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EDUCATION AND TRAINING

Dr.P.H., Biostatistics & Demography, 2003

University of North Carolina at Chapel Hill, USA

Advisors: R.E. Bilsborrow & C.M. Suchindran

“Multilevel spatial and statistical analyses to example the relationship between population and environment: A case study of the Ecuadorian Amazon”

M.S., Biostatitics, 1999

University of North Carolina at Chapel Hill

Advisor: C.M. Suchindran

“Methods of National Population Forecasting: Comparison and Contrasts”

M.P.H., International Health, 1997

Emory University Rollins School of Public Health, Atlanta, GA USA

Advisor: R. Houston

“Poverty Assessment and Nutritional Surveillance Systems”

B.A., Mathematics & Computer Science, 1994

Boston College, Boston, MA, USA

Postdoctoral Training

2003-2004, Carolina Population Center, University of North Carolina at Chapel Hill.

Mentors: Richard E. Bilsborrow & Stephen J. Walsh

2004-2005, International Health, Johns Hopkins University Bloomberg School of Public Health

Mentor: Lawrence H. Moulton

PROFESSIONAL EXPERIENCE

2018-Present **Elizabeth Brooks Reid & Whitlaw Reid Associate Professor of Population Studies and Global Environmental Health**, Division of Environmental Science & Policy (ESP), Nicholas School of the Environment (NSOE) and Duke Global Health Institute (DGHI), Duke University, Durham, NC.

- 2021-Present **Director of Undergraduate Studies**, ESP, NSOE, Duke University
- 2011-2018 **Assistant Professor of Global Environmental Health**. ESP & DGHI, NSOE, Duke Univ.
- 2017-2018 **Visiting Scholar, Institute for Health Metrics**, Department of Global Health, University of Washington, Seattle, WA.
- 2014-2018 **Assistant Professor**. Duke Kunshan University, Kunshan, China
- 2011-Present **Associate, Duke Population Research Institute**, Duke University.
- 2016-Present **Director, DGHI Priority Partnership Location-Peru**. Duke University.
- 2011-Present **Adjunct Assistant Professor, Department of International Health**, The Johns Hopkins University, Bloomberg School of Public Health (JHSPH), Baltimore, MD.
- 2008-2012 **Associate, Hopkins Population Center**, JHSPH
- 2007-2011 **Assistant Professor**, Department of International Health, JHSPH
- 2010-2011 **Adjunct Assistant Professor**. ESP, NSOE, Duke
- 2005-2007 **Assistant Scientist**. Department of International Health, JHSPH
- 1998-2003 **Graduate Research Assistant**, Carolina Population Center, UNC-Chapel Hill.
Statistical and data management support to a research project studying biodiversity and population-environment interactions in the Ecuadorian Amazon.
- 1997-1998 **US EPA Environmental Statistician**, Human Studies Division, Clinical Research Branch, Environmental Protection Agency (EPA), Chapel Hill, NC.
Assisted in the development of non-linear mixed effects models to assess the effect of ozone exposure on lung function.
- 1996 **Association of Schools of Public Health Research Intern**. Division of Unintentional Injury Prevention, The Centers for Disease Control & Prevention (CDC), Atlanta, GA.
Evaluated the association between grip strength and motor vehicle injuries in the elderly.
- 1996 **CDC Epidemiology Program Office, Programmer**
Helped write manuals for the US National Electronic Telecommunications System for Surveillance (NETSS) and assisted in programming a surveillance system in Armenia.
- 1994 **Cardiomyopathy and Cardiac Transplant Coordinator**. Brigham and Women's Hospital, Boston, MA.
Coordinated transplant patient evaluations and post-transplant monitoring of care.
- 1992 **Hangzhou Automation Research Institute Research Intern**, Hangzhou, PRC.
Studied computer programming methods and techniques.

PROFESSIONAL ACTIVITIES

Professional Memberships and Service

American Public Health Association (APHA), 1996-2016, 2021-
Governing Counselor, 2011-2013 (elected); Committee on Membership, 2011-Present; Chair of the Student Research Awards (2008-2011); Past Chair & Nomination Chair, 2011-12 (elected); Section

Chair, 2009-10 (elected); Chair-Elect and Program Chair Statistics Section (2008-09); Statistics Section Council, 2007-08 (elected); Organizer and Moderator “Climate Change and Statistics, Is there Consensus?”, 2008; Organizer and Moderator-Applications of Statistical Methods to GIS-based Analyses of Public Health Problems, 2007; 100th Anniversary Co-Coordinator, 2007-08; Statistics Section Secretary, 2005-07 (elected)

International Society for Environmental Epidemiology (ISEE), 2016-present

International Biometric Society - Eastern North American Region (ENAR), 2001-2006

International Union for the Scientific Study of Population (IUSSP), 2001-present
Conference Organizer, 2013

North Carolina One Health Collaborative, 2011-present

Center for Comparative Medicine and Translational Research (CCMTR), Emerging, Infectious and Zoonotic Diseases Research Core, 2014-present

Population Association of America (PAA), 2000-present
Invited Panelist “Environment & Health” 2009 Annual Meeting; Invited Discussant “Population & Environment” 2006 Annual Meeting; 2017 Conference Organizer Population Environment Research Network, 2001-present; Secretary for Inaugural Meeting, 2001 Salvador, Brazil

American Society for Tropical Medicine & Hygiene, 2013-present

American Geophysical Union (AGU), 2011-2022 (intermittent member)

American Association of Geographers (AAG), 2003-2008, Session Chair – Disease and Health, 2007

Participation on Advisory Panels and Boards of Director

Science Advisory, Zika Virus Research and Development Roadmap, 2023. Wellcome Trust, December 5-7, 2023

Reviewer, Toxicological Profile of Mercury, 2022. US Department of Health and Human Service, Agency for Toxic Substances and Disease Registry (ATSDR)

Expert Advisory Group, Integrated Disease Surveillance & Control through a One Health Approach, Bill & Melinda Gates Foundation, Annecy Summit, October 2-5, 2022

Technical Advisory Group, Tripartite (World Health Organization, Food and Agricultural Organization for the UN, World Organization for Animal Health), Development of Standardized One Health Field Competencies for UN, FAO and WHO, 2021-2023

Chair, Science Advisory Committee, Institute for Malaria and Climate Solutions (IMACS), Forecasting Healthy Futures, 2021-

Expert Advisory Group, NASA and BMGF (Bill and Melinda Gates Foundation) Joint Working Groups to identify opportunities for joint ventures in malaria eradication, climate-smart agriculture, and livestock population assessments, Jan-August 2022

Science Advisory Group, MINAMATA Guidance on the Monitoring of ASGM Sites, 2021-22

Science Advisory Group, MINAMATA Effectiveness Evaluation Guidelines, 2021-22

Scientific Advisor, Peru Ministry of Environment Compliance with the Global Mercury Treaty (MINAMATA), 2020-2022

Board of Directors, Green Infrastructure Center, Scottsville, VA. 2020-2022

Scientific Steering Committee, Population Environment Research Network, 2018-present;

Executive Steering Committee, North Carolina One Health Collaborative, 2011-present

Climate Advisor. Congreso de Cambio Climatico y Salud, LANCET Countdown for Climate Change and Health, Cusco, Peru, December 16-18, 2019.

Science Advisor. Healthy Planet, Healthy People Workshop, World Wildlife Foundation (WWF), October 23, 2019, Washington DC

Science Diplomacy Workshop: Train the Trainers. AAAS / TWAS, August 26-28, 2019, Trieste, Italy

Science Advisor. Amazon Freshwater Implementation and Policy Analysis Workshop, World Wildlife Foundation (WWF), May 20-24, 2019, Lima Peru

Science Advisor, Heavy Metals and Health in Peru, PAHO Expert Technical Workshop, January 16-17, 2017, Lima, Peru

Expert Meeting, *Migracion, Cambio Climatico y Desarrollo Sostenible do VII Congreso da Asociacion Latinoamericana de Poblacion e XX Encontro Nacional de Estudios Populacionas*, organized by IOM and ALAP, October 17-22, 2017, Foz do Iguacu, Brazil

NIEHS Career Fair Panelist, April 2013.

UNC Biostatistics Alumni Career Panelist, November 2013

Woodrow Wilson Center, Environmental Change and Security Program, *Gorillas and Family Planning: At the Crossroads of Community Development and Conservation*, Discussant, October 2013

Contributing Author and Reviewer, GEO-5: Global Environmental Outlook: Environment for the future we want, (published June 2012). United Nations Environment Programme (UNEP)

Specialist Meeting, **Future Directions in Spatial Demography**, Dec 12-13, 2011, Santa Barbara, sponsored by UC-Santa Barbara, NIH and Penn State

Biostatistics and Data Analysis Core Consulting, **Global Enterics Multi-Center Study (GEMS)**, University of Maryland, March 2009.

Expert-Group Meeting on Population Dynamics and Climate Change (June 2009), United Nations Population Fund (UNFPA) and the International Institute for Environment and Development (IIED)

Program or Project Development

InterAmerican Institute for Global Change Research Conference of Parties (COP31). Observer. June 20-22, 2023, Panama City, Panama.

Forecasting Health Futures Global Summit. Co-Organizer and Steering Committee. March 14-16, 2023, Abu Dhabi. Secured Climate-Health day for COP28 in Dubai for December 2023

Artisanal & Small-Scale Gold Mining Community of Practice, Latin America, Co-Organizer. Supported by InterAmerican Institute for Global Change Research (IAI) Climate-Health Initiative. 2022-present

Science Diplomacy Symposium Series. April-June 2020: COVID-19. September-December 2020: Gold Mining and Mercury Exposure.

Nicholas Catalyst Grant, Duke Gold Mining Working Group, 2019-2021

Leishmaniosis Working Group, 2018-2019

Intellectual Exchange Group on Planetary Health, Chair, Duke University, January-December 2017

Working Group on Large Scale Development Impacts in the Amazon, Organizer, 2015

Population-Health Environment (PHE) Week 2013, Conference Organizer, Duke University

Consultancies

DAI, 2023-2024.

USAID RESTORE project to evaluate an agroforestry and forest restoration project in Ghana and Cote d'Ivoire.

University of North Carolina at Chapel Hill, 2012-15.

USAID project to strengthen university capacity in Ecuador to provide high-quality education about the Ecuadorian Amazon and to conduct and disseminate applied research relevant to biodiversity conservation and resource management.

University of Wisconsin, Malaria Research Project, 2004-2006

Developed statistical and spatial analysis plan to examine the relationship between mosquito larval breeding sites, land use, and hydrology.

Program Against Micronutrient Malnutrition.1996-1997

Helped translate and work with Chinese health officials to develop strategies to combat malnutrition.

UNICEF-Beijing. 1997-1998

Helped to design and analyze neonatal tetanus sero-persistence studies performed in Hainan, Guizhou, and Hubei provinces in the People's Republic of China.

EDITORIAL ACTIVITIES

Editorial Boards

Editorial Review Board, *EcoHealth*, 2017-present

Associate Editor, *Annals of Global Health*, 2019-present

Peer Review – Journals

ACS Earth and Space Chemistry	International Journal of Environmental Research and Public Health
American Journal of Public Health	International Family Planning Perspectives
American Journal of Tropical Medicine & Hygiene	International Journal for TB and Lung Disease
Agriculture, Ecosystems, and Environment	International Journal of Health Geographics
Biometrical Journal	Journal of Virology & Antiviral Research
BMC Cardiovascular Disease	The Journal of Nutrition
BMC Research Notes	Land Use Policy
BMC Public Health	The LANCET
Clinical Trials	The LANCET Regional Health: Americas
Clinical Infectious Diseases	One Health
Demography	

Disasters Journal	PLOS Biology
EcoHealth	PLOS ONE
Emerging Infectious Diseases	PLOS Neglected Diseases
Environmental Research	Proceedings of the National Academy of Sciences (PNAS)
Environmental Health Insights	Population & Environment
Environmental Health Perspectives	Sankhya B (Applied Statistics)
Frontiers in Public Health	Scientific Reports
GeoHealth	Sexually Transmitted Infections
Global Health, Epidemiology and Genomics	Social Science & Medicine
Global Public Health	Tobacco Prevention & Cessation
Global Environmental Change	
Health & Place	

Peer Review – Funding

NIH Study Section Review:

- November 2023, NIAID, International Centers of Malaria Excellence (ICEMR)
- July 2023, NIEHS R13 Conference Grant Applications in Environmental Health Sciences, Special Emphasis Panel (SEP)
- September 2017, P01 Centers for Oceans and Human Health (ZES LKB-K (P) 2)
- November 2015, Infectious, Reproductive, Asthma and Pulmonary Conditions (IRAP) Study Section (ZRG1 PSE-K05M)
- July 2014, SBIR Health of the Population (HOP) Study Section
- January 2012, NICHD, Social Sciences and Population Studies (SSPS) Study Section
- September 2011, NICHD, SSPS
- November 2011, SBIR HOP IRG
- March 2011, SBIR HOP IRG
- June 2010, SBIR HOP IRG
- June 2009, SBIR HOP IRG
- November 2009, SBIR HOP IRG
- February 2008, SBIR HOP IRG
- June 2008, SBIR HOP IRG
- June 2007, SBIR HOP IRG
- October 2007, SBIR HOP IRG
- March 2006, SBIR HOP IRG
- November 2006, SBIR HOP IRG

NASA

ROSES 2019, Rapid Response Grant, May 2019

ROSES 2017 A.39 Review Panel (Earth Science Applications: Health and Air Quality), May 23-24, 2018

MRC (Medical Research Council), Sept 2019

Florida Department of Health, Zika Research Panel, December 2016

National Science Foundation (NSF)

PIPP Phase 1 Proposals, February 2022

Geography and Spatial Sciences Program (March & December 2012)

Wellcome Trust Grant Applications: Postdoctoral Fellowship Reviewer (July 2015); Climate-Health Grant applications (July 2022)

Belgian Government Science Policy

Program for Remote Sensing STEREO II (Support to the Exploitation and Research of Earth Observation Data), September 2007.

STEREO II –Support to the Exploitation and Research of Earth Observation Data, September 2006.

Duke Global Health Institute Travel Awards, 2012

HONORS AND AWARDS

2020-21: Wiley Top Cited Article of 2020-2021, *Elevated Hair Mercury Levels Are Associated With Neurodevelopment Deficits in Children Living Near Artisanal and Small-Scale Gold Mining*, GeoHealth

Outstanding Postdoc Mentor at Duke University, nomination 2014, 2015, 2016

NIH Fogarty International Center Director's Award, 2015

James E. Grizzle Distinguished Alumni Award, University of North Carolina at Chapel Hill, 2012

Outstanding Contributions to the APHA Statistics Section, 2009

Certificate of Appreciation, APHA Statistics Section, 2007, 2009

Who's Who in America, 2007, 2008

GIS & Population Science Training Program Travel Grant (sponsored by NIH), 2009

System for Analysis Research and Training Secretariat (START) and the Third World Academy of Sciences (TWAS) grant to attend the International Young Scientists Global Change Conference, Trieste, Italy, Nov. 16-20, 2003.

Mindel C. Sheps Dissertation Fellowship in Mathematical Demography, 2003

Student Paper Award, American Association of Geographers Population Group, 2002

UNC Department of Biostatistics Travel Award, 1998-2003

Mellon Foundation Travel Award, 1999, 2001

Tinker Pre-Dissertation Travel Award from the Institute for Latin American Studies, 1999

Who's Who Among American Colleges and University, 1994

Boston College Mathematics Honor Society, 1994

Chinese Institute of Engineers Student Scholarship, 1990

PUBLICATIONS

*Articles (peer-reviewed), * indicates student publication*

- 1) *Marchese MJ, JR Gerson, AJ Berky, C Driscoll, LE Fernandez, H Hsu-Kim, KN Lansdale, E Letourneau, M Montesdeoca, **WK Pan**, E Robie, C Vega, and ES Bernhardt (2024) Human health risks of mercury exposure in gold mining regions of Peru depend on diet choices, *Environmental Research: Health* (in press)
- 2) Araujo Navas, AL, MM Janko, F. Benítez, M. Narvaez, LE Vasco, P Kansar, B Zaitchik, **WK Pan**, CF Mena (2024) Impact of climate and land use/land cover changes on malaria incidence in the Ecuadorian Amazon, *PLOS CLIMATE* (in press)

- 3) Pizzitutti, F., G Bonnet, E. Gonzalez-Gustavson, S. Gabriel, **WK Pan**, AE Gonzalez, HH Garcia, SE O’Neal (2023) Spatial transferability of an agent-based model to simulate *Taenia solium* control interventions, *Parasites & Vectors*, V16(410) doi://10.1186/s13071-023-06003-9
- 4) Meyer, JN, **WK Pan**, I. Ryde, T Alexander, J Klein-Adams, D. Ndirangy, M Falvo (2023) Bioenergetic function is decreased in peripheral blood mononuclear cells of veterans with Gulf War Illness, *PLoS ONE* 18(11): e0287412. <https://pubmed.ncbi.nlm.nih.gov/37910447/>
- 5) *Gunderson, AK, C. Recalde-Coronel, BF Zaitchik, PP Yori, S. Rengifo Pinedo, M. Paredes Olortegui, MN Kosek, JM Vinetz, and **WK Pan** (2023) Prospective cohort study linking migration, climate and malaria risk in the Peruvian Amazon, *Epidemiology and Infection*, V151: e202. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10753477/>
- 6) Janko, M, GC Recalde-Coronel, CP Damasceno, G. Salmón-Mulanovich, AF Barbieri, AG Lescano, BF Zaitchik, & **WP Pan** “The impact of sustained malaria control in the Loreto region of Peru: A retrospective, observational, spatially-varying interrupted time series analysis of the PAMAFRO program” *LANCET Regional Health – Americas*, Mar 16;2023:100477. <https://pubmed.ncbi.nlm.nih.gov/36970494/>
- 7) *Berky, AJ, C Weinhouse, J Vissoci, NA Rivera, EJ Ortiz, S. Navio Chipa, JJ Miranda, A. Mallipudi, E. Fixsen, H. Hsu-Kim, **WK Pan** (2023) “In-Utero Exposure to Lead and Mercury Differentially Influence Gestational Age and Birthweight in an ASGM Birth Cohort in Madre de Dios, Peru” *Environmental Health Perspectives* 2023 Sep;131(9):97008. doi: 10.1289/EHP10557. Epub 2023 Sep 25. PMID: 37747404; PMCID: PMC10519195.
- 8) Fernández D, Giné-Vázquez I, Morena M, Koyanagi AI, Janko MM, Haro JM, Panagiotakos D, Molassiotis A, **Pan WK**, Tyrovolas S. Government interventions and control policies to contain the first COVID-19 outbreak: An analysis of evidence. *Scand J Public Health*. 2023 Mar 8:14034948231156969. doi: 10.1177/14034948231156969. Epub ahead of print. PMID: 36883722; PMCID: PMC9996153.
- 9) Doggui R, McCormick BJ, Caulfield LE, Schulze KJ, Murray-Kolb LE; **MAL-ED Network Investigators** (2023). Adequacy of Iodine Status and Associations with Gut Health: A Prospective Cohort Study among Infants in 8 Low- and Middle-Income Countries. *Journal of Nutrition*. Feb 4:S0022-3166(23)02517-8. doi: 10.1016/j.tjnut.2022.11.027. Epub ahead of print. PMID: 36797135.
- 10) Neta, G., **WK Pan**, K. Ebi, DF Buss, T Castranio, R Lowe, SJ Ryan, AM Stewart-Ibarra, LK Hapairai, M. Sehgal, MC Wimberly, L Rollock, M. Lichtveld, J Balbus (2022) “Advancing climate change health adaptation through implementation science” *LANCET Planetary Health*, V6(11),e909-e918, PMID: 36370729 PMCID: PMC9669460, <https://pubmed.ncbi.nlm.nih.gov/36370729/>
- 11) Cristina Recalde-Coronel, G., B. Zaitchik, **WK Pan**, & A Getirana, (2022). Influence of Vegetation on Simulation of the Water Balance and Hydrological Response to the El Niño Southern Oscillation in Western Tropical South America, *Journal of Hydrometeorology*, V23 (11): 1737-57. <https://doi.org/10.1175/JHM-D-21-0081.1>
- 12) Pizzitutti, F., G. Bonnet, E Gonzalez-Gustavson, S. Gabriel, **WK Pan**, IW Pray, AE Gonzalez, HH Garcia, S. O’Neil (2022) “Non-local validated parametrization of an agent-based model of local-scale *Taenia solium* transmission in North-West Peru” *PLoS One*. 2022 Sep 27;17(9):e0275247. doi: 10.1371/journal.pone.0275247. PMID: 36166462; PMCID: PMC9514638.
- 13) Chaudhuri, S., P. Kasibhatla, A. Mukherjee, **WK Pan**, G. Morrison, S. Mishra, V. Kumar Murty (2022), "Analysis of overdispersion in airborne transmission of COVID-19", *Physics of Fluids* V34(5), 051914, <https://doi.org/10.1063/5.0089347>
- 14) *Pettigrew, SW, **WK Pan**, J. Harrington, AJ Berky, E Rojas, BJ Feingold (2022) “Adult Exposures to Toxic Trace Elements as Measured in Nails along the Interoceanic Highway in the Peruvian Amazon” *IJERPH*, 19 (10): 6335, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9142029/>

- 15) *Berky, AJ, E Robie, S. Navio Chipa, E. J. Ortiz, EJ Palmere, NA Rivera, AM Morales, H. Hsu-Kim, **WK Pan** (2022) "Risk of Lead Exposure from Wild Game Consumption from Cross-Sectional Studies in Madre de Dios, Peru" *The LANCET Regional Health-Americas*, V12, 100226, 36237535 PMID: PMC9555248 <https://pubmed.ncbi.nlm.nih.gov/36237535/>
- 16) *Koenigsmark, F., C. Weinhouse, A Berky, AM Morales, EM Pierce, E Ortiz, **WK Pan**, H Hsu-kim (2021) "Efficacy of hair total mercury content as a biomarker of methylmercury exposure to communities near artisanal and small-scale gold mining in Madre de Dios, Peru" *International Journal of Environmental Research and Public Health*, Dec 18;18(24):13350. doi: 10.3390/ijerph182413350. PMID: 34948962; PMID: PMC8707462.
- 17) Tyrovolas S, Tyrovola D, Giné-Vázquez I, Koyanagi A, Bernabe-Ortiz A, Rodriguez-Artalejo F, Haro JM, **Pan WK**, Miranda JJ, Panagiotakos D. Global, regional, and national burden of aortic aneurysm, 1990-2017: a systematic analysis of the Global Burden of Disease Study 2017. (2022) *European Journal of Preventive Cardiology*. Mar 27;V29(8):1220-32. doi: 10.1093/eurjpc/zwab015. PMID: 33783496. <https://pubmed.ncbi.nlm.nih.gov/33783496/>
- 18) Antiporta DA, Ambikapathi R, Bose A, Maciel B, Mahopo TC, Patil C, Turab A, Olortegui MP, Islam M, Bauck A, McCormick B, Caulfield LE; **MAL-ED Network Investigators** (2021). Micronutrient intake and the probability of nutrient adequacy among children 9-24 months of age: results from the MAL-ED birth cohort study. *Public Health Nutrition*, V24(9):2592-2602. doi: 10.1017/S1368980020000877. Epub 2020 Jul 2. PMID: 32611463; PMID: PMC8145466.
- 19) Bonnet,G., Pizzitutti F., Gonzalez-Gustavson EA, Gabriel S., **WK Pan**, HH Garcia, JA Bustos, P Vilchez, SE O'Neal (2022) "CystiHuman: A Model of Human Neurocysticercosis" *PLOS Computational Biology*, May 19;18(5):e1010118. doi: 10.1371/journal.pcbi.1010118
- 20) Gerson, JR, N Szponar, AA Zambrano, B Bergquist, E Broadbent, CT Driscoll, G Erkenswick, DC Evers, LE Fernandez, H Hsu-Kim, G Inga, KN Lansdale, MJ Marchese, A Martinez, C Moore, **WK Pan**, M Silman, EA Ury, C Vega, M Watsa, ES Bernhardt (2022) Amazon forests capture high levels of atmospheric mercury pollution from artisanal gold mining, *Nature Communications*, V13 (559) <https://doi.org/10.1038/s41467-022-27997-3>
- 21) McCormick BJJ, Richard SA, Murray-Kolb LE, Kang G, Lima AAM, Mduma E, Kosek MN, Rogawski McQuade ET, Houpt ER, Bessong P, Shrestha S, Bhutta Z, Ahmed T, Caulfield LE; **MAL-ED Network Investigators** (2022). Full breastfeeding protection against common enteric bacteria and viruses: results from the MAL-ED cohort study. *American Journal of Clinical Nutrition* 4;115(3):759-769. doi: 10.1093/ajcn/nqab391. PMID: 34849524; PMID: PMC8895209.
- 22) **Pan WK**, D Fernández, S Tyrovolas, GV Iago, RR Dasgupta, BF Zaitchik, P Lantos, CW Woods (2021) Heterogeneity in the Effectiveness of Non-Pharmaceutical Interventions during the first SARS-CoV2 wave in the United States, *Frontiers in Public Health*, Nov 29;9:754696. doi: 10.3389/fpubh.2021.754696. PMID: 34912768; PMID: PMC8666663.
- 23) Pray, IW, F. Pizzitutti, G Bonnet, E Gonzalez, W Wakeland, **WK Pan**, WE Lambert, AE Gonzalez, HH Garcia, SE O'Neal (2021) "Validation of a spatial agent-based model for Taenia solium transmission ("CystiAgent") against a large prospective trial of control strategies in northern Peru" *PLOS Neglected Tropical Disease*, Oct 27;15(10):e0009885. doi: 10.1371/journal.pntd.0009885. PMID: 34705827; PMID: PMC8575314.
- 24) Wimberly MC, de Beurs KM, Loboda TV, **Pan WK** (2021). Satellite Observations and Malaria: New Opportunities for Research and Applications. *Trends in Parasitology*. Jun;37(6):525-537. doi: 10.1016/j.pt.2021.03.003. Epub 2021 Mar 25. PMID: 33775559; PMID: PMC8122067. <https://pubmed.ncbi.nlm.nih.gov/33775559/>
- 25) **Pan, WK**, Weinhouse, C., Ortiz, E.J., Berky, A.J., Fixsen, E., Mallipudi, A., Feingold, B.J., Navio, S., Rivera, N.A., Hsu-kim, H. and Miranda, J.J., 2021. "CoNaMad—Cohorte de Nacimiento de Madre de Dios / Madre de Dios Birth Cohort to Study Effects of in-utero Trace Metals Exposure in the

- Southern Peruvian Amazon.” *Annals of Global Health*, 87(1), p.69. DOI: <http://doi.org/10.5334/aogh.3152>, <https://pubmed.ncbi.nlm.nih.gov/34327116/>
- 26) Tyrovolas S, Giné-Vázquez I, Fernández D, Morena M, Koyanagi A, Janko M, Haro JM, Lin Y, Lee P, **Pan WK**, Panagiotakos D, Molassiotis A. Estimating the COVID-19 Spread Through Real-time Population Mobility Patterns: Surveillance in Low- and Middle-Income Countries (2021). *Journal of Medical Internet Research*. 2021 Jun 14;23(6):e22999. doi: 10.2196/22999. PMID: 33950850; PMCID: PMC8204939. <https://pubmed.ncbi.nlm.nih.gov/33950850/>
 - 27) Fernández D, Giné-Vázquez I, Liu I, Yucel R, Nai Ruscone M, Morena M, García VG, Haro JM, **Pan WK**, Tyrovolas S. Are environmental pollution and biodiversity levels associated to the spread and mortality of COVID-19? A four-month global analysis, (2021). *Environmental Pollution*, Feb 15;271:116326. doi: 10.1016/j.envpol.2020.116326. Epub 2020 Dec 21. PMID: 33412447; PMCID: PMC7752029. <https://pubmed.ncbi.nlm.nih.gov/33412447/>
 - 28) *Lana JT, Mallipudi A, Ortiz EJ, Arevalo JH, Llanos-Cuentas A, **Pan WK**. Risk factors for cutaneous leishmaniasis in a high-altitude forest region of Peru. *Trop Med Health*. 2021 May 17;49(1):40. doi: 10.1186/s41182-021-00332-0. PMID: 34001266; PMCID: PMC8130303. <https://pubmed.ncbi.nlm.nih.gov/34001266/>
 - 29) Marani M, Katul GG, **Pan WK**, Parolari AJ. Intensity and frequency of extreme novel epidemics. *Proc Natl Acad Sci U S A*. 2021 Aug 31;118(35):e2105482118. doi: 10.1073/pnas.2105482118. PMID: 34426498. <https://pubmed.ncbi.nlm.nih.gov/34426498/>
 - 30) *Berchuck, S., M Janko, FA Medeiros, **WK Pan**, S. Mukherjee (2022) “Bayesian Non-Parametric Factor Analysis for Longitudinal Spatial Surfaces” *Bayesian Analysis*, V17(11): 435-64, <https://doi.org/10.1214/20-BA1253>
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- MSN: *Scientists Have Calculated The Probability of Another COVID-Level Pandemic Emerging*, <https://www.msn.com/en-us/news/technology/scientists-have-calculated-the-probability-of-another-covid-level-pandemic-emerging/ar-AANFOhk?ocid=BingNewsSearch>
- Daily Mail: *Another pandemic on the scale of Covid-19 is likely to strike within the next 60 YEARS, study warns*, <https://www.dailymail.co.uk/sciencetech/article-9919359/Another-pandemic-scale-Covid-19-likely-strike-60-YEARS-study-warns.html>
- Daily Telegraph: *Covid threat beginning to fade – but next pandemic will be along in 59 years*, <https://www.telegraph.co.uk/news/2021/08/23/covid-threat-beginning-fade-next-pandemic-will-along-59-years/>
- IndyWeek: *Future Pandemics Like COVID-19 "Relatively Likely" and One Big Enough To Kill Us All Could Be Here Sooner Than You Think* <https://indyweek.com/news/northcarolina/future-pandemics-like-covid-19-relatively-likely-duke-profes/>
- Study Finds: *Another pandemic like COVID-19 likely to strike within 60 years, study warns*, <https://www.studyfinds.org/another-pandemic-like-covid-19/>
- The Sun (UK): *DISEASE RISK Another pandemic like Covid-19 likely to hit within 60 years, study warns*, <https://www.the-sun.com/health/3528732/another-pandemic-covid-19-sixty-years/>
- United Press International: *Risk for global pandemics higher than previously thought, study finds*, https://www.upi.com/Science_News/2021/08/23/pandemics-frequency-risk-study/3841629741769/
- TerraDaily: https://www.terradaily.com/reports/Risk_for_global_pandemics_higher_than_previously_thought_study_finds_999.html
- Kasibhatla, P. & WK Pan (2021), *Duke must make COVID-19 data more transparent*, Duke Daily Chronicle, Aug 26, 2021, <https://www.dukechronicle.com/article/2021/08/08262021-kasibhatla-pan>
- Pan, WK (2020), *How Warming Winters are Affecting Everything*, Feb 18, 2020, <https://www.npr.org/2020/02/18/803125282/how-warming-winters-are-affecting-everything>
- Pan, WK (2017), *Seal Meat, Gold Mining: How Lower-Income Women Are Exposed To Mercury*, Oct 3, 2017, <https://www.npr.org/sections/goatsandsoda/2017/10/03/554543028/seal-meat-gold-mining-how-lower-income-women-are-exposed-to-mercury>
- Pan, WK (2017), *Using NASA Satellite Data to Predict Malaria Outbreaks*, Sept 13, 2017, <https://www.nasa.gov/feature/goddard/2017/using-nasa-satellite-data-to-predict-malaria-outbreaks>
- Pan, WK (2016), *Salud Ambiental en la Selva*. Live interview on **Radio-TV Yurimaguas** June 19, 2016
- Pan, WK (2016), *Leaked Map Reveals Chronic Mercury Epidemic in Peru* (ed. David Hill). Nov 19, 2016, The Guardian, <https://www.theguardian.com/environment/andes-to-the-amazon/2016/nov/19/leaked-map-reveals-chronic-mercury-epidemic-in-perus-amazon>
- Pan, WK (2016), *FAQ: Zika Virus and the 2016 Rio Olympics* (ed. Bonnie Ford). Feb 17, 2016, ESPN, http://espn.go.com/olympics/story/_/id/14773948/zika-virus-rio-games-know-far
- Pan, WK (2016), *2016 Rio Olympics: The Promise Rio Couldn't Keep* (ed. Bonnie Ford). Feb 18, 2016, ESPN, http://espn.go.com/espn/feature/story/_/id/14791849/trash-contamination-continue-pollute-olympic-training-competition-sites-rio-de-janeiro
- Pan, WK (2016), *Professor awarded \$1 million NASA grant for malaria research* (ed. Nidhila Masha). Feb 4, 2016, Duke Chronicle, <http://www.dukechronicle.com/article/2016/02/professor-awarded-1-million-nasa-grant-for-malaria-research>

- Pan, WK** (2015), *Health Professor Turns to Space for Malaria Cure* (ed. M. Sophia Newman). Dec 30, 2015, Next City, <https://nextcity.org/daily/entry/peru-amazon-flooding-malaria-cure-nasa>
- Pan, WK** (2015), *They're Going Door to Door in the Amazon to See Why People Get Sick* (ed. Jason Beaubien). May 19, 2015, National Public Radio (NPR), <http://www.npr.org/sections/goatsandsoda/2015/05/19/401970884/theyre-going-door-to-door-in-the-amazon-to-see-why-people-get-sick>
- Pan, WK** (2015), *Going For The Gold Sends Mercury Down the River* (ed. Jason Beaubien). January 21, 2015, National Public Radio (NPR), <http://www.npr.org/sections/goatsandsoda/2015/01/21/378842801/going-for-the-gold-sends-mercury-down-the-river>
- Pan, WK** (2014), *Women at the Center of the Human-Environment Interface*, TEDx Meredith College, April 12, 2014.
- Bass Connections in Peru*, August 2013 (<https://globalhealth.duke.edu/media/news/faculty-lead-students-life-changing-research-experiences>)
- Pan, WK.** (Spring 2012) "Inquiry across Disciplines" Duke University Interdisciplinary Studies.
- Pan, WK.** (Fall 2011) "Toward Alma-Alta: Researcher studies Health, Population and the Environment" *GIST from the Mill*, Duke University Social Science Research Institute (SSRI). (<http://ssri.duke.edu/newsletter.php>)
- Pan, WK.** (Summer 2010). "Top 20 Challenges in Public Health: Charting Development's Path to Disease" *Johns Hopkins Public Health Magazine*. Baltimore, MD (http://magazine.jhsph.edu/2010/spring/features/the_future_of_public_health_20_great_challenges/from_development_to_disease/)
- Pan, WK.** (February 25, 2008). National Public Radio, Climate Connections: Solutions "New Roads in the Amazon May Deliver Disease," by Joanne Silberner (www.npr.org/templates/story/story.php?storyId=19276850)

Manuscripts in Preparation / Under review

- *Feingold, B., **WK Pan**, RE Bilborrow "Anemia, Stunting and Overweight among children under 10 in Madre de Dios, Peru: A multinomial analysis following completion of the Interoceanic Highway", *European Journal of Clinical Nutrition* (in-review)
- *Feingold, B., B. Zaitchik, **WK Pan.** "Climate, land use and demographic changes influencing malaria in the Amazon", *Lancet Infectious Diseases*
- Saxton, AT, JW Stanifer, JJ Miranda, E Ortiz, A Taype-Rondan, **WK Pan** "Prevalence and associated risk factors of diabetes, chronic kidney disease, and hypertension of adults in the Peruvian Amazon: An Amarakaeri Reserve Cohort study" *LANCET Global Health*

TEACHING

Classroom Instruction

Science Diplomacy: Improving Capacity of Science to Inform Policy, Venice International University, Summer 2022, 2023, 2024. Course Coordinator

Integrating Environmental Health and Policy, ENVIRON201. Duke Univ. Spring 2019-2023, Fall 2023.

Population-Environment Dynamics Influencing Human Health: Johns Hopkins 2009-2010; Duke University 2012-2017, 2019-2021 (GLHLTH / ENVIRON 237S); Duke-Kunshan University, October-December 2014

One Health Intellectual Exchange: Philosophy to Practice Integration of Human, Animal & Environmental Health. Duke (GLHLTH 771) Spring semester 2013-2017, Fall 2018-2024

Environmental Health and Epidemiology (ENVIRON 537). Spring 2020. Biostatistics Module only 2021-2024

Bass Connections, Duke University:

*Environmental Epidemiology in Latin America. 2012-2023 (multiple teams)

*Gold Mining and Mercury Exposure in Ghana. 2018-2019.

*Etiology, Risk Factors and Interactions of Enteric Infections and Malnutrition and the Consequences for Child Health and Development (MAL-ED) Project. 2016-2017.

ICDDR,b Workshop of Quantitative Epidemiology and Biostatistics, Dhaka, Bangladesh, August 2018.

Critical Readings in Environmental Epidemiology. Duke Fall Semester 2017.

Environmental Management in a Changing World – Coping with Sea Level Rise. Duke Summer Program in Venice. 2013-2017. Venice International University

Spatial Methods in Epidemiology and Demography. Duke (GLHLTH 636), Fall 2013

Spatial Data Collection for Public Health Studies, Gates Institutes for Reproductive Health, Addis Adaba, Ethiopia June 2009

Quantifying Epidemiological Relationships using Spatial Analysis, Summer Institute in Epidemiology and Biostatistics. 2008

GPS and Spatial Data Collection in Epidemiologic Studies, Summer Institute in Epidemiology and Biostatistics. 2008

Spatial Epidemiology. The Summer Institute in Tropical Medicine and Public Health, 2007, Johns Hopkins Bloomberg School of Public Health

Fundamentals of Biostatistics. The Summer Institute in Tropical Medicine and Public Health, 2006-2008. Johns Hopkins Bloomberg School of Public Health

Introduction to Biostatistics. ICHORTA Summer Institute, 2006-2008, Johns Hopkins Bloomberg School of Public Health.

Spatial Regression using Multilevel Models, 2006 NICHD GIS & Population Science Workshop, UC-Santa Barbara.

Introduction to Spatial Regression, UNC-Odum Institute. 2002.

Advanced Linear Models, UNC, Dept. of Biostatistics. 18 students. 2001 (Co-Instructor / Teaching Intern)

Fundamentals of Biostatistics, UNC, Dept. of Biostatistics. 70 students. 2002. (Teaching Assistant)

EpiInfo & Statistical Computation for the International Epidemic Intelligence Service, Emory University. 20 students. 1996-97 (Trainer / Facilitator)

Boston College Emerging Leader Program, 10 students. 1993-94 (Facilitator)

Advisees – Faculty Mentees

Mark Janko, PhD, K01 Mentored Science Award Proposal (in review), 2024-2029. Current: Instructor, Duke Global Health Institute, Duke University

Beth Feingold, PhD, K01 Mentored Science Award, “Application of novel biomarkers to measure health impacts of anthropogenic change in the Amazon”, 2020-2024. Current: Associate Professor, State University of New York at Albany

Paul Lantos, MD, MS, KL2 Clinical Mentored Science Award, “Improving the Diagnosis of Lyme Disease in the Southeastern United States”, 2014-2017. Current: Associate Professor of Medicine, General Internal Medicine/Pediatric Infectious Disease

Robert Rolfe, MD, Global Health Infectious Diseases Fellowship, 2019-2021.

Advisees - Post-doctoral

Mengxin Pan, PhD, NSOE Post-doctoral Fellow, October 2022-present (co-Advisor with Shineng Hu)

Mark Janko, PhD, DGHI Post-doctoral Fellow, July 2017-2019. Currently: Research Assistant Professor, Duke Global Health Institute, Duke University.

Caren Weinhouse, PhD, DGHI Post-Doctoral Fellow, Feb 2015-Aug 2018
Currently: Assistant Professor, Oregon Health and Sciences University

Francesco Pizzitutti, PhD, DGHI Post-Doctoral Fellow, Nov 2015-2018. Currently: Consultant

Gabriela Salmon-Mulanovich, PhD, DGHI Post-Doctoral Fellow, Nov 2015-July 2016
Currently: Assistant Professor, Pontificia Universidad Catolica Peruana

Ethel Maciel, ICHORTA Post-Doctoral Fellow, 2008-2009. Currently: Professor and Vice-Rector, Universidad Federal do Espirito Santo, Brazil

Beth Feingold, PIMM Fellow, Johns Hopkins University, 2011-2014. Currently: Associate Professor, Albany School of Public Health

Advisees – PhD and MD Degrees

Sara O’Malley, PhD in-progress, Duke University

Daniel Tobin, PhD in-progress, Duke University

Reshma Nargund, PhD in-progress, Duke University

Jasmine Parham, PhD in-progress (co-Advisor with John Willis), Duke Biology Department

Alexis Domeracki, MD 2025 (in-progress, co-Advisor Megan Reller) Duke University Medical School

Axel Berky, PhD 2022, Duke

Effects of Toxic Metal Exposures and Their Mixtures on Adverse Health Outcomes in the Peruvian Amazon

Currently: Senior Scientist, GeoSyntec

Justin Lana, PhD 2021, Duke

A One Health Approach to Understanding the Epidemiology of Cutaneous Leishmaniasis

Currently: Technical Director for Malaria Elimination, Clinton Health Access Initiative

Lauren Wyatt, PhD 2018, Duke (co-Advisor Joel Meyer)

Investigations into the genotoxic and immunological outcomes following mercury exposure in Peruvian communities and Caenorhabditis elegans

Current: Data Scientist, UNC Health

Emma Fixsen, MD 2018, UVA (via Doris Duke Program).

Currently: Internal Medicine Resident, University of Hawaii

Helena Frischtak, MD 2016, UVA (via Doris Duke Program)

Currently: Medics San Frontiers, Sudan

Andres Mallipudi, MD 2017, Johns Hopkins University (via Doris Duke Program)

Currently: Emergency Medicine Resident, NYU Langone Bellevue Hospital Center

Gabriela Salmon, PhD 2014, JHSPH

Dengue infection in Puerto Maldonado, Peru: Human migration and economic impact.

Currently: Faculty, Pontificia Universidad Católica del Perú

Lisa Patel, MD 2011, JHU (via Johns Hopkins Center for Global Health Framework)

Currently: Clinical Instructor, Stanford Medical School

Frank Franklin, PhD 2009, Johns Hopkins School of Public Health (JHSPH)

Alcohol outlet density and violent crime in an urban context: Examining deprivation effects and longitudinal association

Current: Deputy Commissioner of Health, Philadelphia Department of Health

Co-Advisees - Doctoral Degrees

Camilo de los Rios Rueda, PhD in-progress, Duke University Sanford School of Public Policy (co-Advisor Alex Pfaff)

Jacqueline Gerson, PhD 2021, Duke University (co-Advisor Emily Bernhardt)

Geochemical, Biological, and Landscape Controls on Mercury Fate, Transport, and Impact in Natural Ecosystems

Current: Assistant Professor, Department of Earth & Environmental Sciences, Michigan State University

Ian Pray, PhD 2019, Oregon Health & Science University (co-Advisor, Seth O'Neal). Currently: Epidemic Intelligence Office, US CDC

Sarah Diring, 2016, Duke University (co-Advisor Helen Hsu-Kim)

Distribution, Transport, and Control of Mercury Released from Artisanal and Small-Scale Gold Mining (ASGM)

Currently: San Francisco Estuary Institute

Joseph Lee, 2015, UNC-Chapel Hill (co-Advisor Kurt Ribisl)

Relationship between sexual minority couples & tobacco retailer density and marketing

Currently: Associate Professor, Dept Health Education & Promotion, East Carolina Univ

Doctoral Dissertation^D, Exam^E Committee or Reader

Tyler Barrett, PhD Duke, Evolutionary Anthropology (in progress)^{D, E}

Alma Solis, PhD Duke, Evolutionary Anthropology (in progress)^{D, E}

Bora Jim, PhD Duke 2023, Statistics (Amy Herring, advisor)^{D, E}

Bag of DAGs: Inferring directional dependence in spatiotemporal processes

Faye Koenigsmark, PhD Duke 2021 ^{D, E}
From Source to Surveillance: An Assessment of Liquid Elemental Mercury Mobilization in Soil, Downstream Reactivity, and Biomarkers of Exposure

Tulika Singh, PhD Duke 2021 ^{D, E}
Maternal Immunity to Zika Virus

Stacy Pettigrew, PhD 2018, SUNY-Albany (Beth Feingold, Advisor) ^D
Trace Element Exposures and Blood Pressure along the Interoceanic Highway, Madre de Dios, Peru

Ipsita Das, PhD, UNC 2018. (Pam Jagger, Advisor)
Women's bargaining power and household adoption of environmental health behaviors: Evidence from India

Stacy Scholle, PhD 2015 Duke (Katia Koelle, Advisor) ^{D, E}

Yun Jian, PhD 2014 Duke (Marco Marani, Advisor) ^{D, E}
Prediction of mosquito abundance in temperate regions using ecological, hydrological and remote sensing models

Maria Au, PhD 2014 JHSPH (Benjamin Caballero, Advisor) ^{D, E}
Ethnic disparities, acculturation, & neighborhood racial/ethnic concentration: The consumption patterns of sugar-sweetened beverages among adults living in California

Dennis Valle, PhD 2013 Duke (James Clark, Advisor) ^{D, E}
Land use, land cover change and malaria risk in the Amazon region,

Gweneth Lee, PhD 2012 JHSPH (Margaret Kosek, Advisor) ^{D, E}
Diarrheal Disease and Linear Growth in Peruvian Infants

Sheguftha Shefa Sikder, PhD 2012, JHSPH (Alain Labrique, Advisor) ^{D, E}
Obstetric Complications in Rural Northwest Bangladesh: Determinants of Care Seeking and Service Availability for Emergency Obstetric Care.

Carrie Tudor, PhD, 2012 JHU-School of Nursing (Jason Farley, Advisor) ^D
Occupational Risk Factors for TB Among Health Care Workers in Kwazulu-Natal, South Africa

Laurel Suter, PhD, 2012 UC-Santa Barbara (David Lopez-Carr, Advisor) ^D
Land Succession and Intensification in the Agricultural Frontier: Sierra del Lacandon National Park, Guatemala

David M. Sintasath, Ph.D. 2008 JHSPH (Ken Nelson, Advisor) ^D
High Diversity of Simian Retroviruses and the Risk for Disease Emergence

Agbessi Amouzou, Ph.D. 2006 JHSPH (Stan Becker, Advisor) ^{D, E}
The fertility transition in Ghana, Kenya, and Senegal: Comparing effects of ideation-diffusion and economic indicators

Jessica Leibler, DrPH 2010 JHSPH (Ellen Silbergeld, Advisor) ^E

Hsin-Jen Chen, PhD 2012 JHSPH (Youfa Wang, Advisor) ^E

Isabel Rodriguez-Barraquer, PhD 2012 JHSPH ^E

Chou-cheng Lai, PhD JHSPH 2014 ^E

Yayi (Stephanie) Guo, PhD JHSPH 2012 ^E

Preeti Gadhoke, PhD JHSPH 2012 ^E

Ann Y. Liu, PhD JHSPH 2012 ^E

Fengmin Zhao, PhD JHSPH 2010 ^E

Catherine Sutcliff, PhD JHSPH 2010 ^E

Jennifer Armistead, PhD JHSPH 2011 ^E

Ingrid Friberg, PhD, 2008 JHSPH (Mark Steinhoff, Advisor) ^D

Jennifer Moisi, PhD, 2008 (alternate, JHSPH, Orin Levine, Chair) ^F

Thomas Jaenisch, PhD 2008 (alternate, JHSPH, James Tielsch, Advisor) ^F

Joy M. Guillemot. Exam year 2008 (alternate) ^P

Shama Ahuja, Exam year 2008 ^P

Rebecca Day Merrill, Exam year 2007 ^P

Eric Pevzner, PhD, UNC 2004: *“Tackle smoking project: A randomized trial to reduce smoking high school football games in North Carolina.”*

Advisees – Masters Degrees

Payton Wood, MEM, Duke, in-progress

Hannah Bruek, MEM, Duke, in-progress

Safia Bamba, MEM, Duke, in-progress

Kaila Balch, MScGH, Duke 2023, *Impact of Resource-Extractive Land Concessions on Malaria Incidence in the Peruvian Amazon: A 2015 to 2020 Retrospective Study*

Chrissie Pantoja, MEM, Duke 2023, *The impact of forest loss on public health: Evidence from Peru*

Xuening Tang, MEM, Duke 2023

Sara O’Malley, MScGH, Duke 2022, *Seasonality of Fish Production as a Potential Predictor of Malaria Transmission: A One Health Approach in the Peruvian Amazon*

Rani Kumar, MEM, Duke 2021, *Malaria Transmission in Border Regions of the Western Amazon: Incorporating watersheds into timeseries analysis to address disease reintroduction and spillover along the Ecuador-Peru border*

Analise Lindborg, MEM, Duke 2021

Annika Gunderson, MScGH, Duke 2021, *Migration Typologies Predict Malaria Incidence in the Peruvian Amazon: A Prospective Cohort Study*

Adam Mushnick, MEM, Duke 2020, *As Assessment of Federal and State PFOA Drinking Water Guidelines and a Probabilistic Evaluation of the EPA PFOA Health Advisory*

Maria Velasco Delgado, MEM 2020, *An Agent-Based Model to Assess Malaria Transmission Drivers in the Ecuadorian Amazon*

Chengyang Wang, MEM 2020

Tatiana Manidis, MEM 2019, Duke University, NSOE, *Association of Mercury Exposure with Blood Pressure Among Adults Near Artisanal and Small Scale Gold Mining*

Emily Robie, MScGH 2019, Duke Global Health Institute, *Anemia Etiology in the Peruvian Amazon: a cross-sectional study*

Gina Daniel, MEM 2018, Duke University, Nicholas School of Environment

Delaney Reilly, MEM 2018, Duke University, Nicholas School of Environment, *Examining interactions of lead and repeated Rota virus infection on infant cognitive development*

Clay Jones, MScGH 2018, Duke Global Health Institute, *Examining Trends in Birth Location and Birth Attendance Among Women in the Amarakaeri Communal Reserve*

Rachel Whitson, MEM, Duke University, Nicholas School of Environment 2017 *“Impact of El Niño on Environmental Mercury in Madre de Dios, Peru”*

Elizabeth Monahan, MScGH, Duke 2017 *“Evaluating the Effectiveness of Deltamethrin and Permethrin in Insecticide Treated Nets in the Northern Peruvian Amazon”*

Avery Yuan, MS, Duke University, Biostatistics Department, 2017 *“The Association of Micronutrient Levels and Child Growth in Nepal: Modeling Longitudinal Anthropogenic Measurements”*

Wanbing Gu, MScGH, Duke-Kunshan University 2016 *“The Influence of Household Economic Status and Food Consumption Patterns on Obesity Rates in Peru: Evidence from a Field Study in 11 Communities of Madre de Dios”*

Anthony Saxton, MScGH, Duke 2016 *“Assessment of Two Diabetes Point-of-Care Analyzers Measuring Hemoglobin A1c in the Peruvian Amazon”*

Jose Magana, MEM/MBA, Duke 2016, *“Measuring the effects of mining on Peru’s public health: Is the Apurimac Region prepared to assess heavy metal exposure?”*

Elizabeth Kendell, MEM, Duke 2015

Dominic Lucero, MScGH, Duke 2015, *“Factors associated with the distribution of Leishmaniasis Disease and Vectors in Madre de Dios, Peru”*

Christina Chao, MScGH, Duke 2015, *“Air Pollution, Fuel Usage, and Health Outcomes in Madre de Dios, Peru: A Cross-Sectional Study”*

Jessica Cain, MEM, Duke 2014, *“Vulnerability and Resilience to Malaria among Communities in Madre de Dios, Peru”*

Axel Berky, MEM, Duke 2014, *“Hydrological models in Madre de Dios”*

Ross Hansen, MsGH, Duke 2014, *“The impact of flooding on Malaria transmission within roadway communities in the Peruvian Amazon”*

Elizabeth Yin, MEM, Duke 2014, *“Identifying malaria transmission risk in the Peruvian Amazon: A geospatial approach”*

Sheng Liu, MsGH, Duke 2013, *“Mother’s early marriage predicts child malaria risk in the Peruvian Amazon”*

Rotimi Thomas, MEM, MBA, Duke 2013, *“Sub-Saharan Africa: Turn on the lights”*

Justin Lana, MsGH, Duke 2012, *“Multilevel model of malaria risk in the Peruvian Amazon”*

Suzanne Pollard, MHS, JHSPH 2011, *“Exposures to particulate matter and carbon monoxide and their short-term physiological effects in a rural, high-altitude population of the Peruvian altiplano”*

Yuen Wai Hung, MHS, JHSPH 2010 *“The Changing Health Needs in Iraq: Injury Burden and the Emergency Medical Care Development”*

Yvonne Tam, MHS, JHSPH 2010, *“Water, Sanitation, and Hygiene (WASH) in Schools - Challenges and Opportunities: A study of UNICEF’s school sanitation and hygiene education program in South India”*

Ramya Ambikapathi, MHS, JHSPH 2009, *“Community Based Health Intervention: Case Studies on community health fund and capacity building of community health workers & oversight committee in Rural Andhra Pradesh, India”*

Brent Kim, MHS, JHSPH 2009, *“Measurement and Communication Indirect Greenhouse Gas Emissions from US Food Consumption via Carbon Calculators”*

Naomi Kincler, MPH, JHSPH 2009, *“Spatial and seasonal variation in maternal and newborn MUAC in rural Bangladesh”*

Kirsten Thompson, MPH, JHSPH 2008

Masters Thesis Committee / Reader

Sydney Neeley, MScGH, Duke 2016: *“Using GIS and Remote Sensing Technologies to Identify Environmental Variables of Malaria Vector Breeding Sites in Western Kenya”*

Yinan Jiang, MScGH, Duke 2016: *“Migration and Perception of Health Status: a Qualitative Study in Kazakh Chinese”*

Ryan Simmons, MS-Biostatistics, Duke 2015: *“Comparing malaria serological models in a longitudinal cluster randomized trial in Tanzania”*

Alexandra Shannon, MScGH, Duke 2016: *“Evaluating Demand for Water & Sanitation Technologies in Udaipur, India: A Mixed Methods Approach”*

Cydney Elizabeth Justman, MScGH, Duke 2013: *“Intergenerational influences and migration: Rurality and adolescent fertility in Lujan, Argentina”*

Andria Erin Smith, MScGH, Duke 2011: *“Evaluating Medicine Retailer Knowledge and Practice in the Diagnosis and Treatment of Malaria in Western Kenya: An opportunity for improved malaria case management”*

Jenna Rose, MHS, JHSPH 2010: *“Etiology of Traveler’s Diarrhea in Bangkok, Thailand”*

Julie Harris, Ph.D., MPH, JHSPH 2007: “*Model Comparing Outcomes in Cost – Effectiveness and Tuberculosis Prevalence for Active and Passive Disease Surveillance in Peru.*” Awarded the 2007 MPH Capstone Award for Outstanding Achievement.

Michelle Barnhart, MHS, JHSPH 2007: “*Changes in health-related quality of life and emotion before and after prophylactic oophorectomy*”

Undergraduate Advising (* thesis advisee, † academic advisee)

** Director of Undergraduate Studies, NSOE, July 2021- (As DUS, I currently advise over 20 undergraduate students)

(2024 Graduates): Nick Haddad, Justin Zhao, Emily Zhao, Bridget Zhu

(2023): Jasmine Clairsaint

(2022): Emma Herold, Tenzen Choeyang, Sofia Calvo, Peyton Cox, Ryan Rogers, Fernanda Machicao*

(2021): Estella Muro*

(2019): Luiza Perez*, Bruno Valen (Indep. Study)

(2018): Jennifer Callejas*, Joshua Grubbs*

(2017): Pooja Mehta*

(2015): Charlotte Lee*

Project Heal (Honduras, 2013-14): Suellen Li, Jenny Xie, Leah Mische

Bass Connections: Environmental Epidemiology in Latin America, 2012-22:

2012-13: Charlotte Lee, Laura Mistretta

2013-14: Laura Rogers, Josh Latner, Priyanka Krishnan

2014-15: Margot Neveaux, Madison Krischak, Austin Peer, Sarah Nuss

2015-16: Jennifer Callejas, Liane Emerson, Joshua Grubbs, Huijia Yu, Luiza Perez

2016-17: Karina Martinez Romo, Delaney Dryfoos, Anson MacKinney, Jennifer Callejas, Joshua Grubbs

2019-20: Alex Bajana, Lisette Araya, Amelia Martin, McKenzie Zapada, Jonathan Avendano, Olivia Hunt

2021-22: Adam Hahn, Fernanda Maria Machicao, Grant Breit, Roy (Zehua) Wang

2023-24: Caroline Hancock, Chloe McGeehan, Njoki Kuria Mwangi, Abigail Walden

Bass Connections, Malnutrition and Enteric Disease, 2016-17; Pooja Mehta

Bass Connections, Gold mining and Mercury Exposure in Ghana, 2018-19; Abena Antobre, Tenzin Choeyang

High School Advising

Prabuddha Ghosh Dastidar, NC School of Science and Math, Senior Research Thesis 2021-22.

Sam Finlay (2017-18)

Eugen Craciunescu (2017-18)

Angela Zhang, NC School of Science and Math, Senior Research Thesis 2013-14

Research Assistant (student) Trainees

Perla Medrano (2021-23)

Kaila Balch (2021-23)

Rani Kumar (2019-21)

Annika Gunderson (2019-21)

Sara O’Malley (2020-22)

Ben Newman (2020-21)

Emily Drobles (2020-21)

Jacqueline Fahrenholz (2020-21)

Maria Velasco Delgado (2018-2020)

Chengyang Wang (2019-2020)

Aaron Rueben (2017-)

Emily Robie (2017-19)

Clay Jones (2016-18)
Pooja Mehta (2014-17)
Elizabeth Monahan (2015-17)
Sarah Thornburgh (2014-16)
Anthony Saxton (2014- 16)
Shubham Patel (2015-16)
Mark Ziman (2014-15)
Lina Kelsaite (2014-15)
Donny Meyer (2014)
Weixi Jiang (2013-14)
Jessica Cain (2012-14)

Angela Zhang (2013-14)
Lauren Wyatt (2013)
Victoria Schellus (2011-2012)
Denis Valle (2011-2013)
Ashley Sobel (2012)
Katherine (Chun Min) Lin (2009-2010)
Fengmin Zhou (2008-2009)
Daesha Ramachandran (2008-2009)
Jessie Pinchoff (2010-11)
Ian Craig (2009-2011)

Laboratory Research Associates (staff)

Mark Janko, PhD (2021-)
Perla Medrano, MScGH (2023-)
Sara O'Malley, MScGH (2022)
Chris Patrick Lara, MS MIDP (2019)
Ernesto Ortiz, MD MPH (2012-19, 2023-)
Axel Berky, MEM (2014-17)
Paige Meier (2014-17)
Leah Ling (2015-16)
Nelson Moore (2016)
Joseph Lunyera (2016)

RESEARCH GRANT PARTICIPATION

Current Research Participation - External

Improving Response to Malaria in the Amazon

NIAID/NIH (1R01AI151056)

08/31/2021 – 08/30/2026

Goal: Expand our current malaria early warning system in Peru to Ecuador, Colombia and Brazil, then test how social networks and migration are associated with malaria transmission

Role: PI

Getting to Zero: Satellite-Informed System to Support Elimination of Malaria in the Americas (SISTEMA)

NASA-ROSES (80NSSC22K1046)

07/1/2022-6/30/2025

Goal: Support malaria elimination efforts in Panama and Honduras through tools that integrate climate and environmental change into surveillance

Role: PI

Development and validation of an agent-based model to promote evidence-based control of Taenia solium cysticercosis

NIAID, NIH (R01AI141554) Seth O'Neal (PI)

06/15/19-06/14/2024

Goal: Develop an agent based model of Taenia Solium that can be used to identify optimal interventions to control human taeniasis and human and pig cysticercosis.

Role: co-I

Transitioning to Hg-free gold Processing: Identifying Gaps from current Hg-free supply chains and strategizing how to bridge them

Conservation International (CI-112563) William Pan (PI) 01/01/2022-01/31/2023

Goal: Identify existing supply chains for gold and mercury use in Guyana

Role: PI

Managing Mercury from Mining: Assistance with workshops that support local decisions

PureEarth (SLMAQM18CA2077) Alex Pfaff Talikoff (PI) 10/01/2021-12/31/2022

Goal: Organize workshops to discuss challenges in ASGM tailings management and Hg storage

Role: co-I

Mercury Capture Systems for ASGM Gold Shops

ConservationX Prize, Adam Kiefer (PI) 10/1/2020-12/31/2023

Conservation X Artisanal Mining Prize for new technology developed for mercury-free gold processing.

Role: co-I

Current Research Participation – Internal (Duke)

A Consortium to Effectively Respond to Climate-Attributable Risks (ACERCAR)

Duke Climate-Health Initiative, Pan (PI) 06/01/2022-05/31/2024 (planning phase) 2/1/23-1/31/25 (research)

Goal: Pilot study to evaluate how climate and malaria forecast visualizations are used to improve malaria control decision-making in Peruvian communities

Role: co-PI

Evaluating the coupled climate forcing from pan-tropical oceans in mediating malaria risk across 5 countries of the Americas (Peru, Ecuador, Brazil, Panama, Honduras) to improve malaria early warning

NSOE Climate-Health Init., Shineng Hu & William Pan (co-PIs) 06/01/2022-05/31/2024

Goal: Evaluate whether multi-layered indexes from tropical ocean basins improve model prediction in an existing malaria early warning system (MEWS).

Role: co-PI

Impacts of Artisanal and Small-Scale Gold Mining for Human and Environmental Welfare in Ecuador

MedX, Hsu-kim & Pan (co-PIs) 09/01/2022-8/31/2023

Goal: Establish a joint USFQ-Duke cross-disciplinary research program to study and mitigate the impacts of artisanal and small-scale gold mining (ASGM) in tropical ecosystems of Ecuador

Role: co-PI

Madre de Dios Research Project

This combines studies supported by the **Hopkins Population Center** (*Migration along the Interoceanic Highway*, 12/1/2009-12/31/2012); **DGHI-Pratt Initiative** (*Evaluating the impact of mercury contamination on human and environmental health in the Madre de Dios watershed*, 9/1/2012 – 8/31/2014); **Bass Connections** (*Environmental Epidemiology in Latin America*) (8/1/2013-12/31/2017).

Role: PI

Research Pending

P20: Amazon Research Center for Climate Change and One Health (ARC)

NIH

06/01/2024 – 05/31/2027

Goal: Establish a center to develop, study and respond to climate-health threats in the Amazon Basin.

Role: Center Director (PI)

Completed Research

Mitochondrial dysfunction and Gulf War Illness

DoD (GW150184)

06/01/2016 – 12/31/2021

Goal: Evaluate whether mitochondrial dysfunction is a major driver of Gulf War Illness

Role: Statistician (Joel Meyer, PI, Duke)

Malaria Early Warning System for the Amazon

NASA-ROSES (NNX15AP74G)

7/15/2015-12/31/2021

Goal: To continue the development of an operational early warning system for the Peruvian Amazon.

Role: PI

Duke University Program in Environmental Health

NIEHS (5T32ES021432)

7/1/13 – 6/30/2018

Goal: To provide a core educational environment with laboratories and shared facilities at Duke University supplying training in leading-edge approaches to the students' research.

Role: Student Mentor / Faculty (Richard Di Giulio, PI, Duke)

Impact of El Nino on Mercury Exposure and the Epigenome

NIEHS (1R21ES026960)

04/1/2016 – 04/1/2019

Goal: To evaluate the impact of El Nino-associated flooding on Hg exposure in the Amazon

Role: PI

Mapping interventions to address the environmental, health and developmental impacts of Artisanal Gold Mining

Nicholas Institute Catalyst Grant

05/01/2019 – 04/30/2020

Goal: Build cross-school partnerships to aggregate knowledge of the underlying dynamics of ASGM to compare interventions that can address gold mining to inform current funding priorities and next steps in scientific research and policy integration.

Role: co-PI

Validation of Cognitive Assessment Tools in Indigenous and non-Indigenous Communities in the Amazon

Duke Global Health Institute

03/12/2018 – 12/31/2019

Goal: To validate childhood cognitive assessment tools in the Peruvian Amazon exposed to mercury

Role: PI

Sarcopenia and Sarcopenic obesity assessment in the US older population: Research of trends, patterns and determinants

NIA/DuPRI Pilot Grant William Pan (PI)

4/15/19-6/30/2020

Goal: This is a pilot grant to evaluate data harmonization of ATHLOS and the US Health and Retirement Study (HRS), and to evaluate age patterns associated with sarcopenia and sarcopenic obesity by US county in comparison to regions represented by ATHLOS

Role: PI

Training in Infectious Diseases in Peru

FIC (D43TW001140)

07/01/1999 – 07/31/2016

Goal: Strengthen and interrelate existing research lines in Peru that will be used as a comprehensive framework for parasitic disease control.

Role: Biostatistics Mentor (Hector Garcia PI, UPCH)

Measurement of new EED Biomarkers in MAL-ED Trial Specimens

Bill & Melinda Gates Foundation

1/1/2017-06/30/2018

Goal: Evaluate new biomarkers of environmental enteropathy associated with child growth and cognitive development in children

Role: co-I (Margaret Kosek, PIs, Johns Hopkins Univ)

Comprehensive Investigation into the Risk Factors of Malnutrition & the Consequences for Child Health

Bill & Melinda Gates Foundation

12/1/2008-12/31/2018

Goal: Multi-country diarrhea etiology study to determine effects of enteric infection on malnutrition, growth, vaccine response and cognitive development.

Effort: 15%

Role: Biostatistician, Data Coordinating Center (Michael Gottlieb, PIs, FNIH)

LUCIA-Land Use, Climate and Infections in Western Amazonia

InterAmerican Institute for Global Change Research (CRN3036)

11/1/12 – 10/31/2018

Goal: To understand how land use, climate and population mobility contribute to the transmission of infectious diseases in the Western Amazon Basin.

Role: co-PI with Alisson Barbieri (UFMG-Brazil)

Measuring exposures to toxic metals (mercury, lead, arsenic, cadmium) in blood from adults and children

The Josiah Charles Trent Memorial Foundation

01/01/2018 – 12/31/2018

Goal: To develop laboratory protocols to conduct a multi-metal panel test in blood samples

Role: co-PI (with Helen Hsu-Kim)

Epigenetic deregulation at imprinted genes linked to environmental mercury exposure in Peruvian gold mining communities

DuPRI Pilot Award

4/1/2016 – 3/31/2017

Goal: To study the effects of large-scale development projects on human health by examining epigenetic effects and metabolic health outcomes related to environmental toxicant exposure

Role: PI

Evaluating the impact of environmental mercury exposure on childhood immune response

The Josiah Charles Trent Memorial Foundation

01/01/2016 – 12/31/2016

Goal: To measure immune response in children exposed to mercury in the Peruvian Amazon

Role: PI

Global Health Postdoctoral Fellow Research Funding

Duke Global Health Institute

08/01/2016 – 07/31/2018

Goal: Provides 50% support to recruit a postdoctoral fellow to work in my projects

Role: PI

Effects of Social Context, Culture and Minority Status on Depression and Anxiety
NIMH (5R01MH098374) 8/1/2012 – 7/31/2017
Goal: Examine how social contexts intersect with cultural factors to affect the onset of depression and anxiety across different life stages and geographic locations.
Effort: 10%
Role: co-I (Margarita Alegria, PI, Harvard)

Health Impact Assessment in the Amarakaeri Communal Reserve
Hunt Oil Peru, LLC (HOEP-QEHSS-140003) 6/16/2014 – 6/15/2017
Effort: 33%
Goal: To implement a baseline health assessment in the Amarakaeri Communal Reserve
Role: PI

Combined Albendazole and Praziquantel in Subarachnoid NCC, CCC, lead application
NINDS (U01NS086974) 09/01/2015 – 07/31/2020
Goal: Strengthen and interrelate existing research lines in Peru that will be used as a comprehensive framework for parasitic disease control.
Role: Biostatistics Consultant (Hector Garcia PI, UPCH)

Population-Environment Dynamics influencing Malaria risk in the Peruvian Amazon
NICHD/NIAID (1K01HD055415) 09/01/2008 - 08/31/2013
Goal: This is a K01 Mentored Career Development Award to improve skills and understanding of factors associated with malaria in the Peruvian Amazon.
Role: PI

Improved Biomarkers for the Assessment of Environmental Enteropathy
Bill & Melinda Gates Foundation 03/01/12 – 2/28/2014
Goal: To delineate improved non-invasive or minimally invasive biomarkers to characterize the disease activity of environmental enteropathy in a birth cohort of children in rural Peru living in an area with high diarrheal illness rates and stunting.
Role: Statistician (Margaret Kosek PI, JHU)

IGERT: Water, Climate & Health
NSF (1069213) 09/14/11 – 08/31/2017
Goal: Train a corps of doctoral students to become the leaders needed to develop innovative adaptive strategies to respond to climate change.
Role: co-PI (released PI status when moved from JHU to Duke)

Causes and interventions for childhood obesity: Innovative System Analysis
NIH (R01HD064685) 07/01/2010 – 6/30/2014
Goal: Study the influences and interactions between individual and environmental factors on childhood obesity, the key drivers of the US childhood obesity epidemic
Role: co-I (Youfa Wang PI, JHU)

Development of a Detection and Early Warning System for Malaria Risk in the Amazon
NASA (10-PHFEAS10-17) 07/01/2011 - 06/30/2013
Goal: Determine the feasibility of developing an early warning system for malaria in the Amazon, focusing on data collected in Peru.

Role: co-PI (Ben Zaitchik PI, JHU)

Road construction, colonization, and epidemic malaria in Peru's Northern Amazon

JHSPH Faculty Research Initiatives Fund

01/01/2008 - 12/31/2009

Goal: Begin preliminary collection of vector, land use, and human infection data for malaria research.

Role: PI

CREATE: Consortium to Respond Effectively to the AIDS-TB Epidemic

Bill and Melinda Gates Foundation

07/01/2004 - 07/01/2013

Goal: Develop, evaluate, and if appropriate, promote new applications of existing tools so as to reduce the incidence of tuberculosis in settings of high HIV prevalence.

Role: Statistician, spatial analysis. (Richard Chaisson PI, JHU)

Population, Health and Environment in Africa: Coordinating Strategies

Duke Africa Initiative

08/01/2012 – 7/31/2013

Goal: Pilot project to develop a collaboration focused on population-health-environment issues in Africa, particularly in Uganda

Role: PI

You get what you look for: emerging infections in a malaria-endemic zone

Duke Global Health Institute

03/01/2011 – 02/28/2013

Goal: To test whether non-malarial pathogens are responsible for a significant proportion of febrile illnesses in Kenya

Role: Co-I (Tom Holland and Wendy O'Meara PIs, Duke)

Vibrios in the Chesapeake Bay

Johns Hopkins Center for Water and Health

01/01/2010 – 12/31/2011

Goal: To develop spatial and temporal datasets of *Vibrio* in the Chesapeake Bay using *in-situ* and remotely-sensed data, linked to environmental factors to study where and when biotic risks occur to prevent or reduce their effects.

Role: co-PI (Darryn Waugh PI, JHU)

Family Planning Plus

Bill & Melinda Gates Inst. for Population & Reprod. Health

03/09/2009 – 02/29/2014

Goal: To improve our understanding of the role of household wealth and individual employment on reproductive health

Role: Co-I (Amy Tsui PI, JHU)

Novel techniques for the detection of Pediatric TB in Ethiopia

Agency: NIH (R01HD059005)

09/30/2008 – 06/30/2013

Goal: To determine if the diagnosis of active TB in children and the recovery of *Mtb* isolates can be done more quickly, efficiently, and cost-effectively using alternative clinical specimens in combination with more rapid diagnostic methods for both confirmation of TB and detection of drug resistance compared to current standard techniques.

Role: Statistician (Robert Gilman PI, JHU)

Strengthening the evidence base for the epidemiology of maternal, neonatal, and child conditions – Diarrhea morbidity and etiology

Bill and Melinda Gates Foundation 2008-2011
 Goal: To improve estimates of morbidity and mortality for specific etiologies of diarrhea.
 Role: Statistician (Christa Fisher-Walker & Robert Black, PIs, JHU)

Modeling Population-Environment Dynamics in the Ecuadorian Amazon
 NICHD (5R03HD054939) 04/17/2007 - 04/16/2009
 Goal: Examine relationship between population and environment in a tropical rainforest context that is undergoing rapid deforestation and development.
 Role: PI

New tools to understand and control endemic parasites
 NIAID (5P01AI051976) 09/30/2002 – 06/30/2007
 Goal: Strengthen and interrelate existing research lines in Peru that will be used as a comprehensive framework for parasitic disease control.
 Role: Statistician (Hector Garcia PI, JHU)

Migration and Deforestation in Guatemala
 National Science Foundation (NSF) 12/01/05 – 11/31/08
 Goal: Examine the impact of out-migration to forest frontier regions of Guatemala.
 Role: Consultant (David L. Carr PI, UCSB)

In-Home Prevention of Substance Abuse Risks for Native Teen Families
 NIDA (1R01DA019042) 09/30/05 – 09/29/10
 Goal: To prevent significant lifetime risks for drug abuse and other health and behavior problems in reservation-based American Indian teen mothers and their children by serving women through a culturally-adapted, paraprofessional delivered, home visiting program.
 Role: Statistician (John Walkup PI, JHU)

Depression prevention in pregnant AI teens using CBT
 NIMH (1R34071300) 06/01/04 – 05/31/07
 The major goals of this project are to reduce symptoms of post-partum depression in American Indian teen moms who reside on the White Mountain Apache reservation.
 Role: Statistician (Golda S. Ginsburg PI, JHU)

Impact of Maternal Vitamin A or Beta-Carotene Supplementation on Maternal and Infant Mortality in Bangladesh
 USAID, BMGF, Sight & Life Research Institute 08/01/2001 – 09/01/2009
 Goal: Determine whether weekly oral supplement of Vitamin A from early pregnancy through three months postpartum, reduces maternal, fetal or infant mortality.
 Role: Biostatistician (Keith West PI, JHU)

Evaluation of Parents Claiming Exemptions to School Entry Immunization Requirements
 Centers for Disease Control & Prevention 09/30/2004 - 09/29/2006
 Objective: To evaluate the rate and geographic distribution of medical and non-medical exemptions in the U.S. and associations with outbreaks of vaccine-preventable diseases.
 Role: Biostatistician (Daniel A. Salmon PI, JHU)

Phase 1 Study of the Safety and Immunogenicity of PpPfs25/ISA51 and ScPvs25/ISA51: Transmission Blocking Vaccines for Plasmodium falciparum and Plasmodium vivax Malaria

NIAID (HHSN266200400077)

09/29/04-01/31/07

Objective: Conduct a Phase 1 clinical trial for the recombinant proteins expressed in *Pichia pastoris* and *Saccharomyces cerevisiae*, for PpPfs25 and ScPvs25, respectively.

Role: Statistician (Anna Durbin PI, JHU)

Epidemiology of Shigellosis in the Peruvian Amazon

Fogarty International Center

09/29/01 – 08/31/08

Objective: Determine and define the age-specific incidence rates, risk factors, antibiotic-resistant profiles, and regional serotype data for shigellosis. Develop a spatial model for transmission.

Role: Biostatistician (Margaret Kosek PI, JHU)

Integrated control of taenia solium cysticercosis

NIAID

09/01/1999 - 07/31/2005

Goal: The goal of this project is to implement an integrated control strategy to treat and possibly eliminate taenia solium cysticercosis from the northern Peruvian province of Tumbes.

Role: Biostatistician (Robert Gilman PI, JHU)

Agricultural Colonization in the Ecuadorian Amazon: Population, Biophysical, and Geographical Factors Affecting Land Use/Land Cover Change and Landscape Structure

NASA

07/01/98 – 12/31/2002

Goal: To identify the social, economic and demographic determinants of land use and land cover (LULC) change in the Ecuadorian Amazon associated with spontaneous agricultural colonization, based on survey data, satellite imagery, GIS, and maps.

Role: GRA (Richard E. Bilborrow PI, UNC-Chapel Hill)

Modeling the Scale Dependent Drivers of LCLU Dynamics in Northeastern Ecuador: Simulating Patterns of Landscape Change and Assessing their Cause and Consequence through Multi-Level Models and Cellular Automata

NASA

03/01/03 – 04/30/2006

Goal: Multi-level models and cellular automata (CA) models are utilized to assess the rate, pattern, and mechanisms of forest conversion to agricultural and urban land uses. Scale dependent drivers of land cover & land use dynamics determined from household-level social data are examined in both space and time, combined with biophysical and geographic data.

Role: Post-Doctoral Fellow (Stephen J. Walsh PI, UNC-Chapel Hill)

Research Training in Population Statistics

NICHHD

07/01/83 – 04/30/2008

Goal: Designed to train pre-doctoral and post-doctoral in the application of statistical theory and methods related to problems in the population field. Pre-doctoral trainees will complete a curriculum that includes courses in statistical theory and methods and in demographic techniques and modeling. Postdoctoral trainees undertake a training program for two years under the supervision of one or more program faculty members.

Role: Pre-doctoral trainee (Chirayath M. Suchindran PI, UNC)

Risk modeling methods for exposure-response data of U.S. EPA Clinical Research Branch

US EPA (Type: Innovative Methodology)

07/01/92 – 06/30/99

Goal: To develop appropriate statistical methods to provide adequate, reliable models of exposure-response of lung function following ozone exposure, controlling for ventilation rate, activity level, duration of exposure, and individual characteristics.

Role: Biostatistician (Paul W. Stewart-UNC & William F. McDonnell-EPA, PIs)

Multicenter studies of diet and lipoproteins

NHLBI

09/30/92 – 08/31/99

Goal: To conduct a multi-center, standardized, controlled dietary feeding study to examine a series of experimental dietary modifications that influence dietary fatty acids and cholesterol hypothesized to be related to coronary heart disease.

Role: GRA (Paul W. Stewart PI, UNC)

US Population Projections using European Indicators of Population Growth

Zero Population Growth, Germany

06/01/97 – 05/31/1998

Goal: To estimate US population growth to the year 2050 under scenarios of low fertility rates among teens and young adults

Role: PI

ACADEMIC SERVICE

Division and/or Department

- 2018- DGHI Masters of Global Health Advisory Council
- 2020-23 Chair, ITEHP Trainee Review Committee
- 2020-21 DGHI Equity Task Force, Faculty Sub-Committee
- 2012-15 DGHI Doctoral Scholars Review Committee.
- 2008-11 Faculty Budget Advisory Committee, Dept. of IH, JHSPH
- 2007-08 Department of International Health Strategic Planning Committee, JHSPH
- 2001-03 Social Chair. Department of Biostatistics, UNC-Chapel Hill

School

- 2023- DGHI Executive Advisory Committee
- 2022- Chair, ENV Major Restructure (ENV Major)
- 2022 Faculty Marshall, Duke Graduation 2022
- 2021- Director of Undergraduate Studies, Nicholas School of Environment, ENV Major
- 2020-22 NSOE Co-Coordinator of PSI-Diversity group (non-Black, non-Caucasian persons of color)
- 2021- NSOE Education Committee
- 2020- Appointments and Promotions Committee, DGHI
- 2020 NSOE Environmental Health Faculty Search Committee
- 2020 Chair for Professor of Practice Promotion committee, NSOE
- 2019 Chair for Non-tenure track faculty reappointment committee, NSOE
- 2019 DGHI Colloquium Organizer in Environmental Health
- 2019-20 Global Health Doctoral Program Advisory Committee
- 2016- Director, Peru Priority Partnership Location for DGHI
- 2013- DGHI MSC-GH Faculty Advisory Committee.
- 2017 EEH Chair (Spring Semester, Temporary fill-in for Heather Stapleton)
- 2016-17 NSOE Faculty Council

- 2014-15 NSOE Environmental Health Task Force
- 2013-14 NSOE Undergraduate Program Strategic Planning Committee
- 2012-17 DGHI MScGH Admissions Committee.
- 1997-98 UNC Student International Health Committee. Chairman and Co-Founder.
- 1999-01 UNC Student International Health Committee. Social Chair.

University

- 2023-24 Duke Contracting Office Review Working Group
- 2021- DUS Executive Advisory Committee
- 2020-22 Campus Climate Committee Task Force for Diversity and Inclusion
- 2021 iMEP Program Review Committee
- 2020 Organizer, Science Diplomacy Seminar Series: 3-part series on the conversion of science and policy for addressing the COVID-19 Pandemic
 1. *Science Diplomacy 101 & the COVID-19 Pandemic: The Building Blocks of Science-Diplomacy & Exceptionalism in the Time of Crisis*, May 7, 2020, featured speakers: Marga Gual Soler & Mauricio Calderon-Ortiz, discussants: Christian Lara and William Pan
 2. *From EBOLA to COVID-19: Navigating Science-Diplomacy Relationships on the Front Lines*, June 25, 2020, featured speakers: Pratima Raghunathan (CDC) & Andres Lescano (Peru), Discussants: William Pan & Christian Lara
 3. *COVID-19: A test that will lead to change*, Speaker: David Nabarro (special envoy to the WHO Director General on COVID-19), Discussants: William Pan & Christian Lara
- 2020 Organizer, Science Diplomacy Symposium: *How Science Diplomacy can lead to solutions for Gold Mining and Mercury*, April 13, 2020
- 2020 Organizer, Science-Policy Workshop on Gold Mining and Mercury Pollution, April 14, 2020
- 2016-17 Duke Intellectual Planning Program on Planetary Health, Chair
- 2016 Conference Organizer, Peru Symposium on Health and Environment, Oct 2016
- 2012- Faculty Member, Integrated Toxicology & Environmental Health Program
- 2012- Research Scholar, Duke Population Research Institute
- 2012- Council Member, Center for Latin American & Caribbean Studies
- 2014- Advisory Committee, Duke Brazil Initiative
- 2009-11 DrPH Advisory Committee. Department of International Health, JHSPH
- 2000-02 UNC Global Health Committee, Student Representative.
- 1995-95 Emory Global Health Organization. Chairman and Co-Founder.

Profession (added 2019; activities in addition to those previously mentioned)

- 2023 Science Advisor, Sustainable Translation of Academic Digital Tools, Carnall Farrar Consulting (Wellcome Trust funding)
- 2022 Reviewer, Toxicological Profile of Mercury, US ATSDR.
- 2022- Co-Lead Organizer, InterAmerican Institute for Global Change Research (IAI) Climate-Health Community of Practice (COP) – Artisanal Gold Mining in Latin America: Regional Science, Economics, and Policy Evidence
- 2022-23 Organizing Committee, Forecasting Healthy Futures, Climate-Health Summit (March 2023)
- 2021-23 TRIPARTITE Technical Advisory Group (World Health Organization, Food and Agricultural Organization for the UN, World Organization for Animal Health, United

	Nations Environment Program), Development of Standardized One Health Field Competencies
2020-22	MINAMATA Effectiveness Evaluation Scientific Panel, Global Mercury Treaty, United Nations Environment Program
2019-	Science Advisor for MINAMATA Compliance, Peru Ministry of Environment
2021-23	Scientific Advisory Group, MINAMATA Effectiveness Evaluation Using Remote Sensing to Monitor ASGM sites
2020	Co-Organizer, Workshop on Research Priorities in the Amazon Region, Winston-Salem, NC, February 7, 2020
2019	External Reviewer for Faculty Promotion at UNC

PRESENTATIONS (* invited)

- * **Pan, WK** “Ecosystems and Zoonotic Disease Risk”, AmeriGEO Week 2023, San Jose, Costa Rica, August 7-10, 2023, <https://2023amerigeoweek.amerigeo.org/>
- * **Pan, WK** “Using EO to Support Malaria Elimination in MesoAmerica”, AmeriGEO Week 2023, San Jose, Costa Rica, August 7-10, 2023, <https://2023amerigeoweek.amerigeo.org/>
- * **Pan, WK** “Malaria Early Warning Systems - Contributing to Climate-Resilient Health Systems”, Sustainability, Research and Innovation (SRI 2024), Panama City, Panama, June 26-30, 2023, <https://sricongress.org/sri2023-program/>
- * **Pan, WK** “On the Ground Innovations for Climate-Resilient Communities”, Forecasting Healthy Futures Global Summit 2023, March 14-16, 2023, Abu Dhabi, UAE, <https://www.forecastinghealthyfuturesummit.org/>
- * **Pan, WK** “Getting to Zero: Satellite Informed System to Support Elimination of Malaria in the Americas (SISTEMA)”, GEOHealth Community of Practice, December 6, 2022, virtual (<http://www.geohealthcop.org/workshops/2022/12/6/annualmeeting2022>)
- * **Pan, WK** “Future of Climate-Health Science and Policy for Malaria Control”, Forecasting Healthy Futures Workshop, Kigali Summit: A Landmark Moment in Fight Against Malaria and NTDs, June 20-23, 2022, Kigali, Rwanda
- * **Pan, WK** “One Health Approach to Mitigating Human Health Risks in Coastal Regions”, Keynote Speaker, WACOMA (Water and Coastal Management) Symposium, July 14-15, 2022, Ravenna, Italy (<https://eventi.unibo.it/wacoma-symposium/program>)
- * **Pan, WK** “Developing Strategic Partnerships to Support Climate-Health Tools for Malaria Control and Elimination”, AmeriGEO Week 2022, Health Session: Bridging Earth and Health Science Communities in Environmental Health: Focus on Vector-borne Diseases, Extreme Heat, and Air Quality, August 15-19, 2022, Asunacion, Paraguay.
- * **Pan, WK**, J. Colston, “Earth Observation data and its role in a Planetary Health approach to enteric infectious diseases”, invited panelist, American Public Health Association Annual Meeting, November 12-15, 2022
- * **Pan, WK**, M Janko, GC Recalde, G Salmon-Mulanovich, A. Lescano, A. Barbieri, and B. Zaitchik “The impact of sustained malaria control in the Loreto Region of Peru: A retrospective, observational spatial interrupted time series analysis of the PAMAFRO Program”, invited panelist, American Public Health Association Annual Meeting, November 12-15, 2022
- * **Pan, WK** “Harnessing Climate Data & Technology to Combat Malaria”, Impact First Summit, Lisbon, Portugal, May 25-26, 2022

- * **Pan, WK** and R. Nargund “A One Health Approach to Understanding Impacts of Artisanal Gold Mining and Mercury Pollution”, invited panelist, American Geophysical Union Annual Meeting, December 2021, GH23A-05
- * **Pan, WK** “Implementation challenges of a climate-disease monitoring system in the Amazon”, invite panelist on Public Health Emergency Response During COVID-19 and Beyond: Empowering Epidemiologic Science, Through Data Coordination, Funding, Academic Networks, and Implementation Science, International Society of Environmental Epidemiology Annual Meeting, Aug 23-26, 2021, Symposium 12
- * **Pan, WK** “STePs to Upscale and Implement a Regional Malaria Early Warning System A Consortium to Effectively Respond to Climate Attributable Risks: Malaria Elimination (ACERCAR-ME)”, invite panelist, AmeriGEO Week 2021, Aug 23-27, 2021, Session 1: Health
- * **Pan, WK** “Moving toward a single ontology in land use science, climate change, and epidemiology”, Research Data Alliance 17th Plenary Meeting, April 20-23, 2021
- * **Pan, WK** “EGU Great Debate: The role of scientific information in an emerging environmental crisis” EGU General Assembly 2021, April 19-30, 2021
- * **Pan, WK** & B. Zaitchik “Development of a Malaria Early Warning System in the Amazon: Successes & Challenges”, AGU GeoHealth Quarterly Webinar, March 12, 2021
- * **Pan, WK** “Malaria Early Warning System Tools to Understand the Re-emergence of Malaria in Peru” American Mosquito Association 87th Annual Conference, March 2-5, 2021
- * **Pan, WK** “Achieving >90% Sensitivity in Forecasting Malaria Risk 12 Weeks in Advance in the Amazon (Invited)”, American Geophysical Union Annual Meeting, Dec 1-20, 2020, GH017
- * **Pan, WK** “Policy effectiveness and climate mediators of COVID morbidity and mortality in the US during the early phase of the pandemic”, World Meteorological Society, *Climate, Meteorological, and Environmental factors in the COVID-19 Pandemic*, Aug 4-6, 2020, <https://public.wmo.int/en/events/meetings/covid-19-symposium>
- * **Pan, WK** “Climate Change in the Amazon: Impacts on Health and Future Response”, LANCET Countdown to Climate Change, *Congreso de Cambio Climatico y Salud*, Cusco, Peru, December 17, 2019
- * **Pan, WK** “Context & Scale: Mediators of Environmental-Health Relationships”, WWF Fuller Symposium, Washington DC, October 22, 2019
- * **Pan, WK** “Health Effects of Mercury Exposure”, WWF
- * **Pan, WK** “Dying for Gold”, Laguna Blanca TEDx, Montecito, CA, January 27, 2019
- * **Pan, WK**, M Janko, BM Zaitchik, BF Feingold, GC Recalde, C Mena, F. Pizzitutti, A Berky (2018). “Early Warning System for Malaria in the Amazon”, American Geophysical Union (AGU), December 11, 2018, Washington DC.
- * **Pan, WK** “Early Warning System for Malaria in the Amazon”, Modeling for Environmental Security Webinar, November 27, 2018
- * **Pan, WK** “Making models useful for policy: Lessons from developing a Malaria Early Warning System”, Institute for Disease Modeling, Bellevue, WA, April 16-18, 2018
- * **Pan, WK** “The Real Price of Gold: Deforestation, Mercury Exposure and Human Development”, Weston Roundtable Distinguished Lecture, University of Wisconsin, Nelson Institute Center for Sustainability and the Global Environment, November 16, 2017
- Pan, WK**, BF Feingold, C Weinhouse, E Ortiz, A Berky, S Diringer, L Wyatt, J Lana, A Morales, E. Rojas, P Meier, H Frischtak, L Rogers, J Hare-Grogg, J Meyer, H Hsu-Kim (2017). “Mercury environmental and human health risk assessment provides scientific evidence base for Peru’s State of Emergency in Madre de Dios”, International Conference on Mercury as a Global Pollutant, July 16-21, 2017, Providence, RI.

- * **Pan, WK** “Impacto del Cambio Ambiental en el Riesgo de Malaria”. Iquitos, Peru, VI Congreso Internacional Enfermedades Tropicales e Infecciosas, June 7-10, 2017
- * **Pan, WK**, BM Zaitchik, BF Feingold, C Mena, F. Pizzitutti, G Salmon, J. Escobedo, C. Alvarez (2017). “Developing an Early Warning System for Malaria in the Amazon”, Impact of Environmental Change on Infectious Diseases (IECID), May 17-19, 2017, Trieste, Italy.
- * **Pan, WK** “Overlapping Drivers of Malaria Risk in the Amazon”, Weekly NASA/Goddard Space Flight Center Seminar, January 11, 2017
- * **Pan, WK** “Climate, migration, and reproductive Health: Overlapping drivers of malaria risk in the Amazon”. Climate Change & Emerging Infectious Disease Monthly Seminar, SUNY-Albany School of Public Health, January 10, 2017
- * **Pan, WK** “Effect of Migration on Vulnerability: Recent evidence from the Peruvian Amazon”. *Seminar on Migration, Climate Change, and Sustainable Development*, Specialist meeting organized by International Organization for Migration and Latin American Association of Population, Oct. 17-18, 2016
- * **Pan, WK** “Migration, Deforestation & Climate: Threats to Malaria Control in the Amazon”. *1st International Conference: Ecology and Evolution of Global Communicable Diseases*, Quito, Ecuador. March 14-16, 2016
- * **Pan, WK** “Challenges implementing an Early Warning System for Malaria in the Amazon”. *American Society of Tropical Medicine and Hygiene Annual Meeting*, Atlanta, GA. Nov. 11-16, 2016
- Pan, WK**, B Feingold, E. Ortiz, P. Meier, A Berky, C Weinhouse, AM Morales, H Hsu-Kim “Does El Nino increase mercury exposure?”. *International Society for Environmental Epidemiology Annual Meeting*, Rome, Italy. Sept. 1-3, 2016
- * **Pan, WK** “From Malaria to Mercury: Translating Scientific Research to Policy”. *NIEHS Global Environmental Health Day*, RTP, NC. June 29, 2016
- * **Pan, WK** “Tackling health challenges of transitional communities in Latin America and beyond”. *American Society of Tropical Medicine and Hygiene Annual Meeting*, Philadelphia, PA. Oct. 24-28, 2015
- Pan, WK**, P. Bessong, C. Mason “Immune response to IPV-OPV vaccination in a birth cohort in South Africa: The MAL-ED Study”. *American Society of Tropical Medicine and Hygiene Annual Meeting*, Philadelphia, PA. Oct. 24-28, 2015
- Pan, WK**, B Feingold, E. Ortiz, P. Meier, G. Salmon-Mulanovich, RE Bilsborrow “Quantifying vulnerability and resilience in the field”. *International Society for Environmental Epidemiology Annual Meeting*, Sao Paulo, Brazil. Sept. 1-3, 2015
- * **Pan, WK**, “Measuring efforts to reduce disparities and improve health equity”, *Academy Health Annual Research Meeting*, Minneapolis, MN, June 15-17, 2015
- Pan, WK** “Association of enteropathogens, diarrhoea, and home environment with seroconversion of polio serotypes (1-3) following oral polio vaccination (OPV) in the MAL-ED Study”. Bill and Melinda Gates Foundation, Seattle, WA. May 27-29, 2015
- * **Pan, WK** “Health and Environment Interventions in the Western Amazon: 16 years of lessons learned”. UNC-Duke 25th Anniversary of the Consortium in Latin American and Caribbean Studies. February 12-15, 2015
- Feingold, B., E. Ortiz, **WK Pan** “Resumen de estudios de investigación de salud pública en Madre de Dios de la Universidad de Duke” *Foro Regional: Mercurio y Salud Publica en Madre de Dios, UNAMAD*, November 2014
- * **Pan, WK** “Determinants of Oral Polio Vaccine Response in the MALED Cohort” MAL-ED Scientific Advisory Committee for Data Analysis and Presentation (SACDAP). London, UK, January 22-24, 2015.

- Feingold, B, and **WK Pan** “Factors associated with malnutrition and dual disease burden among children living in the Peruvian Amazon”, 26th Annual International Society for Environmental Epidemiology Conference, August 25, 2014, Seattle, WA
- * **Pan, WK** Moderator for “*Humans and the Environment*”, NC State University, Chancellor’s Faculty Excellence Program Symposium April 24, 2014
 - * **Pan, WK** “*Women at the Center of the Human-Environment Interface*”, Meredith College TEDx Talks, Raleigh, NC, First Annual Symposium on One Health in China, Kunshan, China, April 2014
 - * **Pan, WK** “Human Population – The Gorilla in the Room”, First Annual Symposium on One Health in China, Kunshan, China, October 18, 2014
 - * **Pan, WK** “Population-Health-Environment Synergies”, Panel on *Gorillas and Family Planning*, Wilson Center, Washington DC September 26, 2013
- Pan, WK** “Population and Climate change influencing Malaria Risk”, IUSSP, Busan, South Korea, August 2013.
- Feingold, B., B. Zaitchik, **WK Pan** “Progress in the development of an Early Warning System for Malaria in the Amazon”, ISEE meeting, August 2013 (Feingold presented) and ISPRS meeting August 2013 (Zaitchik presented)
- Liu, S. and **WK Pan** “Age of marriage and risk of vector-borne disease among children in the Peruvian Amazon” Population Association of America, April 2013
- Feingold, B., B. Zaitchik, and **WK Pan**, “Development of a Detection and Early Warning System for Malaria Risk in the Amazon” Health and Air Quality Application Program Review, NASA, September 2012.
- Feingold, B., B. Zaitchik, V. Shelus, A. Sandoval, CA Antonio, RP Zegarra-Vasquez, **WK Pan**, “Impact of climate and land cover influencing the spatial and temporal distribution of malaria risk in the Amazon”, November 2012.
- * **Pan, WK** “Population change, labor migration, and environmental change: Threats to malaria control in the Amazon” Society for Applied Anthropology, March 2012.
- Pan, WK**, RE Bilsborrow, B Feingold “Migration, health and environmental change along the Interoceanic Highway in Peru” Population Association of America, May 2012
- * **Pan, WK** “Development of an Early Warning System for Malaria in the Amazon”, UNC Gillings School of Global Health, Foard Lecture and Biostatistics Alumni Day
 - * **Pan, WK** “Impact of climate change on childhood enteric disease and nutrition” American Geophysical Union, *Invited Oral Presentation*, December 2011
 - * **Pan, WK** “Multiphasic response in a forest frontier” Duke Population Research Institute, *Invited Oral Presentation*, September 2011
 - * **Pan, WK** “Impacts of Climate Change on the Spread of Infectious Diseases” presented at the Beyond the Brink: Addressing Human Health and Security in a Changing Climate. *Invited Oral Presentation*, Duke University Annual Conference, Durham, NC, February 2011
 - * **Pan, WK** “Multiphasic response in a forest frontier” Gates Institute for Family and Reproductive Health, Baltimore, MD, *Invited Oral Presentation*, October 2010
 - * **Pan, WK** “LQAS as a monitoring tool – Practical thoughts when applied in developing countries” Annual Meeting of the American Public Health Association, Denver, CO *Invited Oral Presentation*, November 2010
- Pan, WK**, DL Carr, RE Bilsborrow “Population, multi-scale processes, and land use transitions in the Ecuadorian Amazon” European Population Conference, Vienna, Austria, September 2010
- Pan, WK**, P. Yori, M. Olortegui, K. Lin, R. Gilman, M. Kosek. “Impact of Climate Variability on Diarrhea Pathogenicity” 6th International Conference on Geomedical Systems, GEOMED/SAMSI (Statistical and Applied Mathematical Sciences Institute), Charleston, SC, November 14-16, 2009.

- Pan, WK**, D. Ramachandran and D. Carr “Shifts in fertility determinants among women living in the Amazon over time” Population Association of America Annual Meeting, Detroit, MI, April 29-May 2, 2009.
- Pan, WK** and F. Zhao “Human migration impacts on land use in the Amazon” International Union for the Scientific Study of Population, Marrakesh, Morocco, September 26-October 1, 2009.
- Conlisk, E., S. Proescholdbell, & **WK Pan** “Impact of tobacco-free school policies on current tobacco use in high school students in North Carolina.” Presented at the 135th APHA Annual Meeting (November 3-7, 2007), Boston, MA.
- Farley, JE, M. Ram, **WK Pan**, S. Waldman, G. Cassell, R. Chaisson, K. Weyer, M. Van der Walt “Outcomes of Multi-drug Resistant Tuberculosis Treatment amongst a South African Cohort with High HIV Prevalence.” Presented at the 2007 Union World Conference on Lung Health, Capetown, South Africa, November 8-12, 2007.
- * **Pan, WK** & A. Schaap “GIS and ZAMSTAR.” 4th Annual CREATE / Bill & Melinda Gates Foundation Meeting. Rio de Janeiro, Brazil. September 24-26, 2007.
- Pan, WK** “Multilevel models in population-environment research” Department of Demography and Economic Sciences, Universidade Federal do Minas Gerais, Belo Horizonte, Brazil. September 19, 2007.
- Pan, WK** “Deforestation and Malaria: What’s the connection?” Department of Environmental and Occupational Health, Rollins School of Public Health of Emory University. March 14, 2007.
- Pan, WK** “Integrating Satellite Data in Vector-borne Disease Models: A case study in the Peruvian Amazon” Department of International Health, Johns Hopkins University, January 17, 2007
- Pan, WK** & D.L Carr. “The ecological fallacy and land use research – Can multilevel models account for scale.” Presented at the 2007 Annual meeting of the American Association of Geographers, April 17-21, 2007.
- Pan, WK** “Spatial distribution of high risk pregnancy and health care access in Bangladesh” Presented at the 2007 Annual meeting of the American Association of Geographers, April 17-21, 2007.
- * **Pan, WK** “Integrando informacion satelital para predecir y pronosticar la malaria en la Cuenca Amazonica.” Universidad Cayetano Heredia, Lima, Peru. March 7, 2007.
- Pan, WK**, M. Kosek, P.P. Yori, M. Olortegui, and R. Gilman. “A spatial analytic approach to analyze Shigella transmission.” Presented at the 2006 Annual Meeting of the Population Association of America, April 1, 2006, Los Angeles, CA.
- Pan, WK** and S. Proescholdbell. “Improving Estimates of Adolescent Tobacco Use in North Carolina using the Youth Tobacco Survey.” Presented at the 133rd Annual Meeting of the American Public Health Association, December 10-14, 2005, Philadelphia, PA.
- Pan WK** “Is spatial dependency a problem in Community Randomized Trials?” Presented at the 133rd Annual Meeting of the American Public Health Association, December 10-14, 2005, Philadelphia, PA
- Pan, WK** “Linking population and health to environment and land use in Amazonia” Presented at the GIS Population Science Workshop – UCSB 2005, June 19-July 2, 2005, Santa Barbara, CA.
- Walsh, S.J., **WK Pan**, C.M. Erlien, and C.F. Mena. “Land, Fragmentation and Change Patterns as Descriptors of Deforestation in the Ecuadorian Amazon Frontier.” Presented at the 2005 annual meeting of the Association of American Geographers, April 5-9, 2005, Denver, CO.
- Pan, WK**, and C. Erlien. “The impact of population-environment dynamics on human health in the Ecuadorian Amazon.” Presented at the 132nd Annual Conference of the American Public Health Association (APHA), Washington D.C., November 6-10, 2004
- Pan, WK**, D.L. Carr, and R.E. Bilsborrow. “Determinants of farm fragmentation in the Ecuadorian Amazon.” Conference for Latin American Geographers. Antigua, Guatemala, May 19-22, 2004.

- Pan, WK**, A. Barbieri, R.E. Bilsborrow. "Land use transitions in Ecuador's Northern Amazon: Multilevel and spatial factors." International Workshop on Transitions in Agriculture and Future Land Use Patterns, Wageningen, The Netherlands. November 30-December 3, 2003.
- * **Pan, WK** and D.L. Carr. "Multilevel factors influencing land use change in the Ecuadorian Amazon." Presented at the International Young Scientists' Global Change Conference, Trieste, Italy. November 16-21, 2003.
- Pan, WK** and D.L. Carr. "Multilevel factors influencing births on the Ecuadorian Amazon Frontier." Presented at the 68th Annual Meeting of the Population Association of America (PAA). Minneapolis, MN, May 1-3, 2003.
- Pan, WK** and R.E. Bilsborrow. "Multilevel statistical models to assess factors influencing land use: A case study in the Ecuadorian Amazon." Presented at the 68th Annual Meeting of the PAA. Minneapolis, MN, May 1-3, 2003.
- Pan, WK** and D.L. Carr. "Links between Fertility, Farm Size and Land Use on the Frontier: Evidence from the Ecuadorian Amazon". Presented at the 130th Annual Conference of the APHA. Philadelphia, PA., November 9-13, 2002.
- Carr, D. L. and **WK Pan**. "Fertility Determinants on the Frontier: Longitudinal Evidence from the Ecuadorian Amazon." International Geographic Union. Durban, South Africa. August, 4-7, 2002.
- Carr, D.L. and **WK Pan**. "Fertility Determinants on the Frontier: Longitudinal Evidence from the Ecuadorian Amazon". Presented at the 67th Annual Meeting of the PAA. Atlanta, GA, May 9-11, 2002.
- Bilsborrow, R.E. and **WK Pan**. "Population Growth, Fragmentation of Plots and Land Use Change in the Ecuadorian Amazon." Presented at the IUSSP General Population Conference, Salvador, Brazil, August 13-18, 2001.
- Bilsborrow, R.E., **WK Pan**, S.J. Walsh, and K.A. Crews-Meyer. "Change Patterns of Population and Land Use in Ecuador's Northern Amazon." Human Dimensions of Global Environmental Change Research Community Meeting, Special Session. Rio de Janeiro, Brazil, October 6-8, 2001.
- Pan, WK**, L. Murphy, B. Sullivan, and R.E. Bilsborrow. "Population and Land Use in Ecuador's Northern Amazon in 1999: Intensification and Growth in the Frontier." Presented at the 66th Annual Meeting of the PAA, Washington DC, March 29-31, 2001.
- Pan, WK** "LCLUC Models that account for Spatial Patterns in the Ecuadorian Amazon." Presentation at the 2001 Eastern North American Region of the International Biometric Society, March 25-28, 2001.
- Pan, WK** and R.E. Bilsborrow. "Changes in Ecuadorian farm composition over time – Population pressures and changes in land use." Presented at the 65th Annual Meeting of the PAA. Los Angeles, CA. March 23-25, 2000.
- Murphy, L. and **WK Pan**. "Permanence and adaptation among settler households in Ecuador's Amazon." Presented at the Latin America Studies Association National Meeting. Miami, FL. March 16-18, 2000.
- Taff, G., **WK Pan**, R.E. Bilsborrow. "Population pressure, subdivision and land clearing in the Ecuadorian Amazon." Presented at the Latin America Studies Association National Meeting. Miami, FL. March 16-18, 2000.
- Wohl, D., B. Ngo, S. Fiscus, J. Handy, T. Alcorn, M. Cronin, **WK Pan**, D. Rosen, and C. Van der Horst. "CMV Viremia and the Risk of CMV End-Organ Disease (EOD) or Death in Patients with AIDS." Presented at the 7th Conference on Retroviruses and Opportunistic Infections. San Francisco, CA. January 30 – February 4, 2000.

HOBBIES

Outside of academic life, I try to stay active in many activities. These include running an adult soccer team in OCASL (Chapel Hill), fishing, camping, travel, snorkeling and scuba, and helping my wife manage

her olive oil farm in Kalamata, Greece (www.karmirioliveoil.com). I also enjoy going to the farm and watching my daughter ride her horse as well as watching my crazy dog run around at the dog park.