

Cici X.C. Bauer, Ph.D.

Assistant Professor, Department of Biostatistics and Data Science

University of Texas Health Science Center in Houston

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| CONTACT INFORMATION | <i>e-mail:</i> cici.x.bauer@uth.tmc.edu <i>webpage:</i> https://cicibauer.netlify.com <i>office:</i> E819, 1200 Pressler Street, Houston, TX 77030 <i>phone:</i> (713)500-9581 |
| EXPERTISE/ INTERESTS | Bayesian spatial-temporal modeling; Hierarchical models for complex survey data; Statistical analysis of data from wearable devices |
| EDUCATION | Ph.D., Statistics, University of Washington Seattle, August 2012 <ul style="list-style-type: none">• Dissertation: <i>Bayesian Modeling of Health Data in Space and Time</i>• Advisor: Prof. Jon Wakefield• Committee: Prof. Peter Guttorp, Prof. Vladimir Mini, Prof. Paul Sampson, Prof. Steve Self |
| CURRENT PROFESSIONAL POSITIONS | Assistant Professor (Tenure Track) September 2018 – Present Department of Biostatistics, University of Texas Health Science Center at Houston Adjunct Faculty September 2016 – Present Department of Biostatistics, Brown University |
| PREVIOUS PROFESSIONAL POSITIONS | Associate Director of Statistics September 2016 – September 2018 ECD Non-clinical Research, Pfizer, Cambridge, MA Assistant Professor (Tenure Track) September 2012 – August 2016 Department of Biostatistics, Brown University <ul style="list-style-type: none">• Faculty Affiliate September 2012 – August 2016 Spatial Structures for the Social Sciences (S4), Brown University• Fellow May 2014 – August 2016 Institute for the Study of Environment & Society, Brown University• Faculty Affiliate September 2013 – August 2016 Biostatistics core, Hasbro Children's Hospital Research Assistant Winter 2010 – Summer 2012 Statistical Center for HIV/AIDS Research & Prevention (SCHARP), Fred Hutchinson Cancer Research Center, Seattle, Washington Supervisor: Prof. Steve Self and Prof. Jon Wakefield <ul style="list-style-type: none">• Develop spatial-temporal disease mapping models to describe the spatial and temporal variability for Hand-foot-mouth Disease (HFMD) in China.• Develop models for estimate pathogen specific inference using disease surveillance data.• Develop predictive models for disease surveillance data. Biometrician II Fall 2005 – Summer 2007 Alaska Dept. of Fish and Game Wildlife Conservation, Fairbanks, Alaska <ul style="list-style-type: none">• Provide Biometrics support for various projects. Main projects include moose population estimation using GSPE (Geospatial Population Estimation), use and development of a logistic conditional autoregressive models (CAR) model within Bayesian framework to investigate wolverine population distribution in Alaska and DNA-based grizzly bear population estimation using Mark-recapture method.• Develop spatial models for estimating brucellosis disease rates in Alaska wildlife populations. |

- Present research results and analyses to regulatory boards, councils, commissions, and the public.
- Develop and plan workshops such as moose population estimation workshop designed to train regional biologists to use the GSPE method.
- Interpret research findings and prepare special reports and recommendations.
- Develop and review project reports and operational plans.

PEER-VIEWED †student advised/co-advised/supervised

- PUBLICATIONS
- [1] †Xie L, **Bauer C**, Gelfand A, Messiah S. National prevalence of parent-reported asthma diagnosis in environmental tobacco smoke-exposed versus non-exposed children and adolescents, 2016-2017. Under review.
 - [2] Dumont M, Roy M, Jodoin PM, Morency F, Houde JC, Xie Z, **Bauer C**, Samad T, Van Dijk K, Goodman J, Descoteaux M. Free water in white matter differentiates MCI and AD from control subjects. *Frontiers in Aging Neuroscience*. Accepted.
 - [3] Logan J, **Bauer C**, Ke J, Xu H, Li F. Models for Small Area Estimation for Census Tracts. *Geographical Analysis*. 2019. In press. <https://doi.org/10.1111/gean.12215>
 - [4] †Sahlu I, **Bauer C***, Ganaba R, Preux P, Cowan L, Dorny P, Millogo A, Carabin H. The impact of imperfect screening tools on measuring the prevalence of epilepsy and headaches in Burkina Faso. *PLOS Neglected Tropical Diseases* 13(1): e0007109, 2019.
* equal contribution as first author
 - [5] †Sahlu I, Carabin H, Ganaba R, Preux P, Cisse, A.K., Tarnagda Z, Gabriel S, Dermauw V, Dorny P, **Bauer C**, Millogo A. Estimating the association between being seropositive for cysticercosis and the prevalence of epilepsy and severe chronic headaches in 60 villages of rural Burkina Faso. *PLOS Neglected Tropical Diseases* 13(1): e0007101, 2019.
 - [6] **Bauer C**, Wakefield J. Stratified space-time infectious disease modeling: with an application to hand, foot and mouth disease in China. *Journal of the Royal Statistical Society Series C*, 67:1379-1398, 2018.
 - [7] †Servadio J, Rosenthal S, Carlson L, **Bauer C**. Climate patterns and mosquito-borne disease outbreaks in south and southeast Asia. *Journal of Infection and Public Health*. 2018;11(4):566-571. PMID: 29274851.
 - [8] Carabin H, Millogo A, Ngowi H, **Bauer C**, Dermauw V, Cissé A, Sahlu I, Salvatore A, Preux P, Somé T, Tarnagda Z, Gabrië S, Cissé R, Ouédraogo J, Cowan L, Boncoeur M, Dorny P, Ganaba R. Effectiveness of a community-based educational programme in reducing the cumulative incidence and prevalence of human *Taenia solium* cysticercosis in Burkina Faso in 2011-14 (EFECAB): a cluster-randomised controlled trial. *The Lancet Global Health*. 2018;6(4):e411 - e425. PMID:29530423.
 - [9] Harrington C, Holub S, **Bauer C**, Steel E. Tree roots in Douglas-fir forests in the Pacific Northwest in relation to depth, space, coarse organic matter and mineral fragments. *Northwest Science*. 2017;91(4):326-343.
 - [10] Fish L, Wakefield J, **Bauer C**, Self S. Time series modeling of pathogen-specific disease probabilities with incomplete data. *Biometrics*. 73(1), 283-293, 2017. PMID: PMC5224700. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5224700/>
 - [11] **Bauer C**, Wakefield JC, Rue H, Self SG, Feng Z, Wang Y. Bayesian spline models for the analysis of spatio-temporal count data. *Statistics in Medicine*, 35(11), 2016. PMID: 26530705. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4959802/>
 - [12] Carabin H, Millogo A, Cissé A, Gabrië S, Sahlu I, Dorny P, **Bauer C**, Tarnagda Z, Cowan L, Ganaba R. Prevalence of and factors associated with human cysticercosis in 60 Villages in three provinces of Burkina Faso. *PLOS Neglected Tropical Diseases*. 2015;9(11):e0004248. PMID: 26588468. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4654529/>

- [13] Smith KF*, Goldberg M, Rosenthal S, Carlson L, Chen J, **Chen(Bauer) C***, Ramachandran, S*. *Global rise in human infectious disease outbreaks. Journal of the Royal Society Interface.* 2014;11(101).
* equal contribution as first author
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4223919/>
- [14] **Chen(Bauer) C**, Wakefield JC, Lumley T. The use of sampling weights in Bayesian hierarchical models for small area estimation. *Spatial and Spatio-temporal Epidemiology*, 11:33-43, 2014. PMID: 25457595.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4357363/>
- [15] Mercer L, Wakefield JC, **Chen(Bauer) C**, Lumley T. A Comparison of Spatial Smoothing Weighting Methods for Small Area Estimation. *Spatial Statistics*, 8: 69-85, 2014. PMID: 24959396.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4064473/>
- [16] Yang Y, Feng Z, Self SG, Gao Y, Wakefield J, Wang L, Zhang J, **Chen(Bauer) C**, Yao L, Stanaway J, Wang Z, Yang W, Wang Y. Hand, foot and mouth disease in China: patterns of spread during 2008-2009. *Epidemiology*, 22(6): 781-792, 2011. PMID: 21968769.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3246273/>
- [17] Rupp TS, **Chen(Bauer) C**, Olson M. Sensitivity of simulated boreal fire dynamics to uncertainties in climate drivers. *Earth Interactions*, 11: 3-21, 2007.

RESEARCH
GRANTS AND
CONTRACTS

Funded Research Grants:

- **MDPH** (PI: Stopka T, Tufts University) Feb - Aug 2019
 Role: Consultant
 Funded by Massachusetts Department of Public Health (MDPH)
 “High-risk opioid prescribers and overdose in MA: a mixed methods approach”
 The project aims to conduct spatial and statistical analyses by employing a mixed methods “prescriber-centered” approach to assess opioid prescribing rates and associations with fatal and non-fatal opioid overdoses in communities across Massachusetts.
- **NIH/NINDS R01NS064901** (PI: Carabin H, University of Oklahoma Health Sciences Center)
 2014–2017
 Role: Consultant
 “EFECAB: improving pig management to prevent epilepsy in Burkina Faso”
 Total Funding: \$2,294,999
- **NIH/NIAID R21AI119773** (PI: Yang Y, University of Florida) 2015–2017
 Role: subcontract-PI (2015-2016)
 “Spatial-temporal modeling for surveillance data of multiple pathogens”
 This project proposes new statistical methods for analyzing infectious disease surveillance data to address the challenges of multiple transmission routes, multiple co-circulating pathogen types and complex system of immunity, cross-immunity and unobserved asymptomatic infections.
 Total Funding:\$435,990/Direct Costs:\$328,472/Indirect Costs:\$107,518
- **CFAR Developmental Grant** (PI: Bauer C) 2015–2016
 Role: Principle Investigator
 “The spatial pattern of HIV treatment cascade from home-based counseling and testing in western Kenya”
 The project investigates the spatial patterns of linkage to and retention in HIV care from home-based counseling and testing (HBCT) program in Western Kenya.
 Total Funding: \$40,000
- **NIH/NCI R01CA095994** (PI: Wakefield J, University of Washington Seattle) 2014–2018
 Role: subcontract-PI (2014-2016)
 “Spatio-temporal epidemiology: methods and applications”

This project proposes new statistical methodology development methods for the prediction of space-time health data.

Total Funding:\$1,622,394

- **NIH/NICHD R21HD078762** (PI: Logan J, Brown University) 2014–2016
 Role: Co-Investigator
 “Investigating and extending Bayesian methods for small area estimation”
 This project evaluates the performance of Bayesian models for small area estimation with a particular focus on their performance with population data of the type provided by the census.
 Total Funding:\$441,796/Direct Costs:\$271,875/Indirect Costs:\$169,921
- **Seed Grants** (PI: Smith K, Brown University/Bauer C) 2014–2016
 Role: Co-Investigator (2014–2015)/Principle Investigator (2015–2016)
 Funded by the Institute for the Study of Environment and Society (IBES), Brown University
 “Effects of climate and land-cover change on human infectious disease outbreaks”.
 Total Funding:\$150,000
- **Seed Grants** (PI: Smith K, Brown University) 2013–2014
 Role: Co-Investigator
 Funded by the Institute for the Study of Environment and Society (IBES), Brown University
 “Communications and socio-environmental drivers of disease outbreaks.”
 Total Funding:\$20,000
- **Salomon Faculty Research Awards** (PI: Bauer C) 2012–2013
 Brown University
 “Small-area estimation using complex survey data”
 Total Funding:\$7,500

Training Grants:

- **NIH/NINDS F31NS093983** (PI: Sahlu I) 2015–2017
 Role: Mentor
 “Epidemiologic and spatial methods to improve estimates of neurological disorders from population based studies”

TEACHING †Designed new course, ‡Substantial revision/redesign

Univerisity of Texas Health Science Center in Houston

| Course Title | Semester | Enrollment |
|--|-------------|------------|
| Independent Study | Summer 2019 | 2 |
| Introduction to Biostatistics in Public Health (PH 1690) | Fall 2019 | 47 |

Brown University

- ‡Principles of Biostatistics and Data Analysis (PHP 2510), Fall 2013/2014/2015
- †Spatial Statistics (PHP 2604), Spring 2013/2014/2016
- †Generalized Linear Models (PHP 2605), Spring 2015
- ‡Introduction to Spatial Statistics Workshop (3 hours), S4 GIS Institute, Winter 2013/Summer 2014
- Brown IMSD: Introduction to Statistics. Summer 2014. 4 hours.

Lectures/Workshop Taught Elsewhere

- Guest lecture on ‘Hypothesis Testing’ in PH2770 ‘NIH Proposal Development’, a required course for Epidemiology PhD students, Department of Epidemiology, UTSPH, Fall 2019.

- Introduction to Statistics (Stat 300), an elementary statistics course for undergraduate students. University of Alaska Fairbanks, Fairbanks, Alaska, Fall 2005/Spring 2006.
- Analysis of Epidemiological Data, Brown-China NIEHS Epidemiology and Biostatistics Workshop. Xi'an, China, Summer 2015. 2 hours.

STUDENT
ADVISING

Thesis Advisor

- Yunyun Jiang, MS Biostatistics, current, UTSPH.
- Emily Silvia, MPH, 2016, Brown University.
Geographic variation in receipt of rehabilitation services post lower limb amputation surgery in the VA system.
- Jun Ke, MS Biostatistics, 2016, Brown University.
Spatial boundary detection using Bayesian hierarchical modeling.
- Zihao Zhang, MS Biostatistics, 2016, Brown University.
The association between ambient air pollution exposure and birth outcome: an analysis from a cohort study in Wuhan, China.
- Joe Servadio, MS Biostatistics, 2015, Brown University.
Climate determinants of vector-borne infectious disease outbreaks in Asia.
Winner of the best poster for Master's students, Brown University School of Public Health Research Day, 2015
- Alyssa Feldman, MS Biostatistics, 2014, Brown University.
Analyses of the temporal trends of global infectious disease outbreaks.

Committee Member/Thesis Reader

- Temitope Oluwadairo, PhD Epidemiology, current, UTSPH.
Evaluation of a low-cost sensor device for the assessment of community exposures to fine particulate matter in Houston, Texas.
- Ryan Suk, PhD Health Economics, current, UTSPH.
The Burden of HPV-associated Cancer in Inflammatory Bowel Disease Patients.
- Ida Sahlu, PhD Epidemiology, 2014-2017, Brown University.
Estimating the burden of neurological disorders in low-resource settings.
- Bahar Erar, PhD Biostatistics, 2013-2016, Brown University.
Whole Genome Regression for Modeling Gene×Environment Interactions in Structured Populations.
- Frances Terry, MPH, 2014-2015, Brown University.

Visiting Student Supervised

- Gabriella Novak, undergraduate summer intern, Summer 2019, University of Rochester.
- Ping Wang, PhD exchange student, Spring 2015, School of Public Health, City University of Hong Kong.

PROFESSIONAL
SERVICE **Department Service:**

- Fall 2018 – present, Chair of faculty search committee (Teaching-track)
Department of Biostatistics and Data Science, UTHealth School of Public Health.
- Spring 2019 – present, Student admission committee
Department of Biostatistics and Data Science, UTHealth School of Public Health.
- Spring 2019 – present, Teaching quality and efficiency committee

Department of Biostatistics and Data Science, UTHealth School of Public Health.

- Spring 2016, Data science track in Biostatistics ScM program Ad-hoc committee
Department of Biostatistics, Brown University.
- 2014 - 2016, Faculty liaison for Sheridan teaching center
Department of Biostatistics, Brown University.
- Fall 2013/Fall 2014/Fall 2015/Spring 2016, Graduate program committee
Department of Biostatistics, Brown University.
- Spring 2015, PhD qualifying exam committee
Department of Biostatistics, Brown University, Brown University.
- Spring 2013/2015/2016, Master program admission committee,
Department of Biostatistics, Brown University, Brown University.
- Spring 2014, PhD program admission committee.
Department of Biostatistics, Brown University, Brown University.
- 2013-14, Brown statistics seminar organizing committee.
Department of Biostatistics, Brown University, Brown University.

School and University:

- Fall 2019 - present, Faculty search committee
UTHealth School of Public Health, Brownsville.
- Spring 2016, MPH admission committee
School of Public Health, Brown University.
- 2013 –2015, MPH core advisor
School of Public Health, Brown University.
- 2014 –2015 Curriculum committee member
School of Public Health, Brown University.

Conference Organizing and Service to Professional Societies

- 2020, **Member**. Local organizing committee/Poster session committee
ICSA 2020 Applied Statistics Symposium, Houston, TX.
- 2019, **Volunteer**, StatFest2019
The University of Texas Health Science Center at Houston, Houston, TX.
- 2019, **Organizer**. Topic-contributed paper session ‘Recent advances in spatial and spatial-temporal analysis.’
Joint Statistical Meetings (JSM), Denver, US.
- 2018, **Co-chair**. Local organizing committee.
4th International Conference on Big Data and Information Analytics, Houston, TX.
- 2015, **Organizer**. Invited session ‘Recent advances in Spatial statistics’.
The 29th New England Symposium (NESS), University of Connecticut, CT.

TALKS AND PRESENTATIONS

- Invited talk: Spatial-temporal statistical models: some methods and applications.
Department of Mathematics, University of Houston, Houston, TX, February 2019.
- Contributed talk: Probabilistic modeling of sleep and awake states in Alzheimer’s disease.
Contributed e-poster: Using wearable devices to quantify modulation of circadian rhythms.
Joint Statistical Meetings (JSM), Vancouver, Canada, August 2018.

- Invited talk: Bayesian space-time models for the analysis of infectious disease surveillance data. Department of Biostatistics, Yale University, April 5, 2016.
- Invited talk: Spatial-temporal statistical models: some methods and applications. IBM Thomas J. Watson Research Center, September 18, 2015.
- Module of Analysis of epidemiological data, Brown-China NIEHS Epidemiology & Biostatistics Workshop, Xi'an China, June 2-5, 2015
- Statistical analysis of the ambient air pollution data in Wuhan, China. China Forum on Public Health, Environment, and Health Policy, Brown University, April, 2015
- Session organizer (invited): Recent advances in Spatial statistics. The 29th New England Symposium (NESS), University of Connecticut, April, 2015
- Invited talk: The use of sampling weights in Bayesian hierarchical models for small area estimation. Department of Statistics, University of Connecticut, CT, November, 2014
- Invited talk: The use of sampling weights in Bayesian hierarchical models for small area estimation. Department of Management Science, Tokyo University of Science, Tokyo, Japan, July 2014
- Invited talk: Bayesian spline models for the analysis of spatial-temporal count data. The 3rd IMS-APRM (Institute of Mathematical Statistics Asia Pacific Rim Meeting), Taipei, Taiwan, July 2014
- Invited talk: Bayesian spatial-temporal models for the analysis of China Hand-foot-mouth surveillance data. China CDC, Beijing, China, June 2014
- Contributed poster: Bayesian spline models for the analysis of spatial-temporal count data. 1st Women in Statistics Conference, Cary, NC, May 2014
- Contributed talk: Space-time models for aggregated infectious disease data with different strains. Joint Statistical Meetings (JSM), Montreal, Canada, August 2013.
- Invited: Bayesian spline models for the analysis of spatial-temporal count data. 15th IMS New Researchers Conference, Montreal, Canada, August 2013.
- Invited talk: Bayesian spline models for the analysis of spatial-temporal count data (In the session of Recent Development in Spatial Statistics) The 27th New England Symposium (NESS), University of Connecticut, April 2013
- Invited talk: Bayesian modeling of health data in space and time Department of Mathematics and Statistics, University of Massachusetts Amherst, April 2013
- Invited talk: Spatial statistics and its applications. S4 GIS Institute, Brown University, January 2013
- Contributed poster: Bayesian spline models for the analysis of spatial-temporal count data. Spatial Statistics Conference, University of Miami, December 2012
- Contributed talk: The use of sampling weights in Bayesian hierarchical models for small area estimation. Joint Statistical Meetings (JSM), San Diego, CA, July 2012.

PROFESSIONAL MEMBERSHIPS American Statistical Association, 2010 – present

AWARDS AND HONORS

- Travel award for Woman in Statistics conference, Raleigh, NC, May 2014 (\$500)
- Sheridan junior faculty teaching fellow award, Brown University, 2013–2014 (5 recipients total)

- Travel award for the Joint Statistical Meeting, University of Washington Seattle, 2012
- Tuition award for the 2nd Summer Institute in Statistics and Modeling in Infectious Diseases (SIS-MID), Seattle, WA, 2010
- Top scholar award, Department of Statistics, University of Washington Seattle, 2007