

# Brian J Smith

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## Education

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| 2001 | University of Iowa<br>PhD, Biostatistics<br>Advisor: M Kathryn Cowles, PhD | Iowa City, IA |
| 1995 | University of Texas<br>MS, Mathematical Statistics                         | Austin, TX    |
| 1993 | Saint Louis University<br>BA, Mathematics; Minor, Computer Science         | St. Louis, MO |

## Professional Experience

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### Department of Biostatistics, University of Iowa

*Present-2017* Professor

*2017-2008* Associate Professor

*2008-2002* Assistant Professor

*2002-2001* Visiting Assistant Professor

- Collaborate on multidisciplinary biomedical research with a focus on cancer.
- Disseminate research findings through scientific publications, software, and presentations.
- Secure extramural research grant funding.
- Teach two departmental courses per year, deliver seminars and short courses, advise MS and PhD theses, supervise graduate student preceptorships, and mentor undergraduates.
- Provide service to the department, college, university, and profession at local, national and international levels.

### Biostatistics Core, Holden Comprehensive Cancer Center, University of Iowa

*Present-2006* Director

*Present-2001* Member

*2006-2005* Co-Director

- Lead a group of faculty, staff, and students in providing biostatistical support for ~125 cancer center members from 4 HCCC research programs, 6 UI colleges, and 25 UI departments; for study protocol review and monitoring; and for clinical trial data safety and monitoring.
- Collaborate with cancer center members, trainees, and administration.
- Implemented online request and tracking systems for 100+ new Core research projects per year.
- Contributed to NCI cancer center support grant renewals in 2005, 2010, and 2015.

- Hire, supervise, and mentor Core staff and students.
- Communicate Core activities, productivity metrics, and utilization to cancer center leadership.

## Cancer Epidemiology and Population Science Program, Holden Comprehensive Cancer Center, University of Iowa

*Present-2016 Leadership Committee Member*

*Present-2004 Program Member*

- Full cancer center member with peer-reviewed cancer relevant grant funding and leadership role.
- Advise on the appointment of program members, allocation of funds, planning of activities and invited speakers, research opportunities, and strategic planning.

## Biostatistics and Bioinformatics Core, Lymphoma SPORE, University of Iowa/Mayo Clinic

*Present-2006 Co-Director*

- Co-lead a group of PhD, MS, and Bachelor's biostatisticians with colleagues at Mayo Clinic in providing biostatistical support to four main research projects, a developmental research program, a career enhancement program, and the two other programmatic cores.
- Collaborate with investigators across institutions on basic science, clinical trials, and epidemiological lymphoma research.
- Contributed to NCI SPORE grant renewals in 2016, 2011, and 2006.

## Mormon Trek Village Condo Association, Iowa City, IA

*2009-2008 Board of Directors President*

- First home-owner president of the association.
- Oversaw care of the association's 230 units and \$260k annual income.
- Presided over open and closed board meetings and set their agendas.
- Assisted with cost projections, planning, and implementation of a \$770k reshingling project.
- Communicated board actions to and corresponded individually with homeowners.

## Applied Research Laboratory, University of Texas

*1995-1993 Research Scientist*

- Computer programming and data analysis support for the advanced sonar research group.

## Research Interests

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- Statistical Applications in Cancer Research
- Preclinical Studies and Clinical Trials, Epidemiologic Studies, Quantitative Medical Imaging, Radiomics, Diagnostic Testing, Disease Risk and Outcomes Modeling, Environmental Radon
- Bayesian Methods, Statistical Computing, MCMC, Spatial Statistics, Hierarchical Statistical Modeling, Predictive Modeling, Statistical/Machine Learning

## Computing Experience

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- Scientific Programming: C/C++, Nvidia CUDA, FORTRAN, JAGS, Julia, Maple, MATLAB, Mathematica, OpenBUGS, R, RStudio Shiny, SAS, STAN

- Scripting Languages: Bourne and C shell
- Data Management: Microsoft Access, OnCore, REDCap, SQL
- Markup Languages: HTML, LaTeX, Markdown
- Software Development: Git, SVN

## Peer-Reviewed Publications

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- 131 Gonzalez-Bosquet J, Devor EJ, Newtonson AM, **Smith BJ**, Bender DP, Goodheart MJ, McDonald ME, Braun TA, Thiel KW, Leslie KK (2021). Creation and validation of models to predict response to primary treatment in serous ovarian cancer. *Scientific Reports*, 11(1):5957. PMC: PMC7971042, PMID: 33727600
- 130 Kang D, Coffey CS, **Smith BJ**, Yuan Y, Shi Q, Yin J (2021). Hierarchical Bayesian clustering design of multiple biomarker subgroups (HCOMBS). *Statistics in Medicine*. PMID: 33772843
- 129 Cushing CM, Petronek MS, Bodeker KL, Vollstedt S, Brown HA, Opat E, Hollenbeck NJ, Shanks T, Berg DJ, **Smith BJ**, Smith MC, Monga V, Furqan M, Howard MA, Greenlee JD, Mapuskar KA, St-Aubin J, Flynn RT, Cullen JJ, Buettner GR, Spitz DR, Buatti JM, Allen BG, Magnotta VA (2020). Magnetic resonance imaging (MRI) of pharmacological ascorbate-induced iron redox state as a biomarker in subjects undergoing radio-chemotherapy. *Redox Biology*, 38:101804. PMC: PMC7708874, PMID: 33260088
- 128 Haskins CB, McDowell BD, Carnahan RM, Fiedorowicz JG, Wallace RB, **Smith BJ**, Chrischilles EA (2020). Breast cancer endocrine therapy adherence in health professional shortage areas: Unique effects on patients with mental illness. *Journal of Psychosomatic Research*, 140:110294. PMID: 33232903
127. Bay CP, Levy SM, Janz KF, **Smith BJ**, Shaffer JR, Marazita ML, Burns TL (2020). Genome-wide association analysis of longitudinal bone mineral content data from the Iowa Bone Development Study. *Journal of Clinical Densitometry*. PMID: 31668963 (Accepted/In Press)
125. **Smith BJ**, Buatti JM, Bauer C, Ulrich EJ, Ahmadvand P, Budzevich MM, Gillies RJ, Goldgof D, Grkovski M, Hamarneh G, Kinahan PE, Muzi JP, Muzi M, Laymon CM, Mountz JM, Nehmeh S, Oborski MJ, Zhao B, Sunderland JJ, Beichel RR (2020). Multisite Technical and Clinical Performance Evaluation of Quantitative Imaging Biomarkers from 3D FDG PET Segmentations of Head and Neck Cancer Images. *Tomography*, 6(2):65-76. PMC: PMC7289247, PMID: 32548282
124. Brumm MC, West MM, Lynch CF, **Smith BJ** (2020). Are driver's licenses issued within 3 years of cancer diagnosis a valid source of BMI data? *Cancer Causes and Control*, 31(8):777-786. PMID: 32506334
126. Ghattas AE, Beichel RR, **Smith BJ** (2020). A unified framework for simultaneous assessment of accuracy, between-, and within-reader variability of image segmentations. *Statistical Methods in Medical Research*. 29(11):3135-3152. PMID: 32432517
123. Xiong X, Linhardt TJ, Liu W, **Smith BJ**, Sun W, Bauer C, Sunderland JJ, Graham MM, Buatti JM, Beichel RR (2020). A 3D deep convolutional neural network approach for the automated measurement of cerebellum tracer uptake in FDG PET-CT scans. *Medical Physics*, 47(3):1058-1066. PMC: PMC7067677, PMID: 31855287

122. Chrischilles EA, Riley D, Leuchy E, Koehler L, Neuner J, Jernigan C, Gryzlak B, Segal N, McDowell B, **Smith B**, Sugg SL, Armer JM, Lizarraga IM (2019). Upper extremity disability and quality of life after breast cancer treatment in the Greater Plains Collaborative clinical research network. *Breast Cancer Research and Treatment*, 175(3):675-689. PMC: PMC6534523, PMID: 30852760
121. McDonald ME, Salinas EA, Dover EJ, Newtonson AM, Thiel KW, Goodheart MJ, Bender DP, **Smith BJ**, Leslie KK, Gonzalez-Bosquet J (2019). Molecular characterization of non-responders to chemotherapy in serous ovarian cancer. *International Journal of Molecular Sciences*, 20(5):e1175. PMC: PMC6429334, PMID: 30866519
120. Rendleman MC, Buatti JM, Braun TA, **Smith BJ**, Nwakama C, Beichel RR, Brown B, Casavant TL (2019). Machine learning with the TCGA-HNSC dataset: improving usability by addressing inconsistency, sparsity, and high-dimensionality. *BMC Bioinformatics*, 20(1):339. PMC: PMC6580485, PMID: 31208324
119. Delzell DA, Sara M, Tabitha P, Michelle S, **Smith BJ** (2019). Machine learning and feature selection methods for disease classification with application to lung cancer screening image data. *frontiers in Oncology*, 9:1393. PMC: PMC6917601, PMID: 31921650
118. Haskins CB, McDowell BD, Carnahan RM, Fiedorowicz JG, Wallace RB, **Smith BJ**, Chrischilles EA (2019). Impact of preexisting mental illness on breast cancer endocrine therapy adherence. *Breast Cancer Research and Treatment*, 174(1):197-208. PMC: PMC6426454, PMID: 30465157
117. Ulrich EJ, Menda Y, Boles Ponto LL, Anderson CM, **Smith BJ**, Sunderland JJ, Graham MM, Buatti JM, Beichel RR (2019). FLT PET radiomics for response prediction to chemoradiation therapy in head and neck squamous cell cancer. *Tomography*, 5(1):161-169. PMC: PMC6403029, PMID: 30854454
116. Bodeker KL, Allen BG, Smith MC, Monga V, SS, Hohl RJ, Carlisle TL, Brown HA, Hollenbeck NJ, Vollstedt S, Greenlee JD, Howard MA, Mapuska KA, Seyedin SN, Caster JM, Jones KA, Cullen JJ, Berg DJ, Wagner BA, Buettner GR, TenNapel MJ, **Smith BJ**, Spitz DR, Buatti JM (2019). First-in-human phase 1 clinical trial of pharmacological ascorbate combined with radiation and temozolomide for newly diagnosed glioblastoma. *Clinical Cancer Research*, 25(22):6590-6597. PMC: PMC6858950, PMID: 31427282
115. Beichel RR, Ulrich EJ, **Smith BJ**, Bauer C, Brown B, Casavant T, Sunderland JJ, Sunderland MM, Buatti JM (2019). FDG PET based prediction of response in head and neck cancer treatment: Assessment of new quantitative imaging features. *PLoS One*, 14(4):e0215465. PMC: PMC6474600, PMID: 31002689
114. Baek S, He Y, Allen BG, Buatti JM, **Smith BJ**, Tong L, Sun Z, Wu J, Diehn M, Loo BW, Plichta KA, Seyedin SN, Gannon M, Cabel KR, Kim Y, Wu X (2019). Deep segmentation networks predict survival of non-small cell lung cancer. *Scientific Reports*, 9(1):17286. PMID: 31754135
113. Miller MD, Salinas EA, Newtonson AM, Sharma D, Keeney ME, Warriar A, **Smith BJ**, Bender DP, Goodheart MJ, Thiel KW, Devor EJ, Leslie KK, Gonzalez Bosquet J (2019). An integrated prediction model of recurrence in endometrial endometrioid cancers. *Cancer Management and Research*, 6(11):5301-5315. PMC: PMC6559142, PMID: 31239780

112. Salinas EA, Miller MD, Newton AM, Sharma D, McDonald ME, Keeney ME, **Smith BJ**, Bender DP, Goodheart MJ, Thiel KW, Devor EJ, Leslie KK, Gonzalez-Bosquet J (2019). A prediction model for preoperative risk assessment in endometrial cancer utilizing clinical and molecular variables. *International Journal of Molecular Sciences*, 20(5):e1205. PMC: PMC6429416, PMID: 30857319
111. **Smith BJ**, Beichel RR (2019). A Bayesian framework for performance assessment and comparison of imaging biomarker quantification methods. *Statistical Methods in Medical Research*, 28(4):1003-1018. PMC: PMC6045465, PMID: 29271301
110. Andrew M, Yusung K, Ginader T, **Smith BJ**, Sun W, Wang D (2018). Reduction of applicator displacement in MR/CT-guided cervical cancer HDR brachytherapy by the use of patient hover transport system. *Journal of Contemporary Brachytherapy*, 10(1):85-90. PMC: PMC5881589, PMID: 29619060
109. Buckakjian MR, Ginader T, Tasche KK, Pagedar NA, **Smith BJ**, Sperry SM (2018). Independent predictors of prognosis based on oral cavity squamous cell carcinoma surgical margins. *Otolaryngology - Head and Neck Surgery*, 159(4): 675-682. PMC: PMC6341475, PMID: 29737907
108. Ulrich EJ, Sunderland JJ, **Smith BJ**, Mohiuddin I, Parkhurst J, Plichta KA, Buatti JM, Beichel RR (2018). Automated model-based quantitative analysis of phantoms with spherical inserts in FDG PET scans. *Medical Physics*, 45(1):258-276. PMID: 29091269
107. Monga V, Swami U, Tanas M, Bossler A, Mott SL, **Smith BJ**, Milhem M (2018). A phase I/II study targeting angiogenesis using Bevacizumab combined with chemotherapy and a histone deacetylase Inhibitor (Valproic Acid) in advanced sarcomas. *Cancers (Basel)*, 10(2):53. PMID: 29462961
107. Kim Y, Patwardhan KA, Beichel RR, **Smith BJ**, Mart C, Plichta KA, Chang T, Sonka M, Graham MM, Magnotta V, Casavant T, Xia J, Buatti JM (2017). Development of a radiobiological evaluation tool to assess the expected clinical impacts of contouring accuracy between manual and semi-automated segmentation algorithms. *2017 39th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, 3409-3412. PMID: 29060629
106. Kruspe S, Dickey DD, Urak KT, Blanco GN, Miller MJ, Clark KC, Burghardt E, Gutierrez WR, Phadke SD, Kamboj S, Ginader T, **Smith BJ**, Grimm SK, Schappet J, Ozer H, Thomas A, McNamara JO, Chang CH, Giangrande PH (2017). Rapid and sensitive detection of breast cancer cells in patient blood with nuclease-activated probe technology. *Molecular Therapy - Nucleic Acids*, 15(8):542-557. PMC: PMC5577414, PMID: 28918054
105. Schoenfeld JD, Sibenaller ZA, Mapuskar KA, Wagner BA, Cramer-Morales KL, Furqan M, Sandhu S, Carlisle TL, Smith MC, Abu Hejleh T, Berg DJ, Zhang J, Keech J, Parekh KR, Bhatia S, Monga V, Bodeker KL, Ahmann L, Vollstedt S, Brown H, Kauffman EP, Schall ME, Hohl RJ, Clamon GH, Greenlee JD, Howard MA, Shultz MK, **Smith BJ**, Riley DP, Domann FE, Cullen JJ, Buettner GR, Buatti JM, Spitz DR, Allen BG (2017). O<sub>2</sub>- and H<sub>2</sub>O<sub>2</sub>-mediated disruption of Fe metabolism causes the differential susceptibility of NSCLC and GBM cancer cells to pharmacological ascorbate. *Cancer Cell*, 31(4):487-500. PMID: 28366679
104. Beichel RR, **Smith BJ**, Bauer C, Ulrich EJ, Admadvand P, Budzevich MM, Gillies RJ, Goldgof D, Grkovski M, Mamarnah G, Huang Q, Kinahan PE, Laymon CM, Mountz JM, Muzi JP, Muzi M, Nehmeh S, Oborski MJ, Tan Y, Zhao B, Sunderland JJ, Buatti JM (2017). Multi-site quality and

- variability analysis of 3D FDG PET segmentations based on phantom and clinical image data. *Medical Physics*, 44(2):479-496. PMC: PMC5834232, PMID: 28205306
103. Zahra A, Fath MA, Opat E, Mapuskar KA, Bhatia SK, Ma DC, Rodman SN, Snyders TP, Chenard CA, Eichenberger-Gilmore JM, Bodeker KL, Ahmann L, **Smith BJ**, Vollstedt SA, Brown HA, Hejleh TA, Clamon GH, Berg DJ, Szweda LI, Spitz DR, Buatti JM, Allen BG (2017). Consuming a ketogenic diet while receiving radiation and chemotherapy for locally advanced lung cancer and pancreatic cancer: The University of Iowa experience of two phase 1 clinical trials. *Radiation Research*, 187(6):743-754. PMID: 28437190
102. Rogers LM, Mott SL, **Smith BJ**, Link BK, Sahin D, Weiner GJ (2016). Complement regulatory proteins CFHR1 and CFHR3 and patient response to anti-CD20 monoclonal antibody. *Clinical Cancer Research*, 23(4):954-961. PMID: 27528699
101. Gonzales Bosquet J, Newton AM, Chung RK, Thiel KW, Ginader T, Goodheart MJ, Leslie KK, **Smith BJ** (2016). Prediction of chemo-response in serous ovarian cancer. *Molecular Cancer*, 15(1):66. PMC: PMC5070116, PMID: 27756408
100. McGuire SM, Bhatia SK, Sun W, Jacobson GM, Menda Y, Ponto LL, **Smith BJ**, Gross BA, Bayouth JE, Sunderland J, Graham M, Buatti JM (2016). Using [(18)F]Fluorothymidine (FLT) imaged with Positron Emission Tomography (PET) to quantify and reduce hematologic toxicity due to chemoradiation therapy for pelvic cancer patients. *International Journal of Radiation Oncology, Biology, Physics*, 96(1):228-239. PMC: PMC4982822, PMID: 27319286
99. Barnes KT, McDowell BD, Button A, **Smith BJ**, Lynch CF, Gupta A (2016). Obesity is associated with increased risk of invasive penile cancer. *BMC Urology*, 16(1):42. PMC: PMC4944270, PMID: 27411982
98. Beichel BR, Van Tol M, Ulrich EJ, Bauer C, Chang T, Plichta KA, **Smith BJ**, Sunderland JJ, Graham MM, Sonka M, Buatti JM (2016). Semiautomated segmentation of head and neck cancers in 18F-FDG PET scans: A just-enough-interaction approach. *Medical Physics*, 43(6):2948-2964. PMC: PMC4874930, PMID: 27277044
97. Dilger SK, Uthoff J, Judisch A, Hammond E, Mott SL, **Smith BJ**, Newell JD, Hoffman EA, Sieren JC (2015). Improved pulmonary nodule classification utilizing quantitative lung parenchyma features. *Journal of Medical Imaging*, 2(4):041004. PMC: PMC4748146, PMID: 26870744
96. Du J, Cieslak JA, Welsh JL, Sibenaller ZA, Allen BG, Wagner BA, Kalen AL, Doskey CM, Strother RK, Button AM, Mott SL, **Smith B**, Tsai S, Mezhir J, Goswami PC, Spitz DR, Buettner GR, Cullen JJ (2015). Pharmacological ascorbate radiosensitizes pancreatic cancer. *Cancer Research*, 75(16):3314-26. PMC: PMC4537815, PMID: 26081808
95. Hoover AC, Milhem MM, Anderson CM, Sun W, **Smith BJ**, Hoffman HT, Buatti JM (2015). Efficacy of nelfinavir as monotherapy in refractory adenoid cystic carcinoma: results of a phase II clinical trial. *Head & Neck*, 37(5):722-6. PMC: PMC4285572, PMID: 24596143
94. McDowell BD, Chapman CG, **Smith BJ**, Button AM, Mezhir JJ (2015). Pancreatectomy predicts improved survival for pancreatic adenocarcinoma: results of an instrumental variable analysis. *Annals of Surgery*, 261(4):740-745. PMC: PMC4277740, PMID: 24979599

93. Anderson CM, Chang T, Graham MM, Marquardt MD, Button A, **Smith BJ**, Menda Y, Sun W, Pagedar NA, Buatti JM (2015). Change of maximum standardized uptake value slope in dynamic triphasic [18F]-fluorodeoxyglucose positron emission tomography/computed tomography distinguishes malignancy from postradiation inflammation in head-and-neck squamous cell carcinoma: a prospective trial. *International Journal of Radiation Oncology \* Biology \* Physics*, 91(3):472-9. PMC: PMC4335357, PMID: 25680593
92. Wudhikarn K, **Smith BJ**, Button AM, Habermann TM, Thompson CA, Rosenstein LJ, Syrbu SI, Weiner GJ, Cerhan JR, Link BK (2015). Relationships between chemotherapy, chemotherapy dose intensity and outcomes of follicular lymphoma in the immunochemotherapy era: a report from the University of Iowa/Mayo Clinic SPORE Molecular Epidemiology Resource. *Leukemia & Lymphoma*, 56(8):2365-2372. PMC: PMC4530103, PMID: 25530345
91. TenNapel MJ, Lynch CF, Burns TL, Wallace RB, **Smith BJ**, Button A, Domann FE (2014). SIRT6 minor allele genotype is associated with >5-year decrease in lifespan in an aged cohort. *PLOS ONE*, 9(12):e115616. PMC: PMC4277407, PMID: 25541994
90. Xia C, Leon-Ferre R, Laux D, Deutsch J, **Smith BJ**, Frees M, Milhem M (2014). Treatment of resistant metastatic melanoma using sequential epigenetic therapy (Decitabine and Panobinostat) combined with chemotherapy (Temozolomide). *Cancer Chemotherapy and Pharmacology*, 74(4):691-697. PMC: PMC4175037, PMID: 25062770
89. **Smith BJ**, Mezhir JJ (2014). An interactive Bayesian model for prediction of lymph node ratio and survival in pancreatic cancer patients. *Journal of the American Medical Informatics Association*, 21(e2):e203-211. PMC: PMC4173165, PMID: 24444460
88. Muruganandham M, Clerkin PP, **Smith BJ**, Anderson CM, Morris A, Capizzano AA, Magnotta V, McGuire SM, Smith MC, Bayouth JE, Buatti JM (2014). 3-dimensional magnetic resonance spectroscopic Imaging at 3 Tesla for early response assessment of glioblastoma patients during external beam radiation therapy. *International Journal of Radiation Oncology, Biology, and Physics*, 90(1):181-189. PMC: PMC4183193, PMID: 24986746
87. McGuire SM, Menda Y, Ponto LL, Gross B, TenNapel M, **Smith BJ**, Bayouth JE (2014). Spatial mapping of functional pelvic bone marrow using FLT PET. *Journal of Applied Clinical Medical Physics*, 15(4):4780. PMC: PMC4161980, PMID: 25207403
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85. Oleson JJ, Kumar N, **Smith BJ** (2013). Spatiotemporal modeling of irregularly spaced aerosol optical depth data. *Environmental and Ecological Statistics*, 20(2):297-314.
84. Muniz VP, Askeland RW, Zhang X, Reed SM, Tompkins VS, Hagen J, McDowell BD, Button A, **Smith BJ**, Weyedert JA, Mezhir JJ, Quelle DE (2013). RABL6A promotes oxaliplatin resistance in tumor cells and is a new marker of survival for resected pancreatic ductal adenocarcinoma patients. *Genes & Cancer*, 4(7-8):273-284. PMC: PMC3807645, PMID: 24167655
83. Barnes KT, **Smith BJ**, Lynch CF, Gupta A (2013). Obesity and invasive penile cancer. *European Urology*, 63(3):588-59. PMID: 23219085

82. Nadkarni NJ, Geest KD, Neff T, Young BD, Bender DP, Ahmed A, **Smith BJ**, Button A, Goodheart MJ (2013). Microvessel density and p53 mutations in advanced-stage epithelial ovarian cancer. *Cancer Letters*, 331(1):99-104. PMID: 23268330
81. Jacobus JJ, Duda CG, Coleman MC, Martin SM, Mapuskar K, Mao G, **Smith BJ**, Aykin-Burns N, Guida P, Gius D, Domann FE, Knudson CM, Spitz DR (2013). Low-dose radiation-induced enhancement of thymic lymphomagenesis in Lck-Bax mice is dependent on LET and gender. *Radiation Research*, 180(2):156-165. PMC: PMC3821998, PMID: 23819597
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78. Bauer C, Krueger M, Lamm WJ, **Smith BJ**, Glenn RW, Beichel RR (2013). Airway tree segmentation in serial block-face cryomicrotome images of rat lungs. *IEEE Transactions on Biomedical Engineering*, 61(1):119-130. PMC: PMC3925465, PMID: 23955692
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76. Sun RC, Button AM, **Smith BJ**, Hoshi H, Leblond RF, Howe JR, Mezhir JJ (2013). A comprehensive assessment of transfusion in elective pancreatectomy: Risk factors and complications. *Journal of Gastrointestinal Surgery*, 17(4):627-635. PMID: 23423430
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74. Jacobson G, Bhatia S, **Smith BJ**, Button AM, Bodeker K, Buatti J (2012). Randomized trial of pentoxifylline and vitamin E vs standard follow-up after breast irradiation to prevent breast fibrosis, evaluated by tissue compliance meter. *International Journal of Radiation Oncology, Biology, Physics*, 85(3):604-608. PMID: 22846413
73. Harshman LA, Barron S, Button AM, **Smith BJ**, Link BK, Lynch CF, Denburg NL (2012). Population-based exploration of academic achievement outcomes in pediatric acute lymphoblastic leukemia survivors. *Journal of Pediatric Psychology*, 37(4):458-466. PMC: PMC3334536, PMID: 22271791
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- patients with previously treated chronic lymphocytic leukemia. *Leukemia & Lymphoma*, 53(2):211-217. PMC: PMC3438221, PMID: 21812536
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69. Aykin-Burns N, Slane BG, Liu AT, Owens KM, O'Malley MS, **Smith BJ**, Domann FE, Spitz DR (2011). Sensitivity to low-dose/low-LET ionizing radiation in mammalian cells harboring mutations in succinate dehydrogenase subunit C is governed by mitochondria-derived reactive oxygen species. *Radiation Research*, 175(2):150-158. PMC: PMC3080019, PMID: 21268708
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65. Juweid ME, **Smith BJ**, Itti E, Meignan M (2010). Can the interim fluorodeoxyglucose-positron emission tomography standardized uptake value be used to determine the need for residual mass biopsy after dose-dense immunochemotherapy for advanced diffuse large B-cell lymphoma? *Journal of Clinical Oncology*, 28(34):e719-720. PMID: 20733137
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9. Field R, Steck DJ, **Smith BJ**, Brus CP, Fisher EF, Neuberger JS, Lynch CF (2001). The Iowa Radon Lung Cancer Study phase I: residential radon gas exposure and lung cancer. *The Science of the Total Environment*, 272:67-72. PMID: 11379939

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3. Field RW, **Smith BJ**, Brus CP, Lynch CF, Neuberger JS, Steck DJ (1998). Retrospective temporal and spatial mobility of adult Iowa women. *Risk Analysis*, 18(5):575-584. PMID: 9853393
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1. Field RW, **Smith BJ**, Lynch CF (1998). Ecologic bias revisited, a rejoinder to Cohen's response to "Residential Rn-222 exposure and lung cancer: testing the linear no-threshold theory with ecologic data". *Health Physics*, 75(1):31-33.

## Statistical Software

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10. **Smith BJ** (2021). MachineShop: Machine Learning Models and Tools, R software package. *The Comprehensive R Archive Network*. <http://cran.r-project.org/package=MachineShop>
9. **Smith BJ**, Hillis SL (2021). MRMCAov: Multi-Reader Multi-Case Analysis of Variance. R software package. *GitHub*. <https://github.com/brian-j-smith/MRMCAov>
8. **Smith BJ**, Brock K (2020). EffToxDesign: EffTox Phase I/II Clinical Trial Design, R software package. *GitHub*. <https://github.com/brian-j-smith/EffToxDesign>
7. **Smith BJ**, Deonovic B (2020). Mamba: Markov chain Monte Carlo for Bayesian analysis, Julia software package. *GitHub*. <https://github.com/brian-j-smith/Mamba.jl>
6. **Smith BJ**, Yan J, Cowles MK (2019). ramps: Bayesian Geostatistical Modeling with RAMPS, R software package. *The Comprehensive R Archive Network*. <http://cran.r-project.org/package=ramps>
5. **Smith BJ** (2017). qibm: Quantitative Imaging Biomarker Modeling, R software package *GitHub*. <https://github.com/brian-j-smith/qibm>
4. **Smith BJ** (2016). boa: Bayesian Output Analysis Program for MCMC, R software package. *The Comprehensive R Archive Network*. <http://cran.r-project.org/package=boa>
3. **Smith BJ**, Butcher B, Peterson RA (2016). Parkinson's Clinical Trials Design Tool, R Shiny software application. <https://github.com/brian-j-smith/PPMITrialDesign>

2. **Smith BJ** (2014). Survival calculator for surgically treated pancreatic cancer patients, R Shiny software application. <http://www.myweb.uiowa.edu/bjsmith/pancreas/>
1. **Smith BJ** (2013). magma: Matrix Algebra on GPU and Multicore Architectures, R software package. *The Comprehensive R Archive Network*. <http://cran.r-project.org/package=magma>

## Other Publications

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- United Nations Scientific Committee on the Effects of Atomic Radiation (2020). Effects of Ionizing Radiation. Scientific Annexes A and B. UNSCEAR 2019 Report, New York: *United Nations*
- Butcher B, **Smith BJ** (2020). Reviews of Books and Teaching Materials, Feature Engineering and Selection: A Practical Approach for Predictive Models *The American Statistician* 74(3):308-309. <https://doi.org/10.1080/00031305.2020.1790217>
- Smith BJ**, Hillis SL (2020). Multi-reader multi-case analysis of variance software for diagnostic performance comparison of imaging modalities. In Samuelson F, Taylor-Phillips S (eds.), Proceedings of SPIE 11316, Medical Imaging 2020: Image Perception, Observer Performance, and Technology Assessment, 113160K. PMC: PMC7190386, PMID: 32351258
- Venzke, D (2018, July 31) A Statistically Significant Summer. Retrieved from <https://www.public-health.uiowa.edu/news-items/a-statistically-significant-summer>
- Smith BJ**, Deonovic B (2018). Mamba: Markov chain Monte Carlo for Bayesian analysis in Julia (documentation). <http://mambajl.readthedocs.io/>
- Smith BJ** (2001). A Bayesian framework for analyzing exposure data from the Iowa radon lung cancer study. *PhD Dissertation, Department of Preventive Medicine, University of Iowa, Iowa City, IA*

## Invited Presentations

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23. Vanmarcke H, Strand P, **Smith BJ**, Marsh J (2018). Lung Cancer from Exposure to Radon and to Penetrating Radiation. Expert Panel Discussion, Sixty-Fifth Session of UNSCEAR, United Nations, Vienna, Austria
22. **Smith BJ** (2016). Holden Comprehensive Cancer Center Biostatistics Core. Invited Lecture, Informatics Showcase, University of Iowa Informatics Initiative, Iowa City, Iowa, United States
21. **Smith BJ**, Yan J, Cowles MK. ramps: An R Package for Unified Geostatistical Modeling of Complex Spatiotemporal Data
  - (2009) Invited Lecture, Seminar Series, Department of Biostatistics, University of Alabama, Birmingham, Alabama
  - (2009) Invited Presentation, SAMSI Program on Space-time Analysis for Environmental Mapping, Epidemiology and Climate Change, National Science Foundation, Research Triangle Park, North Carolina
  - (2009) Joint Statistical Meetings, American Statistical Association, Washington, District of Columbia
  - (2010) Invited Lecture, Innovations in Design, Analysis, and Dissemination: Frontiers in Biostatistical Methods, American Statistical Association, Kansas City, Missouri

20. **Oleson JJ**, Smith BJ (2007). Joint Spatio-Temporal Modeling of Low Incidence Cancers Sharing Common Risk Factors. Invited Lecture, Department of Statistics, Iowa State University, Ames, Iowa
19. **Cowles K**, Smith BJ, Yan J (2007). Computing for Bayesian Spatial Estimation and Prediction with Application to Residential Radon. Invited Lecture. DIMACS Workshop on Markov Chain Monte Carlo: Synthesizing Theory and Practice, Rutgers University, Piscataway, New Jersey
18. **Smith BJ** (2006). Geostatistical Hierarchical Model for Temporally Integrated Data Measured with Error. Invited Lecture, Spring Meeting, Eastern North American Region of the International Biometry Society, Tampa, Florida
17. **Smith BJ**, Oleson JJ (2006). Geostatistical Hierarchical Model for Temporally Integrated Data Measured with Error. Invited Lecture, Department of Biostatistics, University of Iowa, Iowa City, Iowa
16. **Cowles MK**, Smith BJ (2004). Fusing Point-Referenced Radon Data with Areal Uranium Data Arising from a Common Spatial Process. Invited Lecture, Department of Statistics, University of Wisconsin, Madison, Wisconsin
15. **Smith BJ**, Dennis L, Snetselaar LG (2004). Prostate Cancer Meta-Analysis: Combining Dose-Response Data, Study-Specific Covariates, and Dietary Quality Scores. Invited Lecture, College of Public Health, University of Iowa, Iowa City, Iowa
14. **Smith BJ** (2004). Modeling the Distribution of Radon Levels in Iowa: Combining Multiple Sources of Spatial Data. Invited Lecture, Kohn Colloquium, Department of Geography, University of Iowa, Iowa City, Iowa
13. **Smith BJ** (2004). Modeling the Distribution of Environmental Radon Levels in Iowa: Combining Multiple Sources of Spatially Misaligned Data. Invited Lecture, Department of Statistics, University of Iowa, Iowa City, Iowa
12. **Field R**, Steck DJ, Smith BJ, Lynch CF, Lubin JH, Parkhurst MA, Alavanja MC (2004). Iowa and Missouri Residential Radon Studies: State-of-the-Art Exposure Assessment. Invited Lecture, First National Cancer Institute Leadership Workshop: Tobacco, Diet, and Genes, Chicago, Illinois
11. **Smith BJ** (2004). Bayesian Statistics: An Idea Whose Time Has Come. Invited Lecture, Statistics Symposium, Arkansas State University, Jonesboro, Arkansas
10. **Field R**, Lynch CF, Steck DJ, Smith BJ, Brus CP, Neuberger JS, Woolson RF, Fisher EF, Platz CE, Robinson RA (2003). Iowa Radon Lung Cancer Study: Exposure Assessment. Invited Lecture, American Chemical Society, New York City, New York
9. **Cowles MK**, Smith BJ (2000). Assessing the Proportion of Treatment Effect Captured by Two Surrogate Markers Measured Longitudinally. Invited Lecture, Department of Biostatistics, University of Iowa, Iowa City, Iowa
8. **Field R**, Steck DJ, Smith BJ, Brus CP, Fisher EF, Neuberger JS, Lynch CF (1999). Beyond BEIR VI – The Iowa Radon Lung Cancer Study. Invited Lecture, Illinois Department of Nuclear Safety, Radon Professionals Conference, University of Illinois at Chicago School of Public Health, Peoria, Illinois

7. **Field R**, Steck DJ, Smith BJ, Brus CP, Fisher EF, Neuberger JS, Lynch CF (1999). What Do We Know About the Risk Posed by Residential Radon? The Iowa Radon Lung Cancer Study. Invited Lecture, Annual Education Conference, Illinois Environmental Health Association, Peoria, Illinois
6. **Field R**, Steck DJ, Smith BJ, Brus CP, Fisher EF, Neuberger JS, Lynch CF (1999). The Iowa Radon Lung Cancer Study Phase I: Residential Radon Gas Exposure and Lung Cancer. Invited Lecture, Radon in the Living Environment, European Commission, Directorate General for Science, R&D Radiation Research Unit, Athens, Greece
5. **Field R**, Steck DJ, Smith BJ, Brus CP, Fisher EF, Neuberger JS, Lynch CF (1999). The Iowa Radon Lung Cancer Study Phase I: Improved Methods for Residential Radon Exposure Assessment. Invited Lecture, Interagency Workshop on the Role of Human Exposure Assessment in the Prevention of Environmental Disease, National Institute for Environmental Health Sciences, Rockville, Maryland
4. **Field R**, Steck DJ, Smith BJ, Brus CP, Fisher EF, Neuberger JS, Lynch CF (1998). Preliminary Findings of the Iowa Radon Lung Cancer Study. Invited Lecture, Radon Conference, American Association of Radon Scientists and Technologists, Cherry Hill, New Jersey
3. **Field R**, Steck DJ, Smith BJ, Brus CP, Fisher EF, Neuberger JS, Lynch CF (1998). Preliminary Findings of the Iowa Radon Lung Cancer Study. Invited Lecture, Council of Radiation Control Program Directors, U.S. Environmental Protection Agency, Cherry Hill, New Jersey
2. **Smith BJ** (1998). Iowa Radon Lung Cancer Study: Modeling the Linear Excess Risk of Lung Cancer associated with Radon Exposure. Invited Lecture, Department of Biostatistics, University of Iowa, Iowa City, Iowa
1. **Field R**, Steck DJ, Smith BJ, Brus CP, Fisher EF, Neuberger JS, Lynch CF (1998). Indoor Radon and Risk of Lung Cancer: Iowa Radon Lung Cancer Study. Invited Lecture, Conference on Radiation and Health, American Statistical Association, San Diego, California

## Contributed Presentations

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24. **Alexandra M Curtis**, Brian J Smith, Andrew G Chappel (2020). Adaptive Subgroup Identification in Phase I-II Clinical Trials. Oral, Spring Meeting, Eastern North American Region of the International Biometry Society, Online
23. **Brian J Smith**, Stephen L Hillis (2020). Multi-Reader Multi-Case Analysis of Variance Software for Diagnostic Performance Comparison of Imaging Modalities. Demonstration and Presentation, SPIE Medical Imaging Conference, Houston, Texas
22. **Brandon D Butcher**, Brian J Smith (2018). Component-wise gradient boosting in the presence of mandatory and optional covariates. Oral and Poster, Joint Statistical Meetings, Vancouver, Canada
21. **Ryan A Peterson**, Brandon Butcher, Stephanie Lussier, Brian Smith (2018). Prediction-Guided Inference in Statistical and Machine-Learning Models for Parkinson's Disease Progression. Poster, Conference on Predictive Inference and Its Applications, Iowa State University, Ames, Iowa
20. **Brandon D Butcher**, Brian J Smith (2018). A Novel Approach to Component-Wise Gradient Boosting for High-Dimensional Linear Models. Poster, Conference on Predictive Inference and Its Applications, Iowa State University, Ames, Iowa

19. **Benjamin Deonovic**, Brian Smith (2016). Convergence Diagnostic for MCMC Draws of a Categorical Variable. Oral and Poster Joint Statistical Meetings, Chicago, Illinois
18. **Smith BJ**, Yan J, Cowles MK (2008). ramps: An R Package for Unified Geostatistical Modeling of Complex Spatiotemporal Data. Oral, Spring Meeting, Eastern North American Region of the International Biometry Society, Washington, District of Columbia
17. **Chen Y**, Smith BJ (2007). Optimal Adaptive Group Sequential Design for Phase II Clinical Trials: A Bayesian Decision Theoretical Approach. Poster, Midwest Biopharmaceutical Statistics Workshop, Ball State University, Muncie, Indiana
16. **Cowles MK**, Smith BJ (2006). Fusing Point-Referenced Radon Data with Areal Uranium Data Arising from a Common Spatial Process. Oral, Annual Meeting, Interface Foundation of North American, Pasadena, California
15. **Smith BJ**, Oleson JJ (2006). Geostatistical Hierarchical Model for Temporally Integrated Radon Measurements. Poster, Conference on Radiation and Health, American Statistical Association, Pacific Grove, California
14. **Scott-Connor CE**, Romitti PA, Lynch CF, Smith BJ, Lal G, Wilkinson N (2006). Influence of Pregnancy on Breast Cancer Characteristics and Receptor Status in Iowa Women. Poster, San Antonio Breast Cancer Symposium, CTRC-AACR, San Antonio, Texas
13. **Zhang Z**, Field R, Smith BJ, Steck BJ (2006). Variation in Yearly Residential Radon Concentrations in the Upper Midwest. Poster, James F. Jakobsen Graduate Student Conference, University of Iowa, Iowa City, Iowa
12. **Zhang Z**, Field R, Smith BJ, Steck BJ (2006). Variation in Yearly Residential Radon Concentrations in the Upper Midwest. Poster, Research Week, Carver College of Medicine and College of Public Health, University of Iowa, Iowa City, Iowa
11. **Lammler J**, Jacobson G, Smith BJ, Goodheart MJ (2006). Venous Thromboembolic Events and Survival in Cervical Carcinoma. Poster, Research Week, Carver College of Medicine, University of Iowa, Iowa City, Iowa
10. **Smith BJ** (2005). Modeling the Distribution of Environmental Radon Levels in Iowa: Combining Multiple Sources of Spatially Misaligned Data. Oral, Joint Statistical Meetings, American Statistical Association, Minneapolis, Minnesota
9. **Smith BJ** (2005). Statistical Issues in the Study of Residential Radon. Oral, New Researcher's Conference, Institute of Mathematical Statistics, Minneapolis, Minnesota
8. **Rose SL**, Fitzgerald MP, Geest KD, White N, Smith BJ, Domann FE (2005). Maspin Expression is Activated by Loss of Promoter Methylation in Ovarian Carcinoma. Poster, Research Week, Carver College of Medicine and College of Public Health, University of Iowa, Iowa City, Iowa
7. **Yang G**, Bishop W, Smith BJ, Goudy S, Bauman NM (2005). Radiographic and Endoscopic Measurement of Esophageal Length in Pediatric Patients. Poster, Annual Meeting, The American Broncho-Esophago-logical Association, Boca Raton, Florida

6. **Smith BJ**, Dennis L, Snetselaar LG (2004). A Bayesian Meta-Analysis of the Impact of Dietary Fat Intake on Prostate Cancer Risk. Poster, Research Week, Carver College of Medicine, University of Iowa, Iowa City, Iowa
5. **Bardia A**, Snetselaar LG, Smith BJ, Lowe J, Peterson J, Faryle N (2004). Is Being Obese and Eating a Low Carbohydrate Diet the Norm among Both Sexes – A Cross Sectional Survey Study in a Rural Community of Iowa. Poster, Annual Meeting, American College of Epidemiology, Boston, Massachusetts
4. **Smith BJ** (2001). Bayesian Risk Analysis of Radon Exposure Data from the Iowa Radon Lung Cancer Study. Oral, Conference on Monte Carlo in the New Millennium, Department of Statistics, University of Florida, Gainesville, Florida
3. **Smith BJ**, Cowles MK (2000). Bayesian Spatial Analysis for Data Obtained from Multiple Measurement Sources. Oral, Spring Meeting, Eastern North American Region of the International Biometry Society, Chicago, Illinois
2. **Smith BJ**, Cowles MK (2000). Bayesian Spatial Analysis of Radon Exposure Data from the Iowa Radon Lung Cancer Study. Oral, Annual Meeting, American Statistical Association, Iowa Chapter, Indianola, Iowa
1. **Smith BJ**, Cowles MK (2000). Bayesian Spatial Analysis of Radon Exposure Data from the Iowa Radon Lung Cancer Study. Oral, Joint Statistical Meetings, American Statistical Association, Indianapolis, Indiana

## Grant Activity

| Grant  | Role   | Period/Direct                           |
|--|--|---|
| <b>Exploiting Redox Metabolism Using Pharmacological Ascorbate for Cancer Therapy</b><br>NIH 1 P01 CA217797                  | Joseph Cullen, <i>PI</i><br>Brian J Smith, <i>Co-Investigator</i>  | 8/31/2023-<br>9/19/2018<br>\$1,274,991  |
| <b>Generalized Obuchowski-Rockette Methodology for Analysis of Radiologic Diagnostic Imaging Studies</b><br>NIH R01 EB025174 | Stephen Hillis, <i>PI</i><br>Brian J Smith, <i>Co-Investigator</i> | 5/31/2022-<br>9/1/2018<br>\$391,804     |
| <b>Lymphoma Specialized Program of Research Excellence (SPORE)</b><br>NCI 5 P50 CA097274                                     | George Weiner, <i>PI</i><br>Brian J Smith, <i>Core Director</i>    | 06/30/2022-<br>9/11/2002<br>\$2,119,373 |
| <b>Cancer Center Support Grant</b><br>NCI 5 P30 CA086862   | George J Weiner, <i>PI</i><br>Brian J Smith, <i>Core Director</i>  | 3/31/2021-<br>7/14/2000<br>\$1,603,949  |
| <b>Pharmacological Ascorbate Combined with Radiation and Temozolomide in GBM</b><br>Gateway for Cancer Research              | Bryan Allen, <i>PI</i><br>Brian J Smith, <i>Co-Investigator</i>    | 12/31/2020-<br>1/1/2018<br>\$229,084    |

| Grant  | Role   | Period/Direct                        |
|--|--|--------------------------------------|
| <b>Quantitative Imaging to Assess Response in Cancer Therapy Trials</b><br>NIH 5 U01 CA140206  | John Buatti, <i>PI</i><br>Brian J Smith, <i>Co-Investigator</i>                                    | 3/31/2020-<br>4/1/2010<br>\$410,850  |
| <b>Iowa Summer Institute in Biostatistics (ISIB)</b><br>NIH T15 HL097622<br>NIH R25 HL131467   | Kathryn M Chaloner, <i>PI</i><br>Gideon J Zamba, <i>PI</i><br>Brian J Smith <i>Co-Investigator</i> | 1/31/2020-<br>9/1/2009<br>\$228,017  |
| <b>Targeting Extracellular Histones with Novel RNA Bio-Drugs for the Treatment of Acute Lung Injury</b><br>DOD W81XWH-16-1-0180          | Paloma Giangrande, <i>PI</i><br>Brian J Smith, <i>Co-Investigator</i>                              | 9/14/2019-<br>9/15/2016<br>\$299,630 |
| <b>MTDH Regulates Fanconi Anemia Repair Pathway to Mediate Drug Resistance</b><br>NIH 1 R01 CA184101                                     | Xiangbing Ming, <i>PI</i><br>Kimberly Leslie, <i>PI</i><br>Brian J Smith, <i>Co-Investigator</i>   | 8/31/2019-<br>9/18/2014<br>\$213,854 |
| <b>Assessment of the Potential of Novel Quantitative Image Biomarkers for Lymphoma Treatment</b><br>Lymphoma SPORE Developmental Project | Reinhard R Beichel, <i>PI</i><br>Brian J Smith, <i>Co-Investigator</i>                             | 6/30/2019-<br>7/1/2018<br>\$50,000   |
| <b>Pharmacological Ascorbate as a Radiosensitizer in Pancreatic Cancer</b><br>NIH R01 CA184051   | Joseph Cullen, <i>PI</i><br>Brian J Smith, <i>Co-Investigator</i>                                  | 3/31/2019-<br>4/1/2015<br>\$228,750  |
| <b>Developing Enabling PET-CT Image Analysis Tools for Predicting Response in Radiation Cancer Therapy</b><br>NIH R21 CA209874           | Xiaodong Wu, <i>PI</i><br>Brian J Smith, <i>Co-Investigator</i>                                    | 7/31/2018-<br>9/6/2016<br>\$130,500  |
| <b>IGERT: Geoinformatics for Environmental and Energy Modeling and Prediction (GEEMaP)</b><br>NSF 0966130                                | Mary K Cowles, <i>PI</i><br>Brian J Smith, <i>Supporting</i>                                       | 6/30/2018-<br>7/15/2010<br>\$412,399 |
| <b>Developing a Treatment Planning System for Next Generation Rotating-Shield Brachytherapy</b><br>NIH R01 EB020665                      | Xiaodong Wu, <i>PI</i><br>Brian J Smith, <i>Co-Investigator</i>                                    | 6/30/2018-<br>7/1/2017<br>\$225,000  |
| <b>Targeted Therapy for Endometrial Cancer</b><br>NIH 5 R01 CA099908   | Kimberly K Leslie, <i>PI</i><br>Brian J Smith, <i>Statistician</i>                                 | 4/30/2018-<br>7/1/2009<br>\$167,184  |
| <b>Improving Pelvic Cancer Patient Chemoradiotherapy Outcomes with FLT PET Imaging</b><br>NIH 5 R01 CA169336                             | Sarah McGuire, <i>PI</i><br>Brian J Smith, <i>Statistician</i>                                     | 6/30/2015-<br>9/22/2012<br>\$201,275 |

| Grant  | Role  | Period/Direct                     |
|--|---|-----------------------------------|
| <b>Gene-Environment Interaction Effects Influence the Risk of Breast, Prostate and Colorectal Cancer</b><br>HCCC Oberley Seed Grant  | Brian J Smith, <i>PI</i>  | 4/30/2014-5/1/2012<br>\$50,000    |
| <b>Role of Dystroglycan in Prostate Cancer Progression</b><br>NIH 1 R01 CA130916   | Michael Henry, <i>PI</i><br>Brian J Smith, <i>Statistician</i>        | 5/31/2013-7/10/2008<br>\$199,270  |
| <b>ARRA: Dosimetry Guided Phase II of 90Y-DOTA-tyr3-Octreotide + Retinoic Acid in Kids</b><br>NIH 1 R21 CA141840   | Sue O'Dorisio, <i>PI</i><br>Brian J Smith, <i>Statistician</i>        | 7/31/2011-8/15/2009<br>\$220,000  |
| <b>Dosimetry in Children and Young Adults with Neuroblastoma or Neuroendocrine Tumors</b><br>NIH R21 CA134198  | Sue O'Dorisio, <i>PI</i><br>Brian J Smith, <i>Statistician</i>        | 7/31/2011-8/1/2008<br>\$338,339   |
| <b>Statistics in Microbiology, Infectious Diseases &amp; Bioinformatics</b><br>NIH 1 T32 GM077973  | Kathryn M Chaloner, <i>PI</i><br>Brian J Smith, <i>Supporting</i>     | 6/30/2011-8/1/2006<br>\$92,799    |
| <b>Mitochondrial-Derived Oxidants and Cellular Responses to Low Dose/Low LET Ionizing Radiation</b><br>DoE DE-SC0000830  | Douglas Spitz, <i>PI</i><br>Brian J Smith <i>Statistician</i>         | 1/1/2011-9/1/2009<br>\$233,779    |
| <b>Epidemiological and Medical Monitoring Proposal of Former Department of Defense Workers at the Iowa Army Ammunitions Plant in Middletown, Iowa</b><br>DoD W911SR-05-C-005 | Laurence J Fuortes, <i>PI</i><br>Brian J Smith, <i>Statistician</i>   | 9/28/2010-8/29/2005<br>\$800,000  |
| <b>Mechanisms of Ascorbate-Induced Cytotoxicity in Pancreatic Cancer</b><br>NIH 1 R21 CA137230   | Joseph Cullen, <i>Principal</i><br>Brian J Smith, <i>Statistician</i> | 6/30/2010-11/1/2009<br>\$110,000  |
| <b>Ad5-TRAIL Gene Therapy for Prostate Cancer</b><br>DoD X81XWH-05-1-0536  | Richard Williams, <i>PI</i><br>Brian J Smith, <i>Co-Investigator</i>  | 7/1/2008-5/19/2006<br>\$190,000   |
| <b>Evaluation of the Edit Process as Applied to Lung Cases (SEER)</b><br>N01-PC-35143  | Charles F Lynch, <i>PI</i><br>Brian J Smith, <i>Co-Investigator</i>   | 9/30/2007-8/1/2003<br>\$2,788,639 |
| <b>Sexually Transmitted Infections as a Risk Factor for Prostate Cancer among Military Personnel</b><br>DoD PC030310   | Leslie K Dennis, <i>PI</i><br>Brian J Smith, <i>Co-Investigator</i>   | 1/1/2007-4/1/2004<br>\$553,125    |
| <b>Comprehensive Assessment of Rural Health in Iowa</b><br>Iowa Department of Public Health 5883CA02   | Kelly J Donham, <i>PI</i><br>Brian J Smith, <i>Consultant</i>         | 8/31/2006-1/1/2004<br>\$396,981   |

| Grant   | Role   | Period/Direct                         |
|---|--|---------------------------------------|
| <b>Iowa and Missouri Radon Lung Cancer Study</b><br>NCI 5 R01 CA85942   | R William Field, <i>Principal</i><br>Brian J Smith, <i>Co-Investigator</i> | 12/31/2005-<br>1/17/2001<br>\$250,000 |
| <b>Cumulative Sun Exposure and Melanoma: A Meta-Analysis</b><br>ACS RSGPB-04-008-01-CPPB  | Leslie K Dennis, <i>PI</i><br>Brian J Smith, <i>Co-Investigator</i>        | 12/31/2005-<br>1/1/2004<br>\$261,000  |
| <b>Bayesian Models for Meta-Analysis: The Impact of Dietary Fat Intake on Prostate Cancer</b><br>CPH-COM New Investigator Award | Brian J Smith, <i>PI</i>   | 12/31/2003-<br>1/1/2003<br>\$5,000    |

## Teaching

### Primary Instructor, University of Iowa

BIOS:7700 Special Topics in Biostatistics: Matrix Theory – Course Creator  
PhD level biostatistics course, 2 s.h. (Fall 2009)

BIOS:7600 Advanced Biostatistics Seminar: Bayesian Methods and Design – Course Creator  
PhD level biostatistics course, 3 s.h. (Fall 2010, 2008)

BIOS:7600 Advanced Biostatistics Seminar: Statistical Methods in Bioinformatics – Course Creator  
PhD level biostatistics course, 3 s.h. (Spring 2016, 2014, 2012)

BIOS:7500 Preceptorship in Biostatistics  
MS level biostatistics supervised research project, 2-3 s.h. (Spring 2021, Fall 2020, Fall 2019, Fall 2018, Fall 2016, Spring 2015, Fall 2014, Spring 2014, Fall 2012, Fall 2011, Spring 2010, Spring 2009, Fall 2006, Spring 2006, Fall 2005, Fall 2003)

BIOS:6810 Bayesian Methods and Design – Course Creator  
PhD level biostatistics course, 3 s.h. (Spring 2015, 2013)

BIOS:6720 Statistical Machine Learning for Biomedical & Public Health Data – Course Creator  
PhD level biostatistics course, 3 s.h. (Spring 2020, 2018)

BIOS:6210 Applied Survival & Cohort Data Analysis  
MS level biostatistics course, 3 s.h. (Spring 2005, 2003)

BIOS:6110 Applied Categorical Data Analysis  
MS level biostatistics course, 3 s.h. (Fall 2007, 2005, 2004, 2003)

BIOS:5730 Biostatistical Methods in Categorical Data Analysis – Course Creator  
MS level biostatistics course, 3 s.h. (Spring 2017, 2010, 2008, 2007)

BIOS:5720 Biostatistical Methods II  
MS level biostatistics course, 4 s.h. (Spring 2019, 2011, 2009)

BIOS:5510 Biostatistical Computing with R and SAS  
MS level biostatistics course, 3-4 s.h. (Fall 2020-2011)

**BIOS:4120 Introduction to Biostatistics**

MS level course for non-biostatistics majors, 3 s.h. (Spring 2006, Fall 2002, Summer 2002, Spring 2002, Fall 2001)

**Biostatistics Seminar for Radiation Oncology – Course Creator**

Medical residents, 15 lectures (Fall 2020, 2018, 2016, 2014, 2012, 2010)

**Contributed Lectures, University of Iowa****BIOS:4110 General Biostatistics**

Undergraduate level course for Iowa Summer Institute in Biostatistics (ISIB) Program (Summer 2020-2010)

**Biostatistics Seminar for Hematology, Oncology, and Blood & Marrow Transplantation Core**

Medical fellows (Spring 2010, Fall 2006)

**Bioinformatics Summer Course, Iowa Institute for Human Genetics**

R training for graduate students and professionals (Summer 2016-2015)

**Environmental Health Sciences Institute for Rural Youth**

High school students (Summer 2002)

**Course Supervisor, University of Iowa****BIOS:6210 Applied Survival & Cohort Data Analysis**

MS level biostatistics course, 3 s.h. (Spring 2007)

**Mentoring**

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**PhD Thesis Advisor**

Alexandra Curtis (2020) “Subgroup-Specific Dose Finding Using Bayesian Clustering in Phase I-II Clinical Trials”

Brandon Butcher (2020) “MCMC Diagnostics for Bayesian Additive Regression Trees and Methods for Flexible Modeling of Predictors”

Benjamin Deonovic (2017) “MCMC Sampling Methods for Binary Variables with Application to Haplotype Phasing and Allele Specific Expression”

Keyla Pagan-Rivera (2017) “Improved Adjustment for Covariate Measurement Error in Radon Studies: Alternatives to Regression Calibration”

Andrew Ghattas (2017) “Medical Imaging Segmentation Assessment via Bayesian Approaches to Fusion, Accuracy and Variability Estimation with Application to Head and Neck Cancer”

Jun Yin (2014) “Bayesian Statistical Modeling in Epidemics and the Contact Networks that Transmit Them”

Yiyi Chen (2008) “Optimal Adaptive Group Sequential Design for Phase II Clinical Trials: A Bayesian Decision Theoretic Approach”

## PhD Thesis Committees

Applied Mathematics: Nan Hu (2016); Biomedical Engineering: Xiaofan Xiong (in progress), Ethan Ulrich (in progress), Michael Rendleman (in progress); Biostatistics: Elliot Burghardt (in progress), Nicholas Seedorf (in progress), Daniel Kang (in progress), Amy Hahn (in progress), Biyue Dai (2019), Natalie Langenfeld (2018), Michael Seedorff (2018), Janel Barnes (2017), Yiyue Lou (2017), David Zahrieh (2017), Grant Brown (2015), Stephanie Kliethermes (2013), Elizabeth Mills (2013), Aaron Porter (2012), Mijin Jang (2011), Yu-Hui Chang (2010), Emine Bayman (2008); Epidemiology: Daniel Riley (in progress), Cole Haskins (2020), Camden Bay (2016), Mindi TenNapel (2015), Elaine Cooperstein (2009), Dominic Ciriillo (2008), Dan Gregory (2007), Rebecca Schmidt (2007); Geography: Chetan Tiwari (2008); Genetics: Lucas Pietan (in progress); Health Management and Policy: Veerasathpurush Allarqeddy (2007); Nursing: Tom Blodgett (2013); Occupational and Environmental Health: Kainan Sun (2008), Vijay Golla (2007); Pharmacy: Youwei Bi (2016), Tatian Kirresh (2014), Rowan Alejielat (2012); Statistics: Hongda Zhang (in progress), Yunju Im (2020), Yingying Liu (2018), Harsimran Somal (2016), Jung-Eun Song (2008), Subhashish Chakravarty (2007), Lili Zhao (2006), Aaron Christ (2003), Yu-Jau Lin (2003); Statistical Genetics: Dianna Abbott (2009)

## Preceptorship Supervisor

Eldon Sorensen (2021) "Radiomics Prediction of Survival in Head and Neck Cancer Patients"

Linder Wendt (2020) "Analyzing Post-Operative Outcomes for Strokes Patients Using Machine Learning Techniques"

Bradley Loeffler (2019) "Machine Learning Approaches to Classify Post-Transplant Disease Status in Hodgkin's Lymphoma Patients"

Michael Bishop (2018) "Using DMV Records to Predict BMI for Iowa Cancer Patients in the SEER Registry"

Brandon Butcher, Stephanie Lussier, Ryan Peterson (2016) "The Parkinson's Progression Markers Initiative: Data Challenge"

Janel Barnes (2015) "Statistical Modeling of Biomedical Imaging Features for Lung Nodule Classification and Screening"

Joseph Moen (2015) "Prognostic Value of Solitary versus Non-isolated Peritoneal Carcinomatosis in Metastatic Colorectal Patients: A Pooled Analysis Based on 9,629 Individual Patient Data from Prospective Randomized Studies"

Kaitlin Lockhart (2014) "Screening the Performance of Predicting Cancer Recurrence with Quantitative Imaging Metrics Measured with Semi-automated Methods"

Nan Hu (2013) "MCMC Sampler Design for Hierarchical Modeling of Cancer Lymph Node Ratio and Survival"

Camden Bay (2012) "Exploration of the 3D Visualization of Tumor Growth over Time Using PET Scans"

Jennifer Griffiths (2012) "flowGUI: A Custom R Graphical Interface for the Visualization and Analysis of Flow Cytometry Data"

Jun Yin (2009) "Bayesian Survival Analysis of Stereotactic Radiosurgery Treated Patients"

Carmen Smith (2009) "Survival and Tumor Growth Analysis of Cancer Treatments in Mice"

Kainan Sun (2006) "Regression Calibration for the Iowa Radon and Lung Cancer Study"

Li Zhou (2006) "Computing Scores for Published Categories of a Continuous Risk Factor"

Lixun Zhang (2005) "Leukemia Rates in Iowa and their Association with Predicted County-Average Radon Levels"

Boikanyo Makubate (2004) "Subcutaneous and Intraperitoneal Delivery of Cancer Vaccines and Their Comparative Effect on Tumor Growth in Mice"

Qun Guo (2004) "The Effect of Housing Characteristics on Temporal Variation of Indoor Radon Levels"

Adam Summers (2003) "Home Radon Detection: Can Short-Term Measurements Predict with Long-Term Accuracy?"

## MS Advising

Biostatistics: Allison Schuette (in progress), Michelle Smith (2021), Scott Koeneman (2021), Daren Kuwaye (2019), Michael Brumm (2018), Elizabeth Bair (2017), Cody Hansen (2017), Youwei Bi (2015), Joseph Moen (2015), Wen Che (2014), Camden Bay (2012), Grant Brown (2012), Liz Uribe (2011), Skyler Johnson (2010), Lei Hua (2007), Kainan Sun (2007), Patrick Breheny (2006), Xin Lu (2006), Yingwei Qi (2006), Yiyi Chen (2005), Eun-Mee YoonAnn (2005), Laura Acion (2004), Qun Guo (2004), Xiao Dong Huang (2004)

## MS Thesis Committees

Electrical and Computer Engineering: Timothy Linhardt (2018); Epidemiology: Suma Konety (2004); Occupational and Environmental Health: Ron Bedford (2009), Eboniece Cason (2005), Jessica Ferrie (2003), Craig Gehrels (2003), Julie Lo (2003), Brenda Bode (2002), Mike Humann (2002)

## Other Mentoring

Iowa Summer Institute in Biostatistics Research Projects: Vineet Narayanan (2021), Tanner Street (2021), Sara Magnuson (2018), Tabitha Peter (2018), Michelle Smith (2018), Holly Diop (2017), Erica Lleras (2017), Miguel Quime (2017), Eldon Sorenson (2017), Elliot Burghardt (2016), Daren Kuwaye (2016), Jeffrey Antunes (2014), Brooke Bell (2014), Jolene Ranek (2014), Lesly Almanzar (2013), Reed Johnson (2013), Alexandria Leonhardt (2013), Evelyn Rodriguez (2013), Sara Burns (2012), Joseph Moen (2012), Elizabeth Wolfe (2012), Brian Greco (2011), Idalyn Mirabal (2011), Mark Chikwem (2010), Alex Sawyer (2010), Carey Stuart (2010), Phyon Christopher (2009), Jamie Encarnacion (2009), Tenecia Harris (2009), Christopher Johnson (2009), Marina Antillon (2008)

University of Iowa Faculty Mentor: Grant Brown (Present-2015)

## Honors and Awards

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- University of Iowa College of Public Health Teaching Award (2014)
- Delta Omega Honor Society for Public Health (2009)
- American Statistics Association Conference on Radiation and Health New Investigator Research Award (2006)
- U.S. Environmental Protection Agency Children's Environmental Health Recognition Award (2006)

- American Broncho-Esophagological Association Annual Scientific Session Steben D. Gray Resident's Research Award (2005)
- University of Iowa College of Public Health New Investigator Research Award (2003)
- University of Iowa College of Public Health Milford E. Barnes Graduate Student Award (2001)
- American Statistical Association Statistical Computing Section John M. Chambers Statistical Software Award (2000)
- University of Iowa Excellence in Teaching Award for Graduate Teaching Assistants (1997)
- US Congress Barry M. Goldwater Scholarship (1992)

## Service

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### Department of Biostatistics, University of Iowa

- PhD Comprehensive Examination Committee (Present-2013, 2004-2002)
- MS Comprehensive Examination Committee (2020, 2019 (Summer Chair), 2018 (Summer Chair), 2017 (Summer Chair), 2012-2015, 2010-2011 (Summer Chair), 2009, 2008 (Summer Chair), 2007-2006, 2005 (Fall Chair), 2004-2003)
- MS and PhD Curriculum Committee (Present-2015, 2014-2012 (Chair), 2008-2007)
- Computing Committee (Present-2015, 2014-2006 (Chair), 2005)
- Teaching Assistant Supervisor (2020 (2), 2019 (2), 2018 (1), 2013 (1), 2006 (3), 2005 (1), 2002-2001 (6))
- Promotion & Tenure Departmental Consulting Groups (2020, 2018-2017 (Chair))
- Diversity Committee (2017-2008)
- Faculty Search Committee (2017-2016, 2015-2014 (Chair), 2014-2011)
- Seminar Committee (2015-2014, 2006 (Chair), 2005, 2004 (Chair), 2003)
- Graduate Admissions and Recruitment Committee (2009-2008, 2007-2003)
- Departmental Self-Study Committee (2008-2007)
- Social Event Committee (2007-2006)
- MPH Curriculum Committee (2005-2004)
- Teaching Evaluation and Promotion Committee (1997-1996)
- Biostatistics Student Organization (1997-1996 (Chair))

### College of Public Health, University of Iowa

- DEO Search Committee, Department of Health Management and Policy (Present-2020)
- Research Council (2021-2018, 2020 (Chair))
- Promotion & Tenure Collegiate Consulting Groups (2021-2020, 2013-2009)
- Faculty Search Committee, Department of Epidemiology (2020-2018)
- Post-Tenure Faculty Review Committee (2019, 2018 (4))
- Environmental Health Sciences Research Center Pilot Grant Reviewer (2019)
- Philanthropy Committee (2018-2015)
- Global Public Health Committee (2015-2014)
- Computation and Informatics Committee (2014-2010)
- Associate Dean for Administration Search Committee (2014)
- Research Week Judge (2012)

- Delta Omega Student Poster Session Competition Judge (2011)
- Faculty Council (2010 (Chair), 2009 (Secretary), 2008, 2005-2004)
- Epidemiology Department Internal Review Committee (2009)
- Computation and Informatics Committee (2008-2007)
- New Investigator Research Award Committee (2008)
- Admissions Committee for MPH in Clinical Investigation (2006-2002)
- Center for Health Effects and Environmental Contaminants, Statistical Consultant (2004-2002)
- Academic Misconduct Review Committee (2004-2003)
- Continuing Education and Seminar Committee (2004-2003)
- Instructional Development and Evaluation Committee (2004-2003)
- Website Committee (2003-2002)

### Holden Comprehensive Cancer Center, University of Iowa

- Protocol Review and Monitoring Committee (Present-2001)
- Data Safety and Monitoring Committee (Present-2006)
- Population Research Core Advisory Committee (Present-2009)
- Biostatistics Core Staff Supervisor (Present-2010)
- Cancer Epidemiology and Population Science Program Leadership Committee (Present-2016)
- Graduate Research Assistant Supervisor (2020-2019, 2018-2016, 2008-2005)
- Staff Biostatistician Search Committee Chair (2020, 2014, 2013, 2010)
- American Cancer Society Seed Grant Reviewer (2011)

### University of Iowa

- Research Computing Council, Information Technology Services and Office of the Vice President for Research & Economic Development (Present-2017)
- Iowa Informatics Initiative ([UI3](#)) Steering Committee (2019-2013)
- Faculty Search Committee, Department of Biomedical Engineering (2019-2018)
- Faculty Search Committee, Department of Biology (2017-2016)
- Admissions Committee for Bioinformatics Interdisciplinary Graduate Program (2016-2014)
- Center for Global and Regional Environmental Research Seed Grant Reviewer (2015, 2007)
- Faculty Search Committee, Department of Statistics and Actuarial Science (2015-2014)
- Faculty Search Committee, Department of Management Sciences (2014)
- Provost and Vice President for Research Informatics Task Force (2013)
- Jakobsen Graduate Student Conference Judge (2012-2006)
- Women in Science and Engineering Student Travel Grant Reviewer (2011, 2009)

### Professional Organizations

#### Phi Beta Kappa

Member (Present-1992)

#### American Statistical Association

Member (Present-1999)

JSM Session Chair, Boosting, Ensemble Learning, and Other Data-Mining Methods (2009)

JSM Session Organizer, Efficient Methods for the Analysis of Spatial Data: Computing and

Application (2009)

JSM Session Chair, Monitoring and Modeling Air Quality and its Health Effects (2005)

Eastern North American Region of the International Biometric Society

Member (Present-2001)

Regional Advisory Board (2011-2009)

Delta Omega

Member (Present-2009)

President of Alpha Phi Chapter (2016-2015)

Vice President of Alpha Phi Chapter (2015-2014)

SAMSI Program on Space-time Analysis for Environmental Mapping

Co-Chair, Epidemiology and Climate Change, Statistical Computing Subgroup (2010)

American Mathematical Association

Member (2006-2002)

## Journal/Book Reviews

- The American Statistician
- BMC Medical Research Methodology
- BMC Pediatrics
- Cancer Chemotherapy and Pharmacology
- Circulation
- Communications in Statistics
- Computational Statistics and Data Analysis
- Environmental and Ecological Statistics
- Environmental Health Perspectives
- Environmental Science and Technology
- Environmetrics
- Health Physics
- International Journal of Cancer
- Journal of the American Medical Association
- Journal of the American Informatics Association
- Journal of Applied Statistics
- Journal of Agricultural, Biological, and Environmental Statistics
- Journal of Clinical Oncology
- Journal of Computational and Graphical Statistics
- Journal of Environmental Management
- Journal of Toxicology & Environmental Health
- Radiation Protection Dosimetry
- Science of the Total Environment
- Statistical Computing
- Statistics and Computing
- Statistics in Medicine
- Book: Enter Monte Carlo Statistical Methods
- Book: Feature Engineering and Selection: A Practical Approach for Predictive Models

## External Review Committees

Faculty Promotion

MD Anderson Cancer Center (2020), University of Nevada (2020), Geisinger Health System (2019), University of Minnesota School of Public Health (2019), University of Illinois School of Public Health (2019), Peking University School of Mathematics (2018), Rutgers University School of Public Health (2018, 2017), University of Arizona College of Public Health (2017), West Virginia University School of Public Health (2017), Drexel University School of Public Health (2016), Mayo Clinic College of Medicine (2014)

NCI Subcommittee F, Institutional Training and Education Study Section

Reviewer and Permanent Member (February 2019, October 2018, June 2018, February 2018, October 2017, June 2017, February 2017, October 2016)

NCI P50 SPORE V Study Section

Reviewer (February 2018)

NCI Cancer Population Science Study Section

Reviewer (March 2020)

NCI Program Project I (P01)

Reviewer (February 2021)

NIH U01 Preclinical Pediatric Testing Consortium

Reviewer (April 2015)

NIH Cancer Biomarkers Study Section

Reviewer (February 2011, October 2010, June 2010, February 2010)

NIH Cancer Prevention Study Section

Reviewer (September 2010)

Oak Ridge Associated Universities

Pennsylvania Department of Health Peer Review (July 2020, April 2020)

Oncology Research Information Exchange Network (ORIEN)

New Oncologic Visionary Award Reviewer (July 2018)

United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR)

Lead Writer, Effects of Exposure to Radon in Home and Workplaces Expert Group (2020-2016)

Member, Epidemiological Studies of Radiation and Cancer Expert Group (Present-2020)

US EPA Environmental Statistics Research: Novel Analyses of Human Exposure Related Data

Reviewer (April 2003)

Veterans Affairs Lung Cancer Surgery or Stereotactic Radiotherapy (VALOR) Cooperative Study

Data Monitoring Committee (Present-2016)