

D. Dean Billheimer

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Education

Ph.D. 1995, Statistics, University of Washington
M.S. 1990, Experimental Statistics, New Mexico State University
B.S. 1982, Chemical Engineering, Rose-Hulman Institute of Technology

Ph.D. Dissertation (Advisor: Dr. Peter Guttorp)

Statistical Methods for Biological Monitoring Data: State-Space Models for Relative Abundance of Species

M.S. Thesis (Advisor: Dr. Leigh Murray)

A Cell-Means Approach to Fractional Factorial and Incomplete Block Designs

Honors and Awards

1995 Z.W. Birnbaum Award – award for outstanding graduate student research by the University of Washington Statistics Department faculty
1989 Phi Kappa Phi – graduate academic honor society
1981 Olin Research Fellowship – awarded annually to outstanding junior Chemical Engineering student by the faculty.

Research Interests

Measurement and Normalization
Quantitative Proteomics
Methods for Compositional Data
Stochastic Modeling of Scientific Problems

Professional Experience

Academic Positions

- 2008– Associate Professor of Biometry, Agricultural and Biosystems Engineering, Biostatistics, University of Arizona.
- 2007–2008 Associate Professor, Oncological Sciences, University of Utah.
- 2001–2007 Assistant Professor, Biostatistics, Vanderbilt University.
- 1999–2001 Acting Assistant Professor, Statistics, University of Washington.
- 1996-1999 Affiliate Assistant Professor, Statistics, University of Washington. Research scientist at the National Research Center for Statistics and the Environment.
- 1995-1996 Assistant Professor, University of Alaska Fairbanks.

Statistics Research and Consulting

- 2008– Director, Statistics Consulting Laboratory, The University of Arizona.
- 2007–2008 Director, Biostatistics Shared Resource, Huntsman Cancer Institute.
- 2005–2007 Director, High Dimensional Data Analysis Core (Proteomics). Direct activities of seven Biostatistics personnel (BS, MS, and PhD) in study design, data analysis, and algorithm development for mass spectrometry proteomics profiling at Vanderbilt University School of Medicine.
- 2002–2007 Co-director, Biostatistics Core, SPORE in Breast Cancer (with Yu Shyr, PhD). Co-direct biostatistics activities to support Vanderbilt's SPORE in breast cancer. Primary responsibility for two (of five) projects, and all proteomics activities.
- 2001–2007 Statistician, Vanderbilt-Ingram Comprehensive Cancer Center. Provide support for grant proposal preparation, study design, data analysis, and manuscript preparation in a wide range clinical and laboratory biomedical studies.
- 1999–2001 Statistician, Center on Human Development and Disability (Univ. of Washington). Provided statistical support for wide-ranging university research projects involving human development.
- 1999–2001 Director of Consulting, Center for Statistics and the Social Sciences (UW). Supervised consulting activities for interdisciplinary research center seeking to develop quantitative methods in the social sciences.

Professional Experience – cont'd

- 1996-1999 **Statistician, The Boeing Company.** Developed statistical methods for a wide variety of projects associated with the aerospace industry. Activities included statistics research via internally funded grants, development of novel methods to solve client problems, and statistical consulting.
- 1994-1995 **Consulting Statistician, Statistics Consulting Center, (UW).** Met and advised clients on strategies for data analysis and experimental design. Also provided design and data analysis services to funded clients with statistically involved projects.
- 1992-1994 **Research Assistant, Univ. of Washington** with Drs. P. Guttorp and F. O'Sullivan. Research involved development of statistical methods for analyzing biological monitoring data. This project was continued as my Ph.D. dissertation topic (Guttorp). A second project investigated reconstruction of images from acoustic signals with limited sampling (O'Sullivan).
- 1990-1991 **Consulting Statistician, Univ. of Kansas Medical Center (MRRC).** Provided statistical support for 30 research scientists involved in widely varying aspects of mental retardation research. Responsibilities included design and analysis of experiments, observational studies, and surveys.
- 1989-1990 **Consulting Statistician, USDA–Jornada Experimental Range.** Supported 8 scientists researching animal physiology, animal behavior, and desert grassland ecology. Primary duties involved experimental design and analysis, and management of a large historical database.

Chemical Engineering

- 1982-1985 **Process Engineer, Pfizer Inc.** Supervised production processes in antibiotic fermentation and recovery for products worth \$5 million annually. Responsibilities involved management of daily production operations, ongoing process improvement, and personnel evaluation. Other duties included equipment design and start-up of two new production processes.

Teaching Courses

Univ. of Alaska	Introductory Statistics (undergraduate) Linear Regression and ANOVA (under/graduate)
Univ. of Washington	Statistics for Engineers (undergraduate) Statistical Consulting (graduate)
Univ. of Arizona	Statistical Consulting (graduate)

Teaching – cont'd**Graduate Student Direction**

Ingo Ruczinski	Statistics, PhD 2001. Univ. of Washington.
Chad Lieber	Biomedical Engineering, PhD 2004. Vanderbilt University.
Amy Robichaux	Biomedical Engineering, MD–PhD 2004. Vanderbilt University.
Nafeh Fananapazir	Biomedical Informatics, MS 2007. Vanderbilt University.
John Bear	Statistics Interdisciplinary Program, PhD Student. Univ. of Arizona.
Wehnai Chen	Statistics Interdisciplinary Program, PhD Student. Univ. of Arizona.
Serena Allred	Biostatistics, PhD Student. Univ. of Arizona.

I was a member of the Ph.D. committees for Ruczinski, Lieber, and Robichaux, and of the M.S. committee for Fananapazir. I am directing Ph.D. dissertations for Bear, Chen and Allred.

Recent Workshops and Invited Lectures

- “Developing Targeted Protein Measurement Using Label-Free Multiple Reaction Monitoring.” invited presentation, Joint Statistics Meetings, Vancouver, BC. (Aug. 2010).
- “Statistical IEDs in Biomarker Discovery.” Frontiers in Biomedical Research, University of Arizona. Tucson, AZ. (Sept. 2009).
- “Measurement Sensitivity and Variation in Shotgun Proteomics.” invited presentation, High-dimensional Data Analysis Workshop, Tamkang University, Taipei, Taiwan. (Oct. 2008)
- “Unmixing Gene Expression Signatures from Tumor Biopsies.” invited presentation. CoDa-Work’08 – Compositional Data Analysis Workshop. Girona, Spain. (May 2008).
- “Clinical Biology for Cancer – Statistics Overview.” Laboratory Sciences Seminar, Huntsman Cancer Institute. Salt Lake City, Utah (March 2008).
- “An Introduction to Compositional Data Analysis.” The University of Arizona. Tucson, AZ. (March 2008).
- “Statistical Issues in Biomarker Development.” Population Sciences Seminar, Huntsman Cancer Institute. Salt Lake City, Utah (Feb. 2008).

Grant Proposals

My responsibilities at Vanderbilt University, Huntsman Cancer Institute, and the University of Arizona include the preparation of collaborative grant proposals. Since 2008 I have participated in approximately 70 proposals. I include below a sample of recent proposals.

- Lau, S. (PI) “Southwest Environmental Health Sciences Center”
National Institute for Environmental Health Sciences (P30). April 2012–March 2017
Direct Costs: \$5.5 M (funded)
Role: Co-Director, Integrated Health Sciences Core (total 1.3 FTE)

Grant Proposals – cont'd

- Nelson, R. (PI) “Team Approach to Translate Novel Biomarkers for Diabetes”
National Institute of Diabetes, Digestive, and Kidney Diseases (R24). Dec. 2010–
Nov. 2014.
Direct Costs: \$2.5 M (funded)
Role: Co-investigator (10% effort + 40% M.S. statistician).
- Liebler, D. (PI) “Vanderbilt Proteome Characterization Center”
National Cancer Institute (U24). April 2011– March 2016
Direct Costs: \$11.9 M (funded)
Role: Co-investigator (10% effort + 20% M.S. statistician)
- Blot, W. (PI) “Southern Community Cohort Study.”
National Cancer Institute (R01). Mar. 2007–Feb. 2012
Direct Costs: \$24.9 million (funded)
Role: Co-investigator (10% effort)
- Liebler, D. (PI) “Clinical Proteomics Technology Assessment for Cancer”
National Cancer Institute (U24). Oct. 2006–Sep. 2011.
Direct Costs: \$7.6 million (funded)
Role: Co-investigator (20% effort + 40% of M.S. statistician)
- Mahadevan-Jansen, A. (PI) “Development of a Hand-held Probe for Confocal Microscopy
and Raman Spectroscopy of Skin.” National Cancer Institute (RO1). Aug. 2006–
May 2011
Direct Costs: \$1.6 million (funded)
Role: Co-investigator (5% effort)
- Ware, L. (PI) “Biomarker Profiles in the Diagnosis/Prognosis of Acute Respiratory Distress
Syndrome.”
National Heart, Lung, and Blood Institute (U01). July 2005–June 2009
Direct Costs: \$4.0 million (funded)
Role: Co-investigator (20% effort + 50% of M.S. statistician)
- Arteaga, C. L. (PI) “SPORE in Breast Cancer.”
National Cancer Institute (P50). June 2003–May 2008.
Direct Costs: \$8.0 million (funded)
Role: Co-investigator and Co-director of the Biostatistics Core (16% effort)

Statistical Methods Awards

Billheimer, D. “Statistical Inference Methods for Separation of Peak Clusters in Mass Spectrometry.” American Cancer Society. July 2002–June 2003.

Direct Costs: \$15,000

Billheimer, D. “Compositional Receptor Modeling.” National Research Center for Statistics and the Environment, U. S. Environmental Protection Agency. Sept. 2000–Aug. 2001.

Direct Costs: \$24,000 (Statistical Methodology)

Editorial, Grant Proposal and Manuscript Review

Associate Editor for Environmetrics June 2010–Present

I have participated in grant proposal review for the National Institutes of Health and the National Science Foundation in the following capacities.

Ad hoc reviewer for special emphasis program in analysis methods for genome-wide association studies and gene-environment interaction (NHLBI-NIH).

Ad hoc reviewer for program projects in cancer education and outreach (NCI-NIH).

Ad hoc reviewer for program projects in childhood asthma (NHLBI-NIH).

Ad hoc reviewer for program projects in transplant rejection (NHLBI-NIH).

Ad hoc reviewer for multi-center grant proposal in source apportionment modeling for air pollution (NSF).

Referee

I have refereed manuscripts for the following journals.

Bioinformatics

Biometrics

Biostatistics

Cancer Biology

Environmental Science and Technology

Environmetrics

J. of Ecolog. and Environ. Statist.

J. Amer. Statist. Assoc.

J. Royal Statist. Soc., Series B.

J. Proteome Research

Mathematical Geology

New England Journal of Medicine

Proteomics

Sociol. Method.

Publications

- Gomez-Rubio P, Klimentidis YC, Cantu-Soto E, Meza-Montenegro MM, Billheimer D, Lu Z, Chen Z, Klimecki WT. “Indigenous American Ancestry is Associated with Arsenic Methylation Efficiency in an Admixed Population of Northwest Mexico.”, *J Toxicol Environ Health A*. 2012 Jan 1;75(1):36-49.,
- Lafleur B, Lee W, Billheimer D, Lockhart C, Liu J, Merchant N. “Statistical methods for assays with limits of detection: Serum bile acid as a differentiator between patients with normal colons, adenomas, and colorectal cancer.” *J. Carcinogenesis* 2011;10:12. Epub 2011 Apr 16.
- Ware LB, Koyama T, Billheimer D, Landeck M, Johnson E, Brady S, Bernard GR, Matthay MA. “Advancing donor management research: design and implementation of a large, randomized, placebo-controlled trial.” California Transplant Donor Network. *Ann Intensive Care*. 2011 Jun 14;1(1):20.
- Jiang J, Yang ES, Jiang G, Nowsheen S, Wang H, Wang T, Wang Y, Billheimer D, Chakravarthy AB, Brown M, Haffty B, Xia F. “p53-dependent BRCA1 nuclear export controls cellular susceptibility to DNA damage.” *Cancer Res*. 2011 Aug 15;71(16):5546-57.
- Lake AD, Novak P, Fisher CD, Jackson JP, Hardwick RN, Billheimer DD, Klimecki WT, Cherrington NJ. “Analysis of global and absorption, distribution, metabolism, and elimination gene expression in the progressive stages of human nonalcoholic fatty liver disease.” *Drug Metab Dispos*. 2011 Oct;39(10):1954-60.
- Zhang H, Liu Q, Zimmerman LJ, Ham AJ, Slebos RJ, Rahman J, Kikuchi T, Massion PP, Carbone DP, Billheimer D, Liebler DC. “Methods for peptide and protein quantitation by liquid chromatography-multiple reaction monitoring mass spectrometry.” *Mol Cell Proteomics*. 2011 Jun;10(6):M110.006593.
- Gomez-Rubio P, Roberge J, Arendell L, Harris RB, O’Rourke MK, Chen Z, Cantu-Soto E, Meza-Montenegro MM, Billheimer D, Lu Z, Klimecki WT. “Association between body mass index and arsenic methylation efficiency in adult women from southwest U.S. and northwest Mexico.” *Toxicol Appl Pharmacol*. 2011 Apr 15;252(2):176-82.
- Li M, Gray W, Zhang H, Chung CH, Billheimer D, Yarbrough WG, Liebler DC, Shyr Y, Slebos RJ. “Comparative shotgun proteomics using spectral count data and quasi-likelihood modeling.” *J Proteome Res*. 2010 Aug 6;9(8):4295-305.

Publications – cont'd

- Carbone DP, Salmon JS, Billheimer D, Chen H, Sandler A, Roder H, Roder J, Tsy-pin M, Herbst RS, Tsao AS, Tran HT, Dang TP. “VeriStrat classifier for survival and time to progression in non-small cell lung cancer (NSCLC) patients treated with erlotinib and bevacizumab.” *Lung Cancer*. 2010 Sep;69(3):337-40.
- Tabb DL, Vega-Montoto L, Rudnick PA, Variyath AM, Ham AJ, Bunk DM, Kilpatrick LE, Billheimer DD, Blackman RK, Cardasis HL, Carr SA, Clauser KR, Jaffe JD, Kowalski KA, Neubert TA, Regnier FE, Schilling B, Tegeler TJ, Wang M, Wang P, Whiteaker JR, Zimmerman LJ, et al. “Repeatability and reproducibility in proteomic identifications by liquid chromatography-tandem mass spectrometry.” *J. Proteome Res*. 2010 Feb 5;9(2):761-76.
- Paulovich AG, Billheimer D, Ham AJ, Vega-Montoto L, Rudnick PA, Tabb DL, Wang P, Blackman RK, Bunk DM, Cardasis HL, Clauser KR, Kinsinger CR, Schilling B, Tegeler TJ, Variyath AM, Wang M, Whiteaker JR, Zimmerman LJ, Fenyo D, Carr SA, Fisher SJ, Gibson BW, et al. “Interlaboratory study characterizing a yeast performance standard for benchmarking LC-MS platform performance.” *Mol Cell Proteomics*. 2010 Feb;9(2):242-54.
- Ware LB, Koyama T, Billheimer DD, Wu W, Bernard GR, Thompson BT, Brower RG, Standiford TJ, Martin TR, Matthay MA. “Prognostic and pathogenetic value of combining clinical and biochemical indices in patients with acute lung injury.” NHLBI ARDS Clinical Trials Network. *Chest*. 2010 Feb;137(2):288-96.
- Rudnick PA, Clauser KR, Kilpatrick LE, Tchekhovskoi DV, Neta P, Blonder N, Billheimer DD, Blackman RK, Bunk DM, Cardasis HL, Ham AJ, Jaffe JD, Kinsinger CR, Mesri M, Neubert TA, Schilling B, Tabb DL, Tegeler TJ, Vega-Montoto L, Variyath AM, Wang M, Wang P, et al. “Performance metrics for liquid chromatography-tandem mass spectrometry systems in proteomics analyses.” *Mol Cell Proteomics*. 2010 Feb;9(2):225-41.
- Micalizzi DS, Christensen KL, Jedlicka P, Coletta RD, Barn AE, Harrell JC, Horwitz KB, Billheimer D, Heichman KA, Welm AL, Schiemann WP, Ford HL. “The Six1 homeoprotein induces human mammary carcinoma cells to undergo epithelial-mesenchymal transition and metastasis in mice through increasing TGF-beta signaling.” *J Clin Invest*. 2009 Sep;119(9):2678-90.
- Tennessen JA, Woodhams DC, Chaurand P, Reinert LK, Billheimer D, Shyr Y, Caprioli RM, Blouin MS, Rollins-Smith LA. “Variations in the expressed antimicrobial peptide repertoire of northern leopard frog (*Rana pipiens*) populations suggest intraspecies differences in resistance to pathogens.” *Dev Comp Immunol*. 2009 Dec;33(12):1247-57.

Publications – cont'd

- Salmon S, Chen H, Chen S, Herbst R, Tsao A, Tran H, Sandler A, Billheimer D, Shyr Y, Lee JW, Massion P, Brahmer J, Schiller J, Carbone D, Dang TP. “Classification by mass spectrometry can accurately and reliably predict outcome in patients with non-small cell lung cancer treated with erlotinib-containing regimen.” *J Thorac Oncol.* 2009 Jun;4(6):689-96.
- Chen S, Li M, Hong D, Billheimer D, Li H, Xu BJ, Shyr Y. “A novel comprehensive waveform MS data processing method.” *Bioinformatics.* 2009 Mar 15;25(6):808-14.
- Codreanu SG, Zhang B, Sobecki SM, Billheimer DD, Liebler DC. “Global analysis of protein damage by the lipid electrophile 4-hydroxy-2-nonenal.” *Mol Cell Proteomics.* 2009 Apr;8(4):670-80.
- Lieber CA, Majumder SK, Ellis DL, Billheimer DD, Mahadevan-Jansen A. “In vivo nonmelanoma skin cancer diagnosis using Raman microspectroscopy.” *Lasers Surg Med.* 2008 Sep;40(7):461-7.
- Burgess EF, Ham AJ, Tabb DL, Billheimer D, Roth BJ, Chang SS, Cookson MS, Hinton TJ, Cheek KL, Hill S, Pietenpol JA. “Prostate cancer serum biomarker discovery through proteomic analysis of alpha-2 macroglobulin protein complexes.” *Proteomics Clin. Appl.* 2008. 2: 1223-33.
- Lieber CA, Majumder SK, Billheimer D, Ellis DL, Mahadevan-Jansen A. “Raman microspectroscopy for skin cancer detection in vitro.” *J Biomed Opt.* 2008 Mar-Apr;13(2):024013.
- Sanders ME, Dias EC, Xu BJ, Mobley JA, Billheimer D, Roder H, Grigorieva J, Dowsett M, Arteaga CL, Caprioli RM (2008). “Differentiating Proteomic Biomarkers in Breast Cancer by Laser Capture Microdissection and MALDI MS.” *J Proteome Res.* Apr 4;7(4):1500-1507.
- LaFleur, B., Billheimer, D., Chen, H. (2008) “Likelihood-based evaluation of normalization methods.” *under revision for resubmission.*
- Kanter E, Shappell H, Jones H, Billheimer D, Mahadevan-Jansen A. (2008) “Characterization of Variability in Raman Spectra of the Cervix.” *Photochemistry and Photobiology*
- Biswas S, Trobridge P, Romero-Gallo J, Billheimer D, Myeroff LL, Willson JK, Markowitz SD, Grady WM. (2008). “Mutational inactivation of TGFBR2 in microsatellite unstable colon cancer arises from the cooperation of genomic instability and the clonal outgrowth of transforming growth factor beta resistant cells.” *Genes Chromosomes Cancer.* 47(2), 95-106.

Publications – cont'd

- Meyrick BO, Friedman DB, Billheimer DD, Cogan JD, Prince MA, Phillips JA 3rd, Loyd JE. (2008) “Proteomics of transformed lymphocytes from a family with familial pulmonary arterial hypertension. “ *Am J Respir Crit Care Med.* 177 (1), 99-107.
- Frangoul H, Nemecek ER, Billheimer D, Pulsipher MA, Khan S, Woolfrey A, Manes B, Cole C, Walters MC, Ayas M, Ravindranath Y, Levine JE, Grupp SA. (2007). “A prospective study of G-CSF primed bone marrow as a stem-cell source for allogeneic bone marrow transplantation in children: a Pediatric Blood and Marrow Transplant Consortium (PBMTTC) study.” *Blood.* 110 (13), 4584-7.
- Robichaux-Viehoever A, Kanter E, Shappell H, Jones H, Billheimer D, Mahadevan-Jansen A. (2007) “Characterizaion of Raman Spectra Measured *in vivo* for the Detection of Cervical Dysplasia” *Applied Spectroscopy.* 61 (9), 986–93.
- Li*, J.Q., Xu*, B.J., Deane, N., Merchant, N., Aerni, H.R., Heslin, M.J., Washington K., Coffey, R., Beauchamp, D., Shyr, Y., Billheimer, D. (2007) “Proteomic Profiling in Multistage Colorectal Tumors: Assessment of Inter- and Intra-case Variability and Implications for Study Design.” *Int'l J Clin Oncol.* 31(1), 103–11.
- Yang, L., Amann, J.M., Kikuchi, T., Porta, R., Guix, M., Gonzalez, A., Billheimer, D., Arteaga, C., Tai, H., DuBois, R., Carbone, D.P., Johnson, D.H. (2007) “Inhibition of EGFR Signaling Elevates 15-Hydroxyprostaglandin Dehydrogenase in Non-small-cell Lung Cancer.” *Cancer Res.* 67(12), 5587–93.
- Billheimer, D. (2007) Review of “Functional Data Analysis, 2nd ed.”, Ramsay, J., and B. Silverman (authors). Springer, New York, 2005. *Biometrics*, 63(1), 300–301.
- M’Koma AE, Blum DL, Norris JL, Koyama T, Billheimer D, Motley S, Ghiassi M, Ferdowski N, Bhowmick I, Chang SS, Fowke JH, Caprioli RM, Bhowmick NA. (2007) “Detection of pre-neoplastic and neoplastic prostate disease by MADI profiling of urine.”. *Biochem Biophys Res Commun.* 353(3), 829–34
- Johnson J, Schmidt C, Shrubsole M, Billheimer D, Joshi P, Morrow J , Heslin M, Washington K, Ness R, Zheng W, Schwartz D, Coffey R, Beauchamp D, Merchant N. (2006) “Urine PGE-M: A Metabolite of PGE2 as a Potential Biomarker of Colorectal Cancer”. *Clin Gastro and Hepat.* 4(11), 1358–65.
- Yankeelov, T., DeBusk, L., Billheimer, D., Luci, J., Lin, C., Price, R. , Gore, J. (2006) “Repeatability of a Reference Region Model for the Analysis of DCE-MRI Data.” *J. Mag. Res. Imag.* 24(5), 1140–7.

Publications – cont'd

- Chakravarthy, B., Kelley, M.C., McLaren, B., Truica, C., Billheimer, D., Mayer, I., Grau, A.M., Johnson, D.H., Simpson, J.F., Beauchamp, R.D., Jones, C., Pietenpol, J. (2006) “Neoadjuvant Concurrent Paclitaxel/Radiation in Stage II/III Breast Cancer.” *Clin. Cancer Res.* 12(5), 1570–6.
- Fowler, K., Poehling, K., Billheimer, D., Hamilton, R., Wu, H., Mulder, J., Frangoul, H. (2006) “Hospice Reversal Practices for Children with Cancers: A survey of 632 Pediatric Oncologists.” *J. Clin. Oncol.* 24(7), 1099–1104.
- Etzioni R, Hawley S, Billheimer D, True L, Knudsen B. (2005) “Analyzing Patterns of Staining in Immunohistochemical Studies: Application to a Study of Prostate Cancer Recurrence.” *Cancer Epi Biom & Prev.* 14(5), 1040–6.
- Barbieri CE, Perez CA, Johnson KN, Ely KA, Billheimer D, Pietenpol JA. (2005) “IGFBP-3 is a direct target of transcriptional regulation by DeltaNp63alpha in squamous epithelium.” *Cancer Res.* 65(6), 2314–20.
- Scarfone, C., Lavelly, W.C., Cmelak, A. J., Delbeke, D., Martin, W. H., Billheimer, D. and D. E. Hallahan (2004) “Prospective Feasibility Trial of Radiotherapy Target Definition for Head and Neck Cancer Using 3-dimensional PET and CT Imaging.” *J. Nucl. Med.* 45 (4), 543–552.
- Tsiatis A.C., Manes B., Calder C., Billheimer D., Wilkerson K.S., Frangoul H. (2004) “Incidence and Clinical Complications of Vancomycin Resistant Enterococcus (VRE) in Pediatric Stem Cell Transplant (SCT) Patients.” *Bone Marrow Transplant*, 33 (9), 937–941.
- Chaurand, P., Schwartz, S. A., Billheimer, D., Xu, B. J., Crecelius, A., Caprioli, R. M. (2004) “Integrating Histology and Mass Spectrometry.” *Anal. Chem.* 76 (4), 1145–55.
- Billheimer, D. (2003) Review of “Applied Functional Data Analysis”, Ramsay, J., and B. Silverman (authors). Springer, New York, 2002. *Biometrics*, 59, 736–737.
- Goldstein R. E., D. Billheimer, W. H. Martin, and K. Richards (2003) . “Sestamibi scanning and minimally invasive radioguided parathyroidectomy without intraoperative parathyroid hormone measurement.” *Annals of Surgery*, 237, 722–731.
- Scarfone, C., Lavelly, W.C., Cmelak, A. J., Delbeke, D., Martin, W. H., Billheimer, D. and D. E. Hallahan (2003) “Quantification of Molecular and Anatomical Target Contours of Head and Neck Cancer to Facilitate Image-guided Therapy During IMRT.” *Int. J. Radiat. Oncol. Biol. Phys.* 57, S300–1.
- Billheimer, D., P. Guttorp, and W. F. Fagan (2001) . “Statistical Interpretation of Species Composition.” *Journal of the American Statistical Association*, 96, 1205–1214.

Publications – cont'd

- Billheimer, D. (2001) “Compositional Receptor Modeling.” *Environmetrics*, 12, 451–467.
- Billheimer, D. (2001) “Space-Time Models for Compositional Data.” article in *Encyclopedia of Environmetrics*, El-Shaarawi, A.H. and Piegorsch, W.W. (eds.). Wiley, London.
- Uchino, K., Billheimer, D., and Cramer, S.C. (2001) . “Entry Criteria and Baseline Characteristics Predict Outcome in Acute Stroke Trials”. *Stroke*. 32, 909–916.
- Billheimer, D., Cardoso, T., Freeman, E., Guttorp, P., Ko, H., Silkey, M. (1997). “Natural Variability of Benthic Species Composition in the Delaware Bay”, *Journal of Environmental and Ecological Statistics*. 4, 95-115.
- Billheimer, D. and P. Guttorp (1995), “Zooplankton Proportion Estimates from Non–Uniformly Sampled Poisson Counts.” *Journal of Environmental and Ecological Statistics*. 2, 117-124.
- Guttorp, P., Sampson, P. and Billheimer, D. (1995) . Discussion of “Multivariate Imputation in Cross-sectional Analysis of Health Effects Associated with Air Pollution”. by Duddeck, C. Le, N., Zidek, J., and Burnett, C. *Journal of Environmental and Ecological Statistics*. 2, 213.
- Gibbens, R.P., K.M. Havstad, D.D. Billheimer, and C.H. Herbel (1993) . “Creosotebush Vegetation After 50 Years of Lagomorph Exclusion.” *Oecologia*. 94, 210–217

International Aviation Regulatory Reports

ICAO Circular 301–AN/174 (Dec. 2005). *New Larger Aeroplanes – Infringement of the Obstacle Free Zone: Operational Measures and Aeronautical Study*. International Civil Aviation Organization.

Billheimer, D., F. D. Hasman, A. B. Jones, D. P. Pate, J. J. Robinson (1998a). “Federal Aviation Administration (FAA) Balked Landing Test Program: Analysis of Pilot Response Times to Air Traffic Control Commands.” *ICAO Obstacle Clearance Panel, Twelfth Meeting*. Recife, Brazil. March 1998.

Billheimer, D., A. Jones, J. J. Robinson, J. H. Yates (1998b). “Federal Aviation Administration (FAA) Balked Landing Test Program: Analysis of Pilot Response Times.” *ICAO Obstacle Clearance Panel, Working Group of the Whole*. Sydney, Australia. November 1998.

Boniface, L., D. Pate (FAA) D. Billheimer, and J. Robinson (Boeing) (1997a). “FAA Test Program to Characterize Balked Landings for Large Aircraft”, *ICAO Obstacle Clearance Panel, Eleventh Meeting*. Montreal, Canada. March 1997.

Boniface, L., F. Hasman, A. Jones, D. Pate, D. Billheimer, and J. Robinson (1997b). “The Federal Aviation Administration (FAA) Test Program to Characterize Balked Landing OFZ Effects of Large Aircraft after Reaching Decision Height.” *ICAO Obstacle Clearance Panel, Working Group of the Whole*. Frankfurt, Germany. September 1997.

Patents

Billheimer, D., A. Booker, M. Condliff, M. Greaves, F. Holt, A. Kao, D. Pierce, S. Poteet, and J. Wu (1999). “Method and System for Text Mining Using Multidimensional Subspaces”. Assigned to: The Boeing Company.

Boeing Technical Reports

Billheimer, D. (1999). “Stochastic Deformation Models for the Shape of Flexible Parts.” *Boeing Technical Report*. The Boeing Company, Seattle WA.

Billheimer, D. (1999). “Statistical Shape Analysis of the 777 Fuselage Contour.” *Boeing Technical Report*. The Boeing Company, Seattle WA.

Billheimer, D. (1997). “Data Mining Technology for Airplane Safety.” *Boeing Technical Report*. The Boeing Company, Seattle WA.

Invited Papers and Proceedings

Ware, L.B., Billheimer, D., Parsons, P., Thompson, B.T., Brower, R., Standiford, T., Martin, T.R., Matthay, M.A., and the ALI SCCOR Programs and the NHLBI ARDS Network (2007). “Combining clinical and biochemical indices improves prediction of outcomes in acute lung injury. *Proc Am Thorac Soc* 175 , A966.

Billheimer, D. (2005). “Compositional Data in Biomedicine.” Keynote address at *CoDa-Work’05 – Compositional Data Analysis Workshop*. Girona, Spain. October 2005

Billheimer, D. (2005). “Variation in MALDI–TOF MS Protein Profiling.” Invited paper presentation at *ENAR, International Biometrics Society*. Austin, TX. March 2004.

Frangoul H, Woolfrey A, Khan S, Pulsipher M, Levine J, Baker D, Walters M, Ayas M, Ravindranath Y, Grupp S, Billheimer D, Nemecek E. (2005). “A prospective study of G-CSF primed bone marrow from pediatric donors as a stem cell source for allogeneic bone marrow transplant: A pediatric blood and marrow transplant consortium (PBMTTC) study”. Abstract 2005 Amer Soc Hematology. *Blood* 106 (11), 556A-556A.

Salmon, J. S., Sandler A., Billheimer, D., Herbst, R. S., Tran, H. T., Tsao, A., Dang, T. P. “MALDI-TOF mass spectrometry proteomic profiling to discriminate response to the combination of bevacizumab and erlotinib in non-small cell lung cancer (NSCLC)” Abstract 2005 ASCO Annual Meeting *J Clin. Oncol.* 23 (16), 626S-626S Part 1 Suppl. S.

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