

BIOGRAPHICAL SKETCH

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NAME: Crespi, Catherine M.

eRA COMMONS USER NAME (credential, e.g., agency login): ccrespi2

POSITION TITLE: Associate Professor

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.*)

INSTITUTION AND LOCATION	DEGREE (if applicable)	START DATE MM/YYYY	END DATE MM/YYYY	FIELD OF STUDY
Harvard University, Cambridge, MA	AB	09/1981	01/1986	Biology
University of California Los Angeles, Los Angeles, CA	MS	09/1989	06/1991	Environmental Health Sciences
University of California Los Angeles, Los Angeles, CA	PHD	09/1997	06/2004	Biostatistics

A. Personal Statement

I am an Associate Professor of Biostatistics at the UCLA Fielding School of Public. I have over 100 peer-reviewed publications and have served as principal investigator or co-investigator on over 30 funded research studies including 18 NIH-funded studies. My areas of expertise include intervention study design and analysis and statistical methods for analyzing longitudinal and clustered data. I collaborate in diverse areas including cancer, obesity and infectious diseases. As the lead biostatistician of the UCLA Center for Cancer Prevention and Control, a major focus of my collaborative research has been to bring cancer and obesity prevention and control to low income, minority and underserved populations to reduce health disparities. I also work on studies investigating methods of measuring and improving quality of life and quality of care, behavioral intervention research and assessment of health care outcomes.

I also conduct research on improved statistical methods for the design and analysis of intervention trials with clustered and longitudinal data. This work has focused on methodological innovations to address missing data and strategies to enhance statistical power. I served as Principal Investigator of NIH CA137827, whose aims were to develop improved methods for the design of cluster randomized trials with binary data. I have also worked on mathematical models of infectious disease processes, Bayesian modeling and causal inference. Some recent modeling work has included a Bayesian model for discrete choice data and maximin optimal designs for cluster randomized trials.

My leadership roles include Statistical Editor of the Journal of the National Cancer Institute (2013-present) and President of the International Biometric Society, Western North American Region (2014-2016, elect/president/past). Some recent papers that highlight my breadth of expertise are listed below.

1. Antonio ALM, Weiss RE, Saigal CS, Dahan E, Crespi CM. A Bayesian hierarchical model for discrete choice data in health care. *Stat Methods Med Res.* 2017 Jan 1 [Epub ahead of print]. PubMed PMID: [28417689](#).
2. Nianogo R, Wang MC, Wang A, Nobari TZ, Crespi CM, Whaley SE, Arah OA. (2016) Projecting the impact of early life interventions on childhood adiposity in low-income children. *Pediatric Obesity.* 2016 Jun 10. doi: 10.1111/ijpo.12157. [Epub ahead of print].
3. Crespi CM. Improved Designs for Cluster Randomized Trials. *Annu Rev Public Health.* 2016;37:1-16. PubMed PMID: [26789386](#).
4. Wu S, Wong WK, Crespi CM. Maximin optimal designs for cluster randomized trials. *Biometrics.* 2017 Feb 9; PubMed PMID: [28182835](#).

B. Positions and Honors

Positions and Employment

- 2004 - 2006 Postdoctoral Fellow, University of California Los Angeles, Department of Biostatistics, Los Angeles, CA
- 2006 - 2012 Assistant Professor, University of California Los Angeles, Department of Biostatistics, Los Angeles, CA
- 2012 - Associate Professor, University of California Los Angeles, Department of Biostatistics, Los Angeles, CA

Other Experience and Professional Memberships

- 2006 - Associate Member, UCLA Jonsson Comprehensive Cancer Center
- 2011 - Associate Member, UCLA Clinical and Translational Science Institute
- 2013 - Statistical Editor, Journal of the National Cancer Institute
- 2013 - Statistical Reviewer, BMC series journals
- 2014 - 2016 President, Western North American Region, International Biometric Society

Honors

- 1997 Ursula Mandel Scholarship, UCLA School of Public Health
- 1998 Joseph Blann Fellowship, UCLA School of Public Health
- 2003 Chancellor's Dissertation Year Fellowship, UCLA
- 2004 Dean's Outstanding Student Award, UCLA School of Public Health
- 2005 Laha Travel Award for Outstanding Paper, Institute of Mathematical Statistics
- 2010 Outstanding Paper Award, European Society of Agricultural Engineers

C. Contribution to Science

1. Intervention trial design and analysis. I have served as statistician for the design and analysis of dozens of intervention studies conducted at the UCLA Center for Cancer Prevention and Control and elsewhere. Most of these studies have involved the development and implementation of culturally-relevant interventions for at-risk populations. Examples include NIH R01 CA154549, Increasing HPV Vaccine Uptake in a Low Income Ethnic Minority Population (PI: Bastani); DAMD 17-03-1-0676, Increasing Adherence to Follow-up of Breast Abnormalities in Low-Income Korean American Women: A Randomized Controlled Trial (PI: Maxwell); and NIH R01 CA134997, Conjoint Analysis: Overcoming Obstacles to Routine Preference Assessment in Men with Prostate Cancer (PI: Saigal). Below is a sampling of outcome papers from intervention studies.
 - a. Bastani R, Glenn BA, Maxwell AE, Ganz PA, Mojica CM, Alber S, Crespi CM, Chang LC. Randomized trial to increase colorectal cancer screening in an ethnically diverse sample of first-degree relatives. *Cancer*. 2015 Sep 1;121(17):2951-9. PubMed PMID: [25946376](#); PubMed Central PMCID: [PMC4545725](#).
 - b. Bastani R, Glenn BA, Maxwell AE, Jo AM, Herrmann AK, Crespi CM, Wong WK, Chang LC, Stewart SL, Nguyen TT, Chen MS Jr, Taylor VM. Cluster-Randomized Trial to Increase Hepatitis B Testing among Koreans in Los Angeles. *Cancer Epidemiol Biomarkers Prev*. 2015 Sep;24(9):1341-9. PubMed PMID: [26104909](#); PubMed Central PMCID: [PMC4560609](#).
 - c. Streja L, Crespi CM, Bastani R, Wong GC, Jones CA, Bernert JT, Tashkin D, Hammond SK, Berman BA. Can a minimal intervention reduce secondhand smoke exposure among children with asthma from low income minority families? Results of a randomized trial. *J Immigr Minor Health*. 2014 Apr;16(2):256-64. PubMed PMID: [22945813](#); PubMed Central PMCID: [PMC3534823](#).
 - d. Maxwell AE, Bastani R, Danao LL, Antonio C, Garcia GM, Crespi CM. Results of a community-based randomized trial to increase colorectal cancer screening among Filipino Americans. *Am J Public Health*. 2010 Nov;100(11):2228-34. PubMed PMID: [20864724](#); PubMed Central PMCID: [PMC2951922](#)

2. Improved methods for designing trials with multilevel data. Multilevel data structure, such as multicenter designs, longitudinal data and cluster randomization, are common aspects of trial design. Cluster randomized trials in particular are an increasingly utilized study design for intervention research. These trials tend to suffer from low statistical power and thus efficient design methods are greatly needed. I have conducted research developing novel modeling methods to improve power and a novel parametrization of the intraclass correlation that improves the accuracy of power calculations. I served as PI (NIH CA137827).
 - a. Crespi CM, Wong WK, Mishra SI. Using second-order generalized estimating equations to model heterogeneous intraclass correlation in cluster-randomized trials. *Stat Med*. 2009 Feb 28;28(5):814-27. PubMed PMID: [19109804](#); PubMed Central PMCID: [PMC2822467](#).
 - b. Crespi CM, Maxwell AE, Wu S. Cluster randomized trials of cancer screening interventions: are appropriate statistical methods being used?. *Contemp Clin Trials*. 2011 Jul;32(4):477-84. PubMed PMID: [21382513](#); PubMed Central PMCID: [PMC3104062](#).
 - c. Crespi CM, Wong WK, Wu S. A new dependence parameter approach to improve the design of cluster randomized trials with binary outcomes. *Clin Trials*. 2011 Dec;8(6):687-98. PubMed PMID: [22049087](#); PubMed Central PMCID: [PMC3237741](#).
 - d. Wu S, Crespi CM, Wong WK. Comparison of methods for estimating the intraclass correlation coefficient for binary responses in cancer prevention cluster randomized trials. *Contemp Clin Trials*. 2012 Sep;33(5):869-80. PubMed PMID: [22627076](#); PubMed Central PMCID: [PMC3426610](#).
3. Developed novel psychometric scales to measure psychosocial impacts of cancer. Cancer survivors have unique psychosocial impacts due to their cancer diagnosis, treatment and survivorship experience that are not captured by standard quality of life scales. I collaborated with Dr. Ganz to develop and validate the Impact of Cancer Scale Version 2, which was designed to measure these unique impacts. The IOCv2 has since been translated into over 7 languages and is used on several continents.
 - a. Crespi CM, Ganz PA, Petersen L, Castillo A, Caan B. Refinement and psychometric evaluation of the impact of cancer scale. *J Natl Cancer Inst*. 2008 Nov 5;100(21):1530-41. PubMed PMID: [18957678](#); PubMed Central PMCID: [PMC2586823](#).
 - b. Crespi CM, Smith SK, Petersen L, Zimmerman S, Ganz PA. Measuring the impact of cancer: a comparison of non-Hodgkin lymphoma and breast cancer survivors. *J Cancer Surviv*. 2010 Mar;4(1):45-58. PubMed PMID: [19967410](#); PubMed Central PMCID: [PMC2813525](#).
 - c. Smith SK, Crespi CM, Petersen L, Zimmerman S, Ganz PA. The impact of cancer and quality of life for post-treatment non-Hodgkin lymphoma survivors. *Psychooncology*. 2010 Dec;19(12):1259-67. PubMed PMID: [20099255](#); PubMed Central PMCID: [PMC2889206](#).
 - d. Crespi CM, Ganz PA, Petersen L, Smith SK. A procedure for obtaining impact of cancer version 2 scores using version 1 responses. *Qual Life Res*. 2013 Feb;22(1):103-9. PubMed PMID: [22302619](#); PubMed Central PMCID: [PMC3369006](#).
4. Novel methods for addressing missing data in longitudinal studies. Longitudinal studies with clinical or community samples of participants invariably involve some level of missing data, which can threaten the validity of inferences. I developed a novel queueing model that can be fit to incompletely observed longitudinal data. I also work with colleagues on multiple imputation-based and Bayesian methods to address nonignorable missing data mechanisms.
 - a. Crespi CM, Cumberland WG, Blower S. A queueing model for chronic recurrent conditions under panel observation. *Biometrics*. 2005 Mar;61(1):193-8. PubMed PMID: [15737093](#).
 - b. Siddique J, Crespi CM, Gibbons RD, Green BL. Using latent variable modeling and multiple imputation to calibrate rater bias in diagnosis assessment. *Stat Med*. 2011 Jan 30;30(2):160-74. PubMed PMID: [21204122](#); PubMed Central PMCID: [PMC3058328](#).
 - c. Siddique J, Harel O, Crespi CM. Addressing Missing Data Mechanism Uncertainty using Multiple-Model Multiple Imputation: Application to a Longitudinal Clinical Trial. *Ann Appl Stat*. 2012 Dec 1;6(4):1814-1837. PubMed PMID: [23503984](#); PubMed Central PMCID: [PMC3596844](#).

- d. Siddique J, Harel O, Crespi CM, Hedeker D. Binary variable multiple-model multiple imputation to address missing data mechanism uncertainty: application to a smoking cessation trial. *Stat Med*. 2014 Jul 30;33(17):3013-28. PubMed PMID: [24634315](#); PubMed Central PMCID: [PMC4082461](#).
5. Breadth of statistical expertise. As a collaborative statistician, I have developed the expertise to identify, adapt and apply sophisticated statistical methods to answer specific research questions. The following sampling of publications demonstrates my broad repertoire of methods. These include examples of a measurement validation study, causal inference using g-computation, meta-analysis and longitudinal modeling of cohort data.
- a. Crespi CM, Alfonso VH, Whaley SE, Wang MC. Validity of child anthropometric measurements in the Special Supplemental Nutrition Program for Women, Infants, and Children. *Pediatr Res*. 2012 Mar;71(3):286-92. PubMed PMID: [22337260](#); PubMed Central PMCID: [PMC3282987](#).
- b. Decker AL, Hubbard A, Crespi CM, Seto EY, Wang MC. Semiparametric Estimation of the Impacts of Longitudinal Interventions on Adolescent Obesity using Targeted Maximum-Likelihood: Accessible Estimation with the ltmle Package. *J Causal Inference*. 2014 Mar;2(1):95-108. PubMed PMID: [26046009](#); PubMed Central PMCID: [PMC4452010](#).
- c. Vinceti M, Dennert G, Crespi CM, Zwahlen M, Brinkman M, Zeegers MP, Horneber M, D'Amico R, Del Giovane C. Selenium for preventing cancer. *Cochrane Database Syst Rev*. 2014 Mar 30; PubMed PMID: [24683040](#); PubMed Central PMCID: [PMC4441528](#).
- d. Crespi CM, Wang MC, Seto E, Mare R, Gee G. Associations of family and neighborhood socioeconomic characteristics with longitudinal adiposity patterns in a biracial cohort of adolescent girls. *Biodemography Soc Biol*. 2015;61(1):81-97. PubMed PMID: [25879263](#); PubMed Central PMCID: [PMC4400869](#).

Complete List of Published Work in My Bibliography:

<https://www.ncbi.nlm.nih.gov/myncbi/browse/collection/41141589/?sort=date&direction=ascending>

D. Additional Information: Research Support and/or Scholastic Performance

Ongoing Research Support

6/5/12-3/31/18

National Institutes of Health/National Cancer Institute R01 CA160427
Biobehavioral predictors of fatigue in newly-diagnosed breast cancer patients
PI: Bower, Julianne
Role: Co-Investigator

9/30/13-9/29/18

National Institutes of Health/National Institute of General Medical Sciences R01 GM105033-01
Narratives in the Informational Patient Society and Their Association with Health Behavior
PI: Roychowdhury, Vwani
Role: Co-Investigator

9/30/13-9/29/18

National Institutes of Health/HD R01 HD072296
The impact of natural experiments on child obesity: A systems science approach
PI: Wang, May; Prelip, Michael
Role: Co-Investigator

12/01/13-11/30/18

National Institutes of Health/National Cancer Institute P30 CA16042
Cancer Center Core Support Grant, Biostatistics, Analytical Support & Evaluation (BASE) Unit
PI: Dorskind, Kenneth
Role: Co-Investigator.

1/1/15-12/31/18

Electric Power Research Institute Grant No. 57485
Replication of Draper Study of Leukemia, Brain Tumors and Distance to Power Lines in California
PI: Kheifets, Leeka
Role: Co-Investigator.

2/1/15-1/30/20
First5LA
Reducing Early Childhood Obesity (RECO) Collective Impact Evaluation
PI: Holin; Subcontract PI: May Wang
Role: Co-Investigator

8/14/15-7/31/18
National Institutes of Health/National Cancer Institute R03 CA198258
E-cigarette understanding and use among a diverse sample of ethnic minority adolescents
PI: Cowgill, Burt
Role: Co-investigator

4/1/16-1/31/21
National Institutes of Health/National Institute on Minority Health and Health Disparities R01 HD083574
A Dual-Cohort Prospective Study of Obesity: Filipino Migrants and Non-Migrants
PIs: De Castro, Arnold; Gee, Gilbert; Lee, Nanette
Role: Co-investigator

7/14/16-6/30/21
National Institutes of Health/National Cancer Institute R01 CA200977
A Phase III Randomized Trial Targeting Behavioral Symptoms in Younger Breast Cancer Survivors
PIs: Ganz, Patricia; Bower, Julienne
Role: Co-Investigator

9/01/16-8/31/19
California Breast Cancer Research Program.
Building Mixtec Community Capacity for Breast Health, Phase 3
PIs: Maxwell, Annette; Young, Sandra
Role: Co-Investigator

7/1/17-6/30/20
American Heart Association Grant No. 17SDG33660878
The impact of the 2009 WIC food package change on child obesity: an innovative quasi-experimental approach
PI: Chaparro, Maria Pia; Subcontract PI at UCLA: Wang, May
Role: Co-investigator

7/1/17-6/30/19
Tobacco-Related Disease Research Program Grant No. 495024
E-cigarette and Tobacco Use Prevention for Deaf and Hard-of-Hearing Youth
PI: Berman, Barbara
Role: Co-Investigator

7/1/17-6/30/19
Tobacco-Related Disease Research Program Grant No. 500243
Project Towards No Nicotine: Afterschool Tobacco Use Prevention Program
PI: Cowgill, Burt
Role: Co-Investigator