COLLEGE OF PUBLIC HEALTH CURRICULUM VITAE

Grant Brown
June 11, 2021

I. EDUCATION AND PROFESSIONAL HISTORY

A. Education

Institution	Field of Study	Degree Obtained	Degree Date
University of Iowa, Iowa City, Iowa, United States	International Studies	BA	2010
University of Iowa, Iowa City, Iowa, United States	Statistics	BS	2010
University of Iowa, Iowa City, Iowa, United States	Biostatistics	MS	2012
University of Iowa, Iowa City, Iowa, United States	Biostatistics	PhD	2015

B. Professional and Academic Positions

Position Title	Dates of Service	Location/Institution
Research Assistant	2009-2015	Center for Public Health Statistics, The University of Iowa College of Public Health, Iowa City, Iowa
Statistical Consultant	2013	University of Iowa College of Nursing, Iowa City, Iowa
Programmer	2013	HOBU Inc., Iowa City, Iowa
Assistant Professor	2015-Present	Department of Biostatistics, University of Iowa, College of Public Health, Iowa City, Iowa

C. Honors, Awards, Recognitions, and Outstanding Achievements

Year	Title
2018	2018 Opioid Ideas Lab Fellow, Office of Research and Economic Development, University of Iowa
2019	CPH Faculty Teaching Award, College of Public Health, The University of Iowa

II. TEACHING

A. Teaching Assignments on a semester-by-semester basis (*classroom, seminar, teaching lab*)

1. University of Iowa

Semester/Year	Course Title/Number	Semester Hours	# Students	Role	Percent Responsible
Summer 2013	BIOS:5110 Design and Analysis of Biomedical Experiments	3	14	Primary Instructor	100%
Spring 2016	BIOS:4120:0A01 Introduction to Biostatistics	3	26	Primary Instructor	
Spring 2016	BIOS:4120:0A02 Introduction to Biostatistics	3	26	Primary Instructor	
Spring 2016	BIOS:4120:0A03 Introduction to Biostatistics	3	18	Primary Instructor	
Spring 2016	BIOS:4120:0A04 Introduction to Biostatistics	3	19	Primary Instructor	
Spring 2016	BIOS:4120:0AAA Introduction to Biostatistics	0	89	Primary Instructor	100%
Spring 2016	BIOS:7900:0215 Thesis/Dissertation		1	Primary Instructor	100%
Fall 2016	BIOS:4120:0AAA Introduction to Biostatistics	0	85	Primary Instructor	100%

Semester/Year	Course Title/Number	Semester Hours	# Students	Role	Percent Responsible
Fall 2016	BIOS:4120:0EXW Introduction to Biostatistics		34	Course Supervisor	100%
Fall 2016	BIOS:7900:1672 Thesis/Dissertation		1	Primary Instructor	100%
Spring 2017	BIOS:4120:0EXW Introduction to Biostatistics	3	29	Course Supervisor	2%
Spring 2017	BIOS:5720:0AAA Biostatistical Methods II	0	10	Primary Instructor	100%
Spring 2017	BIOS:7500:4454 Preceptorship in Biostatistics		1	Primary Instructor	100%
Spring 2017	BIOS:7900:5234 Thesis/Dissertation		1	Primary Instructor	100%
Fall 2017	BIOS:4120:0EXW Introduction to Biostatistics	3	40	Course Supervisor	2%
Fall 2017	BIOS:7500:6655 Preceptorship in Biostatistics		1	Primary Instructor	100%
Fall 2017	BIOS:7600:0001 Advanced Biostatistics Seminar		11	Primary Instructor	100%
Fall 2017	BIOS:7900:6911 Thesis/Dissertation		1	Primary Instructor	100%
Spring 2018	BIOS:4120:0EXW Introduction to Biostatistics		26	Course Supervisor	3%
Spring 2018	BIOS:5120:0001 Regression & ANOVA in Health Sciences	3	43	Primary Instructor	100%
Spring 2018	BIOS:7500:9285 Preceptorship in Biostatistics		1	Primary Instructor	100%

Semester/Year	Course Title/Number	Semester Hours	# Students	Role	Percent Responsible
Spring 2018	BIOS:7900:9805 Thesis/Dissertation		1	Primary Instructor	100%
Summer 2018	BIOS:4120:0EXW Introduction to Biostatistics		31	Course Supervisor	1%
Fall 2018	BIOS:4120:0EXW Introduction to Biostatistics	3	40	Course Supervisor	3%
Fall 2018	BIOS:5710:0A01 Biostatistical Methods I	4	20	Primary Instructor	
Fall 2018	BIOS:5710:0AAA Biostatistical Methods I	0	20	Primary Instructor	
Fall 2018	BIOS:7500:1093 Preceptorship in Biostatistics		1	Primary Instructor	100%
Spring 2019	BIOS:4120:0EXW Introduction to Biostatistics	3	20	Course Supervisor	100%
Spring 2019	BIOS:5120:0001 Regression & ANOVA in Health Sciences	3	39	Primary Instructor	100%
Summer 2019	BIOS:4120:0EXW Introduction to Biostatistics	3	21	Primary Instructor	2%
Fall 2019	BIOS:4120:0EXW Introduction to Biostatistics	3	34	Course Supervisor	2%
Fall 2019	BIOS:7330:0001 Advanced Biostatistical Computing	3	18	Primary Instructor	100%
Fall 2019	BIOS:7500:5306 Preceptorship in Biostatistics		3	Primary Instructor	100%
Fall 2019	BIOS:7800:4994 Independent Study in Biostatistics		1	Primary Instructor	100%

Semester/Year	Course Title/Number	Semester Hours	# Students	Role	Percent Responsible
Fall 2019	BIOS:7900:6723 Thesis/Dissertation		1	Primary Instructor	100%
Spring 2020	BIOS:4120:0EXW Introduction to Biostatistics	3	35	Course Supervisor	2%
Spring 2020	BIOS:5120:0001 Regression & ANOVA in Health Sciences	3	43	Primary Instructor	100%
Spring 2020	BIOS:5120:0EXW Regression & ANOVA in Health Sciences	3	8	Primary Instructor	100%
Spring 2020	BIOS:7500:7700 Preceptorship in Biostatistics		1	Primary Instructor	100%
Spring 2020	BIOS:7900:7579 Thesis/Dissertation		2	Primary Instructor	100%
Spring 2020	GRAD:7400:0012 Practicum in College Teaching		1	Primary Instructor	100%
Fall 2020	BIOS:4120:0A01 Introduction to Biostatistics	3	21	Course Supervisor	100%
Fall 2020	BIOS:4120:0A02 Introduction to Biostatistics	3	26	Course Supervisor	100%
Fall 2020	BIOS:4120:0A03 Introduction to Biostatistics	3	17	Course Supervisor	100%
Fall 2020	BIOS:4120:0A04 Introduction to Biostatistics	3	23	Course Supervisor	100%
Fall 2020	BIOS:4120:0AAA Introduction to Biostatistics	0	87	Course Supervisor	100%

Semester/Year	Course Title/Number	Semester Hours	# Students	Role	Percent Responsible
Fall 2020	BIOS:4120:0EXW Introduction to Biostatistics	3	24	Course Supervisor	2%
Spring 2021	BIOS:5120:0001 Regression & ANOVA in Health Sciences	3	35	Primary Instructor	100%
Spring 2021	BIOS:5120:0EXW Regression & ANOVA in Health Sciences	3	0	Primary Instructor	100%

B. Course Materials (syllabi, instructional web pages, computer lab materials) (Description only - *full materials to be included in promotion dossier*)

2016-2017 Materials for BIOS:4120 (Fall 2016) are available here: https://grantbrown.github.io/BIOS-4120/

2016-2017 Materials for BIOS:5720 (Spring 2017) are available here: https://grantbrown.github.io/BIOS-5720/

2017-2018 Materials for BIOS:7600, Advanced Biostatistical Computing (Fall 2017) are available here: https://grantbrown.github.io/BIOS-7600/

2018-2019 Course materials, including video-lectures, are available for BIOS:5710 (Fall 2018) BIOS:5120 (Spring 2019) on ICON.

2019-2020 Course materials for BIOS:5120 (Spring 2020), including lecture videos, are available on ICON. For BIOS:4120 (Fall 2020), course materials and video lectures are also available on ICON. An example of the "topic video" format trialed in BIOS:4120 this semester is linked here: https://www.youtube.com/watch?v=1Fp3hByu7sU&feature=youtu.be

Examples of the labs are also linked here: https://grantbrown.github.io/BIOS-4120-F20/

III. SCHOLARSHIP

A. Publications or Creative Works

1. Peer-Reviewed Papers

1. Zhang Y, Doucette W, Pendergast J, Brown G, Frank J (2014). Assessing the Effect of a Cost Management Component in a Targeted Intervention Program. *Value in Health* 17(3):A149-A150.

2. Doucette WR, Pendergast JF, Zhang Y, Brown G, Chrischilles EA, Farris KB, Frank J (2015). Stimulating comprehensive medication reviews among Medicare part D beneficiaries.

American Journal of Managed Care 21(6):e372-8. PMID: 26247578 http://www.ncbi.nlm.nih.gov/pubmed/26247578

3. Oleson JJ, Cavanaugh JE, McMurray B, Brown G (2015). Detecting time-specific differences between temporal nonlinear curves: Analyzing data from the visual world paradigm. *Statistical Methods in Medical Research*, Epub ahead of print: PMID: 26400088 http://www.ncbi.nlm.nih.gov/pubmed/26400088

4. Brown G, Oleson JJ, Porter AT (2016). An empirically adjusted approach to reproductive number estimation for stochastic compartmental models: A case study of two Ebola outbreaks. *Biometrics* 72(2):335-43. PMID: 26574727 http://www.ncbi.nlm.nih.gov/pubmed/26574727

5. Carnahan RM, Brown GD, Letuchy EM (2017). Impact of Programs to Reduce Antipsychotic and Anticholinergic use in Nursing Homes *Alzheimer's & Dementia: Translational Research & Clinical Interventions*

6. Brown GD, Porter AT, Oleson JJ, Hinman JA (2018). Approximate Bayesian Computation for Spatial SEIR(S) Epidemic Models *Spatial and Spatiotemporal Epidemiology*, 24:27-37. PMC: PMC5806152, PMID: 29413712

7. Ranapurwala S, Carnahan R, Brown G, Hinman J, Casteel C (2018). Impact of Iowa's prescription monitoring program on opioid pain reliever prescribing patterns: An interrupted time series study 2003-2014 *Pain Medicine* 20(2):290-300. PMID: 29509935

8. Ozanne MV, Brown GD, Oleson JJ, Iraci LD, Jeronimo SM (2018). Bayesian compartmental model for an infectious disease with dynamic states of infection. No *Journal of Applied Statistics* 46(6):1043-1065. PMC: PMC6752225, PMID: 31537954

9. Polgreen PM, Brown GD, Hornick DB, Ahmad F, London B, Stoltz D, Comellas A (2018). CFTR heterozygotes are at increased risk of respiratory infections: a population-based study. *Open Forum Infectious Diseases* 5(11):ofy219. PMC: PMC6210382, PMID: 30397620

10. Toepp A, Monteiro GR, Coutinho JF, Lima AL, Larson M, Wilson G, Grinnage-Pulley T, Bennett C, Mahachi K, Anderson B, Ozanne M, Anderson M, Fowler H, Parrish M, Saucier J, Tyrrell P, Palmer Z, Buch J, Chandrashekar R, Brown G, Oleson J, Beleza Jeronimo SM, Petersen C (2019). Comorbid Infections Induce Progression of Visceral Leishmaniasis *Parasites & Vectors* 12(1):54. PMC: PMC6345068, PMID: 30674329

11. Oleson JJ, Brown GD, McCreery R (2019). Essential Statistical Concepts for Research in Speech, Language, and Hearing Sciences *Journal of Speech, Language, and Hearing Research*

12. Gilbert PA, George P, Sarah Z, Mulia N, Brown G (2019). Gender differences in use of alcohol treatment services and reasons for non-use in a national sample. *Alcoholism: Clinical and Experimental Research* 43(4):722-731. PMC: 30807660, PMID: 30807660

13. Mahachi K, Kontowicz E, Anderson B, Toepp A, Leal Lima A, Larson M, Wilson G, Grinnage-Pulley T, Bennett C, Ozanne M, Anderson M, Fowler H, Parrish M, Saucier J, Tyrell P, Palmer Z, Buch J, Chandrashekar R, Scorza B, Brown G, Oleson J, Petersen C (2020). Predominant risk factors for tick-borne coinfections in US hunting dogs. *Parasites and Vectors* 13(13):247. (*Submitted/In Review*)

14. Dong R, Johnson J, Han C, Kandula R, Kort A, Wong M, Yang T, Breheny P, Brown G, Haim H (2019). Key Positions of HIV-1 Env and Signatures of Vaccine Efficacy Show Gradual Reduction of Population Founder Effects at the Clade and Regional Levels *mBio* 11(3):e00126-20. PMC: PMC7373194, PMID: 32518179

15. Ozanne MV, Brown GD, Toepp AJ, Scorza BM, Oleson JJ, Wilson ME, Petersen CA (2020). Bayesian Compartmental Models and Associated Reproductive Numbers for an Infection with Multiple Transmission Modes *Biometrics* 76(3):711-721. PMC: PMC7673222, PMID: 31785149 (*Accepted/In Press*)

16. Boles C, Brown G, Park J, Nonnenmann M (2020). The Optimization of Methods for the Collection of Aerosolized Murine Norovirus *Food and Environmental Virology*

17. Decker V, Rupe B, Brown G, Cwiertny D, Scherer M (2019). If You Build It, Will They Come? Creating a Graduate Training Program in Sustainable Water Development that Broadens Participation of Underrepresented Groups in STEM (*In Preparation; Not Yet Submitted*)

18. Bohr NL, Rakel B, Brown GD, Skelly CL (2021). One-Year Endovascular Revascularization Failure in Black Persons: Comparing Logistic Regression and Random Forest Models *JVS - Vascular Science* (*In Preparation; Not Yet Submitted*)

19. Chae S, Gilbertson-White S, Cherwin C, Moorhead S, Brown G, Street N (2020). Longitudinal Subgrouping of Cancer Patients with Similar Symptom Experiences: A Systematic Review *Journal of Pain and Symptom Management* (*Submitted/In Review*)

2. Non-Peer-Reviewed Papers (reports, proceedings, etc.)

1. Brown G, Oleson JJ (2014). Estimating and predicting epidemic behavior for the 2014 West African Ebola Outbreak - A quick spatial SEIR modeling approach (2014 Online Report). *Online Report* http://grantbrown.github.io/Ebola-2014-Analysis-Archive/Oct_02_2014/Ebola2014/Ebola2014.html

2. Brown G, Oleson JJ (2015). Spatiotemporal epidemic modeling with libSpatialSEIR - Model specification, fitting, selection, and prediction. *Geocomputation 2015, Proceedings* http://www.geocomputation.org/2015/papers/GC15_68.pdf

3. Thedell TA, Boles CL, Cwiertny DM, Qian J, Brown GD, Nonnenmann MW (2018). Comparisons of a Novel Air Sampling Filter Material, Wash Buffers and Extraction Methods in the Detection and Quantification of Influenza Virus (*Working Paper*) https://www.biorxiv.org/content/10.1101/441154v1

3. Books/Monographs

4. Chapters

5. Electronic Publications

6. Abstracts

7. Other

1. Brown G, Oleson JJ (2011). 2011 Iowa Health Fact Book *Editor, 2011 Iowa Health Fact Book*

2. Brown G (2012). Preceptorship Project: "Examining the Association between Influenza Epidemics, Temperature, and Demographic Information via a Spatial SIR Model" (Advisor: Dr. Jacob J. Oleson)

3. Brown G (2015). PhD Dissertation: "Application of Heterogeneous Computing Techniques to Compartmental Spatiotemporal Epidemic Models" (Advisor: Dr. Jacob J. Oleson) (*In Preparation; Not Yet Submitted*)

4. Oleson JJ, Brown GD, McCreery R (2019). The Evolution of Statistical Methods in Speech, Language, and Hearing Sciences *Journal of Speech, Language, and Hearing Research* 62(3):498-506. PMC: PMC6802898, PMID: 30950732

5. Brown G, Ozanne M (2019). Statistical Models for Infectious Diseases: A Useful Tool for Practical Decision-Making. *American Journal of Tropical Medicine and Hygiene*

6. Seedorrff N, Brown GD (2021). totalvis: A Principal Components Approach to Visualizing Total Effects in Black Box Models *SN Computer Science*, 2:141.

7. Ozanne MV, Brown GD, Scorza BM, Mahachi K, Toepp AJ, Petersen CA (2021). Bayesian latent class models for identifying canine visceral leishmaniosis using diagnostic tests in the absence of a gold standard *PLoS Neglected Tropical Diseases* (*In Preparation; Not Yet Submitted*)

8. Brown GD, Gilbert PA, Kaskutas L, Kersten S, Mulia N, Skinstad A, Soweid L, Zemore SE, (2021). Predictors of Relapse in the environment of COVID-19 (*In Preparation; Not Yet Submitted*)

9. Kontowicz E, Torner J, Carrel M, Baker K, Petersen C (2020). Elastic Net Regression to Nowcast Regional Lyme disease rates and Identify Early warning *BMC Infectious Diseases*

   (*Revising to Resubmit*)

10. Boles C, Nonnenmann M, Brown G (2021). Determination of Murin Norovirus Aerosol Concentration During Toilet Flushing *International Journal of Hygiene and Environmental Health* (*Revising to Resubmit*)

11. Gomes-Solecki M, O'connell K, Nair N, Brisson D, Ostfeld RS, Penney J, Oleson JJ, Petersen CA, Brown GD (2021). Maternal transfer of neutralizing antibodies after oral immunization with OspA and their impact in the enzootic cycle of *B. burgdorferi. Journal of Infectious Diseases* (*Submitted/In Review*)

12. Ward C, Brown G, Oleson J (2021). An Individual Level Infectious Disease Model in the Presence of Uncertainty from Multiple, Imperfect Diagnostic Tests *Biometrics* (*Submitted/In Review*)

B. Areas of Research Interest/Current Projects

1. Bayesian Inference (Area of Research Interest)
2. Data Visualization (Area of Research Interest)
3. Statistical Computing (Area of Research Interest)
4. Statistical/Machine Learning, Ensemble Learning Techniques (Area of Research Interest)
5. Stochastic Compartmental Models and Spatial Generalizations (Area of Research Interest)

C. Sponsored Research (*ALL grants*)

(if you are not the PI, state your role or contributions - in a few sentences)

1. Grants Received

Source Title P.I.	Number of Months % Effort	Direct Funds Period of Funding
5881NB90 Iowa Department of Public Health *IDPH FY21 Screening Data Management* Jacob J. Oleson*, Subcontract PI* Grant Brown*, Statistician* *Breast and Cervical Cancer Early Detection Program, Data and Entry Analysis; WISEWOMAN Enhanced Design, Data Entry and Analysis; Data Management subcontract. Subcontract studies design, data management, and analysis on this project.*	8%	08/01/1995- 06/29/2022

Source Title P.I.	Number of Months % Effort	Direct Funds Period of Funding
R01 DC008089 National Institutes of Health *The Development of Real Time Spoken and Written Word Recognition: Cognitive Bases of Language and Educational Outcomes* Robert M. McMurray*, Principal Investigator* Grant Brown*, Co-Investigator* *This project is currently named "The Growing Words Project" and is premised on the idea that the cognitive processes by which children recognize both spoken and written words unfold over time, and that understanding differences in these processes (over development, or with language and reading disorders) can pinpoint precisely what is changing (or disordered) in the language and reading systems. The aims are: 1. To identify cognitive and developmental factors that shape automaticity and competition resolution during spoken and written word recognition, and the consequences of lexical processing differences for language and reading outcomes. 2. To understand how differences in the automaticity and resolution of lexical processing relate to adjacent processing domains (decoding, semantics and word learning, executive function). 3. To determine the loci and extent of plasticity in inhibitory aspects of lexical processing. 4. To identify computational underpinnings of learning and development of lexical processing.*	5%	01/08/2007- 11/30/2023
R49 CE002108 Centers for Disease Control & Prevention *University of Iowa Injury Prevention Research Center* Carri Casteel*, Co-Principal* Grant Brown*, Statistician* *Established in 1990, the University of Iowa Injury Prevention Research Center (IPRC) is organized within the College of Public Health supporting interdisciplinary research to control and prevent injuries, especially in rural communities.*	1.5%	$601,005 08/01/2012- 07/31/2019

Source Title P.I.	Number of Months % Effort	Direct Funds Period of Funding
Office of the Provost, BISSC *Enrollment Management and Student Success Predictive Analytics* Grant D. Brown*, Investigator, University of Iowa Department of Biostatistics*		08/01/2015
R25 HL131467 National Institutes of Health *Iowa Summer Institute for Research Education in Biostatistics* Gideon K. Zamba*, Principal Investigator* Grant Brown*, Co-Investigator* *This is a proposal to the National Institutes of Health (NIH), National Heart, Lung and Blood Institute (NHLBI), from the University of Iowa, in response to RFA-HL-16-017 for a Summer Institute for Research Education in Biostatistics. The ultimate vision of our proposed research education program is to increase the number of undergraduates who enter graduate programs in Biostatistics and to maintain a solid underrepresented minority pipeline into biostatistics graduate programs. The proposal is for the University of Iowa (UI) Department of Biostatistics to recruit a diverse group of 18 trainees each year, from 2016 to 2018, with focus on minority, underrepresented and disadvantaged students who wouldn't have otherwise been exposed to the field of biostatistics.*	4%	$228,258 02/15/2016- 01/31/2019

Source Title P.I.	Number of Months % Effort	Direct Funds Period of Funding
R01 TW010500 NIH *Epidemic Modeling Framework For Complex, Multi-Species Processes And The Impact Of Vertical And Vector Transmission: A Study Of Leishmaniasis In Peri-Urban Brazil* Jacob J. Oleson*, Principal Investigator, University of Iowa, Biostatistics* Grant D. Brown*, Co-Investigator, University of Iowa, Biostatistics* Selma Jeronimo*, Co-Investigator, Universidade Federal do Rio Grande do Norte, Natal, Brazil* Shaden Kamhawi*, Co-Investigator, Universidade Federal do Rio Grande do Norte, Natal, Brazil* Christopher N. Mores*, Co-Investigator, LMVR, NIAID, NIH* Christine A. Petersen*, Co-Investigator, University of Iowa/Epidemiology* *Despite knowledge of vertical transmission for multiple infectious diseases for at least three-quarters of a century, we do not know how vertical transmission impacts the basic reproductive number (R0) of classically vector-borne infections. In addition, multi-species diseases are likely to persist through both vertical and horizontal transmission, and not enough is known about their collective impact on R0. Vertical transmission of VL was previously discounted, but this EEID collaborative group has demonstrated that vertical transmission maintains endemic canine VL within US hunting hounds (6). We use this unique cohort to measure the infective capacity of vertical transmission in VL. With understanding gained from this study, we will be able to interpret how vertical transmission and horizontal transmission impact R0 separately, and we will quantify their interactive effect on R0.*	60 months 10%	07/20/2016- 06/30/2021

Source Title P.I.	Number of Months % Effort	Direct Funds Period of Funding
R21 AA023878 National Institutes of Health *Factors Responsible for Racial-Gender Disparities in Alcohol Services Use* Paul Gilbert*, Principal Investigator* Grant Brown*, Co-Investigator* *Alcohol abuse and dependence are responsible for considerable public health harms; yet, the majority of people with an alcohol use disorder do not receive treatment, and some social groups are less likely than others to receive alcohol services. In addition, there are gender differences. Among those with alcohol use disorders, women are less likely to obtain treatment, more likely to present with comorbid conditions, and remain in treatment for shorter durations than men. Furthermore, gender may exacerbate racial/ethnic disparities. We will identify predisposing, enabling/inhibiting, and need factors associated with alcohol services use. Findings will extend current knowledge about the mechanisms responsible for disparities and may identify leverage points for interventions to increase alcohol services use.*	10%	$118,750 04/01/2016- 03/31/2018
P20 NR018081 NIH/NINR *Center for Advancing Multimorbidity Science: Profiling rish and symptom expression to develop customized therapies for adults with multiple chronic conditions (CAMS)* Sue Gardner*, Co-Principal* Barbara Rakel*, Co-Principal* Grant Brown*, Consultant* *The Center aims to accelerate the realization of precision health by: a) broadening the conceptual model of multimorbidity science to include symptoms/ symptom clusters; b) training new investigators in multimorbidity science and advanced data analytics; and c) mentoring new investigators from pilot projects through the established programs of research in multimorbidity and precision science.*	0%	08/13/2018- 05/31/2023

Source Title P.I.	Number of Months % Effort	Direct Funds Period of Funding
R25 HL147231 National Institutes of Health *Iowa Summer Institute for Research Education in Biostatistics (ISIREB)* Gideon Zamba*, Principal Investigator* Grant Brown*, Co-Investigator* *This is a proposal to the National Institutes of Health (NIH), National Heart, Lung and Blood Institute (NHLBI), from the University of Iowa, in response to RFA-HL-19-019 for an Iowa Summer Institute for Research Education in Biostatistics (ISIREB), Summer Programs 2019, 2020, & 2021.*	8%	03/01/2019- 02/28/2022

R01 AI139267 2% 06/19/2019-
National Institutes of Health 05/31/2024
Field Trial and Modeling of Transmission Blocking Vaccine to Prevent Lyme Disease
Christine Petersen*, Principal Investigator*
Grant Brown*, Co-Investigator*

Estimates from the CDC indicate that over 300,000 people are diagnosed each year with LD. Ecological approaches to decrease B. burgdorferi burden in Ixodes ticks, and transmission to other hosts, are highly desired tools for use instead of the current 'check for ticks' approach. It is well established that after a vertebrate host is immunized with B. burgdorferi' OspA they produce antibody that, upon bloodmeal ingestion by a feeding tick, kills B. burgdorferi within that tick. These are known as transmission-blocking vaccines (TBV). The goal of this work is to demonstrate that a commercial-grade reservoir targeted TBV alters B. burgdorferi infection prevalence in questing ticks, in endemic areas (PA and MD) geographically distinct from the first field trial (NY). These proposed studies are highly significant to public health as a field trial demonstration of a TBV that disrupts the enzootic transmission cycle of B. burgdorferi to incidental hosts. Furthermore, demonstration of reduced human (incidental host) Lyme disease will be performed through a stochastic Bayesian model that will provide critical evidence for a new tool to decrease environmental exposure to Lyme disease. This work innovates as a demonstration of an efficacious, easily distributable and inexpensive TBV that reduces B. burgdorferi prevalence in nymphal and adult ticks, as well as B. burgdorferi transmission from ticks to incidental hosts. Reduction of transmission of B. burgdorferi to incidental hosts as a result of TBV distribution will prove to be a paradigm-shifting strategy to reduce the burden of Lyme disease in veterinary and human populations. Findings from experiments proposed in this study will advance translational knowledge of B. burgdorferi vaccinology and will provide strong evidence regarding the possibility of TBV reducing the human health risk of exposure to Lyme disease across the United States.

Source Title P.I.	Number of Months % Effort	Direct Funds Period of Funding
R01 AA0272667 National Institutes of Health *Recovery Definitions and Behavior Change Processes in Recovery Outside of Treatment* Paul Gilbert*, Principal Investigator* Grant Brown*, Co-Investigator* *Only a minority of adults with alcohol use disorder ever obtain treatment, but a large proportion of them will go on to resolve their drinking problem. This study uses quantitative surveys and qualitative interviews to explore definitions of recovery, related behavior change strategies, and outcomes (such as stability of recovery) outside of treatment. Results will extend knowledge about alternate pathways to recovery and may lead to more efficacious, low threshold interventions to promote recovery among those unable or unwilling to use specialty treatment services.*	15%	09/20/2019- 08/31/2024
No Contract # Immuno Technologies, Inc. *Antibody Isotoping for Discrimination of Disease Stages and Diagnosis of Early Lyme Disease* Grant Brown*, Principal Investigator* *We will perform statistical analyses, provide consultation concerning data issues, and provide general statistical support as needed. During the first year, we will support data collection and processing efforts, and will begin to build statistical models with simulated data. When analytic data sets become available, we will build and test an optimal black-box classifier and parsimonious diagnostic rules for detecting the clinical categories of interest. In the second year, we will finalize the analytical products and assist in the preparation of scholarly manuscripts and follow-up proposals.*	10%	07/01/2020- 06/30/2022

Source Title P.I.	Number of Months % Effort	Direct Funds Period of Funding
110028-67-RGRL American Foundation for AIDS Research *Deep Learning Methods to Personalize Antibody Therapeutics for Delaying Viral Rebound after Cessation of ART* Hillel Haim*, Principal Investigator* Grant Brown*, Co-Investigator* *A primary goal in the HIV/AIDS field is design of interventions that would allow sustained HIV remission after cessation of antiretroviral therapy (ART). Several approaches have been tested over the years, including therapeutic vaccination (10), stem cell transplantation (11) and passive administration of antibodies (Abs). It is our long-term goal to develop the molecular-computational pipeline that would allow us to analyze a single pre-therapy sample to define the likelihood of each patient to develop secondary resistance to each treatment.*	9%	10/01/2020

2. Grants Pending

Source Title P.I.	Number of Months % Effort	Direct Funds Period of Funding

D. Presentations

1. Invited Presentations

Year	Title	Organization	Presentation Type
December 2014	"Working with Epidemic Data" (Invited Presentation) (Brown G)	Biostatistics Seminar, Cornell College, Mt. Vernon, Iowa, United States	Invited Lecture
June 2016	Big Data? Infectious Disease Models (Brown GD)	Big Data Camp, Department of Statistics, Iowa City, United States	Invited Lecture
November 2016	Approximate Bayesian Computation for Compartmental Epidemic Models (Brown GD)	Emory University, Atlanta, Georgia, United States	Invited Lecture

Year	Title	Organization	Presentation Type
June 9, 2020	Epidemic Models of Borrelia burgdorferi for planning and evaluating interventions (plus a few notes about COVID in Iowa) (Brown G, Gomes-Solecki M, Penney J, Oleson JJ, Petersen CA)	Advancing knowledge about spatial modeling, infectious diseases, environment and health, The Fields Institute, Online	Invited Lecture

2. Conference Presentations/Posters

Year	Title	Organization	Presentation Type
2015	"Adherence Trends of Four Chronic Disease Medication Classes among Beneficiaries in Two Medicare Part D Plans" (Invited Presentation) (Zhang Y, Brown G)	APhA Conference, American Pharmaceutical Assocation	Oral
March 8, 2016	Approximate Bayesian Computation for Compartmental Epidemic Models - Methods and Software (Brown GD, Porter AT, Oleson JJ)	ENAR, International Biometrics Society, Austin, Texas, United States	Oral
August 2016	Approximate Bayesian Computation for Compartmental Epidemic Models - Methods and Software (Brown GD, Porter AT, Oleson JJ)	JSM, IBS, Chicago, Illinois, United States	Oral
May 2018	Leveraging Institutional Data: Predicting Undergraduate Enrollment and Retention (Brown GD)	TechForum 2018, University of Iowa	Oral
July 31, 2019	Bayesian Compartmental Model for an Infectious Disease with Multiple Infectious States (Ozanne MV, Brown GD, Oleson JJ)	JSM, ASA, IBS, Denver, Colorado, United States	Poster

3. Other Presentations

Year	Title	Organization	Presentation Type
November 2014	"Predicting Epidemic Behavior" (Online Invited Presentation) (Brown G)	Project Lead the Way	Demonstration
January 2015	"An Empirically Adjusted Reproductive Number for Stochastic Compartmental Models" (Invited Presentation) (Brown G)	Biostatistics Seminar (Faculty Recruit), Department of Biostatistics, University of Iowa, Iowa City, Iowa, United States	Seminar
October 2015	Predictive Modeling for First Year Enrollment (Brown G, Carter K, Hovland M)	University of Iowa Institutional Data Users Group	Seminar
October 19, 2015	Modeling of Infectious Diseases (Brown GD)	Epidemiology of Infectious Diseases (Fall 2015), University of Iowa, Department of Epidemiology	Lecture
February 18, 2016	Approximate Bayesian Computation for Compartmental Epidemic Models (Brown GD)	Colloquia Series, University of Iowa, Department of Statistics, Iowa City, Iowa, United States	Colloquium
October 2016	Evaluation of Educational Programs to Improve Medication Use in Nursing Home Residents." Department of Epidemiology Seminar (Carnahan R, Brown G)	Department of Epidemiology, Iowa City, Iowa, United States	Colloquium
November 2016	SAS and R: A practical comparison for predictive analytics (Brown GD, Dai B)	UI Business Intelligence Community, Iowa City, Iowa, United States	Seminar
July 2017	Big Data etc. (Brown GD)	Iowa Summer Institute for Biostatistics, University of Iowa	Guest Speaker
March 2, 2018	Working with Approximate Bayesian Computation in Stochastic Compartmental Models (Grant BD,)	Colorado School of MInes, Golden, Colorado, United States	Colloquium

Year	Title	Organization	Presentation Type
April 2018	Partnerships in Technology, Predictive Indexes & Process to Influence Student Success & Retention: A Data Science Perspective (Nwoke U, Ulin B, Brown G)	Higher Education Data Warehousing Forum, Corvallis, Oregon, United States	Conference Presentation
July 2018	Big Data etc. (Brown GD)	Iowa Summer Institute for Biostatistics, University of Iowa	Guest Speaker
August 16, 2018	1/27 Introduction/Model R0, eective R0, R0(t), and R(EA) Illustrative Examples: Ebola References An empirically adjusted approach to reproductive number estimation for stochastic compartmental models: A case study of two Ebola outbreaks. (Brown GD)	International Biometrics Society - Journal Club, IBS	Paper
November 2018	Predictive Modeling for First Year Enrollment (Brown GD)	Human Side of Big Data - First Year Seminar, University of Iowa	Guest Speaker
July 2019	Structure Penalized Trees for Ensemble Methods – Robust Prediction for Annual Outcome Data (Brown GD)	JSM, ASA, Denver, Colorado, United States	Conference Presentation
July 2019	Big Data etc. (Brown GD)	Iowa Summer Institute for Biostatistics, University of Iowa	Guest Speaker
July 2020	Big Data etc. (Brown GD)	Iowa Summer Institute for Biostatistics, University of Iowa	Guest Speaker
October 22, 2020	Modelling the Enzootic Cycle of Borrelia burgdorferi for Planning and Evaluating Interventions (Brown GD)	Department of Statistics and Actuarial Science, Iowa City, Iowa	Colloquium

IV. SERVICE

A. Offices/appointments held in professional organizations

1. Editorships

Year	Organization	Position

2. Review Panels

Year	Organization	Position

3. Professional Organizations (state and/or national)

Year	Organization	Position
2014-Present	American Statistical Association	
2015-Present	International Biometrics Society	
2015-2016	Statistical Graphics Section - Student Paper Competition	Reviewer

B. Other Professional Service

1. Referee Manuscripts/Journal Reviews

Year	Organization	Position
2015	Biostatistics	Reviewer, Publications
2016-Present	PLOS Neglected Tropical Diseases	Reviewer, Publications
2018-Present	American Journal of Tropical Medicine and Hygiene	Reviewer
2018-Present	PLOS ONE	Reviewer
2018	Journal of the Royal Statistical Society	Reviewer
2018	International Conference on Information Systems - 2018	Reviewer
2019-Present	Journal of Speech, Language, and Hearing Research	Reviewer
2019-Present	Biostatistics	
2020-Present	Heliyon-D	Reviewer
2020-Present	Spatial and Spatiotemporal Epidemiology	Reviewer
2020-Present	Statistics in Medicine	Reviewer
2020-Present	JAMA Network Open	Reviewer
2020-Present	Journal of Applied Statistics	Reviewer

Year	Organization	Position
2020-Present	Biostatistics & Epidemiology	Reviewer

2. Organize Conference, Paper Session, etc.

Year	Organization	Position

3. State Committees

Year	Organization	Position

4. National Committees

Year	Organization	Position

5. Professionally Relevant Community Involvement

Year	Organization	Position

6. Professional Consulting

Year	Organization	Position

7. Other

Year	Organization	Position
2019		Reviewer
2020	COVID Modelling Group, University of Iowa	Expert Panel

C. Departmental, Collegiate or University Service

Year	Organization	Position
2011	College of Public Health, University of Iowa, Student Panel for Undergraduates	Biostatistics Student Representative
2012	Iowa Initiative Press Conference	Participant
2013-2015	Computation and Informatics Committee	Student Representative
2015	College of Public Health, University of Iowa	Biostatistics Student Representative, Legislative Breakfast

Year	Organization	Position
2015-Present	Biostatistics Admissions and Student Recruitment Committee (Co-Chair 2016-2017)	Member
2015-Present	CPH Undergraduate Steering Committee	Member
2015-2016	Advanced Statistical Computing Course Committee	Chair
2016-Present	Biostatistics Computing Committee	Member
2016-Present	Biostatistics Web Based Instruction Resource Committee	Chair
2016-Present	CPH Undergraduate Program Committee	Member
2016-2017	University of Iowa Business Intelligence Community (BIC) Steering Committee	Member
2016-2019	M.S. Core Exam Committee (Winter)	Member
2017-Present	University of Iowa Business Intelligence Community (BIC) Steering Committee	Member
2017-2019	CPH Statistical Methods Course Task Force	Member
2019	CPH Search Committee for Community and Behavioral Health DEO	Member

F. Media Contributions

Name	Date	Media Type
IOWANow https://now.uiowa.edu/2019/02/ui-study-finds-women-seek-and-resist-help-alcoholism-different-ways-men	February 2019	On-line
KGAN - EXCLUSIVE: Iowa's News Now speaks with UI research team member forecasting COVID-19 spread	2020	TV

Name	Date	Media Type
https://cbs2iowa.com/news/local/exclusive-research-forecasts-covid-19s-continued-spread-in-iowa		