Yenny Gabriela Webb Vargas

Personal Data

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Profile

Nonclinical biostatistician at Genentech. Expert on causal inference and mediation methods for brain imaging and functional data/time series. Expert in design of experiments for cell culture, chemical separation, device development, assay validation, and process characterization. Proficient in survey analysis, designs of observational studies, and design of clinical and neuroscience experiments. Biostatistics consultant and instructor. I have contributed to research in biotechnology, microbiology, chemistry, neuroscience, epidemiology, breast oncology, and medicine.

Education

June 2015	PhD in Biostatistics (Gpa: 3.51/4.00), **Johns Hopkins Bloomberg School of Public Health**, Baltimore, USA
Dec 2009	Master of Applied Statistics (Hons, Gpa: 96.9/100), **Instituto Tecnologico y de Estudios Superiores de Monterrey**, Monterrey, Mexico
July 2007	Bachelor of Science in Chemistry, Bacteriology, and Parasitology (Hons, Gpa: 97.8/100), **Universidad Autonoma de Nuevo Leon**, Monterrey, Mexico

Work Experience

Nonclinical biostatistician at Genentech

07/2015 *Current*	**Support biologics manufacturing development and quality control**

- Designed, analyzed and reported experiments for early stage cell culture, late stage cell culture, purification, device development, formulation, and process transfers.
- Designed, analyzed and reported experiments for biological and chemical assay validation, and assay characterization.
- Reviewed documents for a regulatory filing.
- Led the development of software for automatic generation and update of figures and tables in reports.
- Trained scientists and engineers in the use of software for graphical displays.
- Trained statisticians in the use of reproducible research tools (R Markdown, Git, and Github).
- Mentored a summer intern.

Research Experience

Research Assistant at Johns Hopkins Bloomberg School of Public Health, Department of Biostatistics

09/2013 - *06/2015*	*Researcher with Dr. Martin Lindquist on neuroimaging statistics*

Examined the brain response to thermal pain

- Developed a method for mediation analysis for functional data using non-parametric methods, implemented it in R, and wrote a manuscript
- Created a method for causal mediation analysis that uses randomization to identify causal parameters, implemented it in R
- Lead and submitted a joint paper on the role of big data in neuroimaging

Investigated the neural basis of spelling

- Collaborated, designed the analysis, and analyzed an fMRI experiment by performing correlation analysis and group independent component analysis using Matlab and SPM

Predicted hospital readmission after open ventral hernia repair

- Collaborated, designed the analysis, analyzed data, and revised the manuscript for a method for prediction of risk for hospital readmission after surgical hernia repair using the American College of Surgeons National Surgical Quality Improvement Program database

09/2012 - 08/2013	*Researcher with Dr. Elizabeth Stuart on causal inference*

Analyzed the impact of living in disadvantaged neighborhoods in adolescent mental health

- Developed a technique for handling measurement error in covariates that are used in propensity score analysis to ensure statistical validity, implemented it in R, and wrote a scientific paper that won the award for Best Student Paper in 2015 by the American Statistical Association

Designed an experiment for a study on educational policy

- Collaborated and performed matched randomization, based on propensity scores

Correlated child development in children with and without autism spectrum disorder

- Collaborated, design the analysis, and analyzed data from an autism study that compared the development of children in a randomized intervention trial to that of children in a cohort, using multiple imputation and propensity score methods in R

Investigated the mental health of sexual minorities, as well as the impact of tobacco and alcohol availability in the neighborhood

- Consulted with two PhD students in Public Health for interpretation of mediation analysis models

Summer Intern at National Cancer Institute, Division of Cancer Epidemiology and Genetics, Biostatistics Branch

06/2012-
08/2012

Researcher with Dr. Ruth Pfeiffer on methods for breast cancer epidemiology

Studied the epidemiology of U.S. women's breast cancer risk factors and incidence

- Manipulated seven nationally representative epidemiological surveys using SAS

- Evaluated women's breast cancer risk factor information for birth cohorts in seven nationally representative epidemiological surveys using SAS

- Investigated the effect of cohort changes in risk factors on breast cancer incidence in the U.S. using log-linear models in R and SAS

- Co-developed and applied a method for joint modeling of the effect of parity and reproductive risk factors in breast cancer incidence in R and revised manuscript for publication

Research Assistant at Johns Hopkins Bloomberg School of Public Health, Department of Biostatistics

09/2011 -
10/2012

Researcher with Dr. Michael Rosenblum on adaptive designs for randomized control trials

Discovered methods for subgroup analysis in clinical trials

- Co-developed an adaptive design that gains power for testing subgroup analyses

- Performed power calculations for the adaptive design using R

Summer Intern at National Cancer Institute, Division of Cancer Epidemiology and Genetics, Biostatistics Branch

06/2011 -
08/2011

Researcher with Dr. Ruth Pfeiffer on methods for breast cancer epidemiology

Correlated the epidemiology of U.S. women's breast cancer risk factors to breast cancer incidence

- Manipulated five nationally representative epidemiological surveys using SAS

- Evaluated women's breast cancer risk factor information for birth cohorts in five nationally representative epidemiological surveys using SAS

Statistical Consultant at Instituto Tecnológico y de Estudios Superiores de Monterrey Center for Biotechnology

11/2009 -
08/2010

Consultant to Dr. Mario Moises Alvarez Laboratory

Evaluated flu vaccine efficacy

- Used multivariate analyses to evaluate a trials for a vaccine for the flu virus H1N1 in animal models and humans

Optimized industrial cell growth and production

- Consulted PhD students for the design of an experiment that used factorial designs, and revised manuscript for publication

Assessed the sensory evaluation of beer

- Consulted PhD student, designed and conducted the analysis used categorical data models for a factorial design, creating graphics and providing assistance with writing thesis results

Research Assistant at Universidad Autonoma de Nuevo Leon, School of Biological Sciences

09/2004 -
07/2007

Researcher with Dr. Diana Resendez Perez

Studied the molecular biology of breast cancer

- Created a library of RNA and cDNA from breast cancer and normal breast tissue samples

- Selected homeobox genes to study based on scientific literature

- Designed PCR primers, established PCR conditions, and ran PCR analysis for 10 genes

- Wrote thesis manuscript, and presented results at a conference

Teaching Experience

Teaching Assistant at Johns Hopkins Bloomberg School of Public Health, Department of Biostatistics

Undergraduate level

- **Biostatistics in Public Health Research** with Dr. Scott Zeger and Dr. James Tonascia (Fall 2011), and with Dr. Margaret Taub and Dr. Leah Jager (Fall 2014). Lab instructor, grader, and guest lecturer for 170-student class

Graduate level

- **Statistical Methods in Public Health** with Dr. Marie Diener-West and Dr. Karen Bandeen-Roche (Fall 2013), with Dr. Marie Diener-West and Dr. Jon McGready (Fall 2012), and with Dr. James Tonascia and Mark Van Natta (Spring 2013). Held office hours, grader, consultant for final projects

- **Introduction to the SAS Statistical Package** with Lucy Meoni (Spring 2012). Lab assistant, grader

- **Biostatistics in Medical Product Regulation (online)** with Dr. Mary Foulkes and Dr. Simon Day (Fall 2013). Forum manager, grader

- **Non-Inferiority and Equivalence Clinical Trials (online)** with Dr. Mary Foulkes and Dr. Simon Day (Spring 2013 and 2015). Forum manager, grader

- **Causal Inference in Medicine and Public Health I (presential,online)** with Dr. Elizabeth Stuart (Spring 2014). Lab instructor, grader, guest lecturer. Lab designer, forum manager, grader

- **Tutorial on Matched Randomization (08/2013).** Course designer, instructor

Associate Professor at Universidad Autonoma de Nuevo Leon, School of Nutrition and Public Health

02/2009 -
06/2010

Co-instructor of the undergraduate courses: **Biostatistics and Scientific Research** and **Medical Biochemistry in Nutritional Evaluation** and Care. Developed and delivered classes, graded, mentored, devised exams and applied them. Two 35-student classes. Co-designed curriculum for 'Biostatistics' for Nutrition majors

Yenny Gabriela Webb Vargas, yennywebb@gmail.com

Instructor at Instituto Secretarial Administrativo

01/2003 – 06/2003	Instructor of the high school courses: **Chemistry** and **Technology**, grade 11. Developed and delivered classes, practices, examinations. Two 17-student classes.

Languages and Computer Skills

Spanish, English, R, JMP, Matlab, SPM, SAS, Minitab, LaTeX, Git

Publications

2019

Ovadia, R., Streubel, A., **Webb-Vargas, Y.**, Ulland, L., Luemkemann, J., Rauch, K., Eder, J., Lam, P., Tegoulia, V., and Maa, Y.-F. (2019). Quantifying the vial capping process: Residual seal force and container closure integrity. *PDA journal of pharmaceutical science and technology*, 73(1):2–15

Mattila, J., Curtis, S., **Webb-Vargas, Y.**, Wilson, E., Galperina, O., Roush, D., Tobler, S., Stanley, B., Clark, M., Weaver, J., et al. (2019). Retrospective evaluation of cycled resin in viral clearance studies-a multiple company collaboration. *PDA journal of pharmaceutical science and technology*, pages pdajpst–2018

2018

Pfeiffer, R. M., **Webb-Vargas, Y.**, Wheeler, W., and Gail, M. H. (2018). Proportion of u.s. trends in breast cancer incidence attributable to long-term changes in risk factor distributions. *Cancer Epidemiology and Prevention Biomarkers*

2017

Hilario, E. C., Stern, A., Wang, C. H., **Vargas, Y.W.**, Morgan, C. J., Swartz, T. E., and Patapoff, T. W. (2017). An improved method of predicting extinction coefficients for the determination of protein concentration. *PDA journal of pharmaceutical science and technology*, 71(2):127–135

Webb-Vargas, Y., Chen, S., Fisher, A., Mejia, A., Xu, Y., Crainiceanu, C., Caffo, B., and Lindquist, M. A. (2017). Big data and neuroimaging. *Statistics in Biosciences*, pages 1–16

Webb-Vargas, Y., Rudolph, K. E., Lenis, D., Murakami, P., and Stuart, E. A. (2017). An imputation-based solution to using mismeasured covariates in propensity score analysis. *Statistical methods in medical research*, 26(4):1824–1837

2016

Baltodano, P. A., **Webb-Vargas, Y.**, Soares, K., Hicks, C., Cooney, C. M., Cornell, P., Burce, K., Pawlik, T., and Eckhauser, F. (2016). A validated, risk assessment tool for predicting readmission after open ventral hernia repair. *Hernia*, 20(1):119–129

Tsapkini, K., **Webb-Vargas, Y.**, Faria, A., Ficek, B., Chakravarty, T., Frangakis, C., Desmond, J., Lindquist, M., and Hillis, A. (2016). Imaging tdcs effects in primary progressive aphasia. *Journal of Neurochemistry*, 138:239

2015

Nguyen, T. Q., **Webb-Vargas, Y.**, Koning, I. H., and Stuart, E. a. (2015). Causal mediation analysis with a binary outcome and multiple continuous or ordinal mediators: Simulations and application to an alcohol intervention. *Structural Equation Modeling: A Multidisciplinary Journal - Decision on Manuscript*

Tsapkini, K., Chakravarty, T., **Webb-Vargas, Y.**, Lindquist, M., Frangakis, C., and Hillis, A. (2015). Effects of different language and tdcs interventions in ppa and their neural correlates. *Frontiers in Psychology*, 6

2011

González-Leal, I. J., Carrillo-Cocom, L. M., Ramírez-Medrano, A., López-Pacheco, F., Bulnes-Abundis, D., **Webb-Vargas, Y**, and Alvarez, M. M. (2011). Use of a Plackett-Burman statistical design to determine the effect of selected amino acids on monoclonal antibody production in CHO cells. *Biotechnol. Prog.*, 27(6):1709–17

Martínez, H. R., Molina-López, J. F., Cantú-Martínez, L., González-Garza, M. T., Moreno-Cuevas, J. E., Couret-Alcaraz, P., Treviño, S. A., **Webb-Vargas, Y.**, Caro, E., Gil-Valadez, A., Santos-Guzmán, J., and Hernandez-Torre, M. (2011). Survival and clinical features in Hispanic amyotrophic lateral sclerosis patients. *Amyotroph. Lateral Scler.*, 12(3):199–205

2010

Aguilar-Yáñez, J. M., Portillo-Lara, R., Mendoza-Ochoa, G. I., García-Echauri, S. A., López-Pacheco, F., Bulnes-Abundis, D., Salgado-Gallegos, J., Lara-Mayorga, I. M., **Webb-Vargas, Y.**, León-Angel, F. O., Rivero-Aranda, R. E., Oropeza-Almazán, Y., Ruiz-Palacios, G. M., Zertuche-Guerra, M. I., DuBois, R. M., White, S. W., Schultz-Cherry, S., Russell, C. J., and Alvarez, M. M. (2010). An Influenza A/H1N1/2009 Hemagglutinin Vaccine Produced in Escherichia coli. *PLoS One*, 5(7):14

Conferences

Invited Talks	**Webb-Vargas, Y.**, Rudolph, K., Lenis, D., Murakami, P., and Stuart, E.A., An Imputation-Based Solution to Using Mismeasured Covariates in Propensity Score Analysis. Joint Statistical Meetings, Seattle 08/2015
	Stuart, E.A., **Webb-Vargas, Y.**, The use of Monte Carlo simulations in statistical research. University of Maryland School of Social Work, Baltimore, 04/2015
	Webb-Vargas, Y., Lindquist M., Functional Mediation Analysis. Innovations in Design, Analysis, and Dissemination: Frontiers in Biostatistical Methods, Kansas City, 04/2015
	Webb-Vargas, Y., Sobel M.E., Stuart, E.A., and Lindquist, M.A. Within-subjects designs for causal mediation analysis. ENAR 2015 Spring Meeting, Miami 03/2015
	Stuart, E.A., **Webb-Vargas, Y.**, Lenis, D., Rudolph, K., Applying multiple imputation with external calibration to propensity score analysis. Joint Statistical Meetings, Boston 08/2014
Organized Sessions	**Webb-Vargas, Y.**, Swihart, B. Causal inference in high dimensional settings. ENAR 2014 Spring Meeting, Baltimore 03/2014

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Awards and Scholarships

01/2015	**Student Paper Award** sponsored by the Survey Research Methods, Government Statistics, and Social Statistics Sections of the American Statistical Association
08/2010 - 08/2012	**Predoctoral Fellowship** at the National Cancer Institute, Division of Cancer Epidemiology and Genetics, Biostatistics Branch)
12/2009	**Honorable Mention/Summa Cum Laude** for Excellence in Academic Activity during the studies in Master of Applied Statistics, Instituto Tecnologico y de Estudios Superiores de Monterrey
01/2008 - 12/2009	**Scholarship for Masters Studies**. Mexican National Council on Science and Technology (CONACyT)
06/2007	**Honorable Mentions/Summa Cum Laude** for the Academic Achievement and the Development, Presentation and Defense of the Bachelor Thesis. School of Biological Sciences, Universidad Autonoma de Nuevo Leon
09/2006	**Academic Achievement Award**. Highest GPA of Class 2005-2006, of the School of Biological Sciences, Universidad Autonoma de Nuevo Leon
09/2002 - 12/2005	**Academic Achievement Scholarship**. School of Biological Sciences, Universidad Autonoma de Nuevo Leon

Membership in Professional Organizations

- International Alliance for Biological Standardization
- American Chemistry Society - Division of Biochemical Technology
- American Statistical Association
- International Biometrics Society - Western North American Region
- Association for Women in Mathematics