Eric C. Polley

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Current Position

2012– *Mathematical Statistician*, Biometrics Research Branch, Division of Cancer Treatment and Diagnosis, National Cancer Institute, National Institutes of Health

Research Interests

Prediction methods
Evaluation of prediction models
Causal Inference
Clinical trial design for precision medicine
Statistical methods for high throughput sequencing data
Statistical methods for microbiome studies

Education

2003 BA in Mathematics, Saint John's University
2005 MS in Biostatistics, Columbia University
2010 PhD in Biostatistics, University of California, Berkeley

Previous Experience

2004–2005 *Data Manager*. Harlem Health Promotion Center. New York, NY
2007–2009 *Consultant*. Confounding-by-indication group, Amgen. Thousand

Oaks, CA

2009–2010 *Assistant Statistician*. UCSF, Helen Diller Family Comprehensive Cancer Center. San Francisco, CA

2010–2012 *Fellow*. National Cancer Institute. Bethesda, MD

Honors & Awards

2006 Outstanding instructor award,
University of California, Berkeley

2009 Student travel award,
San Francisco ASA Chapter

2009 Reshetko family award in honor of Professor Chin Long Chiang,
University of California, Berkeley

2010 The Chin Long Chiang biostatistics student of the year,
University of California, Berkeley

Publications & Presentations

Journal Articles

2005 Nicholas, S.W., Hutchinson, V.E., Ortiz, B., Klihr-Beall, S., Jean-Louis, B., Shoemaker, K.,Singleton, C., Credell, J., Swaner, R., Vaughan, R.D., Northridge, M.E., Cushman, L.E., **Polley, E.C.**, Golembeski, C. (2005). Reducing childhood asthma through community-based service delivery: The Harlem Children's Zone Asthma Initiative. *Morbidity and Mortality Weekly Report* **54**, 11-14.

2006 Spielman, S.E., Golembeski, C.E., Northridge, M.E., Vaughan, R.D., Swaner, R., Jean-Louis, B., Shoemaker, K., Klihr-Beall, S., **Polley, E.C.**, Cushman, L.F., Ortiz, B., Hutchinson, V.E., Nicholas, S.W., Marx, T., Hayes, R., Goodman, A., Sclar, E.D. (2006). Interdisciplinary planning for healthier communities: Findings from the Harlem Children's Zone Asthma Initiative. *Journal of the American Planning Association* **72**, 100-9.

2007 Sinisi, S.E., **Polley, E.C.**, Petersen, M.L., Rhee, S.Y., van der Laan, M.J. (2007). Super Learning: An application to the prediction of HIV-1 drug resistance. *Statistical Applications in Genetics and Molecular Biology* **6**, Article 7. [html]

2007 van der Laan, M.J., **Polley, E.C.**, Hubbard, A.E., (2007). Super Learner. *Statistical Applications in Genetics and Molecular Biology* **6**, Article 25. [html]

2011

Namiki, T., Tanemura, A., Valencia, J. C., Coelho, S. G., Passeron, T., Kawaguchi, M., Vieira, W. D., Ishikawa, M., Nishijima, W., Izumo, T., Kaneko, Y., Katayama, I., Yamaguchi, Y., Yin, L., **Polley, E. C.**, Liu, H., Kawakami, Y., Eishi, Y., Takahashi, E., Yokozeki, H., and Hearing, V. J., (2011). AMP kinase-related kinase NUAK2 affects tumor growth, migration, and clinical outcome of human melanoma. *Proceedings of the National Academy of Sciences*. **108**, 6597-6602. [html]

2011 Goldstein, B.A., **Polley, E.C.**, Briggs, F.B.S., (2011). Random Forests for genetic association studies. *Statistical Applications in Genetics and Molecular Biology*. **10**, Article 32. [html]

2012 Kilpatrick, R.D., Gilbertson, D., Brookhart, M.A., **Polley, E.C.**, Rothman, K.J., Bradbury, B.D., (2012). Exploring large weight deletion and the ability to balance confounders when using inverse probability of treatment weighting in the presense of rare treatment decisions. *Pharmacoepidemiology & Drug Safety*. **22**,111-21. [html]

2012 Kong, H.H., Oh, J., Deming, C., Conlan, S., Grice, E.A., Beatson, M.A., Nomicos, E., **Polley, E.C.**, Komarow, H.D., NISC Comparative Sequence Program, Murray, P.R., Turner, M.L., Segre, J.A., (2012). Temporal shifts in the skin microbiome associated with disease flares and treatment in children with atopic dermatitis. *Genome Research*. **22**, 850-859. [html]

2012 Oh, J., Conlan, S., **Polley, E.C.**, Segre, J.A., Kong, H.H., (2012). Shifts in human skin and nares microbiota of healthy children and adults. *Genome Medicine*. **4**:77. [html]

2013 Byakika-Tusiime, J., **Polley E.C.**, Oyugi, J.H., Bangsberg, D.R., (2013). Free HIV antiretroviral therapy enhances adherence among individuals on stable treatment: implications for potential shortfalls in free antiretroviral therapy. *PLoS One*. **8**,e70375. [html]

2013 Kummar, S., Allen, D., Monks, A., **Polley, E.C.**, Hose, C.D., Ivy, S.P., Turkbey, I.B., Lawrence, S., Kinders, R.J., Choyke, P., Simon, R., Steinberg, S.M., Doroshow, J.H., Helman, L., (2013). Cediranib for metastatic alveolar soft part sarcoma. *Journal of Clinical Oncology*. **31**,2296-302. [html]

2013 Abaan, O.D., **Polley, E.C.**, Davis, S.R., Zhu, Y.J., Bilke, S., Walker, R.L., Pineda, M., Gindin, Y., Jiang, Y., Reinhold, W.C., Holbeck, S.L., Simon, R.M., Doroshow, J.H., Pommier, Y., Meltzer, P.S., (2013). The exomes of the NCI-60 panel: A genomic resource for cancer biology and systems pharmacology. *Cancer Research*. **73**,4372-82. [html]

2013 Simon, R.M, **Polley, E.C.**, (2013). Clinical trials for precision oncology using next-generation sequencing. *Personalized Medicine*. **10**, 485-495. [html]

Book Chapters

2009 **Polley, E.C.**, van der Laan, M.J., (2009). Selecting Optimal Treatments Based on Predictive Factors. in *Design and Analysis of Clinical Trials with Time-to-Event Endpoints*. Editor K. Peace. Boca Raton: Taylor & Francis.

2011 **Polley, E. C.**, Rose, S. van der Laan, M. J., (2011). Super Learning. in *Targeted Learning: Causal Inference for Observational and Experimental Data*. Editor M. J. van der Laan and S. Rose. New York: Springer.

2011 **Polley, E. C.**, van der Laan, M. J., (2011). Super Learning for Right-Censored Data. in *Targeted Learning: Causal Inference for Observational and Experimental Data*. Editor M. J. van der Laan and S. Rose. New York: Springer.

Software

2011 SuperLearner. R package available at https://github.com/ecpolley/SuperLearner

2012 AmpliconCoveragePlots. Ion Torrent PGM quality control & visualization plug-in available at http://ioncommunity.lifetechnologies.com/docs/DOC-6832. With David Sims.

Presentations

2006 Statistical Methods for Functional MRI. *University of California, Berkeley*, Berkeley, CA.

2006 Controlling for Confounding in Observational Studies. *Amgen*, Thousand Oaks, CA.

2006 Causal Inference with Dynamic Treatments. *University of California, Berkeley*, Berkeley, CA.

2007 Super Learner. *Leiden University Medical Center Clinical Mass Spectrometry Proteomic Diagnosis Seminar*, Leiden, Netherlands.

2009 Super Learner for Robust Causal Inference. *San Francisco ASA chapter meeting*, San Francisco, CA. [pdf]

2009 Super Learner. *JSM*, Washington DC. [pdf]

2010 Super Learner. *National Cancer Institute*, Rockville, MD. [pdf]

2010 Super Learner. *WNAR*, Seattle, WA.

2012 Variant Identification from High-Throughput Sequencing data. Experiences from the NCI60 Exome Sequences. *National Cancer Institute*, Rockville, MD.

Teaching

2001 Instructor. College Algebra.
Saint Cloud Technical College, Mathematics department

2004–2005 Teaching Assistant. Introduction to Biostatistics and Applied Regression.
Columbia University, School of Public Health

2005–2009 Graduate Student Instructor. Multivariate Statistics and Advanced Epidemiological Methods
University of California, Berkeley, School of Public Health

2008–2009 Graduate Student Instructor. Multi-level and Longitudinal Data.
University of California, Berkeley, School of Education

2011–2012 Instructor. Statistical Methods for Microarray Data.
National Institute of Health, Center for Information Technology [html]

Workshops

2007 Dynamic Treatment Regimes and Multistage Decision-Making
Statistical and Applied Mathematical Sciences Institute, North Carolina, USA

2009 Conference for Innovative Designs of Clinical Trials
Stanford University, California, USA

2011 Criteria for Use of 'Omics-Based Predictors in Clinical Trials
National Cancer Institute, Bethesda, MD

2012 Genome in a Bottle Consortium
National Institute of Standards and Technology, Gaithersburg, MD

Editorial Services

2012– Associate Editor. The International Journal of Biostatistics. [html]

Review Service

AIDS Research and Treatment
American Journal of Epidemiology
Annals of Applied Statistics
Biometrika
The Canadian Journal of Statistics

Clinical Cancer Research
The Electronic Journal of Statistics
Epidemiology
The International Journal of Biostatistics
Journal of the National Cancer Institute
Statistical Applications of Genetics and Molecular Biology
Statistics in Medicine
IEEE/ACM Transactions on Computational Biology and Bioinformatics

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