, University of Washington)  
 Sponsor, Type: NACDS Period: 8/1/2018 – 7/31/2022
2. **Cost-Effectiveness Analysis of Stem Cell Transplant in Older MDS Patients** (7%)  
 Role: Site PI  
 Sponsor, Type: NIH, R01 Period: 12/1/2014 – 3/31/2021

3. **A Pragmatic Trial to Improve Colony Stimulating Factor Use in Cancer** (15%)  
 Role: Co-I (PI: Ramsey, Fred Hutchinson Cancer Research Center)  
 Sponsor, Type: PCORI Period: 7/1/2015 – 8/31/2021
4. **Disparities in the Availability of Cancer Clinical Trials: A Multi-level Analysis** (10%)  
 Role: PI  
 Sponsor, Type: NIH - NCI, R03 Period: 9/1/2017 – 8/31/2020
5. **Oncology Value-Based Pricing Project** (10%)  
 Role: Site Co-PI  
 Sponsor, Type: Bristol Myers Squibb Period: 6/1/2018 – 3/31/2020
6. **Ancillary Cost-Effectiveness Analysis** (7%)  
 Role: Site PI  
 Sponsor, Type: NIH, R01 Period: 8/1/2016 – 7/31/2020
7. **Comparative effectiveness of molecular response guided sequential treatment strategies in chronic myeloid leukemia** (25%)  
 Role: PI  
 Sponsor, Type: PhRMA Foundation, Research Starter Grant Period: 7/1/2015 – 6/31/2017
8. **Hormonal Regulation of Human CYP3A** (10%)  
 Role: Co-I (PI: Thummel, Department of Pharmaceutics, University of Washington)  
 Sponsor, Type: NIH - NIGMS, R01 Period: 7/1/2014 – 6/30/2018
9. **Mitochondrial Biomarkers for Early Detection of Cancer in Ulcerative Colitis** (10%)  
 Role: Key Personnel (PI: Risques, Department of Pathology, University of Washington)  
 Sponsor, Type: NIH - NCI, R01 Period: 4/1/2014 – 3/31/2018
10. **Implementing Value-Based Collaborations to Improve Immunizations** (5%)  
 Role: Key Personnel (PI: Odegard, Department of Pharmacy, University of Washington)  
 Sponsor, Type: NACDS Period: 7/1/2016 – 9/30/2017
11. **Patterns of Care and Costs Associated with Regorafenib Use in Metastatic Colorectal Cancer** (10%)  
 Role: Co-I (PI: Shankaran, Fred Hutchinson Cancer Research Center)  
 Sponsor, Type: Bayer Period: 6/1/2015 – 12/31/2017
12. **Assessing Molecular Profiling in Non-Small Cell Lung Cancer at the Population Level: A Validation Study of Natural Language Processing Algorithms for SEER** (10%)  
 Role: Site PI (PI: Goulart, Fred Hutchinson Cancer Research Center)  
 Sponsor, Type: Fred Hutchinson Cancer Research Center Period: 9/1/2015 – 8/31/2016

## TEACHING: GRADUATE COURSES, UNIVERSITY OF WASHINGTON

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### Course Instructor

- BIOST 512: Medical Biometry II 2017, 2018, 2019, 2020  
 Topics covered: Multiple linear regression, including assumptions, transformations, outlier detection, dummy variables, and variable selection procedures, and an introduction to one-way and two-way analyses of variance. Examples drawn from the biomedical literature with computer assignments using R.

### Course Master

- PHRMRA 545: Statistical Topics For Biomedical Regulatory Affairs Professionals 2021, 2022
- HEOR (previously PHARM) 597: CHOICE Graduate Seminar Winter 2016, Spring 2017, 2018-Present

### Guest Lecturer

- PHARM 451/551: Introduction to Drug Development 2021, 2022
- PHRMCY 580: Discoveries Seminar 2021
- PHARM 579: Current Topics in Pharmacy 2018



- Pharmacy Residents: Basic Statistical Analysis 2015, 2016
- PHARM 592: Pharmacy Practice IV: Design and Analysis of Medical Studies 2014
- BIOST 578: Statistical Methods for the Evaluation of Biomarkers and Medical Tests 2011

**Teaching Assistant**, Department of Biostatistics, University of Washington

- BIOST 508: Biostatistical Reasoning for the Health Sciences 2010
- BIOST 512: Medical Biometry II 2009

## TEACHING: SHORT COURSES

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### Methods for Developing and Evaluating Prediction Models for Dynamic Decision-Making

*Topics covered:* Model development using joint models and partly conditional models, model evaluation using measures of discrimination accuracy that are appropriate for survival outcomes.

- Instructor, Society for Medical Decision Making Annual Meeting, Portland, OR 2019
- Co-Instructor, University of Washington Summer Institutes: Statistics for Clinical Research, Seattle 2017, 2019
- Co-Instructor, Society for Medical Decision Making Annual Meeting, Vancouver, Canada 2016

### Survival Analysis

- Computer Lab Instructor, Erasmus Summer Programme, Erasmus University, Rotterdam, The Netherlands 2013

## MENTORING

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### PhD Dissertation Committees

- Sara Khor, CHOICE Institute (**Co-Chair**) 2022 – Present
- Samantha Clark, CHOICE Institute (**Chair**) 2019-2021
- Tricia Rodriguez, CHOICE Institute (**Chair**) Completed 2021
- Diana Naranjo, Department of Health Services Completed 2021
- Scott Spencer, Institute for Public Health Genetics Completed 2021
- Nathaniel Hendrix, CHOICE Institute Completed 2020
- Wei-Jhih Wang, CHOICE Institute Completed 2020
- Anu Mishra, Department of Biostatistics Completed 2019
- William Canestaro, CHOICE Institute Completed 2017
- Cara McDermott, CHOICE Institute Completed 2016

### Masters Thesis Committees

- Stella Koh 2022 – Present
- Spencer Cheng 2022 – Present
- Ashley Kim, CHOICE Institute (**Chair**) Completed 2019
- Sarah Allen, Department of Epidemiology Completed 2019
- Sara Higa, CHOICE Institute (**Chair**) Completed 2018
- Sheila Shapouri, CHOICE Institute Completed 2017
- Amy Tung, CHOICE Institute Completed 2016
- Cate Lockhart, CHOICE Institute Completed 2016

### Research Assistantships / Independent Research Projects

- Felipe Montano-Campos, CHOICE Institute April 2022 – Present
- Sara Khor, CHOICE Institute 2020 – Present
- Woojung Lee, CHOICE Institute 2021 – 2022
- Yilin Chen, CHOICE Institute 2020 – 2021
- Samantha Clark, CHOICE Institute 2018 – 2021
- Zizi Elsis, CHOICE Institute 2021
- Tricia Rodriguez, CHOICE Institute 2021
- Wei-Jhih Wang, CHOICE Institute 2017 – 2020

- Naomi Schwartz, CHOICE Institute 2019
- Tricia Rodriguez, CHOICE Institute 2018 – 2019
- Kangho Suh, CHOICE Institute 2016 – 2019
- Blythe Adamson, CHOICE Institute 2016 – 2017
- Xinyuan Dong, Department of Biostatistics 2015 – 2016
- Richard Kim, CHOICE Institute 2014
- Leigh Fisher, Department of Biostatistics 2014

### Teaching Assistantships

- Kristin Miller, Department of Epidemiology 2022
- Austin Schumacher, Department of Biostatistics 2021
- Esther Gu, Department of Biostatistics 2020
- Yuan Tian, Department of Biostatistics 2020
- Parker Xie, Department of Biostatistics 2020
- Andrew Humbert, Department of Biostatistics 2018, 2019
- Maria Valdez, Department of Biostatistics 2019
- Zora Yang, Department of Biostatistics 2019
- Xiudi Li, Department of Biostatistics 2018
- Steven Wang, Department of Biostatistics 2018
- David Clausen, Department of Statistics 2017
- Asad Haris, Department of Biostatistics 2017
- Jun Hwang, Department of Biostatistics 2017
- Austin Schumacher, Department of Biostatistics 2017

### Academic Advising

- Jingmiao Long, CHOICE Institute 2022 – Present
- Samantha Clark, CHOICE Institute 2017 – 2021
- Naomi Schwartz, CHOICE Institute 2018 – 2020
- Karen Guo, CHOICE Institute 2017 – 2019

## ORAL PRESENTATIONS

### Invited Presentations

1. Bristol Myers Squibb US HEOR All-Hands Keynote Presentation, Virtual Format 2021  
*Title:* Health Equity & HEOR Methods: Addressing Algorithmic Bias
2. International Conference on Health Policy Statistics, American Statistical Association, San Diego, CA 2020  
*Title:* A value of information framework for personalizing the timing of biomarker collection
3. Lifetime Data Science Conference, American Statistical Association, Pittsburgh, PA 2019  
*Title:* Evaluating the time-varying prediction accuracy of survival models used in dynamic decision-making
4. 3<sup>rd</sup> Seattle Symposium in Health Care Data Analytics, Seattle, WA 2018  
*Title:* Statistical methods for developing prediction models for dynamic decision-making
5. Toronto Health Economics and Technology Assessment (THETA) Collaborative, Toronto, Ontario 2018  
*Title:* Value of information methods for optimal timing of biomarker collection
6. Joint Statistical Meetings, American Statistical Association, Baltimore, MD 2017  
Session: Statistical Methods for Health Economics and Applied Econometrics in Health Policy  
*Title:* Statistical methods for developing cost-effective biomarker combinations for disease diagnosis and prognosis
7. International Biometric Society (Western North American Region) Annual Meeting, Santa Fe, NM 2017  
*Title:* Value of information methods for optimal timing of biomarker collection
8. School of Pharmacy All-School Faculty Meeting, University of Washington 2014  
*Title:* A statistically significant year

9. Cystic Fibrosis Biostatistics & Epidemiology Workshop, University of Washington 2014  
*Title:* Evaluating the value of updating markers over time for risk prediction of Cystic Fibrosis
10. Department of Pharmacy, University of Washington 2013  
*Title:* Using incident cases to evaluate prognostic markers with time-varying performance
11. Center for Devices and Radiological Health, Food and Drug Administration, Silver Spring, MD 2011  
*Title:* When Does Combining Markers Improve Classification Performance?
12. Center for Drug Evaluation and Research, Food and Drug Administration, Silver Spring, MD 2011  
*Title:* When Does Combining Markers Improve Classification Performance?
13. Department of Biostatistics, University of Washington 2010  
*Title:* Improvement in Performance by Combining Biomarkers in Diagnostic Medicine

#### Conference Podium Presentations (\* upcoming)

14. Society for Medical Decision Making, Vancouver, Canada 2022  
*Title:* Addressing challenges in the development of clinical risk prediction algorithms due to intermittent patient follow-up in electronic health record data
15. International Society for Pharmacoeconomic and Outcomes Research Annual Meeting, Virtual Format 2021  
*Title:* The impact of including race and ethnicity in risk prediction models on racial bias  
[Presented by first author/trainee Sara Khor; Senior author Aasthaa Bansal]  
[Winner of Best Student Research Podium Presentation]
16. AHRQ NRSA Trainees Research Conference 2021  
*Title:* The impact of including race and ethnicity in risk prediction models on racial bias  
[Presented by first author/trainee Sara Khor; Senior author Aasthaa Bansal]
17. International Society for Pharmacoeconomic and Outcomes Research Annual Meeting, Virtual Format 2020  
*Title:* A machine learning approach to predicting mortality in cystic fibrosis  
[Presented by first author/trainee Patricia Rodriguez; Senior author Aasthaa Bansal]
18. Society for Medical Decision Making, Pittsburgh, PA 2017  
*Title:* Trouble with the curve: Economic implications for modeling and extrapolating survival curves with unusual bend  
[Top-Rated Methods Abstracts Session]
19. Society for Medical Decision Making, Pittsburgh, PA 2017  
*Title:* An approach for developing microsimulation models that incorporate longitudinal biomarker trajectories and dynamic decision making [Presentation given by trainee Blythe Adamson]
20. Society for Medical Decision Making, Vancouver, Canada 2016  
*Title:* Value of information methods for optimal timing of biomarker collection
21. Joint Statistical Meetings, American Statistical Association, Seattle, WA 2015  
*Title:* Dynamic Placement Values: A Basis for Evaluating Prognostic Potential
22. American Society of Clinical Oncology Annual Meeting, Chicago, IL 2015  
*Title:* Financial insolvency as a risk factor for early mortality among patients with cancer
23. International Society for Pharmacoeconomic and Outcomes Research Annual Meeting, Philadelphia, PA 2015  
*Title:* Cure Models: Accounting for cured patients in economic evaluation  
[Winner of New Investigator Podium Presentation Award]
24. Joint Statistical Meetings, American Statistical Association, Boston, MA 2014  
*Title:* Coupling model selection with evaluation in prognostic model development
25. Joint Statistical Meetings, American Statistical Association, Montreal, QC 2013  
*Title:* Using incident cases to evaluate prognostic markers with time-varying performance
26. Joint Statistical Meetings, American Statistical Association, Vancouver, BC 2010  
*Title:* Estimating the Improvement in Performance by Combining Biomarkers in a Two-Stage Study Design

27. International Biometric Society (Western North American Region) Annual Meeting, Seattle, WA 2010  
*Title:* When Does Combining Markers Improve Classification Performance?  
[Student Oral Presentation 2<sup>nd</sup> Place Winner]
28. Joint Statistical Meetings, American Statistical Association, Washington DC 2009  
*Title:* Improvement in Performance by Combining Biomarkers in Diagnostic Medicine

### **SELECTED CONFERENCE POSTERS** (\*TRAINEE AUTHOR, +SENIOR AUTHOR)

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1. Society for Medical Decision Making, Pittsburgh, PA 2017  
 Wang WJ\*, Devine EE, **Bansal A**, White HS, Basu A. Meta-analyzing count events over varying durations using the convoluted Poisson model: The case for post stroke seizures.  
[Lee B. Lusted Student Prize Finalist]
2. International Society for Pharmacoeconomics and Outcomes Research, Washington, DC 2016  
**Bansal A**, Basu A. Value of information methods for optimal timing of biomarker collection.  
[Winner of New Investigator Poster Presentation Award]
3. International Society for Pharmacoeconomics and Outcomes Research, Washington, DC 2016  
 Tung A\*, Hepp Z, **Bansal A+**, Devine B+. Characterizing healthcare utilization, direct costs, and comorbidities associated with Interstitial Cystitis: A retrospective claims analysis  
[Finalist for Poster Presentation Award]

### **PROFESSIONAL ACTIVITIES & SERVICE**

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#### **International**

- Scientific Co-Chair, Society for Medical Decision Making Annual Meeting 2022 2022
- Member, International Society for Pharmacoeconomics and Outcomes Research (ISPOR) Health Sciences Policy Council 2020 – 2022
- Scientific Organizing Committee, International Conference on Health Policy Statistics 2020 2018 – 2020
- Invited Attendee, Statistical Analysis of Large Administrative Health Databases: Emerging Challenges and Strategies, Banff International Research Station for Mathematical Innovation and Discovery 5-day Workshop 2019
- Abstract Reviewer, Society for Medical Decision Making Annual Meeting 2019
- Research Presentation Judge, International Society for Pharmacoeconomics and Outcomes Research (ISPOR) Annual Meeting 2019
- Member, ISPOR Statistical Methods in Health Economics and Outcomes Research Special Interest Group 2017 – Present
- Member, Society for Medical Decision Making 2015 – Present
- Member, International Society for Pharmacoeconomics and Outcomes Research 2013 – Present
- Member, International Biometric Society – Western North American Region 2008 – Present

#### **National**

- Grant Reviewer, PhRMA Foundation 2022 – Present
- Invited Attendee, New Grantee Workshop, Division of Cancer Prevention and Population Sciences, National Cancer Institute 2019
- Member, Southwest Oncology Group (SWOG) 2015 – Present
- Member, American Statistical Association 2010 – Present

**Reviewer:** American Journal of Epidemiology, Biometrics, Biostatistics, BMC Medical Research Methodology, Health Services Research, Health Services & Outcomes Research, Journal of Clinical Oncology, Medical Decision Making, PharmacoEconomics, SpringerPlus, Statistics and Computing, Statistics in Medicine, The Oncologist, Value in Health

**Local**

## University of Washington (UW)

- Member, UW Faculty Senate 2020 – Present
- Graduate School Representative, Xinyuan Dong (Department of Biostatistics) 2019 – 2021
- Graduate School Representative, David Prince (Department of Biostatistics) 2015
- Graduate School Representative, Rui Zhang (Department of Biostatistics) 2014

## The CHOICE Institute, University of Washington

- Co-Director, Machine Learning and Data Science in Health Economics and Outcomes Research 2021 – Present
- Chair, Prelims Committee 2019 – Present
- Faculty Advisor, Prediction Modeling Reading Group 2019 – 2021
- Chair, Annual Retreat Planning Committee 2017
- Member, Admissions Committee 2017 – Present
- Member, Curriculum Committee 2016 – Present
- Member, Prelims Committee 2014 – Present

## Department of Pharmacy, University of Washington

- Member, Search Committee for Tenure-Track Assistant Professor Position 2020, 2021
- Member, Strategic Planning Committee 2017
- Member, Merit Review Process Improvement Committee 2015

## School of Pharmacy, University of Washington

- Member, Curricular Innovation Committee 2017 – Present
- Member, School of Pharmacy: Curricular Evaluation Committee 2018

## Department of Biostatistics, University of Washington

- Organizer, Biomarker and Longitudinal Data Working Group 2012 – 2015