

## CURRICULUM VITAE

**NAME:** Gary K. Grunwald

**CURRENT POSITION:** Clinical Professor (retired Professor)  
Department of Biostatistics and Informatics  
Colorado School of Public Health  
University of Colorado Anschutz Medical Campus  
Email: Gary.Grunwald@CUAnschutz.edu

### EDUCATION:

1972-1976	Colorado School of Mines, Golden, Colorado Major: Applied Mathematics	B.S.
1977-1978	University of Oregon, Eugene, Oregon Major: Mathematics	M.A.
1981-1983 and 1985-1987	University of Washington, Seattle, Washington Major: Statistics	Ph.D.

### ACADEMIC APPOINTMENTS and POSITIONS:

1977-1979	Graduate Teaching Assistant, Mathematics Department, University of Oregon, Eugene, Oregon
1981	Visiting Lecturer, Mathematics Department, University of the Virgin Islands, U. S. Virgin Islands
1981-1983	Graduate Teaching Assistant, Statistics Department, University of Washington, Seattle, Washington
1984-1987	Graduate Teaching and Research Assistant, Statistics Department, University of Washington, Seattle, Washington
1987-1988	Visiting Lecturer, Management Science Department, University of Washington, Seattle, Washington
1988-1996	Lecturer, Department of Statistics, University of Melbourne, Melbourne, Australia
1997	Visiting lecturer, Statistics Department, Colorado State University, Ft Collins, Colorado
1997-2002	Assistant Professor, Department of Preventive Medicine and Biometrics, UCHSC, Denver, Colorado
2002-2010	Associate Professor, Department of Biostatistics and Informatics, Colorado School of Public Health, CU Anschutz, Aurora, Colorado
2010-2022	Professor, Department of Biostatistics and Informatics, Colorado School of Public Health
2022-present	Clinical Professor, Department of Biostatistics and Informatics, Colorado School of Public Health

**PROFESSIONAL POSITIONS:**

- 1979-1980      Research Assistant, Plant and Soil Science Department, Montana State University, Bozeman, Montana
- 1983-1984      Statistical consultant, Research and Development Division, Weyerhaeuser Company, Seattle, Washington
- 1996-1997      Visiting Scientist, Geophysical Statistics Project, National Center for Atmospheric Research, Boulder, Colorado

**PERSONAL STATEMENT:**

I retired June 30, 2022 after 25 years as a professor at CU Anschutz. During that time I balanced my effort between teaching, mentoring, statistical methods development, collaborative research, and administration, and was especially active with the department’s education programs. My statistical methods research was mostly in the area of correlated non-normal data, particularly counts, proportions, and continuous data with zeros. My early work was mainly in time series with later work in longitudinal and clustered data for the same types of outcomes. My collaborative work was in the areas of nutrition and physiology, and later cardiovascular health outcomes research, where I still do a small amount of collaborative work with the Denver VA COIN program.

**HONORS and AWARDS:**

- 1973              Outstanding Freshman, Colorado School of Mines
- 2001              Excellence in Teaching, Department of Preventive Medicine and Biometrics, CU
- 2013              Dean’s Mentoring Award, CU Denver | Anschutz Graduate School
- 2014              Election as Faculty Member, Alpha Upsilon Chapter, Delta Omega Honorary Society in Public Health
- 2015              Faculty Excellence in Mentoring Award, Colorado School of Public Health

**SERVICE (since 2000):**

- 2002-2004      Member, School of Medicine Faculty Senate, UCHSC
- 2004-2005      Member, Biostatistics faculty search committee, UCHSC
- 2004-2021      Director or Co-director, Biostatistics MS and PhD Programs, CU Anschutz
- 2007              Member, Applied Statistics faculty search committee, CU Denver
- 2007              Member, Colorado School of Public Health Initiative planning committee
- 2007              Member, University Committee to Consolidate CU Denver and HSC Graduate Schools
- 2008              Member, Applied Statistics faculty search committee, CU Denver
- 2008-10        Member, CU Denver | Anschutz Graduate Council
- 2009-11        Chair, ColoradoSPH Graduate Executive Committee, CU Anschutz
- 2009-11        Member, ColoradoSPH Education and Curriculum Committee, CU Anschutz
- 2009              Chair, CEPH Academic Programs Accreditation Committee
- 2009              Member, CU Denver | Anschutz Graduate School Dean Search Committee
- 2009-10        Member, Cancer Center / Biostatistics faculty search committee, CU Anschutz
- 2009-2017      Member, Research and Publication committee, VA CART program
- 2010-2012      Director or Co-director, MPH/Applied Biostatistics concentration, ColoradoSPH, CU Anschutz
- 2010-2015      Member, Biostatistics junior faculty mentoring group, ColoradoSPH, CU Anschutz
- 2010-2021      Chair, Appointments, Promotions and Tenure Committee, ColoradoSPH
- 2010-2021      Member, Colorado School of Public Health Faculty Affairs Committee
- 2011              Member, Colorado School of Public Health Dean Search Committee
- 2011              Member, Biostatistics faculty search committee, ColoradoSPH, CU Anschutz
- 2013              Member, Colorado School of Public Health Office of Student Services search committee
- 2013              Chair, Department Implementation and Assessment Committee, B&I, CU Anschutz

2013-2021 Chair, Department of B&I Education and Curriculum Committee  
 2014-2015 Member, MPH/Applied Biostatistics admissions committee, B&I, ColoradoSPH, CU  
 2014 Member, CU Denver | Anschutz Graduate School Dean Search Committee  
 2014-2021 Member, Colorado School of Public Health Education and Curriculum Committee  
 2016 Member, ColoradoSPH Associate Dean for student affairs search committee  
 2016-18 Member, Colorado Summer Institute in Biostatistics steering committee  
 2017-18 Member, Evaluation Core, Seattle/Denver VA Center of Innovation (COIN)  
 2021 Member, Department of B&I Education and Curriculum Committee  
 2021 Member, Associate Dean for Faculty Affairs search committee, ColoradoSPH  
 2021-22 Member, Appointments, Promotions and Tenure Committee, ColoradoSPH  
 2022 Interim Chair, Department of B&I Appointments, Promotions and Tenure Committee (DAPTCO)

**REVIEW, REFEREE, and EDITORIAL WORK (since 1997):**

2002-2018 Associate Editor, Australian and New Zealand Journal of Statistics  
 2005, 2006 Member, NIH Study Section for T32 Pre-doctoral training grants

2001 PhD dissertation referee, The University of Melbourne  
 2010 External promotion and tenure review, *University unspecified for confidentiality*  
 2012 External promotion and tenure review, *University unspecified for confidentiality*  
 2012 External promotion review, *University unspecified for confidentiality*  
 2013 Consultancy with Colorado Foundation for Medical Care on manuscript preparation  
 2014 Ad hoc reviewer, CDPHE proposals to study health effects of marijuana  
 2015 Ad hoc reviewer, VA HSRD/QUERI National Conference abstracts  
 2016 Chair, internal post-tenure review committee  
 2016 External promotion reviewer, *University unspecified for confidentiality*  
 2018-2020 Ad hoc reviewer, CCTSI New Methods Development proposals  
 2018 External promotion reviewer, *University unspecified for confidentiality*  
 2019 External promotion reviewer, *University unspecified for confidentiality*  
 2020 External promotion reviewer, *University unspecified for confidentiality*

1997-present Manuscript referee  
 Statistics/Epidemiology journals: *Annals of the Institute of Statistical Mathematics; Australian and New Zealand Journal of Statistics; Journal of the American Statistical Association; Communications in Statistics; Computational Statistics and Data Analysis; Statistics and Probability Letters; Journal of Time Series Analysis; Statistics in Medicine; Canadian Journal of Statistics; Journal of epidemiology and Community Health; Journal of Risk Analysis; International Journal of Forecasting; Biometrical Journal; Journal of the Royal Statistical Society Series C; Biometrics; Statistical Methods in Medical Research*  
 Subject area journals: *Arthritis and Rheumatism; American Journal of Clinical Nutrition; BMC Health Services Research; British Medical Journal; BMJ Open; Circulation; Circulation-Heart Failure; European Journal of Clinical Nutrition; Journal of Internal and General Medicine; Medical Care; Monthly Weather Review; Obesity; SLEEP*

**TEACHING:**

1976-1981 Various courses in algebra, trigonometry, calculus, and Fortran programming at University of Oregon and College of the Virgin Islands.  
 1981-1988 Graduate Teaching Assistant for various courses in undergraduate and graduate statistics for statistics, business, or engineering students.

- 1988 Introduction to Statistics with applications in Business, Department of Management Science, University of Washington. Three credit one quarter undergraduate course.
- 1988 Exploratory Data Analysis, Department of Management Science, University of Washington. Three credit one semester graduate level course.
- 1988-1996 Linear Models, Department of Statistics, University of Melbourne, Australia. Three credit one semester upper level undergraduate course. I co-authored a set of written notes that was still being used several years later.
- 1989-1991 Statistical methods for forecasting time series, Department of Statistics, University of Melbourne, Australia. Three credit one semester upper level undergraduate and graduate level course. I co-authored a set of written notes that was still being used several years later.
- 1988-1995 Statistical methods in Agriculture and Forestry, Department of Agriculture and Forestry, University of Melbourne, Australia. Three credit two semester undergraduate course. I designed the course and authored a set of written notes that was still being used several years later.
- 1992 Statistical methods in Agriculture and Forestry, Department of Agriculture and Forestry, University of Melbourne, Australia. Three credit one semester graduate course.
- 1996 Introduction to mathematical statistics, Department of Statistics, University of Melbourne, Australia. Three credit one semester graduate course. I co-authored a set of written notes that was still being used several years later.
- 1997 Introduction to Statistics, Department of Statistics, Colorado State University. Three credit one semester undergraduate course.
- 1998 Splus for statistical analysis, Biometrics section, UCHSC. One credit one quarter graduate course (joint teaching with Sam MaWhinney).
- 1997-2003 Computer oriented statistical methods (BIOS 6611), Biometrics section, UCHSC. Three credit one quarter graduate course.
- 2001 Statistical consulting (BIOS 6621), Biometrics section, UCHSC. One credit one quarter graduate course (joint with Dick Jones).
- 2004-2019 Statistical consulting I (BIOS 6621), Biostatistics Department, Colorado School of Public Health, CU Anschutz. One credit graduate course (joint with Dick Jones in 2004, with Jud Blatchford in 2010-11, and with Miranda Kroehl 2014-2018).
- 2004-2019 Statistical consulting II (BIOS 6622), Biostatistics Department, Colorado School of Public Health, CU Anschutz. One credit graduate course (joint with Miranda Kroehl 2014-2019).
- 2007, 11 Applications of Survival Analysis for Epidemiologists (EPID 7915). One credit hands-on course for Epidemiology PhD students (joint with Anna Baron 2011).
- 2007,09,11,14 Analysis of Correlated Data (BIOS 7712), joint with Andrew Sterrett (2007) and Luohua Jiang (2007, 2009). One credit course in Biostatistics PhD program.
- 2012 Special Topics: Stochastic Modeling (BIOS 7670), joint with Elizabeth Juarez-Colunga and Nichole Carlson. Two credit course in Biostatistics PhD program.
- 2019-2020 MPH Capstone Preparation (BIOS 6990), in 2019 joint with Angela Fought and Fan Yang. One credit course in Biostatistics MPH/AB concentration.

**TEACHING, SHORT COURSES:**

- 1989           Invited co-presenter for 3-day course on Forecasting for Business and Industry, Royal Melbourne Institute of Technology, Melbourne, Australia.
- 1990           Organizer, co-presenter for 3-day course on Forecasting for Business and Industry, Royal Melbourne Institute of Technology, Melbourne, Australia.
- 1995           Invited instructor for one week course on Applied Time Series Analysis, ACSPRI95 (National conference for researchers in Social and Political Sciences), Canberra, Australia.
- 1996           Invited co-instructor for one day course on Trellis Graphics, Ballarat, Australia.
- 1998           Invited instructor for 4-day course in Linear Models, Statistical Consulting Centre, University of Melbourne, Melbourne, Australia.
- 2002           Invited instructor for 4-day course in Linear Models, Statistical Consulting Centre, University of Melbourne, Melbourne, Australia.

**TEACHING, GUEST LECTURES:**

- 2013-2021     BIOS 6643, Analysis of Longitudinal Data: Invited 2 day guest lectures on Generalized Linear Models.
- 2014-2018     EPID 6632, Advanced Epidemiology: Invited 1 day guest lecture on Multilevel Models.
- 2017-2021     BIOS 6643, Analysis of Longitudinal Data: Invited 1 day guest lecture on Bayesian Analysis and MCMC for Generalized Linear Mixed Models.
- 2018           BIOS 7717, Bayesian Biostatistical Methods: Invited 2 day guest lectures on Bayesian Methods for Hierarchical Models.

**THESIS SUPERVISION (SEE APPENDIX FOR DETAILS AND TOPICS)**

\* indicates co-authorship on a resulting peer-reviewed paper

PhD

- \* Rob Hyndman, PhD in Statistics, University of Melbourne, Continuous time threshold autoregressive models, joint supervision with Peter Brockwell, finished 1992. Currently Professor of Statistics, Monash University, Australia.
- \* Janet Tooze, PhD in Biostatistics, University of Colorado, Analysis of repeated measures data with clumping at zero, joint supervision with Dick Jones, finished 7/2000. Currently Associate Professor of Biostatistical Sciences, Wake Forest University.
- \* Melanie Bell, PhD in Biostatistics, University of Colorado, The use of maximum pseudolikelihood in generalized linear mixed models for the analysis of replicated spatial point patterns, finished 9/2002. Currently Associate Professor of Biostatistics, University of Arizona.
- \* Stephanie Bruce, PhD in Biostatistics, University of Colorado, Models for Serially Correlated, Over or Underdispersed, Unequally Spaced Longitudinal Count Data with Applications to Asthma Inhaler Use, finished 8/2007. Currently Deputy Director, Department of Mathematical Sciences, US Air Force Academy.

- \* Dexiang Gao, PhD in Biostatistics, University of Colorado, Analysis of clustered longitudinal count data, finished 11/2007. Currently Assistant Research Professor, Department of Pediatrics, CU School of Medicine.
- Colin O'Donnell, PhD in Biostatistics, Colorado School of Public Health, University of Colorado, Statistical methods for comparing hospitals using longitudinal patient data, with applications to the VA CART-CL program, finished 5/2016, co-mentored with Anna Barón. Currently Statistician, VA CART/COIN group, Denver VA.
- Evan Carey, PhD in Epidemiology, Colorado School of Public Health, University of Colorado, finished 4/2018. Currently Assistant Professor, Health Outcomes Research, Saint Louis University.

MS

- Wing Ho, Masters in Statistics, University of Melbourne, Variance heterogeneity in Taguchi designs, finished 1991.
- Bircan Erbas, Masters in Statistics, University of Melbourne, Transfer function modeling, finished 1995.
- \* Leanna Tedesco, Masters in Statistics, University of Melbourne, Autoregressive models based on Gamma distributions, finished 1995.
- Vijaya Nadimpalla, Masters in Statistics, University of Melbourne, Smoothing with correlated errors, finished 1996.
- Kathleen Tench, MS in Biostatistics, University of Colorado, Analysis of censored medical cost data, joint supervision with Sam MaWhinney, finished 8/2001.
- \* Dexiang Gao, MS in Biostatistics, University of Colorado, Time-varying hazard ratios for pre-operative predictors of survival following coronary artery bypass surgery using spline functions, finished 12/2001.
- \* Tracy Schiffner, MS in Biostatistics, University of Colorado, Hierarchical models for the analysis of surgical outcomes, finished 8/2005.
- \* Brandie Wagner, MS in Biostatistics, University of Colorado, Relationship of BMI with mortality after heart surgery, finished 8/2006.
- Fran Dong, MS in Biostatistics, University of Colorado, Power and sample size estimation for repeated measures studies in nutrition, finished 12/2006.
- Lynn Schooley, MS in Biostatistics, Colorado School of Public Health, University of Colorado, The Relationship of Sequence and Timing of Cardiac Procedures with Mortality for Acute Myocardial Infarction Patients, finished 04/2009.
- Mara Kelly, MS in Biostatistics, Colorado School of Public Health, University of Colorado, Association of body weight with post-CABG complications, finished 04/2009.
- Lihong Diao, MS in Biostatistics, Colorado School of Public Health, University of Colorado, National trends and predictors of TZD use in elderly Type 2 diabetics among community-dwelling Medicare beneficiaries, joint supervision with Cathy Jaynes, Nursing, finished 12/2009.
- Jason Mitchell, MS in Biostatistics, Colorado School of Public Health, University of Colorado, An Investigation into the Incidence of Community-based 180-Day Rehospitalizations in the Medicare Fee-for-Service Program, joint supervision with Dr. Jane Brock, finished 5/2010.
- \* Christina Clarke, MS in Biostatistics, Colorado School of Public Health, University of Colorado, Natural history of left ventricular ejection fraction in heart failure patients, joint supervision with Dr. Fred Masoudi, finished 12/2012.
- Evan Carey, MS in Biostatistics, Colorado School of Public Health, University of Colorado, Urban/rural designation, distance to cardiac catheterization centers and elective angiography in the VA health care system, finished 12/2012.
- \* Ben Shulman, MS in Biostatistics, Colorado School of Public Health, University of Colorado, Modeling overdispersed Poisson random variables in the presence of crossed random effects: applications to wildlife population monitoring strategies, joint with Dr. Rick Engeman, finished 8/2013.
- Paula Langner, MS in Biostatistics, Colorado School of Public Health, University of Colorado, Longitudinal analysis of time trends and associations among categories of Medicare Part A payments, finished 4/2014.

- \* Grace Liu, MS in Biostatistics, Colorado School of Public Health, University of Colorado, Analysis of clustered cost data with zeros in the VA CART program, finished 5/2014.
- Li Zhang, MS in Biostatistics, Colorado School of Public Health, University of Colorado, Efficiency and balance in analysis of clustered count data, joint with Elizabeth Juarez-Colunga, finished 9/2016.
- \* Jay Arnett, MS in Biostatistics, Colorado School of Public Health, University of Colorado, Estimating the relative impact of service utilization and service cost on total expenditures across hospitals, finished 5/2018.
- Eleanor Cotton, MS in Biostatistics, ColoradoSPH, CU Anschutz, A comparison of two-stage fPCA and Bayesian mixture models applied to physical activity accelerometer data: Pattern identification and group classification, joint with Nichole Carlson, finished 5/2019.

#### Honours in Statistics (University of Melbourne)

- Wing Ho, Honours in Statistics, University of Melbourne, 1988.
- Sim Sok Khim, Honours in Statistics, University of Melbourne, 1989.
- William Allen, Honours in Statistics, University of Melbourne, 1990.
- Louise Aufflick, Honours in Statistics, University of Melbourne, 1991.
- Petko Kalev, Honours in Statistics, University of Melbourne, 1992.
- Florie Kung, Honours in Statistics, University of Melbourne, 1993.
- Gottumukkalla, Vijaya, Honours in Statistics, University of Melbourne, 1993.
- Lee Ng, Honours in Statistics, University of Melbourne, 1994.
- Van Truong, Honours in Statistics, University of Melbourne, 1994.
- Loc Do, Honours in Statistics, University of Melbourne, 1995.

#### **FACULTY MENTORING**

- Deb Glueck, Associate Professor, Biostatistics, Faculty mentor, 2006-2009
- Nichole Carlson, Associate Professor, Biostatistics, K-award mentor, 2009-2012
- Jeri Harwood, Assistant Professor, Pediatrics, Faculty mentor, 2009-2010
- Brandie Wagner, Assistant Professor, Biostatistics, Faculty mentor, 2010-2012
- Elizabeth Juarez-Colunga, Assistant Professor, Biostatistics, Faculty mentor, 2012-2019
- Katie Colborn, Assistant Professor, Biostatistics, Faculty mentor, 2017-2019
- Ryan Peterson, Assistant Professor, Biostatistics, Faculty Mentor, 2019-present

#### **THESIS COMMITTEE MEMBER**

- \* indicates co-authorship on a resulting published paper

- Joleen A. Borgerding, MS in Biostatistics, University of Colorado. Finished 7/1998.
- Joseph R. Coll, PhD in Biostatistics, University of Colorado. Finished 5/2000.
- \* Maureen O'Brien, PhD in Health Services Research, University of Colorado. Finished 4/2001.
- Tim Webb, PhD in Biostatistics, University of Colorado. Finished 11/2002.
- \* Michael Ho, PhD in Health Sciences Research, University of Colorado. Finished 6/2005.
- \* Cecilia Mosca, MSPH, University of Colorado. Finished 6/2003.
- Madiha Fathy, PhD in Epidemiology, University of Colorado. Finished 6/2004.
- Bruce Swihart, MS in Biostatistics, University of Colorado. Finished 6/2006.
- Jeri Forster, PhD in Biostatistics, University of Colorado. Finished 9/2006
- \* Tony Moscoso, MS in Biostatistics, University of Colorado. Finished 9/2006.
- Xiang Yin, MS in Biostatistics, University of Colorado. Finished 10/2006.
- Laura Saba, PhD in Biostatistics, University of Colorado. Finished 5/2007.
- Colin O'Donnell, MS in Biostatistics, University of Colorado. Finished 05/2007.
- Andrea Masias, MS in Biostatistics, University of Colorado. Finished 05/2007.
- \* Jianfeng Meng, MS in Biostatistics, University of Colorado. Finished 06/2007.
- Desiree Froshaug, MS in Biostatistics, University of Colorado. Finished 02/2008.
- Lauren Pointer, MS in Biostatistics, University of Colorado. Finished 04/2008.
- Yu Zhang, MS in Biostatistics, ColoradoSPH, University of Colorado. Finished 04/2009.
- \* Brandy Ringham, MS in Biostatistics, ColoradoSPH, University of Colorado. Finished 06/2009.

John Brinton, MS in Biostatistics, ColoradoSPH, University of Colorado. Finished 07/2009.  
\* Weiming Zhang, PhD in Biostatistics, ColoradoSPH, University of Colorado. Finished 12/2009.  
Wendy Dye, MS in Biostatistics, ColoradoSPH, University of Colorado. Finished 1/2010.  
\* Amy Alman, PhD in Epidemiology, ColoradoSPH, University of Colorado. Finished 5/2010.  
Betsy Siewert, PhD in Biostatistics, ColoradoSPH, University of Colorado. Finished 3/2010.  
Ed Hess, MS in Biostatistics, ColoradoSPH, University of Colorado. Finished 6/2010.  
Melissa Santos, PhD in Applied Mathematics (Statistics), CU Denver. Finished 6/2011.  
\* Sarah Kreidler, MS in Biostatistics, ColoradoSPH, University of Colorado. Finished 5/2011.  
Laura Pyle, PhD in Biostatistics, ColoradoSPH, University of Colorado. Finished 7/2012.  
Bryan McNair, MS in Biostatistics, ColoradoSPH, University of Colorado. Finished 12/2011.  
\* Stefan Sillau, PhD in Biostatistics, ColoradoSPH, University of Colorado. Finished 3/2013.  
Kui Yang, MS in Biostatistics, ColoradoSPH, University of Colorado. Finished 11/2011.  
Doron Shmueli, MS in Biostatistics, ColoradoSPH, University of Colorado. Finished 4/2012.  
Jake Thomas, MS in Biostatistics, ColoradoSPH, University of Colorado. Finished 4/2012.  
Tamara Box, PhD in Clinical Sciences, CU Denver | Anschutz. Finished 3/2013.  
\* Ken Horton, PhD in Biostatistics, ColoradoSPH, University of Colorado. Finished 4/2013.  
Rui Fang, MS in Biostatistics, ColoradoSPH, University of Colorado. Finished 4/2013.  
Elisabeth Orth, MS in Biostatistics, ColoradoSPH, University of Colorado. Finished 7/2013.  
Brandy Ringham, PhD in Biostatistics, ColoradoSPH, University of Colorado. Finished 7/2013.  
\* Sarah Kreidler, PhD in Biostatistics, ColoradoSPH, University of Colorado. Finished 3/2014.  
Miranda Kroehl, PhD in Biostatistics, ColoradoSPH, University of Colorado. Finished 3/2014.  
\* Jamie Nelson, MS in Biostatistics, ColoradoSPH, University of Colorado. Finished 3/2014.  
John Brinton, PhD in Biostatistics, ColoradoSPH, University of Colorado. Finished 4/2014.  
Angela Moss, MS in Biostatistics, ColoradoSPH, University of Colorado. Finished 4/2014.  
Preston Schneider, MS in Clinical Sciences, CU Denver | Anschutz. Finished 5/2014.  
Camille Moore, PhD in Biostatistics, ColoradoSPH, University of Colorado. Finished 12/2015.  
Claire Palmer, MS in Biostatistics, ColoradoSPH, University of Colorado. Finished 12/2014.  
\* Karen Liu, PhD in Biostatistics, ColoradoSPH, University of Colorado. Finished 5/2016.  
Matt Mulvahill, MS in Biostatistics, ColoradoSPH, University of Colorado. Finished 12/2015.  
Zhilin Song, MS in Biostatistics, ColoradoSPH, University of Colorado. Finished 12/2/15.  
\* Javier Valle, MS in Clinical Sciences, CU Anschutz. Finished 5/2016.  
\* Lauren Thompson, MS in Clinical Sciences, CU Anschutz. Finished 6/2016.  
Mary Morrow, MS in Biostatistics, ColoradoSPH, CU Anschutz. Finished 6/2016.  
Martha Meyer, PhD in Health Services Research, ColoradoSPH, CU Anschutz. Finished 10/2017.  
\* Talia Brown, PhD in Epidemiology, ColoradoSPH, CU Anschutz. Finished 4/2017.  
\* Kristen Campbell, MS in Biostatistics, ColoradoSPH, CU Anschutz. Finished 4/2017.  
Molly Nowels, MS in Biostatistics, ColoradoSPH, CU Anschutz. Finished 9/2017.  
Jessica Thurston, MS in Biostatistics, ColoradoSPH, CU Anschutz. Finished 11/2017.  
\* Lauren Pierpoint, PhD in Epidemiology, ColoradoSPH, CU Anschutz. Finished 11/2018.  
\* Dana Fletcher, PhD in Health Services Research, CU Anschutz. Finished 6/2019.  
Erin Leister, PhD in Biostatistics, ColoradoSPH, CU Anschutz. Finished 4/2020.  
Kevin Josey, PhD in Biostatistics, ColoradoSPH, CU Anschutz. Finished 5/2020.  
Harris Butler, PhD in Biostatistics, ColoradoSPH, CU Anschutz. Finished 5/2020.  
Rachel Blumhagen, PhD in Biostatistics, ColoradoSPH, CU Anschutz. Finished 1/2021.  
Ilana Trumble, PhD in Biostatistics, ColoradoSPH, CU Anschutz. Finished 4/2022.  
Paula Langner, PhD in Biostatistics, ColoradoSPH, CU Anschutz. Finished 12/2022.

## FUNDED RESEARCH:

### Current

Project Title: Personalized Patient Data and Behavioral Nudges to Improve Adherence to Chronic Cardiovascular Medications  
Role: Statistician  
Period of funding: 7/1/20-6/30/23  
Dollar amount: \$788,779



Source of funding: NIH/NHLBI  
PI: Michael Ho

### Completed

Project Title: Denver-Seattle Center of Veteran-Centered and Value Driven Care (DiSCoVVR)  
Role: Statistician  
Period of funding: 10/1/18-9/30/23  
Source of funding: VA/HSR&D  
PI: Michael Ho

Project Title: Hybrid Implementation Study to Improve Clopidogrel Adherence  
Role: Statistician  
Period of funding: 10/1/2014 – 9/30/2016  
Dollar amount: \$197,221 (2 year period)  
Source of funding: VA IHD QUERI  
PI: Michael Ho

Improved methods for elucidating hormonal mechanism in mental health studies.  
NIH-NIMH R21 01/01/2012-03/31/2014  
PI Nichole Carlson  
Role: Collaborator and mentor

Cardiovascular Assessment, Reporting and Tracking System for Cath Labs (CART-CL) Project.  
Veteran's Administration HS R&D, Rumsfeld (PI). 10/01/2009-09/30/2013.

Assessing and Improving Quality: Acute Coronary Syndromes, Veteran's Administration Cardiac  
Research Program, Denver, CO. VA Headquarters New Clinical Program Project Grant. A.  
Laurie Shroyer, Ph.D., Frederick L. Grover, MD and Karl E. Hammermeister, MD, Ph.D., Co-  
P.I.'s, 10/1/2000-09/30/2010, Biostatistician, 10%, Annual Direct Costs = \$124,900. VAMC.

Continuous Improvement in Cardiac Surgery Program Expansion Project, Veteran's  
Administration Cardiac Research Program, Denver, CO. VA Headquarters Clinical Program. A.  
Laurie Shroyer, Ph.D., Frederick L. Grover, MD and Karl E. Hammermeister, MD, Ph.D., Co-  
P.I.'s, 10/1/2000-09/30/2010, Biostatistician, 10%, Annual Direct Costs = \$433,309. VAMC.

Influence of Diet on Nutrient Balance in Man, R01 DK42549-05, James O. Hill, Ph.D., P.I., 8/1/98  
– 09/30/2010, Biostatistician, 10%, Annual Direct Costs = \$198,360. NIH.

Clinical Nutrition Research Unit Grant, University of Colorado Health Sciences Center, Denver,  
CO. DK48520-03,04,05,06, James O. Hill, Ph.D., P.I., 7/1/1997-09-30/2010, Biostatistician, 50%,  
Annual Direct Costs = \$622,517. NIH.

Continuous Improvement in Cardiac Surgery Program Expansion Project, Veteran's  
Administration Cardiac Research Program, Denver, CO. VA Headquarters Clinical Program. A.  
Laurie Shroyer, Ph.D., Frederick L. Grover, MD and Karl E. Hammermeister, MD, Ph.D., Co-  
P.I.'s, 4/1/1999-9/30/00, Biostatistician, 20%, Annual Direct Costs = \$433,309. VAMC.

Continuous Improvement in Cardiac Surgery Program, Veteran's Administration Cardiac  
Research Program, Denver, CO. VA HSR&D Service IHY 99214-1. Frederick L. Grover, MD and  
Karl E. Hammermeister, MD, Ph.D., Co-P.I.'s, 2/1/1998-3/31/1999, Biostatistician, 20%, Annual  
Direct Costs = \$149,000. VAMC.

Modeling and Data Analysis for Exponential Family Time Series, Australian Research Council  
Grant SG01947461, Gary K. Grunwald, Ph.D. and Rob J. Hyndman, Ph.D., Co-P.I.'s, 1/1/95-  
12/31/95, \$7,500. (This was roughly similar to a NIH R21, and at the time the largest ARC grant  
possible was \$30,000.)

Data Analytic Methods for Non-linear and Non-normal Time Series Analysis, Australian Research Council Grant SG6935488, Gary K. Grunwald, Ph.D. and Rob J. Hyndman, Ph.D., Co-P.I.'s, 1/1/94-12/31/94, \$10,000 (Australian dollars). (This was roughly similar to a NIH R21, and at the time the largest ARC grant possible was \$30,000.)

State space models for non-standard time series, BHP Australia, 1989, \$23,000 (Aus), with Rob Hyndman.

Science faculty seed grant, The University of Melbourne, 1988, \$940.

Science faculty set-up grant, The University of Melbourne, 1988, \$1,500.

Graduate study grant, The Weyerhaeuser Company, 1984, \$10,000.

Graduate study grant, The Weyerhaeuser Company, 1983, \$10,000.

### PEER REVIEWED PUBLICATIONS

\*\* Work with a student I supervised on a thesis or dissertation or as an employee

\* Work with a student whose MS or PhD committee I was on

C Collaborative paper

M Methods paper

1. C Caprio JM, **Grunwald GK**, Snyder RD. (1985) Effect of standing stubble on soil water loss by evaporation. *Agricultural and Forest Meteorology*, 34:129-144.
2. C Caprio JM, **Grunwald GK**, Snyder RD, Cleary EC. (1986) Effects of standing small grain stubble on snow cover characteristics in alternate fallow strip cropping. *Agronomy Journal*, 78:99-106.
3. C Caprio JM, **Grunwald GK**, Snyder RD. (1989) Effects of climate on potential soil water gain from snowmelt in stubble and fallow fields. *Agricultural and Forest Meteorology*, 45:281-298.
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116. C Sandhu A, Stanislawski MA, **Grunwald GK**, Guinn K, Valle J, Matlock D, Ho PM, Maddox TM, Bradley SM. (2017) Variation in management of patients with obstructive coronary artery disease: Insights from the VA CART program. *Journal of the American Heart Association* 6.
117. M \* Liu H, Carlson NE, **Grunwald GK**, Polotsky AJ. (2018) Modeling associations between latent event processes governing time series of jointly secreted pituitary hormones. *Biometrics* 74:714-724.
118. C Barnett PG, Hong JS, Carey E, **Grunwald GK**, Joynt-Maddox K, Maddox TM. (2018) Comparison of accessibility, cost and quality of elective coronary revascularization between Veterans Affairs and community care hospitals. *JAMA Cardiology* 3:133-141.

119. M \* Liu H, Polotsky A, **Grunwald GK**, Carlson NE. (2018) Bayesian analysis improves pulse secretion characterization in reproductive hormones. *Systems Biology in Reproductive Medicine* 64:80-91.
120. M \* Strand M, Nelson D, **Grunwald GK**. (2018) Modeling between-subject differences and with-subject changes for long distance runners by age. *Journal of Quantitative Analysis in Sports* 14:81-90.
121. C Hess PL, Gunzburger EC, Kini V, Liu C-F, Jones J, Matlock D, Heidenreich PA, Levy CR, Maddox TM, **Grunwald GK**, Ho PM. (2018) National trends of hospital performance in acute myocardial infarction care: Department of Veterans Affairs, 2011-2014, Data Report. *Circulation: Cardiovascular Quality and Outcomes* 11.
122. C \* Valle JA, Graham L, Thiruvoipati T, **Grunwald GK**, Armstrong E, Maddox TM, Hawn MT, Bradley SM. (2018) Facility-level association of preoperative stress testing and postoperative adverse cardiac events. *Heart*.
123. M Wagner BD, **Grunwald GK**, Zerbe GO, Mikulich-Gilbertson SK, Robertson CE, Zemanick ET, Harris KJ. (2018) On the use of diversity measures in longitudinal sequencing studies of microbial communities. *Frontiers in Microbiology*.
124. C Raghavan S, Liu WG, Saxon DR, **Grunwald GK**, Maddox TM, Reusch JEB, Berkowitz SA, Caplan L. (2018) Oral diabetes medication monotherapy and short-term mortality in individuals with type 2 diabetes and coronary artery disease. *BMJ Open Diabetes Research & Care* 6:e000516.
125. M Glorioso T, **Grunwald GK**, Ho, PM, Maddox TM. (2018) Interpreting, quantifying and comparing random and fixed effects in non-normal multilevel models. *BMC Medical Research Methodology*, 18:74.
126. C Hu PT, Jones WS, Glorioso TJ, Barón AE, **Grunwald GK**, Waldo SW, Maddox TM, Vidovich M, Banerjee S, Rao SV. (2018) Predictors and outcomes of staged versus one time multivessel revascularization in multivessel coronary artery bypass disease: Insights from the Veterans Affairs (VA) Clinical Assessment, Reporting, and Tracking (CART) Program. *Journal of the American College of Cardiology: Interventions* 11.
127. C Bradley SM, Liu W, McNally B, Vellano K, Henry T, Mooney MR, Burke MN, Brilakis ES, **Grunwald GK**, Adhaduk M, Donnino M, Girota S. (2018) Temporal trends in the use of therapeutic hypothermia for out-of-hospital cardiac arrest: Insights from the CARES registry. *JAMA Network Open* 1.
128. C Breathett K, Liu W, Allen LA, Daugherty SL, Blair IV, Jones J, **Grunwald GK**, Moss M, Kiser TH, Burnham E, Vindivier W, Clark BJ, Lewis EF, Mazimba S, Battaglia C, Ho PM, Peterson PN. (2018) African Americans are less likely to receive care by a cardiologist during an intensive care unit admission for heart failure. *Journal of the American College of Cardiology* 6.
129. C \* Brown TL, Gutierrez PM, **Grunwald GK**, DiGuseppi C, Valuck RJ, Anderson HD. (2018) Access to psychotropic medication via prescription is associated with choice of psychotropic medication as suicide method: A retrospective study of 27,876 suicide attempts. *Journal of Clinical Psychology* 79.
130. C \* Schneider PM, Liu W, **Grunwald GK**, Chan PS, Nallamotheu BK, Sasson C, Varosy PD, Turakhia MP, Ogunnaike B, Ho PM, Bradley SM, and American Heart Association's Get With the Guidelines-Resuscitation Investigators. (2018) Biphasic waveform external defibrillation starting energy and in-hospital cardiac arrest survival: Retrospective cohort study from the Get with the Guidelines-Resuscitation Registry. *Journal of the Minneapolis Heart Institute Foundation* 2:7-14.

131. C McCreight M, Mavromatis K, Jneit H, Helfrich C, **Grunwald GK**, O'Donnell C, Parashar A, Saket G, Lambert-Kerzner A, Grossman PM, Gillette M, Hebert P, Ho PM. (2019) Improving anti-platelet therapy adherence in the Veterans Health Administration: a randomized multi-site hybrid effectiveness-implementation study protocol. *Contemporary Clinical Trials* 77:104-110.
132. M Mikulich-Gilbertson SK, Wagner BD, **Grunwald GK**, Riggs PD, Zerbe GO. (2019) Using empirical Bayes predictors from generalized linear mixed models to test and visualize associations among longitudinal outcomes. *Statistical Methods in Medical Research*, 28:1399-1411.
133. C Omar J, Stanislawski M, Bricker R, Plomondon ME, **Grunwald GK**, Valle JA, Armstrong EJ, Waldo SW. (2019) Contemporary use of intra-aortic balloon pumps during percutaneous coronary intervention: insights from the Veterans Affairs Clinical Assessment, Reporting and Tracking program. *Coronary Artery Disease* 30:44-50.
134. C Valle JA, Glorioso TJ, Schuetze KB, **Grunwald GK**, Armstrong EJ, Waldo SW. (2019) Contemporary use of embolic protection devices during saphenous vein graft intervention: Insights from the Veterans Affairs Clinical Assessment, Reporting and Tracking program. *Circulation: Cardiovascular Interventions* 12:e007636.
135. M \*\* Liu W, **Grunwald GK**, Ho PM. (2019) Two-part models for cost with zeros to compare effects of covariates on probability of cost, mean non-zero cost, and mean total cost. *Statistics in Medicine* 38:2767-2782.
136. M \* Campbell K, Juarez-Colunga E, **Grunwald GK**, Cooper J, Davis S, Gralla J. (2019) Joint modeling of longitudinal and interval censored time-to-event outcomes: Application to Tacrolimus and antibody formation in kidney transplant patients. *BMC Medical Research Methodology*, 19:130.
137. C \* Pierpoint LA, Kerr ZY, **Grunwald GK**, Khodae M, Crume T, Comstock RD. (2019) The effect of environmental conditions on injury rates at a Colorado ski resort. *Injury Prevention*, 2019-043275.
138. C Althoff MD, Holguin F, Yang F, **Grunwald GK**, Moss M, Vandivier RW, Ho PM, Kiser TH, Burnham EL. (2020) Noninvasive ventilation use in critically ill patients with acute asthma exacerbations. *American Journal of Respiratory and Critical Care Medicine*, <https://pubmed.ncbi.nlm.nih.gov/32663410/>
139. C Hess PL, Kini V, Liu W, Roldan P, Autruong P, **Grunwald GK**, O'Donnell C, Doll JA, Ho PM, Bradley SM. (2020) Appropriateness of Percutaneous Coronary Intervention in patients with stable coronary artery disease in the Veterans Health Care System, 2013-2015. *JAMA Network Open*, 3:e203144.
140. M \*\* **Grunwald GK**, Arnett JA, Liu W, Ho PM. (2020) Bayesian profiling for cost with zeros to decompose total cost into probability of cost and mean non-zero cost. *Biometrical Journal* 62:1631-1649.
141. C Wagner BW, **Grunwald GK**, Almassi GH, Li X, Grover FL, Shroyer ALS. (2020) Factors associated with long-term survival in post-coronary artery bypass graft stroke patients. *International Journal of Medical Research* 48:1:13.
142. C \* Pierpoint LA, Kerr ZY, Crume, TL, **Grunwald GK**, Comstock D, Selenke DK, Khodae M. (2020) A comparison of recreational skiing- and snowboarding-related injuries at a Colorado ski resort, 2012/13-2016/17. *Research in Sports Medicine* 28:413-425.
143. C Gleisner AL, Moss A, Friedman C, Suresh K, **Grunwald GK**, Torphy RJ, Leonard LD, Colborn K, Ahrendt G, Tevis S, Christian N, Abud VL, de Araujo TB, Beaty LE, Thieu D, Glorioso TJ, Kim S,

- Daugherty S. (2020) De-Implementation of axillary dissection in women with breast cancer is largely driven by site-level contextual effects. *Annals of Surgery*, PMID 33351462.
144. C Donovan LM, Palen BN, Fernandes LA, Whittington MD, Feser WJ, Blankenhorn R, Gunzburger E, **Grunwald GK**, Ganache J, Liao JM, Kirsh S, Au DH. (2021) The referral coordination team: A redesign of specialty care to enhance specialty care delivery and value in sleep medicine. *NEJM Catalyst Innovations in Care Delivery*, 02.
145. C Waldo S, Hebbe A, **Grunwald GK**, Doll J, Schofield R. (2021) Clinical and anatomic complexity of patients undergoing coronary intervention with and without on-site surgical capabilities: Insights from the VA clinical assessment, reporting and tracking (CART) program. *Circulation: Cardiovascular Intervention*, 14:e009697.
146. C Kini V, Hess P, Liu W, **Grunwald GK**, Ho PM, Bradley SM. (2021) Association between elective percutaneous coronary intervention appropriateness and publicly reported outcomes. *Circulation: Cardiovascular Quality and Outcomes*, 14:e007421.
147. C \* Fletcher D, **Grunwald GK**, Battaglia C, Ho PM, Lindrooth RC, Peterson PN. (2021) Association between increased hospital reimbursement for cardiac rehabilitation and utilization of cardiac rehabilitation by Medicare beneficiaries: an interrupted time series. *Circulation: Cardiovascular Quality and Outcomes*, 2021;14:e006572.
148. C Luong P, Glorioso TJ, **Grunwald GK**, Peterson P, Allen LA, Khanna A, Waughtal J, Sandy L, Ho PM, Bull S. (2021) Text message medication adherence reminders automated and delivered at scale across two institutions: Testing the “Nudge” system. *Circulation: Cardiovascular Quality and Outcomes*, 14:e007015.
149. C Bhardwaj B, Gunzburger E, Valle JA, **Grunwald GK**, Plomondon ME, Vidovich MI, Aggarwal K, Karuparthi, PR. (2021) Radial versus femoral access for left main percutaneous coronary intervention: An analysis from the Veterans Affairs Clinical, Reporting and Tracking program. *Catheterization and Cardiovascular Interventions*, 2021:1-9.
150. C Williams PH, Gilmartin HM, Leonard C, McCarthy MS, Kelley L, **Grunwald GK**, Jones CD, Whittington MD. (2022) The influence of a transitions of care program for veterans on healthcare utilization costs. *Journal of General Internal Medicine*, 37:3529-3534.
151. C Peterson RA, Hochheimer C, **Grunwald GK**, Johnson R, Wood C, Sammel MD. (2022) Reaping what you SOW: Guidelines and strategies for writing scopes of work for statistical consulting. *Stat*.
152. C Ho PM, O'Donnell CI, McCreight M, Bavry AA, Bosworth HB, Girota S, Grossman PM, Helfrich C, Latif F, Lu D, Matheny M, Mavromatis K, Ortiz J, Parashar A, Ratliff DM, **Grunwald GK**, Gillette M, Jneid H. (2022) Multifaceted intervention to improve P2Y12 inhibitor adherence after percutaneous coronary intervention: A stepped wedge trial. *Journal of the American Heart Association*, 13.
153. C Jovin IS, Warsavage TJ, Plomondon ME, **Grunwald GK**, Waldo SW, Rao SV, Brilakis ES, Azzalini L. (2022) Iso-osmolar versus low-osmolar contrast media and outcomes after percutaneous coronary intervention: Insights from the VA CART program. *Catheterization & Cardiovascular Interventions*, 100:85-93.
154. C Chakravarti J, Feser WJ, Plomondon ME, Valle JA, Rao SV, Gutierrez JA, **Grunwald GK**, Gunzburger E, Swaminathan RV. (2022) Access site selection and outcomes for chronic total occlusion percutaneous coronary interventions: Insights from the VA CART program. *Journal of the Society for Cardiovascular Angiography & Interventions*, 1.

155. C Mazzella AJ, Hendrickson MJ, Glorioso TJ, Sherwood D, Essig J, **Grunwald GK**, Rosman L, Gehi AK. (2023) Interhospital variability in utilization of cardioversion for atrial fibrillation in the emergency department. *American Journal of Cardiology*, 191:101-109.

**CHAPTERS AND REVIEWS:**

1. Axford RL, **Grunwald GK**, Hyndman RJ. (1996) The use of information technology in the research process. In E. Hovenga, J. Kidd, and B. Cesnik (Eds.), *Health Informatics -- an overview*, 349-361, Melbourne, Australia: Churchill Livingstone.
2. **Grunwald GK**. (1999) Review of Introductory Statistics: A modelling approach. *Australian and New Zealand Journal of Statistics*, 41:247-248.

**LETTERS:**

1. Shroyer AL, **Grunwald GK**. (1998) Reply to the editor re: Coronary artery bypass risk model: The Society of Thoracic Surgeons Adult Cardiac National Database. *Annals of Thoracic Surgery*, 66:1471-1472.
2. Hambidge M, Miller L, Krebs NF, Westcott J, **Grunwald GK**. (2002) Accuracy of simple techniques for estimating fractional zinc absorption in humans. *Journal of Nutrition*, 132:322.
3. Shroyer AL, **Grunwald GK**. (2009) Invited commentary re: MacKenzie TA, Malenka DJ, Olmstead EM. Prediction of survival following coronary revascularization: modeling short, mid- and long-term survival. *Annals of Thoracic Surgery*, 87:473-4.
4. Bradley SM, O'Donnell CI, **Grunwald GK**, Liu CF, Hebert PL, Maddox TM, Jesse RL, Fihn SD, Rumsfeld JS, Ho PM. (2016) Response to letter regarding article "Facility-level variation in hospitalization, mortality, and costs in the 30-days following percutaneous coronary intervention: Insights on short-term healthcare value from the VA CART Program." *Circulation* 133.

**SEMINARS and PRESENTATIONS:**

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| 1989 | Invited presenter and participant at Robust Time Series Workshop, La Trobe University, Melbourne, Australia.   |
| 1990 | Invited presenter and participant at Bootstrap and Applications Workshop, La Trobe University, Melbourne, Australia.   |
| 1991 | Invited seminar, Time series of proportions, Department of Econometrics, Monash University, Melbourne, Australia.  |
| 1992 | Contributed paper presentation, Exponential family time series, Australian Statistical Conference, Perth, Australia.   |
| 1993 | Invited seminar, Non-normal time series, Department of Econometrics, Monash University, Melbourne, Australia.  |
| 1994 | Invited workshop leader, Assessing non-standard, non-computational, and higher level content, Statistics Education workshop, Australian Statistical Conference, Monash University, Melbourne, Australia. |
| 1994 | Seminar, Bayesian time series, Statistics Department, Colorado State University  |

- 1995 Seminar, Smoothing non-Gaussian time series, Mathematics Department, University of Colorado at Denver, Colorado.
- 1996 Seminar, Statistical analysis of Melbourne weather data, monthly meeting of Victorian Branch, Statistical Society of Australia, Melbourne, Australia.
- 1997 Seminar, Smoothing non-Gaussian time series, National Center for Atmospheric Research, Boulder, Colorado
- 1996 Invited seminar, Non-normal autoregressive time series models, Statistics Department, Colorado State University, Colorado.
- 1996 Seminar, Non-normal autoregressive time series models, Mathematics Department, University of Colorado at Denver, Colorado.
- 1996 Seminar, Time series with zero values, Biometrics section, University of Colorado Health Sciences Center, Denver, Colorado.
- 1998 Invited seminar, Mixed distribution Markov models for modeling rainfall, Statistics Department, University of Melbourne, Melbourne, Australia.
- 2003 Invited seminar, Statistical methods for longitudinal profiling of CABG surgery in the VA system, International Conference on Health Policy Research in Chicago, 10/2003.
- 2007 Seminar, Subtle patterns of risk following CABG surgery at the VA, Department of Mathematics, Mesa State College, Grand Junction, CO
- 2009 Seminar, Modeling longitudinal count data with applications to asthma inhaler use, Department of Mathematics, Regis University, Denver, CO
- 2010 Seminar, Statistical models for heart surgery risk, Department of Mathematics, Colorado College, Colorado Springs, CO
- 2012 Seminar, Variable selection in propensity score models (with Maggie Stanislawski), Colorado Cardiovascular Outcomes Research, Denver, CO
- 2013 Seminar, Comparing hospital performance (with Tom Glorioso and Colin O'Donnell), Colorado Cardiovascular Outcomes Research, Denver, CO
- 2014 Seminar, Propensity score analysis with clustered data (with Grace Liu), Colorado Cardiovascular Outcomes Research, Denver, CO
- 2015 Seminar, Quantifying hospital variation in outcomes (with Tom Glorioso), Colorado Cardiovascular Outcomes Research, Denver, CO
- 2018 Invited seminar, Analyzing continuous non-negative data with zeros, with applications to cost analysis, University of Arizona, Tucson, AZ
- 2019 Seminar, Design issues for multiple medication trials, Colorado Cardiovascular Outcomes Research, Denver, CO
- 2020 Seminar, SMART designs, Colorado Cardiovascular Outcomes Research, Denver, CO
- 2021 Seminar, Stepped wedge designs, Colorado Cardiovascular Outcomes Research, Denver, CO

**ABSTRACTS:**

Note: I have not kept good track of abstracts, so some non-first author abstracts are not included, particularly in more recent years.

1. Wyatt HR, **Grunwald GK**, Seagle H, Klem ML, McGuire MT, Wing RR, Hill JO. Resting energy expenditure in reduced-obese subjects in the National Weight Control Registry. North American Association for the Study of Obesity, Cancun, Mexico, 11/97.
2. Seagle HM, Davy BM, **Grunwald GK**, Hill JO. Energy density of self-reported food intake: Variation and relationship to other food components. North American Association for the Study of Obesity, Cancun, Mexico, 11/97.
3. Sharp TA, Sidney S, Lewis CB, Tolan K, **Grunwald GK**, Hill JO. Differences in resting metabolic rate between Caucasian and African American young adults in the CARDIA study. North American Association for the Study of Obesity, Cancun, Mexico, 11/97.
4. VanHeest JL, Sharp TA, Peters JC, Seagle HM, **Grunwald GK**, Eckel RH, Hill JO. Total daily energy expenditure and substrate oxidation in response to different types of exercise. North American Association for the Study of Obesity, Cancun, Mexico, 11/97.
5. **Grunwald GK**, Seagle HM, Johnson SL, Jones RH, Marshall JA, Peters JC, Hill JO. Within and across subject effects of dietary fat on energy intake in free-living subjects. FASEB, Snowmass, Colorado, 6/98.
6. **Grunwald GK**, Seagle HM, Peters JC, Hill JO. Effects of dietary fat, non-energetic components and food weight on energy density and energy intake: mathematical and empirical results. North American Association for the Study of Obesity, Charleston, North Carolina, 11/1999.
7. Wyatt HR, **Grunwald GK**, Seagle HM, Klem ML, Wing RR, Hill JO. Leptin concentrations in reduced-obese subjects in the National Weight Control Registry. North American Association for the Study of Obesity, Charleston, North Carolina, 11/1999.
8. Donahoo, WT, Rothman R, Ammon S, **Grunwald GK**, Davis J, Levin N, Eckel RH. Chronic leptin administration alters postprandial lipid metabolism by decreasing postprandial triglyceride excursion and increasing skeletal muscle lipoprotein lipase. North American Association for the Study of Obesity, Charleston, North Carolina, 11/1999.
9. London MJ, **Grunwald GK**, Shroyer AL, Grover FL. Association of fast track cardiac management and low to moderate-dose glucocorticoid administration with perioperative hyperglycemia. Association of University Anesthesiologists annual meeting, Salt Lake City, UT, 5/2000.
10. Brown SF, Seagle HM, Schneider JG, **Grunwald GK**, Hill JO. The Impact of Restaurant Food Consumption on Energy and Fat Intake in Non-obese individuals. American Dietetic Association, Denver, Colorado, 9/2000.
11. Rongen JC, Johnson SL, Sharp TA, Bell ML, **Grunwald GK**, Hill JO, Horton, TJ. The Effects of Aerobic or Resistance Exercise on Appetite. American Dietetic Association, Denver, Colorado, 9/2000.
12. Melanson E, Donnelly JE, Jacobsen DJ, Sharp TA, **Grunwald GK**, Hill JO. Changes in 24 h Fat Oxidation in Females Participating in a Long-term Exercise Training Program. North American Association for the Study of Obesity, Long Beach, California, 11/2000.



13. Wyatt HR, Seagle .M, **Grunwald GK**, Bell ML, Klem ML, Wing RR, Hill JO. Long-term Weight Loss and Very Low Carbohydrate Diets in the National Weight Control Registry. North American Association for the Study of Obesity, Long Beach, California, 11/2000.
14. Weil KM, Shepard TY, Bell ML, **Grunwald GK**, Sharp TA, Hill JO, Eckel RH. Carbohydrate balance on a high carbohydrate diet predicts fat gain over 4 years. North American Association for the Study of Obesity, Quebec City, Canada, 10/2001.
15. Melanson EL, Sharp TA., Horton TJ, **Grunwald GK**, Hamilton J, Hill JO. The Effect of Exercise Intensity on 24 h Energy Expenditure and Nutrient Oxidation in Lean Males and Females. American College of Sports Medicine, 6/2001.
16. Wyatt HR, Donahoo WT, **Grunwald GK**, Klem ML, Wing RR, Hill JO. Average steps per day for long-term weight loss in the National Weight Control Registry. North American Association for the Study of Obesity, Quebec City, Canada, 10/2001.
17. Plenge JK, Weil KM, **Grunwald GK**, Forster JE, Poirier P, Eckel RH. Simvastatin lowers highly sensitive C-reactive protein by day 14: An effect independent of LDL cholesterol lowering. American Heart Association, 11/2001.
18. Rumsfeld JS, Plomondon ME, Peterson ED, Shlipak MG, Maynard C, **Grunwald GK**, Grover FL, Shroyer ALW. The impact of ethnicity on outcomes following Coronary Artery Bypass Graft surgery in the Veterans Health Administration. Veterans Administration Health Services Research and Development, 08/2002.
19. Casebeer AW, Plomondon ME, **Grunwald GK**, Ludwig ST, Grover FL, Sethi GK, McDonald GO, Shroyer AL. Impact of radial artery graft use on CABG-only procedural outcomes. American College of Chest Physicians, 11/2002.
20. Sheridan BC, Cleveland JC, Shroyer LW, Johnson R, **Grunwald GK**, Grover FL. Preoperative serum albumin in coronary artery bypass grafting: a marker of morbidity and mortality. Southern Society of Thoracic Surgeons, 11/2002.
21. Abdel-Maksoud MF, **Grunwald GK**, Hamman RF, Hokanson JE. The complex nature of triglyceride and coronary heart disease: The application of generalized additive models in nonlinear relationships. 43rd Annual Conference on Cardiovascular Disease Epidemiology and Prevention in association with the Council on Nutrition, Physical Activity and Metabolism 3/2003.
22. Sonko BJ, Hernandez T, **Grunwald GK**, Perreault L, Sharp T, Hill JO, Fennessey PV, Eckel RH. Carbohydrate overfeeding decreases endogenous but not ingested fat oxidation. American Heart Association, 2003.
23. Sonko BJ, **Grunwald GK**, Sharp TA, Perreault L, Hernandez T, Hill JO, Fennessey PV, Eckel RH. Dietary and endogenous fat oxidations are similar for mixed meal high-fat and low-fat maintenance treatments: A potential recipe for long-term obesity development. North American Association for the Study of Obesity, 11/2003.
24. Kriehn J, Donahoo W, Dong F, **Grunwald GK**, Hill JO. The effect of dietary fat on energy intake over a typical range of fat consumption. North American Association for the Study of Obesity, 11/2004.
25. Melanson EL, Cornier MA, Bessesen DH, **Grunwald GK**, Hill JO. 24 h metabolic responses to low- and high-intensity exercise in lean and obese humans. North American Association for the Study of Obesity, 10/2005.
26. Xu S, Jones RH, **Grunwald GK**. Analysis of longitudinal count data with serial correlation. 5<sup>th</sup> annual Hawaii international conference on statistics, mathematics and related fields, 06/2006.

27. Carlson NE, **Grunwald GK**, Johnson TD. Using Cox processes to model the pulse generating mechanism underlying time series of pulsatile hormone data. International Biometrics Conference, Floripa Brazil. December 2010.
28. Bruce SL, **Grunwald GK**, Jiang L, Strand M, Rabinovich N. A likelihood model for dispersion in longitudinal count data. Joint Statistical Meetings, San Diego, CA, 7/2012.
29. Vigen R, Maddox TM, O'Donnell C, **Grunwald GK**, Bhatt DL, Tsai TT, Rumsfeld JS, Ho PM, Hospital Variation in Premature Clopidogrel Discontinuation following Drug Eluting Stent Placement and Adverse Cardiovascular Outcomes from the VA Clinical Assessment, Reporting, and Tracking System for Cath Labs (CART-CL). Poster Presentation AHA QCOR 2012, Oral Presentation VA HSR&D 2012.
30. Vigen R, Barqawi A, Maddox TM, **Grunwald GK**, O'Donnell C, Enright J, Ho PM. The Association Between Testosterone Replacement Therapy and Adverse Cardiovascular Outcomes in Veterans Undergoing Coronary Angiography. Oral Presentation, AHA Scientific Sessions 2012. Los Angeles, CA.
31. Glorioso TJ, **Grunwald GK**, O'Donnell CI, Liu W, Maddox TM, Ho PM. Using Reference Effect Measures to Identify Sources of Variation in 30-day Readmissions for Percutaneous Coronary Intervention. Quality of Care and Outcomes Research in Cardiovascular Disease and Stroke 2015, Baltimore, MD.
32. Glorioso TJ, **Grunwald GK**, O'Donnell CI, Liu W, Maddox TM, Ho PM. Using Reference Effect Measures to Identify Sources of Variation in 30-day Readmissions for Percutaneous Coronary Intervention. ECHCS VA Research Days 2015, Denver, CO.
33. Carey E, **Grunwald GK**, O'Donnell CI, Ho PM, Kerns R. Components of Cost Variation in a Veterans Pain Population. International Conference for Health Policy Statistics 2015, Providence, RI.
34. O'Donnell CI, **Grunwald GK**, Bradley SM, Ho PM, Plomondon M, Rumsfeld JS. Generalized Gamma Distribution for Bayesian Profiling of Facility-level Variation in 30-Day Risk-Adjusted Costs Following Percutaneous Coronary Intervention (PCI). International Conference for Health Policy Statistics 2015, Providence, RI.
35. Glorioso TJ, **Grunwald GK**, Caplan L, Barón AE. Assessing modifications to increase power in a stepped wedge designed trial targeting improved medication adherence for ischemic heart disease patients. Quality of Care and Outcomes Research in Cardiovascular Disease and Stroke 2016, Phoenix, AZ.
36. Campbell K, Juarez-Colunga E, Gralla J, **Grunwald GK**, Davis S. Joint modeling of longitudinal and interval censored time-to-event outcomes with application to kidney transplant patients. Student paper competition, WNAR 2017, Santa Fe, NM.
37. Kroehl M, Carlson NE, **Grunwald GK**. Developing collaborative biostatisticians: Courses and content for a modern program. Joint Statistical Meetings 2017, Baltimore, MD.
38. Gralla J, Campbell K, **Grunwald GK**, Davis S, Juarez-Colunga E. Parametric survival models for interval censored data with time varying covariates compared with logistic regression. Statistical Analysis of Multi-Outcomes Data 2017, Liverpool, England.
39. Glorioso TJ, **Grunwald GK**, Barón AE, Caplan L. Assessing modifications to increase power in a stepped wedge designed trial targeting improved medical adherence for ischemic heart disease in Veterans Affairs patients. VA HSR&D conference 2017, Washington DC.

40. Carey E, Glorioso T, **Grunwald GK**. Leveraging cluster level variation for patient level inference. International Conference on Health Policy Statistics 2018, Charleston, SC.
41. Liu W, **Grunwald GK**, Barón AE, Ho PM. Two-part models for cost with zeros to compare effects of covariates on probability of cost, positive cost, and total cost. International Conference on Health Policy Statistics 2018, Charleston, SC.
42. Glorioso TJ, **Grunwald GK**, Barón AE, Caplan L. Modifications to a stepped wedge trial design to separate the effects of temporal improvement in treatment and time trend while increasing study power. International Conference on Health Policy Statistics 2018, Charleston, SC.
43. McNair B, **Grunwald GK**, Barón AE, Blackmon M. Correlated discrete survival analysis: A novel model for including random effects in continuation ratio logit models. Oral presentation at International Biometric Conference 2018, Barcelona, Spain.
44. Campbell I, Juarez-Colunga E, Davis S, **Grunwald GK**. Dynamic prediction of interval censored time-to-event outcomes using a longitudinal biomarker. Invited presentation at WNAR 2019, Portland, OR.
45. McNair B, Ghosh D, **Grunwald GK**. Quantile regression for survival analysis with complex censoring and truncation using a novel likelihood approximation. Oral presentation Joint Statistical Meetings 2019, Denver, CO.
46. Glorioso TJ, **Grunwald GK**, Maddox TM, Ho PM. Reference effect measures for quantifying, comparing and visualizing variation from random and fixed effects in non-normal multilevel models. Poster, Joint Statistical Meetings 2019, Denver, CO.
47. Levek C, **Grunwald GK**, Juarez-Colunga E, Connick E, Meditz A, MaWhinney S. A guide to modeling strategies for tissue analyses with nested sampling structures. Poster, Joint Statistical Meetings 2019, Denver, CO.
48. Carey E, **Grunwald GK**. Implementation of a novel machine learning ensemble to identify risk-adjusted facility level behavior in the presence of longitudinal imbalanced data for use in instrumental variable analysis. Oral presentation, International Conference on Health Policy Statistics 2020, San Diego, CA.
49. Glorioso TJ, **Grunwald GK**, Liu W, Ho PM. Assessing cluster variation through profiling using reference effect measures. Poster, International Conference on Health Policy Statistics 2020, San Diego, CA.