

Adam J. Branscum, Ph.D.

Departments of Biostatistics, Statistics, and Epidemiology

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EDUCATION

| | | | |
|-------|--------------|------|---|
| Ph.D. | Statistics | 2005 | University of California, Davis Department of Statistics |
| M.S. | Epidemiology | 2005 | University of California, Davis Graduate Group in Epidemiology |
| M.S. | Statistics | 2000 | California State University, East Bay Department of Statistics |
| B.S. | Mathematics | 1999 | California State University, East Bay Department of Mathematics and Computer Science |

EXPERIENCE

Assistant Professor, University of Kentucky (August 2005 - present).

- Department of Biostatistics (College of Public Health)
- Department of Statistics (College of Arts and Sciences)
- Department of Epidemiology (College of Public Health, August 2006 - present)

Assistant Statistician, Center for Animal Disease Modeling and Surveillance, University of California, Davis, School of Veterinary Medicine, Department of Medicine and Epidemiology (2003-2007).

RESEARCH INTERESTS

- Bayesian nonparametric and semiparametric modeling and data analysis
- Biostatistics and epidemiologic modeling and applications
- Biomarkers and diagnostic tests for screening, diagnosis, and risk prediction

PEER-REVIEWED PUBLICATIONS

1. **Branscum AJ**, Gardner IA, Johnson WO (2004). Bayesian modeling of animal and herd-level prevalences. *Preventive Veterinary Medicine* 66, 101-112.
2. Hanson TE, **Branscum AJ**, Johnson WO (2005). Bayesian nonparametric modeling and data analysis: An introduction. In *Bayesian Thinking: Modeling and Computation* (Handbook of Statistics, Volume 25, Chapter 9), 245-278. Edited by D.K. Dey and C.R. Rao. Amsterdam: Elsevier.
3. **Branscum AJ**, Gardner IA, Johnson WO (2005). Estimation of diagnostic test sensitivity and specificity through Bayesian modeling. *Preventive Veterinary Medicine* 68, 145-163.
4. Thurmond MC, **Branscum AJ**, Johnson WO, Bedrick EJ, Hanson TE (2005). Predicting the probability of abortion in dairy cows: a hierarchical Bayesian logistic-survival model using sequential pregnancy data. *Preventive Veterinary Medicine* 68, 223-239.
5. **Branscum AJ**, Gardner IA, Wagner BW, McInturff P, Salman MD (2005). Effect of diagnostic testing error on intracluster correlation coefficient estimation. *Preventive Veterinary Medicine* 69, 63-75.
6. **Branscum AJ**, Johnson WO, Gardner IA (2006). Sample size calculations for disease freedom and prevalence estimation surveys. *Statistics in Medicine* 25, 2658-2674.
7. Reksen O, Sølverød L, **Branscum AJ**, Østeras O (2006). Relationships between milk culture results and treatment for clinical mastitis or culling in Norwegian dairy cattle. *Journal of Dairy Science* 89, 2928-2937.

8. **Branscum AJ**, Johnson WO, Gardner IA (2007). Sample size calculations for studies designed to evaluate diagnostic test accuracy. *Journal of Agricultural, Biological, and Environmental Statistics* 12, 112-127.
9. **Branscum AJ**, Johnson WO, Thurmond MC (2007). Bayesian beta regression: Applications to household expenditure data and genetic distance between foot-and-mouth disease viruses. *Australian & New Zealand Journal of Statistics* 49(3), 287-301.
10. Cheng D, Stamey J, **Branscum AJ** (2007). A general approach to sample size determination for prevalence surveys that use dual test protocols. *Biometrical Journal* 49(5), 694-706.
11. Kelley GO, Garabed RB, **Branscum A**, Perez AM, Thurmond MC (2007). Prediction model for sequence variation of the glycoprotein gene of infectious hematopoietic necrosis virus in California, U.S.A. *Diseases of Aquatic Organisms* 78, 97-104.
12. **Branscum AJ**, Hanson TE (2008). Bayesian nonparametric meta-analysis using Polya tree mixture models. *Biometrics* 64, 825-833.
13. **Branscum AJ**, Johnson WO, Hanson TE, Gardner IA (2008). Bayesian semi-parametric ROC curve estimation and disease diagnosis. *Statistics in Medicine* 27, 2474-2496.
14. **Branscum AJ**, Hanson TE, Gardner IA (2008). Bayesian non-parametric models for regional prevalence estimation. *Journal of Applied Statistics* 35(5), 567-582.
15. Hanson TE, **Branscum AJ**, Gardner IA (2008). Multivariate mixtures of Polya trees for modelling ROC data. *Statistical Modelling* 8, 81-96 (contribution to the special issue on Bayesian nonparametric modeling).
16. Hanson TE, Kottas A, **Branscum AJ** (2008). Modelling stochastic order in the analysis of ROC data: Bayesian non-parametric approaches. *Applied Statistics* 57, 207-225.
17. **Branscum AJ**, Perez AM, Johnson WO, Thurmond MC (2008). Bayesian spatiotemporal analysis of foot-and-mouth disease data from the Republic of Turkey. *Epidemiology and Infection* 136(6), 833-842.
18. Lu Z, **Branscum AJ**, Shuck KM, Zhang J, Dubovi EJ, Timoney PJ, Balasuriya UBR (2008). Comparison of two real-time reverse transcription polymerase chain reaction assays for the detection of *Equine arteritis virus* nucleic acid in equine semen and tissue culture fluid. *Journal of Veterinary Diagnostic Investigation* 20, 147-155.

19. Go Y-Y, Wong SJ, **Branscum AJ**, Demarest VL, Shuck KM, Vickers ML, Zhang J, McCollum WH, Timoney PJ, Balasuriya UBR (2008). Development of a fluorescent microsphere immunoassay for detection of antibodies specific to equine arteritis virus and comparison with the virus neutralization test. *Clinical and Vaccine Immunology* 15, 76-87.
20. Messam L, **Branscum AJ**, Collins MT, Gardner IA (2008). Frequentist and Bayesian approaches to prevalence estimation using examples from Johne's Disease. *Animal Health Research Reviews* 9, 1-23.
21. Cheng D, Stamey JD, **Branscum AJ** (2009). Bayesian approach to average power calculations for binary regression models with misclassified outcomes. *Statistics in Medicine* 28, 848-863.
22. Adragao T, Herberth J, Monier-Faugere M-C, **Branscum AJ**, Ferreira A, Frazao JM, Curto JD, Malluche HH (2009). Low bone volume – A risk factor for coronary calcifications in hemodialysis patients. *Clinical Journal of the American Society of Nephrology* 4, 450-455.
23. Schuster JL, **Branscum A**, Miller CS, Ebersole J, Al-Sabbagh M, Stevens J, Thomas MV. Within-subject variability in repeated measures of salivary analytes in healthy adults. *Journal of Periodontology* (accepted).
24. Herberth J, Monier-Faugere M-C, Mawad H, **Branscum AJ**, Wang G, Herberth Z, Cantor T, Malluche HH. Bone turnover assessment by 5 most commonly used intact parathyroid hormone assays. *Clinical Nephrology* (accepted).

PROCEEDINGS AND SUBMITTED MANUSCRIPTS

1. **Branscum AJ**, Hanson TE, Gardner IA (2007). Multivariate ROC analysis using mixtures of Polya trees. 2007 JSM Proceedings, Section on Bayesian Statistics [CD-ROM], 1194-1198. Alexandria, VA: American Statistical Association.
2. Hanson TE, **Branscum AJ**, Johnson WO. Predictive comparison of joint longitudinal-survival models with application to quantifying the effect of fecundity on medfly lifetime.

3. Cheng D, **Branscum AJ**, Stamey JD. A Bayesian approach to sample size determination for studies designed to evaluate continuous medical tests.
4. Skaggs HS, Saunders BA, Kimbler KD, King MS, **Branscum AJ**, Fung ET, DePriest PD, van Nagell JR, Ueland FR, Baron AT. Ovarian cyst fluids are a cache of ovarian cancer biomarkers that includes Calgranulin A and Calgranulin B isoforms.
5. Adragao T, Herberth J, Monier-Faugere M-C, **Branscum AJ**, Ferreira A, Frazao JM, Malluche HH. Femoral bone mineral density reflects histologically determined cortical bone volume in hemodialysis patients (submitted to Osteoporosis International).
6. Meade BJ, Timoney PJ, Donahue JM, **Branscum AJ**, Ford R, Rowe R. 1998 occurrence of *Tayorella asinigenitalis* among nurse mares and other equids in Kentucky.
7. Romanelli F, **Branscum A**, Caldwell G, Thornton AC. Risk factors for community acquired methicillin resistant staphylococcal aureus (cMRSA) among a mixed urban-rural HIV infected population.
8. Johnson WO, Gardner IA, Metoyer CN, **Branscum AJ**. Insight into interpretation of test sensitivity estimates from latent class analyses based on one or two tests in single or multiple populations.
9. Swanson M, **Branscum A**, Nakayima PJ. Promoting consumption of fruit in elementary school cafeterias: The effects of slicing apples and oranges.
10. Smith KL, Allen GP, **Branscum AJ**, Cook RF, Vickers ML, Timoney PJ, Balasuriya UBR. The increased prevalence of neuropathogenic strains of EHV-1 in equine abortions in central Kentucky in the latter twentieth century.
11. Lu Z, Chambers TM, Boliar S, Timoney PJ, **Branscum AJ**, Reedy SE, Tudor LR, Dubovi EJ, Vickers ML, Sells S, Balasuriya UBR. Development and evaluation of one-step TaqMan real-time reverse transcription-PCR assays targeting NP, M and HA genes of equine influenza virus.

BOOK

1. Christensen R, Johnson W, **Branscum A**, Hanson T.
Bayesian Ideas and Data Analysis: An Introduction for Scientists and Statisticians.
Contracted by CRC Press. Scheduled for release Fall 2009.

GRANTS

1. National Center for Research Resources Grant # P20 RR0201045: "Center for Biologic Basis of Oral/Systematic Diseases." This is a COBRE project emphasizing research training in oral health. A Biostatistics Core is funded.
Total amount: \$1,497,813
PI: Jeffrey Ebersole (University of Kentucky)
Dates: August 2005 to present
2. Title: Optimization and evaluation of novel serum and milk enzyme-linked immunosorbent assays for Johne's disease
PI: Adam Branscum and Shigetoshi Eda (University of Tennessee, Knoxville)
Agency: USDA
Total Amount: \$293,000
Dates: August 2007 to July 2009
Role: PI at 8.3% effort
3. Title: Mental healthiness aging initiative (MHAI), a community mental health aging educational intervention
PI: Faika Zanjani and Deborah Murray (University of Kentucky)
Agency: USDA
Total Amount: \$322,000
Dates: October 1, 2007 to September 30, 2008
Role: Collaborator
4. Title: Development of a hand-held diagnostic test for bovine tuberculosis
PI: Shigetoshi Eda (University of Tennessee, Knoxville)
Agency: Animal Health Board (New Zealand)
Total Amount: \$24,300

Dates: July 2007 to June 2008

Role: Collaborator

5. Title: Kentucky regional outreach and training consortium: A multi-county approach to blood-lead poisoning risk reduction in Kentucky's pediatric medicaid population.

PI: Larry Figgs (University of Kentucky)

Agency: EPA

Total Amount: \$499,500

Dates: September 1, 2007 to August 31, 2009

Role: Co-PI at 5% effort

6. Title: Development of an on-site diagnostic device for Johne's disease

PI: Adam Branscum and Shigetoshi Eda (University of Tennessee, Knoxville)

Agency: USDA

Total Amount: \$34,625

Dates: 2009-2010

Role: Collaborator

INSTRUCTIONAL EXPERIENCE

1. **New courses developed:** Spatial Statistics (CPH 738) and Bayesian Modeling in Biostatistics (CPH 739)
2. **Instructor**, University of Kentucky, Departments of Biostatistics and Statistics:
 - Introduction to Statistical Inference (STA 525: Spring 2009)
 - Spatial Statistics (CPH 738: Fall 2008)
 - Bayesian Inference (STA 630: Spring 2008)
 - Theory of Statistical Inference I (STA 532: Fall 2007, 2008)
 - Biostatistics I (STA 580: Fall 2006; Spring 2006, 2007, 2008)
 - Biostatistics II (CPH 630/STA 681: Fall 2005, Spring 2006)
 - Advanced Biostatistics Methods in Public Health (CPH 930: Spring 2007)

3. **Guest lecturer**, University of Kentucky, Department of Epidemiology:
Advanced Epidemiology (CPH 712: Fall 2006 and Spring 2007, one week)
Cancer Epidemiology (Spring 2007, one week)

TALKS AND WORKSHOPS

1. Joint Statistical Meetings 2008; Denver, Colorado
2. Joint Statistical Meetings 2007; Salt Lake City, Utah
3. ENAR 2007; Atlanta, Georgia.
4. Joint Statistical Meetings 2006; Seattle, WA (invited).
5. International Biometric Conference 2006; Montreal, Quebec, Canada (invited).
6. The American Association of Veterinary Laboratory Diagnosticians. Invited speaker for the workshop on *Sampling Methods for Detection of Disease*, Minneapolis, MN; 2006.
7. Texas A&M University, Department of Integrative Biosciences, 2005.
8. University of California, Davis, Medical Center, Sacramento, California, 2004.
9. Joint Statistical Meetings, Toronto, Canada, 2004 (topic contributed).
10. Statistics Research Day, California State University, Hayward, 2004 (Keynote speaker).
11. Conference of Research Workers in Animal Diseases, Chicago, Illinois, 2003.
12. Workshop on Bayesian modeling and WinBUGS. University of California, Davis, Davis, California, May 9-10, 2003 (jointly with Wesley Johnson and Richard Evans).
13. 24th Annual Institute on Research and Statistics, Sacramento Statistical Association, Sacramento, California, 2002 (invited).

STUDENT COMMITTEES

- Capstone committee, College of Public Health, University of Kentucky:
 - Current: Dr. Mark Thomas, Krista Collard, Abby Cosentino (DrPH), Gloria Gelin, Niyati Mahajan, Kashiwa Hereford, Afton Jackson, Heather Robbins
 - Completed: Manan Jhaveri (Chair, Epidemiology, April 2009), Yuxia Wang (Chair, Biostatistics, July 2008), Joi Sherrod (July 2008), Kulwinder Sekhon (July 2008), Brittney Thomas (April 2008), Leah Williams (April 2008), Dr. Johann Herberth (January 2008), Amanda Wilburn (November 2007), Ashley McCarty (August 2007), Amanda Lewis (July 2007), Justin Blackburn (April 2007), Jennifer Methvin (April 2007), Jeff Covell (July 2006), Dr. Frank Romanelli (November 2006)
- MS Committee, University of Kentucky:
 - Current: Dr. Scott Price (Periodontics), Dr. Christina Park (Periodontics), Dr. Jeff Dickson (Periodontics), Dr. Amjad Aldallal (Periodontics).
 - Completed: Dr. Melissa Farino (Periodontics, April 2009), Dr. Megan McHugh (Orthodontics, April 2009), Maria Melguizo Castro and Leonard Gordon (Statistics, April 2009), Kideog Jeong (Statistics, May 2009), Dr. Julie Schuster (Periodontics, August 2008), Tingting Wu (Plant and Soil Science, July 2008), Tiantian Sun (Statistics, July 2008), Dr. Jim Zettler (Orthodontics, Spring 2007)
- PhD Committee, University of Kentucky:
 - Current: Angela Schörgendorfer (Chair, Statistics); Barry Meade (Department of Veterinary Science); Diego Cuadros-Rubio (Department of Biology)
 - Completed: Shuhua Lai (Department of Computer Science, October 2006); Yaxi Zhao (Department of Computer Science, December 2008)
- PhD Committee, External:
 - Current: Seyed Reza Jafarzadeh (UC Davis, Epidemiology)

SERVICE AND ADMINISTRATION

- Member, ASA Section on Bayesian Statistical Science, Student Paper Awards Committee (Spring 2009).
- Member, MS statistics/biostatistics track subcommittee, Department of Statistics, University of Kentucky (Fall 2007 - Spring 2008).
- Member, Protocol Review Committee, Markey Cancer Center, University of Kentucky (2007).
- Member, Research Committee, College of Public Health, University of Kentucky, 2007-present.
- Member, Academic Performance Committee, College of Public Health, University of Kentucky, 2008.
- Internal review of a USDA proposal entitled “Precision Conservation With Geospatial Technologies,” submitted by members of the College of Agriculture, University of Kentucky, Fall 2007.
- Member, MS inference exam committee, Department of Statistics (Summer 2007, 2008, 2009).
- Member, Undergraduate Program in Public Health committee, College of Public Health, University of Kentucky (Spring 2007 - present).
- Member, Joint Biostatistics-Epidemiology Ph.D. committee, College of Public Health, University of Kentucky (Fall 2006-Spring 2009).
- Member, Practice and Service Committee, College of Public Health, University of Kentucky, 2005-2007.
- Ex-officio member, The Institutional Animal Care and Use Committee, University of Kentucky, 2005-present.
- Chair, DrPH biostatistics exam committee (June 2006; January 2008 and June 2008).
- Member, DrPH biostatistics exam committee (January and June 2007; January and June 2009).
- Biostatistics departmental representative, Public Health Initiative Retreat, University of Louisville (Fall 2006).

- Judge of presentations for the University of Kentucky College of Public Health Research Day (Fall 2006, 2007).
- Consulting committee, Department of Statistics, University of Kentucky (Member, Fall 2006-Fall 2008; Chair, Fall 2008-Fall 2009).
- Statistics department picnic committee (Chair, Fall 2007; Member, Fall 2008).
- Journal referee (2005): JASA, Biometrics, Veterinary Microbiology.
- Journal referee (2006): JASA, American Journal of Epidemiology, Annals of Epidemiology, Journal of Clinical Epidemiology, Veterinary Parasitology, Journal of Equine Veterinary Science, Preventive Veterinary Medicine.
- Journal referee (2007): JASA, The American Statistician
- Journal referee (2008): JASA, BMC Medical Informatics and Decision Making, Veterinary Parasitology, Veterinary Clinical Pathology, Statistics and Probability Letters
- Journal referee (2009): Biometrics, Computational Statistics and Data Analysis, BMC Medical Informatics and Decision Making

PROFESSIONAL MEMBERSHIPS

American Statistical Association

International Biometric Society

Institute of Mathematical Statistics

International Society for Bayesian Analysis