

# Elizabeth A.S. Koehler

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## Education

*M.S. in Biostatistics*, University of Washington, Seattle, WA  
Thesis: “Exploration of Monte Carlo Error”  
Advisors: Dr. Sebastien Haneuse and Dr. Elizabeth Brown

August 2007

*B.S. in Mathematics*, Colorado State University, Fort Collins, CO  
Concentration in Statistics

May 2004

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## Statistical Strengths

Monte Carlo methods, survival analysis and competing risks, correlated data analysis, binary data analysis, resampling methods, designing randomization schemes, and statistical graphing techniques

## Statistical Programming Strengths

R, STATA, SAS, S-Plus, L<sup>A</sup>T<sub>E</sub>X

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## Experience

Vanderbilt Department of Biostatistics

*Biostatistician III*

*Biostatistician II*

October 2009 - present

October 2007 - October 2009

### Summary

- collaborate with a variety of investigators (at least 55 by April 31, 2010) on at least 63 projects, most pertaining to cancer research
- methods used daily: logistic regression, survival analysis, graphical summaries, randomization schemes, competing risks regression, and correlated data techniques.
- methods used less often: resampling, cluster, diagnostic, and simulation methods.

### Responsibilities

- prepare statistical sections and review R01 submissions
- design randomized experiments
- write statistical methods and results sections of manuscripts
- write responses to reviewers regarding statistical questions
- participate in setting up an international data sharing collaboration

### Internal Service Activities

- present various statistical ideas at seminars, journal club, continuing education and MSCI substitute lecturing
- develop a function to create a balanced block crossover randomization design  
<http://data.vanderbilt.edu/~graywh/brew/elizabeth.html>
- develop R graphics CQI
- develop CQI to improve recruitment of MS candidates with close collaboration of HR
- participate as committee member of Journal Club CQI project
- attend and actively participate in MS search committee activities

- attend and actively participate in Monday and Friday biostatistics clinics

## Group Health Center for Health Studies, Seattle WA

*Research Assistant*

June 2006 - August 2007

- collaborate with a variety of investigators on projects involving logistic regression and item response theory
- aid in manuscript development and writing

## University of Washington Biostatistics Department

*Teaching Assistant*

July 2006 - August 2006

- prepare for and run hour discussion sections four days of the week
- grade homework, hold office hours

## University of Washington Autism Center

*Research Assistant*

September 2004 - June 2006

- assist in data management by becoming familiar with assessment instruments and writing scoring programs in SPSS
- collaborate with psychologists on projects that involved latent class analysis, missing data imputation, and longitudinal data
- participate in writing manuscripts

## QLT USA, Fort Collins CO

*Biostatistics Intern*

May 2004 - August 2004

- independently develop SAS programs to validate over 9,000 pages of existing tables and listings in clinical study reports and FDA submissions
- review documents for FDA submission

## Colorado State University Statistics Department

*Assistant to Dr. Urquhart*

Fall 2003 - Spring 2004

- contact high school statistics teachers in Colorado
- establish a connection between high school teacher and CSU Statistics Department
- assist in presentations of the statistics profession to many high school classes throughout Colorado

*Grader*

Spring 2002, Spring 2004

- grade weekly assignments for two entry-level statistics courses

## Colorado State University Academic Advancement Center

*Tutor*

Spring 2003

- tutor two students weekly in an entry level statistics course

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## Internship

Research Experience for Undergraduates in Statistics

The Ohio State University

Summer 2003

- assist a graduate student in entomology with the statistical analysis of her master's project which aimed to determine whether bees injected with a cocaine-like substance moved differently from placebo-injected bees

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## Software

- Coauthor and maintainer of “MCE: Tools for evaluating Monte Carlo error”:  
<http://cran.r-project.org/web/packages/MCE>  
available from CRAN, since December, 2008. Updated April 28, 2010.
- Balanced block randomization for cross-over designs:  
<http://data.vanderbilt.edu/~graywh/brew/crossoverdesign.html>

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## Publications

1. Munson J, Dawson G, Sterling L, Beauchaine T, Zhou A, **Koehler E**, Lord C, Rogers S, Sigman M, Estes A, Abbott R: Evidence for Latent Classes of IQ in Young Children with Autism Spectrum Disorder. *American Journal on Mental Retardation*, 113(6):439- 452, 2008.
2. Boudreau DM, **Koehler E**, Rulyak SJ, Haneuse S, Harrison R, Mandelson MT: Cardiovascular medication use and risk of colorectal cancer. *Cancer, Epidemiology, Biomarkers and Prevention*, 17(11): 3076-3080, 2008.
3. Shinall M Jr, **Koehler E**, Shyr Y, Lovvorn H III: Comparing Cost and Complications of Primary vs. Staged Surgical Repair of Neonatally Diagnosed Hirschsprung’s Disease. *Journal of Pediatric Surgery*, 43(12): 2220-2225, 2008.
4. Merchant N, Rymer J, **Koehler E**, Ayers G, Castellanos J, Kooby D, Weber S, Cho C, Schmidt C, Nakeeb A, Matos J, Scoggins C, Martin R, Kim H, Ahmad S, Chu C, McClaine R, Bednarski B, Staley C, Sharp K, Parikh A: Adjuvant Chemoradiation Therapy for Pancreatic Adenocarcinoma: Who Really Benefits? *Journal of the American College of Surgeons*, 208(5): 829-838, 2009.
5. **Koehler E**, Brown E, Haneuse S: On the assessment of Monte Carlo error in simulation-based statistical analyses. *The American Statistician*, 63(2): 155-162, 2009.
6. Estes A, Munson J, Dawson G, **Koehler E**, Zhou XH, Abbott R: Parenting stress and psychological functioning among mothers of preschool children with autism and developmental delay. *Autism*, 13(4): 375-387, 2009.
7. Sisler I, **Koehler E**, Koyama T, Domm J, Ryan R, Levine J, Pulsipher M, Haut P, Schultz K, Taylor D, Frangoul H: Impact of Conditioning Regimen in Allogeneic Hematopoietic Stem Cell Transplant for Children with Acute Myelogenous Leukemia beyond First Complete Remission: A Pediatric Blood and Marrow Transplant Consortium (PBMTTC) Study. *Biology of Blood and Marrow Transplant*, 15 (12): 1620-1627, 2009.
8. Diaz R, Jaboin J, Morales-Paliza M, **Koehler E**, Phillips J, Stinson S, Gilbert J, Chung CH, Murphy BA, Burkey B, Yarbrough WG, Murphy PB, Shyr Y, Cmelak AJ: Hypothyroidism as a Consequence of Intensity-Modulated Radiation Therapy (IMRT) with Concurrent Taxane-Based Chemotherapy for Locally-Advanced Head and Neck Cancer (LAHNC). *International Journal of Radiation Oncology, Biology, Physics* (in press corrected proof available online July 6, 2009) .
9. Lockhart A, Rothenberg M, Dupont J, Cooper W, Chevalier P, Sternas L, Buzenet G, **Koehler E**, Sosman J, Schwartz L, Gultekin D, Koutcher J, Donnelly E, Andal R, Dancy I, Spriggs D, Tew W: A Phase I Study of Intravenous Vascular Endothelial Growth Factor Trap, Afibercept, in Patients with Advanced Solid Tumors. *Journal of Clinical Oncology*, 28(2): 207-214, 2010.
10. Su Y, Amiri K, Horton L, Yu Y, Ayers G, **Koehler E**, Kelley M, Puzanov I, Richmond A, Sosman J: A Phase I Trial of Bortezomib with Temozolomide in Patients with Advanced Melanoma: Toxicities, Anti-tumor Effects, and Modulation of Therapeutic Targets. *Clinical Cancer Research*, 16(1): 348-357, 2010.
11. Moreira R, Revetta F, **Koehler E**, Washington M: Diagnostic utility of IgG and IgM immunohistochemistry in autoimmune liver disease. *World Journal of Gastroenterology* 16(4):453-457, 2010.

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## Press Coverage

- Wearing arm splint affects driving ability. Peter Pollack. *AAOS Now* January 2010 4(1).
  - Driving with an Immobilized Upper Extremity: A Randomized Prospective Crossover Trial AAOS Annual Meeting Media Highlight.
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## Presentations (\* indicates upcoming)

*Vanderbilt Ingram Cancer Center Biostatistics Workshop “Randomization”	June 18, 2010 Speaker
Vanderbilt Department of Biostatistics Continuing Education “Resampling: Trick or Treat?”	October 2009 Speaker
Vanderbilt MSCI Biostat I “Beyond the Basics: Statisticians as Your Guide through the Unknown”	August 24, 2009 Guest Lecturer
Vanderbilt Department of Biostatistics Journal Club “Review of Peduzzi’s 10 Events per Variable Rule”	July 9, 2009 Speaker
Vanderbilt Ingram Cancer Center Biostatistics Workshop “Complications in Survival Analysis”	February 20, 2009 Speaker
Joint Statistical Meeting; Denver, CO “On The Assessment of Monte Carlo Error in Statistical Experiment”	August 3, 2008 Contributing Speaker
Vanderbilt MSCI Biostat I “Introduction to Competing Risks”	September 25, 2008 Guest Lecturer
Vanderbilt Department of Biostatistics Seminar “Simple Methods to Assess Monte Carlo Error”	April 9, 2008 Speaker
UW Biostatistics Informal Seminar “An Exploration of Monte Carlo Error”	April 25, 2007 Speaker
UW Biostatistics Informal Seminar “Got Class? An Introduction to Latent Class Analysis and Taxometric Methods”	May 3, 2006 Speaker
International Conference on Health Policy Research, Boston, MA “Latent Class Structure of IQ in Preschool Children with Autism”	2005 Contributing Speaker

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## External Continuing Education

JSM 2009 “Absolute Risk Prediction”	Gail M, Pfeiffer R
ENAR 2008 “Competing Risks - Some Events are More Important than Others”	Pintilie M

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## **Extramural Activities**

Judge for ASA Project Competition for high school student statistics projects

2009

ASA Middle Tennessee Chapter President

March 2009 - present

- applied for and received funding for ASA Member Initiative 2010 proposal to organize a high school teacher retreat submitted on behalf of the chapter