

## Harvard Medical School

### Curriculum Vitae

**Date Prepared:** September 1, 2023  
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#### Education

1997	AS	Nursing <i>summa cum laude</i>	Norwich University	Northfield, VT
1999	BS	Biology <i>summa cum laude</i>	Norwich University	
2003	PhD	Pathobiology (Advisor: Roberto Docampo)	University of Illinois at Urbana- Champaign	Urbana, IL
2007	MD	Medicine (with distinction)	University of Illinois at Urbana- Champaign	

#### Postdoctoral Training

05/2003- 09/2005	Postdoctoral Fellow	Pathobiology (Mentor: Roberto Docampo)	University of Illinois at Urbana- Champaign	
06/2008- 12/2012	Resident	Internal Medicine and Pediatrics	Brigham and Women's	Boston, MA

Hospital  
(BWH)/Boston  
Children's  
Hospital  
(BCH)/Boston  
Medical Center  
(BMC)

**Faculty Academic Appointments**

01/2008- 05/2008	Clinical Instructor	Medicine	University of Illinois at Urbana-Champaign	
03/2009- 12/2012	<i>Ad hoc</i> Faculty	Anthropology	University of Kansas	Lawrence, KS
01/2013- 08/2017	Instructor	Medicine	Harvard Medical School (HMS)	Boston, MA
09/2017- present	Assistant Professor	Medicine	HMS	
05/2022-	Assistant Professor	Global Health and Social Medicine		

**Appointments at Hospitals/Affiliated Institutions**

01/2013- present	Associate Physician	General Internal Medicine	BWH	
01/2013- present	Associate Physician	Internal Medicine	Brigham and Women's Faulkner Hospital (BWFH)	Jamaica Plain, MA
01/2013- present	Associate Physician (Research)	Global Health Equity	BWH	
02/2014- present	Active Staff	Medical Oncology, Hospitalist Division	Dana-Farber Cancer Institute (DFCI)	Boston, MA
12/2014- 12/2020	Adjunct Faculty	Global Pediatrics Program	BCH	

### **Other Professional Positions**

2007-2009	Co-Founder and Executive Director		Wuqu' Kawoq   Maya Health Alliance, Santiago Sacatepéquez, Guatemala
2008	Research Professional	Center for Tropical and Emerging Global Disease	University of Georgia, Athens, GA
2008	Guest Curator	Spurlock Museum	University of Illinois at Urbana-Champaign
2009-2014	Medical Director		Wuqu' Kawoq   Maya Health Alliance
2014-2015	Member	Scientific Advisory Board	Possible Health, New York, NY
2015-2022	Chief Medical Officer		Wuqu' Kawoq   Maya Health Alliance
2023-present	Chief Science and Innovation Officer		Wuqu' Kawoq   Maya Health Alliance 5 hrs/week

### **Major Administrative Leadership Positions**

#### **Local**

2016-2020	Assistant Director	Nocturnist Hospitalist Service	BWH
2017-present	Director and Founder	Global Health Track, Hospital Medicine	BWH

### **Committee Service**

#### **Local**

2005-2006	Member	Introduction to Clinical	Department of Medicine, University
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2014-present	Member	Medicine Committee Early Child Development Working Group	of Illinois at Urbana-Champaign Partners in Health/HMS	Boston, MA
2015-2020	Member	Hospitalist Faculty Search Committee	BWH	
<b>National</b>				
2009-2014	Member	Doctoral Thesis Committee	Department of Anthropology, University of Kansas (Candidate: Anne Kraemer Díaz)	
2010-2012	Member	Master's Thesis Committee	Department of Anthropology, University of Florida (Candidate: Caitlin Baird Peterson)	Gainesville, FL
2012-2018	Member	Doctoral Thesis Committee	Department of Anthropology, University of Florida (Candidate: Caitlin Baird Peterson)	
2020-present	Collaborator	Global Burden of Disease Study	Institute for Health Metrics and Evaluation	Seattle, Washington
<b>International</b>				
2009-2017	Member	Steering Committee	Futuros Colectivos (Collective Futures) Conference Series	Guatemala City, Guatemala
2012-2017	Member	Board of Directors	HablaGuate Foundation	Antigua, Guatemala
2015-present	Founder and Director	Health Outcomes Research Group/Center for Indigenous Health Research	Wuqu' Kawoq   Maya Health Alliance	
2016-2017	Member	Parenting Skills Expert Advisory Group	World Health Organization	Geneva, Switzerland

2019-present	Member	Guide for Monitoring Child Development Training Team	International Developmental Pediatrics Association	Ankara, Turkey
2020-present	Collaborator	NCD Risk Factor Collaboration	Imperial College	London, England
2021-present	Senior Advisor	Project on Access to Care for Cardiometabolic Diseases (HPACC)	University of Göttingen	Göttingen, Germany

### **Professional Societies**

2008-present	Guatemala Scholars Network
2008-present	Latin American Studies Association
2008-present	Massachusetts Medical Society
2008-present	American Academy of Pediatrics
2016-present	Fellow
2011-present	Society for Applied Anthropology
2012-present	Native American and Indigenous Studies Association
2016-present	International Developmental Pediatrics Society
2017-present	Biannual Conference Abstract Review Panel
2021-present	Biannual Conference Research Award Review Panel

### **Editorial Activities**

#### ***Ad hoc Reviewer***

*Annals of Global Health*  
*Archives of Biochemistry and Biophysics*  
*Archives of Medical Research*  
*BMC Health Services Research*  
*BMC Pregnancy and Childbirth*  
*BMC Public Health*  
*BMJ Global Health*  
*BMJ Open*  
*BMJ Open Diabetes Research & Care*  
*BMJ Paediatrics Open*  
*Breastfeeding Medicine*  
*Child: Care, Health and Development*  
*Diabetes Research and Clinical Practice*

*Ecology of Food and Nutrition*  
*Environmental Microbiology*  
*Family Medicine and Community Health*  
*Food and Nutrition Bulletin*  
*Health Education Journal*  
*Health & Social Care in the Community*  
*Heliyon*  
*International Journal of Human Rights in Healthcare*  
*International Journal of Hygiene and Environmental Health*  
*Journal of International Development*  
*Journal of Pediatric Intensive Care*  
*Language and Intercultural Communication*  
*Medical Anthropology Quarterly*  
*Nutrition and Metabolic Insights*  
*PLoS Medicine*  
*PLoS One*  
*Preventing Chronic Disease*  
*Renal Failure*  
*Reproductive Health*  
*Reproductive Health Matters*  
*Scientific Reports*  
*Social Science & Medicine*  
*The Journal of Pediatrics*  
*The Lancet Regional Health - Americas*  
*Women & Health*  
*Women's Health*  
*World Development*

### **Other Editorial Roles**

2009-2017	Series Editor	<i>Proceedings of Futuros Colectivos (Guatemala)</i>
2018-present	Associate Editor	<i>BMJ Paediatrics Open</i>
2021-2022	Academic Editor	<i>PLoS Global Public Health</i>

### **Book/Textbook Editorial Roles**

2015	Chary A, <b>Rohloff P</b> , editors	<i>Privatization and the new medical pluralism: Shifting healthcare landscapes in Maya Guatemala</i> . Lanham (NJ): Lexington Books, 2015. Senior editor and primary contact with publisher.
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### **Honors and Prizes**

1997	Ruby Carr Award for Academic Excellence	Norwich University	
1998	James J. Burke Jr. Memorial Award for Academic Achievement	Norwich University	
1998	Presidential Fellow	Norwich University	Academic Excellence
1999	Frank G. Brooks Award for Excellence in Student Research	Beta Beta Beta Honor Society	
2001-2003	Predocotrual Fellowship	American Heart Association	
2002	Edward W. and Lois G. Voss Award for Graduate Research Excellence	Department of Pathobiology, University of Illinois at Urbana-Champaign	
2002	Poster Excellence Award	Molecular Parasitism Meeting, Marine Biological Laboratory	
2005	Best Student Research Poster Award	College of Medicine, University of Illinois at Urbana-Champaign	
2005	Alpha Omega Alpha		Selection in Junior Year
2005	Foreign Language Areas Studies Fellowship	University of Illinois at Urbana-Champaign	
2006	Raymond B. Allen Golden Apple Teaching Award	College of Medicine, University of Illinois at Urbana-Champaign	
2006	Otto Saphir Award for Excellence in Pathology	College of Medicine, University of Illinois at Urbana-Champaign	
2006	Foreign Language Areas Studies Fellowship	University of Illinois at Urbana-Champaign	
2006	New Investigator in Global Health Award	33 <sup>rd</sup> International Conference on Global Health, Global Research Council	
2007	Daniel K. and Frances A. Bloomfield Fellowship	College of Medicine, University of Illinois at Urbana-Champaign	Leadership

2007	Bamberger Scholarship	College of Medicine, University of Illinois at Urbana-Champaign	Academic Excellence
2008	Illinois International Graduate Achievement Award	University of Illinois at Urbana-Champaign	
2008	Charles C. Stewart International Young Humanitarian Award	University of Illinois at Urbana-Champaign	
2008	Latin American Community Service Award	Center for Latin American Studies, University of Illinois at Urbana-Champaign	
2008	Merck Manual Award, Outstanding Student Class of 2008	College of Medicine, University of Illinois at Urbana-Champaign	
2008	William E. Sorlie Award for Outstanding Clinical Core Clerkship Performance	College of Medicine, University of Illinois at Urbana-Champaign	
2008	Valedictorian, Class of 2007-2008	College of Medicine, University of Illinois at Urbana-Champaign	
2010	HMS Dean's Community Service Award		
2013	Order of the Monja Blanca, Second Class	Ministry of Defense of Guatemala	Public Service
2014	Velji Award for Faculty Teaching Excellence in Global Health	Consortium of Universities for Global Health	
2017	Excellence In Humanitarianism	Hospital Medicine Unit, BWH	
2017	Chair's Research Award	Department of Medicine, BWH	

## **Report of Funded and Unfunded Projects**

### **Funding information**

#### **Past**



- 2006-2007 Kaqchikel Ethnomedicine in Guatemala  
Patricia J. and Charles C.C. O’Morchoe Fellowship – University of Illinois at Urbana-Champaign  
Career Development Award  
PI  
The goal was to conduct ethnographic research on ethnomedical and ethnobotanical practices and practitioners in Guatemala.
- 2007-2013 Training of Indigenous Kaqchikel-speaking Midwives in Guatemala  
Food, Conservation, and Health Foundation – Research Award (5 competitive renewal cycles)  
PI  
The goal of the project was to design a continuing education program for lay midwives and evaluate its impact on clinical practice outcomes.
- 2009-2010 Social Determinants of Child Stunting  
Child Health Foundation – Research Award  
PI  
The goal of the project was to determine demographic and sociocultural factors that predicted child nutritional outcomes in a highly malnourished population.
- 2011-2012 Food Supplementation for Vulnerable Children Aged 6-24 Months in the Highlands of Guatemala with Nutributter  
United States Agency for International Development (USAID) – Food for Peace Award - AID-FFP-G-11-00072  
PI  
The goal of this project was to provide lipid-based nutrient supplementation to vulnerable children in a highly stunted population, and to evaluate efficacy and acceptability.
- 2012-2013 Infant and Young Child Feeding Practices in Rural Guatemala  
Nutraset – Research Award  
PI  
The goal was to conduct a comprehensive formative assessment of child feeding practices, and to assess the feasibility of the introduction of new fortified foods to bolster nutritional status.
- 2013-2014 Improving Child Nutrition in Rural Guatemala Through Data-driven Educational Interventions  
International Foundation – Research Award  
PI  
The goal of the project was to develop evidenced based in-home educational modules for parents of stunted children. Key metrics were

improved dietary diversity, caloric density, meal frequency, and linear growth.

- 2015-2016 Crowdfunding and Social Networks as a Novel Mechanism to Sustainably Promote Physical Growth and Positive Psychosocial and Neurodevelopmental Outcomes in Severely Stunted Guatemalan Children  
Grand Challenges Canada – Research Award - SB-1726251050  
NCT02509936  
PI  
This project examined both the business/social innovation sides of funding child malnutrition programs through a cultural anthropological assessment of donors, and the impact of an intensive nutrition intervention on both growth and developmental outcomes in stunted children using a randomized controlled design.
- 2015-2018 Mobile Health Intervention to Improve Perinatal Continuum of Care in Guatemala  
National Institutes of Health (NIH)/National Institute of Child Health and Human Development (NICHD) R21 HD84114-01  
NCT02348840  
Co-Investigator (PI: Gari Clifford, Emory University)  
This project was a feasibility trial of a smart-phone based intervention to use decision support and peripherals (Doppler device, pulse oximeter, blood pressure cuff) to help traditional birth attendants manage prenatal consultations and coordinate high-risk referrals.
- 2017-2018 Obstetric Care Navigators to Improve Maternal Outcomes among Guatemala's Rural Maya  
Grand Challenges Canada – Research Award - R-ST-POC-1707-06554  
Multi-PI (Multi-PI: Kirsten Austad)  
This project evaluated a novel mechanism of care navigators to improve urgent and emergent obstetrical referrals to higher-level care for rural, indigenous Maya women, using a quality improvement design.
- 2017-2019 Using mobile health technology to improve the continuum of neonatal care in rural Guatemala  
Charles Hood Foundation – Research Award  
PI  
This project used quality improvement methodology and mobile health/smart phone technology to help traditional birth

attendants/midwives identify and evaluate high-risk neonates in rural settings and refer them to a higher level of care as necessary.

- 2017-2020 Building capacity for chronic kidney disease research in Guatemala  
NIH/Fogarty International Center R21 TW010831-02  
Multi-PI (Multi-PI: Carlos Mendoza Montano)  
This project conducts a multi-sited representative population-based study of the prevalence and associated risk factors for chronic kidney disease in rural Guatemala, and provides training opportunities for junior investigators and capacity building in CKD research methods for collaborating Guatemalan institutions.
- 2018 The effect of occupations and school attendance on rural adolescent girls' nutritional status in Guatemala: a mixed methods study  
New York Academy of Sciences  
Co-Investigator (PI: Joaquin Barnoya)  
This project evaluated the impact of school and employment status on physical activity and diet quality among adolescent girls in rural Guatemala
- 2018-2020 Improving dietary diversity for rural Guatemalans through home gardens  
Academy of Nutrition and Dietetics  
Multi-PI (Multi-PI: Beth Jimenez)  
NCT03689504  
This project assessed change in dietary diversity and child growth by addition of garden interventions to existing nutrition programming in rural Guatemala.
- 2018-2021 Diabetes self-management education for individuals with type 2 diabetes in rural Guatemala  
World Diabetes Foundation  
PI  
This project conducted an implementation analysis of a diabetes self-management intervention under two different delivery models (public-private, public) in rural Guatemala.
- 2019-2020 Developing integrated approaches to nutrition and early child development in Guatemala  
Conservation Food and Health Foundation  
PI  
This project is evaluating integrating the UNICEF/WHO Care for Child Development package and the Guide for Monitoring Child Development into CHW-led nutrition initiatives.

2019-2022      Wearable Sensors for Early Identification of Poor Neurodevelopment in Guatemala  
NIH/NICHD R21 HD096521  
Multi-PI (Multi-PI: Beth Smith)  
The goal of this project was to investigate the correlation between limb movement early in life and later developmental outcomes in infants at risk for developmental delay.

### **Current**

2020-2023      The effects of complementary feeding of eggs on infant development and growth in Guatemala.  
Egg Nutrition Center/American Academy of Nutrition and Dietetics  
Site PI (Overall PI: Taylor Wallace, American Academy of Nutrition and Dietetics) (\$258,000)  
NCT04316221  
This randomized clinical trial will evaluate the developmental outcomes in infants supplemented with daily egg rations vs a standard of care group. I am the main clinical PI for the entire project.

2021-2023      Mobile Health to Promote Positive Infant Outcomes in Guatemala  
NIH/NICHD R21/R33 TW011628  
Multi-PI (Multi-PI: Beth Smith) (\$30,435)  
NCT05106894  
The goal of this project is to develop a smartphone-based parenting application for caregivers of infants at risk in rural Guatemala. I am the clinical PI.

2021-2026      An individualized approach to promote nurturing care in low and middle income countries: A hybrid effectiveness/implementation trial of the international Guide for Monitoring Child Development  
NIH/NICHD R01 HD100984-01A1  
PI (\$2,230,309)  
NCT04665297  
This project will conduct a cluster randomized trial of the international Guide for Monitoring Child Development in India and in Guatemala.

2021-2026      Exploring risk factors and predictors of endemic CKDu in agricultural regions of four Central America countries U01  
NIH/National Institute of Diabetes and Digestive and Kidney Diseases U01 DK130046-01  
Co-Investigator (PI: Jennifer Crowe)

This project will establish a field epidemiology site in 4 Central American countries for novel chronic kidney disease in young agricultural workers. I am one of a large consortium of researchers designing and implementing the protocol.

2022-2027 AI-Driven Low-Cost Ultrasound Tool For Automated Identification Of Placental Insufficiency, Preeclampsia and IUGR  
NIH/NICHD R01 HD110480-01  
Co-Investigator (PI: Gari Clifford)  
The goal is to develop AI based techniques for detecting maternofetal complications using 1-D doppler input. I am the clinical PI for Guatemala.

2023-2027 The role of aflatoxin and changes in the intestinal microbiome in stunted children.  
NIH/National Institute of Environmental Health Sciences R01 ES033999-01A1  
Multi-PI (Multi-PI: Rosa Krajmalnik-Brown, Lee Voth-Gaeddert) (\$160, 853)  
The goal is to conduct a cohort study of aflatoxin exposure and growth faltering in Guatemala. I am the clinical PI.

### **Projects Submitted for Funding**

Submitted 04/2023 Implementing a national comprehensive diabetes and hypertension care model in Guatemala  
World Diabetes Foundation  
Co-Investigator (PI: Manuel Ramirez-Zea)  
The goal is to conduct a scale up of the HEARTS initiative in Guatemala for hypertension and diabetes in collaboration with the Ministry of Health. I am a senior advisor for design and evaluation.

Submitting 05/2023 An integrated, life cycle intervention to address the double burden of malnutrition in women and children in Guatemala  
NIH/NICHD  
Multi-PI (Multi-PI: Manuel Ramirez-Zea) - Direct Costs Requested - \$2,828,743  
The goal is a randomized clinical trial of a comprehensive intervention to improve healthy weight in women and improve growth in children. I am the overall PI/PD.

### **Training Grants and Mentored Trainee Grants**

2021-2026 Social determinants of cardiovascular disease risk over the life course  
NIH/Fogarty International Center D43 TW011971-01

Faculty Mentor (PI: Brisa Sanchez)

The major goal is to train research fellows in Central America on social determinants of cardiovascular health.

My role is to mentor trainees with an interest in these topics, especially when focused on Central America's Indigenous or rural populations.

### **Unfunded Current Projects**

- 2006-present    Ethnography of health care experiences and health care access  
PI  
I supervise a team of undergraduate and graduate students using ethnography to explore health care access and barriers to care for Indigenous Maya in Guatemala.
- 2010-present    Determinants of childhood stunting and catch-up growth  
PI  
I supervise a group of medical and public health students using chart review to conduct multivariate analysis of predictors of child stunting and catch-up growth.
- 2019-present    Indigenous/minority language status as a social determinant of health  
Co-Investigator (PI: Ann Miller)  
In this project we are conducting analyses of large demographic survey datasets from multiple countries to determine the impact of language status on health outcomes.

### **Report of Local Teaching and Training**

#### **Teaching of Students in Courses**

##### **Wuqu' Kawoq | Maya Health Alliance (Guatemala) Courses**

2006	Introduction to Field Methods in Medical Anthropology Advanced undergraduates	Wuqu' Kawoq   Maya Health Alliance 25 hours per week for two weeks
2007	Introduction to Resource-Poor Medicine Advanced undergraduates	Wuqu' Kawoq   Maya Health Alliance 25 hours per week for four weeks

##### **HMS/HSDM/DMS Courses**

2015- present	Mixed Methods in Global Health Research GH706.0 Advanced medical and graduate students	HMS 1-2 three-hour lectures per year
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**Other Harvard University Courses**

2014- 2021	Society and its Effects on Child Health SSH220-01 Advanced public health students	Harvard T.H. Chan School of Public Health, Boston, MA One two-hour lecture per year
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**Formal Teaching of Residents, Clinical Fellows and Research Fellows (post-docs)**

2013	Morning Report: Glycogen Storage Diseases Internal Medicine Residents	BWH One-hour lecture
2013-2020	Pediatrics Advocacy Curriculum: Global Health Pediatrics Interns	BCH Two-hour lecture four times per year
2019-2020	Internal Medicine Residency Program Intern Report Internal Medicine Interns	BWH Discussant, one hour per year

**Clinical Supervisory and Training Responsibilities**

2013-2014	Ambulatory Internal Medicine/Pediatrics Attending Physician, Supervising Medicine/Pediatrics Residents/	Martha Elliott Health Center, Jamaica Plain, MA Two 8-hour sessions per month
2013-2016	Inpatient Overnight Internal Medicine Attending Physician, Supervising Senior Medical Resident Consults	BWH 4 hours per month
2013-2017	Ambulatory Internal Medicine/Pediatrics Attending Physician, Supervising Medicine/Pediatrics Residents	BWFH One 8-hour session per month

2016-present	Inpatient Daytime Hospitalist Attending, Supervising Internal Medicine Residents, Medical Students, and Physician Assistants on Inpatient Service	BWH 8-12 weeks per year (25 hours/week)
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**Laboratory and Other Research Supervisory and Training Responsibilities**

2013-2020	Research Supervision Medical students in the “Pursuing Inquiry in Medicine” initiative HMS	HMS 1:1 supervision one hour per week year-round
2015-present	Research Supervision Predoctoral and Postdoctoral Research Fellows	Wuqu’ Kawoq   Maya Health Alliance One-hour lab meeting per week and 1:1 supervision 1 hour per week per trainee, 48 wks/yr
2016-2019	Research Supervision Medical student awardees of the Doris Duke International Fellowship	HMS 1:1 supervision one hour per week year-round
2019-present	Research Supervision MMSc in Global Health Delivery Graduate Students	HMS 1:1 supervision 1 hour per week per trainee, 48 wks/yr

**Formally Mentored Harvard Medical, Dental and Graduate Students**

2011-2014	Sarah Messmer, HMS Class of 2014 Conducted research on child malnutrition and women’s health under my supervision in Guatemala, resulting in several conference presentations and peer-reviewed publications. It also resulted in an Honors Thesis on women’s health in rural Guatemala and a Sheldon Traveling Fellowship, both from HMS.
2012-2014	Sarah Nelson, HMS Class of 2014 Conducted research on research on child malnutrition under my supervision in Guatemala. Resulted in a Technical Manual for training community health workers. Funded by a Sheldon Traveling Fellowship from HMS.
2013-2015	David Flood, HMS Class of 2015 Conducted research on quality improvement of diabetes programming in rural Guatemala under my supervision, with funding from both the Sheldon Traveling Fellowship and the Primary Care Center, both from HMS. Resulted in multiple peer reviewed manuscripts.



2013-2018	Jillian Moore, HMS Class of 2018 Conducted initial research on palliative care in Guatemala under my supervision, which resulted in a 2017 Doris Duke International Fellowship to continue the work. Several peer reviewed manuscripts.
2015-2017	Vera Goldberg, HMS Class of 2017 Conducted research on quality improvement of child nutrition programming in Guatemala under my supervision and has also worked on other chronic disease projects, with funding from HMS's Sheldon Traveling Fellowship. One peer reviewed manuscript.
2019-2020	Christine Mutaganzwa, HMS MMSc in Global Health Delivery Class of 2020 Conducted research on determinants of adherence to care for children at high risk of developmental difficulty in rural Rwanda. Member of thesis committee. Manuscript in preparation.
2019-2020	Nada Abu Kishk, HMS MMSc in Global Health Delivery Class of 2020 Conducted research on determinants of stunting, obesity and food insecurity for Palestinian children living in Jordanian refugee camps. Thesis chair. One peer-reviewed manuscript.
2021-present	Anahi Venzor Strader, HMS MMSc in Global Health Delivery and Global Pediatrics Fellowship (BCH) Class of 2022 Conducting research on social determinants of child health in Central America and Mexico.
2022-present	Janine Robredo, HMS MMSc in Global Health Delivery and Global Pediatrics Fellowship (BCH) Class of 2023 Conducting research on child malnutrition in the Philippines

### **Other Mentored Trainees and Faculty**

2009-2014	Anne Kraemer Díaz, MS/ Executive Director, Wuqu' Kawoq   Maya Health Alliance <i>Career stage:</i> graduate student. <i>Mentoring role:</i> research advisor <i>Accomplishments:</i> multiple medical anthropology publications; executive career position in development field
2010-2012	Miranda Greiner, MD, MPH/Addiction Psychiatry Fellow, New York-Presbyterian Hospital, New York City, NY <i>Career stage:</i> medical student. <i>Mentoring role:</i> research advisor. <i>Accomplishments:</i> publication of peer reviewed research on type 2 diabetes in Guatemala and presentation at Native American and Indigenous Studies Association conference; MPH at New York University.

- 2010- Anita Chary, MD, PhD/ Assistant Professor, Health Services Research, Baylor University School of Medicine  
*Career stage:* undergraduate, graduate student, medical student, resident, junior faculty. *Mentoring role:* research advisor, career mentor. *Accomplishments:* numerous peer reviewed publications in medical anthropology; PhD in medical anthropology at Washington University School of Medicine in St. Louis (WUSTL), St. Louis, MO; prestigious Olin Women's Fellowship from WUSTL; Chief Resident in Emergency Medicine at HMS; early stage faculty position in health services research at Baylor.
- 2010-2017 Caitlin Baird Peterson, PhD/ Editorial Staff, *MEDICC Review*  
*Career stage:* graduate student and research scientist. *Mentoring role:* research advisor. *Accomplishments:* prestigious Interamerican Foundation Grassroots Development Fellowship. Permanent editorial staff position and medical journal.
- 2011-2012 Eric Sorenson, MD/Dermatologist (Private Practice), New York City, NY  
*Career stage:* medical student. *Mentoring role:* research advisor. *Accomplishments:* completion of research thesis at University of Southern California Medical School, dermatology chief resident, private practice.
- 2013-2015 Nora King, MD/Staff obstetrician-gynecologist, Center for Family Health, Jackson MI  
*Career stage:* medical student. *Mentoring role:* research advisor. *Accomplishments:* prestigious Fulbright Scholarship to study postpartum hemorrhage in Guatemala. 1 conference presentation at the American Congress of Obstetricians and Gynecologists, 1 peer-reviewed book chapter, 1 peer-reviewed case study, private practice OB/GYN.
- 2015- Meghan Farley Webb, PhD/ Assistant Professor, Albion College  
*Career stage:* post-doctoral researcher, junior faculty. *Mentoring role:* research advisor, career mentor. *Accomplishments:* 2 conference presentations at the Latin American Studies Association and American Anthropological Association, 5 peer-reviewed publications, faculty position in anthropology.
- 2015-2019 Boris Martinez, MD/Palliative Care Fellow, HMS  
*Career stage:* post-doctoral researcher, resident. *Mentoring role:* research advisor. *Accomplishments:* 10 peer-reviewed publications, 2017 Research Award from the American Academy of Pediatrics, internal medicine residency slot in USA, fellowship in palliative care at MGH/BWH.

- 2015-2019 Kirsten Austad, MD/ Assistant Professor, Family Medicine/Health Services Research, BMC, Boston, MA  
*Career stage:* resident, fellow. *Mentoring role:* research mentor. *Accomplishments:* 15 peer-reviewed publications; 1 Grand Challenges Canada Grant Awards; Brigham and Women's Global Women's Health Fellowship for 2016-2018; subsequently faculty position at BMC.
- 2017-2021 Michel Juarez, MD/Internal Medicine Resident, Texas Tech University, Lubbock, TX  
*Career stage:* post-doctoral researcher. *Mentoring role:* research advisor. *Accomplishments:* Multiple (>10) peer-reviewed publications, first prize for Research Presentation, 2017 Annual Meeting of the Guatemala College of Physicians, residency position in internal medicine.
- 2017-2021 Ana Cordon, MD/Internal Medicine Resident, Texas Tech University, Lubbock, TX  
*Career stage:* post-doctoral researcher. *Mentoring role:* research advisor. *Accomplishments:* large national mapping study of nutrition research in Guatemala, with significant press and government attention. 2 peer reviewed publications, residency position in internal medicine.
- 2019-2021 Madeline Perry, MD/Obstetrics and Gynecology Resident, Northwestern University  
*Career stage:* medical student, resident. *Mentoring role:* research advisor. *Accomplishments:* Fulbright International Fellowship to study in Guatemala. 1 peer reviewed manuscripts, residency position in obstetrics and gynecology.
- 2019-2021 Stephen Alajajian, MS/Clinical Dietician, John Hopkins Hospital  
*Career stage:* predoctoral research fellow *Mentoring role:* research advisor. *Accomplishments:* Completion of master's degree in nutrition. 3 peer reviewed manuscripts published.
- 2020-present Scott Tschida, BS/Research Fellow, Wuqu' Kawoq | Maya Health Alliance  
*Career stage:* predoctoral research fellow. *Mentoring role:* research advisor. *Accomplishments:* 2 peer reviewed publications, research coordinator for two large NIH-funded studies
- 2021-present Sara Hernandez, MS/Research Fellow, Wuqu' Kawoq | Maya Health Alliance  
*Career stage:* predoctoral research fellow. *Mentoring role:* research advisor. *Accomplishments:* research coordinator for large NIH-funded randomized clinical trial, master's degree in psychology
- 2021-present Khameer Kidia, M.D/Instructor in Medicine, Harvard Medical School/Brigham and Women's Hospital  
*Career stage:* junior faculty. *Mentoring role:* faculty mentor. *Accomplishments:* Eleanor and Miles Shore Faculty Development Award; New America ASU Future Security Fellow

- 2021-present Shela Sridhar, MD MPH/Instructor in Medicine, Harvard Medical School/Brigham and Women's Hospital  
*Career stage:* junior faculty. *Mentoring role:* faculty mentor.  
*Accomplishments:* Fogarty Fellowship; Harvard Global Health Institute Burke Global Health Fellow; Co-Director of Boston Children's Hospital Global Pediatric Fellowship
- 2023-present Vanessa Sapon, MD/Research Fellow, Wuqu' Kawoq | Maya Health Alliance  
*Career stage:* post-doctoral researcher. *Mentoring role:* research advisor. *Accomplishments:* Coordinating large NIH cohort study
- 2023-present Wendy Rodriguez, MD/Research Fellow, Wuqu' Kawoq | Maya Health Alliance  
*Career stage:* post-doctoral researcher. *Mentoring role:* research advisor. *Accomplishments:* Coordinating large NIH cohort study

**Formal Teaching of Peers (e.g., CME and other continuing education courses)**

*No presentations below were sponsored by outside entities.*

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|------|---|---|
| 2021 | Updates in Primary Care for United States Department of State Health Care Providers | BWH/HMS<br>Faculty moderator and discussant (Online)<br>10 hours      |
| 2022 | Updates in Primary Care for United States Department of State Health Care Providers | BWH/HMS<br>Faculty moderator and discussant (Orlando, FL)<br>40 hours |

**Local Invited Presentations**

*No presentations below were sponsored by outside entities.*

- |      |  |
|------|--|
| 2005 | Probing the Functions of an Enigmatic Organelle / Research Presentation<br>Allerton Symposium, College of Medicine, University of Illinois at Urbana-Champaign |
| 2007 | Perspectives from a Primary Care Clinic in Guatemala / Grand Rounds<br>Department of Medicine, Ileana Veterans Administration Hospital, Danville, IL           |
| 2007 | Global Perspectives in Palliative Care / Grand Rounds<br>Department of Medicine, Ileana Veterans Administration Hospital                                       |

- 2007 Being *Qawinäq*, Becoming *Qawinäq*: Medicine and Language Revitalization in the Kaqchikel Highlands of Guatemala / Brownbag Seminar  
Center for Latin American and Caribbean Studies, University of Illinois at Urbana-Champaign
- 2007 Careers in International Health / Panel Discussion  
Center for International Engagement, University of Illinois at Urbana-Champaign
- 2013 Introduction to Child Malnutrition in Developing Settings / Presentation  
Nutrition Student Interest Group, HMS
- 2013 Community Organizing, Advocacy and Indigenous Rights: Integrated Approaches to Child Malnutrition in Guatemala / Global Health Lecture Series  
Global Pediatrics Program, BCH
- 2015 Uncovering Hidden Strengths: Family-Based Approaches to Chronic Illness in Global Health / Grand Rounds – Annual Medicine-Pediatrics Lectureship  
Department of Medicine, BCH
- 2015 Promoting Vital Indigenous Communities: Healthcare, Culture Work, and Advocacy in Maya Guatemala / Partnership Grand Rounds  
Division of Global Health Equity, BWH
- 2017 Home-based Interventions for Early Child Development in Rural Guatemala / Global Health Seminar Series  
Global Health Program, BCH
- 2017 Holistic Perspectives on Child Growth and Nutrition: Insights Gleaned from Demography, Anthropology, and Clinical Practice/Seminar Series  
Department of Global Health and Social Medicine, HMS
- 2018 Managing Inborn Errors of Metabolism in Guatemala  
Department of Genetics and Metabolism Seminar Series, BCH
- 2019 Improving Community-Hospital Transfer Outcomes in Guatemala  
BWH Hospital Medicine Grand Rounds
- 2022 Review and Update: Chronic Kidney Disease of Unknown Etiology, A Climate Change Disorder  
BWH Hospital Medicine Grand Rounds
- 2022 Introduction to the Guide for Monitoring Child Development  
MGH Global Pediatrics Working Group

## **Report of Regional, National, and International Invited Teaching and Presentations**

### **Invited Presentations and Courses**

*No presentations below were sponsored by outside entities.*

## **Regional**

- 2011 Chronic Malnutrition in Guatemala / Invited Talk  
Hungry for Change Conference, Brown University, Providence, RI
- 2013 Making a Global Difference: Child Health in Guatemala / Invited  
Lecture  
Center for Child and Youth Studies, Salem State University, Salem,  
MA
- 2014 Complex Illness in Childhood – Perspectives from the Developing  
World / Invited Talk  
Steven J. Parker Conference on Developmental Pediatrics, Boston  
University School of Medicine, Boston, MA

## **National**

- 2008 Ethnicity, Language, and Health Care: Impacting Access to Care in  
Guatemala / Invited Lecture  
Medical Scholars Program, University of Illinois at Urbana-  
Champaign, Urbana, IL
- 2008 Qak’aslem, Qakem: Contemporary Kaqchikel Maya Weavings / Guest  
Curator Lecture  
The Spurlock Museum, University of Illinois at Urbana-Champaign,  
Urbana, IL
- 2008 Kaqchikel Maya Weavings in Their Social Context / Guest Curator  
Lecture  
The Spurlock Museum, University of Illinois at Urbana-Champaign,  
Urbana, IL
- 2008 Infrastructure Development: A Community-based Approach  
World / Invited Talk  
Engineers without Borders Great Lakes Workshops, Urbana, IL
- 2008 Introduction to Grant Writing / Invited Workshop  
Engineers without Borders Great Lakes Workshops, Urbana, IL
- 2009 Introduction to Physician-Scientist Careers / Invited Lecture  
Department of Cellular Biology, University of Georgia, Athens, GA
- 2009 International Careers and Title IX / Panel Participant  
Center for International Studies, University of Illinois at Urbana-  
Champaign, Urbana, IL
- 2010 Development, Culture, and Language Revitalization: Collaborative  
Approaches from Guatemala / Invited Talk  
Conference on Africa’s Response to Language Endangerment,  
University of Florida, Gainesville, FL
- 2013 A New Approach to Community-Based Development: The Linguistic  
and Cultural Dimensions of Child Malnutrition in Guatemala / Invited  
Talk  
University of Florida, Gainesville, FL

- 2013 Examining the Social Contract through Child Nutrition in Guatemala /  
Invited Discussant  
Latin American Studies Association Meeting, Washington, DC
- 2013 The Global Burden of Diabetes: A Case Study from Guatemala / Grand  
Rounds  
Department of Medicine, University of Illinois at Urbana-Champaign
- 2013 The Intersection of Health Care and Language Rights in Guatemala /  
Invited Talk  
Universidad Autónoma de Mexico Extension School, Chicago, IL
- 2013 Child Stunting and Advocacy in Guatemala / Invited Departmental  
Lecture Series  
School for Human Evolution and Social Change, Arizona State  
University, Tempe, AZ
- 2015 Addressing Disease and Inequality in Guatemala / Invited Panelist  
Latino Public Health Network, Johns Hopkins School of Public Health,  
Baltimore, MD
- 2015 Diet Quality and the Built Environment: At Home and Around the  
World / Invited Panelist  
Food and Nutrition Conference and Expo, Academy of Nutrition and  
Dietetics, Nashville, TN
- 2015 Building Sustainable Partnerships in Guatemala / Visiting Scholar  
Center for Latin American Studies, Vanderbilt University, Nashville,  
TN
- 2015 Healthcare Delivery in Resource Poor Areas and the Impact of Culture  
and Native Language on Health Outcomes / Invited Talk  
School of Nursing, Vanderbilt University, Nashville, TN
- 2016 Agile Health: Building a Different Kind of Healthcare in Guatemala /  
Invited Talk  
Anthropology Graduate Student Association Lecture Series, Institute  
for Mesoamerican Studies, State University of New York, Albany, NY
- 2016 Health Care Innovation and New Challenges in Indigenous  
Health/Invited Discussant  
Latin American Studies Association Meeting, New York NY
- 2017 Stunting, Early Child Development, Thriving Children/Invited Panelist  
Charles Hood Foundation 75<sup>th</sup> Anniversary Celebration, Boston MA
- 2017 International Food Policy, Food Insecurity and Food Deserts:  
Undernutrition and Overnutrition Across the Lifespan and Around the  
World/Invited Speaker  
The Medicalization of Poverty Symposium, University of Illinois at  
Urbana-Champaign/Carle Hospital, Urbana, IL
- 2017 Lean In: Building Bridges from Linguistics/Invited Panelist  
National Humanities Conference, National Humanities Alliance  
Conference, Boston, MA
- 2018 T'iqaq'omaj qi': Improving Health Care Outcomes in Rural Maya  
Guatemala/Invited Talk  
Berry College, Mount Berry, GA

- 2018 Using Linguistics, Community Oriented Research and Improvement Science to Improve Health Care Outcomes in Rural Maya Guatemala/Invited Talk  
Center for Latin American and Caribbean Studies, University of Illinois at Urbana-Champaign, Urbana, IL
- 2018 Language and Global Health: Lessons from 10 years of unlocking better health outcomes through language in rural Guatemala (with Brent Henderson)/Invited Plenary  
Institute on Collaborative Language Research, University of Florida, Gainesville, FL
- 2018 Language and Healthcare/Invited Short Course  
Institute for Collaborative Language Research, University of Florida Department of Linguistics, Gainesville FL
- 2020 Improving Community-Hospital Outcomes in Guatemala/Invited Speaker  
Saban Research Institute, Childrens Hospital of Los Angeles, Los Angeles, CA
- 2020 Nutrition Interventions Go Global: Collaborations for Community Health/Panel Moderator  
Food & Nutrition Conference & Expo, Academy of Nutrition and Dietetics, Indianapolis, IN (Virtual)
- 2021 Improving Healthcare for Indigenous Women and Children in Rural Guatemala/Invited Speaker  
International Studies Program, University of Southern Alabama, Mobile, AL (Virtual)
- 2021 Experiencias con idiomas mayas y biomedicina en los altiplanos de Guatemala [Experiences with Mayan languages and biomedicine in the highlands of Guatemala]/Invited Plenary Speaker  
Third International Symposium on Indigenous Languages and Cultures of Latin America, University of Georgia, Athens, GA (Virtual)
- 2022 Improving Health Care Outcomes in Rural Maya Guatemala Health Equity Grand Rounds, Ventura County Medical Center, Ventura, CA

### **National Abstract Oral Presentations**

- 2014 Indigenous health and noncommunicable chronic disease: Tackling the elephant in the room  
Society for Applied Anthropology Meeting, Albuquerque, NM
- 2017 Community-based approaches to type 2 diabetes in an indigenous Maya population from Guatemala  
Society for Applied Anthropology Meeting, Santa Fe, NM
- 2018 A lay-midwife centered approach to mHealth for improving maternal care in Guatemala  
Society for Applied Anthropology Meeting, Philadelphia, PA



- 2019 Integrating early child development interventions into existing community-based programs in Guatemala  
Consortium of Universities for Global Health\_Meeting, Chicago, IL

### **International**

- 2009 Recent Advances in the Study of Acidocalcisomes / Invited Talk  
University of Cadíz, Cadíz, Spain
- 2010 Desnutrición Crónica en Guatemala: el Estado Actual (Chronic Malnutrition in Guatemala: Updates) / Invited Talk  
Programa de Ayuda a los Vecinos del Altiplano (Aid Program for Highland Communities), Antigua, Guatemala
- 2010 Introduction to Rural Health Care in Guatemala/ Invited Course  
Universidad Francisco Marroquin School of Medicine, San Juan Sacatepéquez, Guatemala
- 2011 Programas Comunitarias para Detectar y Tratar la Desnutrición Infantil (Community Programs to Treat and Detect Infant Malnutrition) / Invited Talk  
Futuros Colectivos (Collective Futures) Conference, Patzún, Guatemala
- 2012 Developing Programs for Treatment of Type II Diabetes in Guatemala / Invited Talk  
Hospitalito Atitlán, Santiago Atitlán, Guatemala
- 2013 Type 2 Diabetes in Rural Central America/ Invited Talk  
Compañeros en Salud (Partners in Health), Jaltenango, Chiapas, Mexico
- 2013 In-born Errors of Metabolism in Resource-Poor Settings / Invited Talk  
Compañeros en Salud (Partners in Health), Jaltenango, Chiapas, Mexico
- 2013 Child Malnutrition in Rural Central America / Invited Talk  
Compañeros en Salud (Partners in Health), Jaltenango, Chiapas, Mexico
- 2018 Desarrollo Integral de la Primera Infancia: Factores de Riesgo para la niñez guatemalteca [Integrated Development in Early Childhood: Risk Factors for Guatemalan Children]/ Invited Talk  
Encuentro por la Primera Infancia [Early Childhood Symposium], Guatemalan Congressional Committee on Childhood and the Family, Guatemala City, Guatemala
- 2018 Medición del Desarrollo Infantil [Measuring Early Childhood Development]/ Invited Talk  
Encuentro por la Primera Infancia [Early Childhood Symposium], Guatemalan Congressional Committee on Childhood and the Family, Guatemala City, Guatemala
- 2018 Navegación de cuidado de cancer en Guatemala [Care navigation for cancer in Guatemala]/Invited Talk  
St. Jude's Central and South American Network Online Meeting

- 2019 Mobile Health with Midwives  
Invited talk  
New Models to Reduce Maternal Mortality in Rural Areas of Guatemala Symposium, Universidad de San Carlos de Guatemala, Guatemala City, Guatemala
- 2019 Effects of Chronic Malnutrition: What works and what doesn't work?  
Keynote Speaker  
Dialogue on the future of early childhood in Guatemala, United Way, Guatemala City, Guatemala
- 2019 Measuring Early Child Development: Instruments and Lessons Learned  
Invited Panelist, Isabel Gutiérrez de Bosch Foundation, Guatemala City, Guatemala
- 2019 The intersection of mHealth and cervical cancer/ Invited Panelist  
Workshop on Opportunities and Challenges in Cervical Cancer Prevention in Guatemala, Universidad Rafael Landivar, Guatemala City, Guatemala
- 2021 What Works? Addressing Health Provider Needs During Crisis/  
Keynote Speaker  
Biannual Congress of the International Developmental Pediatrics Association (virtual)
- 2021 Indigenous Health/ Invited Class Lecturer  
Introduction to Global Health, University of British Columbia, Vancouver, Canada
- 2022 Diseñando estrategias de alimentación complementaria [Designing strategies for complementary feeding] /Invited Panelist  
Alliance for Nutrition, Guatemala City, Guatemala
- 2022 ¿Qué se entiende evaluación de desarrollo y aprendizaje infantil en el marco de un programa o política de infancia? [How to understand the evaluation of early child development and learning within a programmatic or political context]/Invited Commentator  
Interamerican Dialog/Universidad del Valle de Guatemala/Alliance for Nutrition, Guatemala City, Guatemala

## **Report of Clinical Activities and Innovations**

### **Current Licensure and Certification**

- 2012-present Massachusetts Medical License
- 2013 Board Certified, Internal Medicine
- 2013 Board Certified, Pediatrics
- 2013 Certified Fitter, Opensocket Transradial Prosthetic Arm
- 2015 Certified Clinician, International Guide for Monitoring and Supporting Child Development

2018	DEA X-Waiver
2021	Master Trainer, International Guide for Monitoring and Supporting Child Development

**Practice Activities**

2013-2017	Ambulatory Care	Internal Medicine/Pediatrics, BWFH	One session per month
2013-present	Hospital Medicine	Inpatient Adult Medicine, BWH/DFCI	8-12 weeks per year

**Clinical Innovations**

Primary Health System Design and Quality Improvement Methods in Guatemala (2007-present)	I am the cofounder of Wuqu’ Kawoq   Maya Health Alliance, a not-for-profit primary health care system in Guatemala. Since 2007, under my leadership, this system has grown to be one of the largest providers of primary health care in rural Guatemala, with a special emphasis on the treatment of non-communicable chronic diseases and more than 50,000 visits per year. The organization’s model for integrated primary care is a highly visible and often-cited model for care delivery in Central America. We have applied our experiences to scale-up efforts of our models with both public and private sector partners, publishing results of these efforts in journals such as <i>Journal of Delivery Science and Innovation</i> and <i>Preventing Chronic Disease</i> . We have published on our use of quality improvement methods to foster quality and innovation in rural primary care in this setting in the <i>British Medical Journal Quality and Safety</i> and the <i>International Journal of Quality in Health Care</i> , among others.
Integrating Practice-based Research into Global Health Delivery (2010-present)	I have worked to assemble and train a large multidisciplinary team of researchers and clinicians in Guatemala that evaluates the impact of primary health care interventions on rural, indigenous populations. This work is tightly integrated into care delivery, contributing to quality improvement initiatives and continuous practice improvement. These efforts have resulted in multiple publications in both anthropology journals, such as <i>Human Organization</i> and <i>Medical Anthropology Quarterly</i> , and medical and quality improvement journals, such as <i>BMC Health Services Research</i> and

Electronic Medical Record (EMR) Systems and mHealth in Resource-Constrained Settings (2010-present)

I spearheaded the implementation of a cloud-based electronic medical record system using the open source OpenMRS framework in Guatemala at Wuqu' Kawoq | Maya Health Alliance. It is currently the largest EMR implementation in the country. As a result of this work, we participated in a clinical trial provide decision support to lay midwives through phones linked to this EMR. Results of this clinical trial have been published in leading engineering journals, such as the *Journal of Medical Engineering & Technology*, and medical journals, such as *Reproductive Health*.

Clinical Protocols for Management of Type 2 Diabetes in Rural Global Health Settings (2012-present)

I developed protocols that are the first to describe the management of type 2 diabetes by physician-supervised community health workers in Guatemala, and among just a few examples of such protocols worldwide. They have been used to build up one of the largest longitudinal diabetes cohorts in Guatemala. Design and outcomes of this program was reported in *BMC Health Service Research*, the *International Journal of Quality in Health Care*, and *Preventing Chronic Disease*. This work led to a recent award from the World Diabetes Foundation to scale up the model in the public sector, also published in *Preventing Chronic Disease*.

Clinical Protocols for Management of Chronic Child Malnutrition in Rural Global Health Settings (2012-present)

I am an expert in the management of pediatric growth disorders, especially chronic child malnutrition, in global health settings. I developed and validated protocols for this disorder that are used by clinicians and health promoters around Guatemala. A major innovation was reintroducing the notion of “catch-up growth” and individualized dietary counseling to the chronic malnutrition paradigm, results which were evaluated in a randomized clinical trial funded by Grand Challenges

Canada and with results published in the *British Medical Journal Paediatrics Open*. Ongoing longitudinal evaluation of this model has resulted in additional quality improvement-focused publications.

Management of Complex Pediatric Illness in Rural Global Health Settings (2013-present)

I opened and trained clinical staff in a referral clinic in central Guatemala for children with complex conditions (genetic conditions, inborn errors of metabolism, severe developmental delay, epilepsy, etc.). Now with hundreds of patients, this clinic cares for one of the largest cohorts of children with these illnesses in Guatemala. As a result of this experience, I am a well-recognized expert on the management of these conditions. The clinic routinely receives referral cases from the entire country from both public and private sectors. I regularly provide consultation to specialists in both public and private national hospitals on the management of these conditions.

Care Navigation Strategies in Rural Healthcare Delivery (2017-present)

A major effort has been the design of interventions to use care navigators creatively in rural Guatemala to improve the continuum of care for obstetrical care and for the management of complex illnesses. We have published widely on this model in *Human Organization*, the *Journal of Delivery Science and Innovation*, the *Journal of Global Oncology*, and the *British Medical Journal Quality and Safety*, among other journals. This work has been funded by Grand Challenges Canada among others.

Population-based health surveillance strategies for chronic disease management and quality assessment (2018-present)

I have trained a highly-skilled field team for conducting rigorous population-based research in the epidemiology of chronic diseases in rural Guatemala. We have adapted novel satellite-based methods for representative sampling, published in the *International Journal of Health Geographics*. We have completed Guatemala's first representative rural survey of adult diabetes and chronic kidney disease, providing much needed estimates for policy formulations, published in *Kidney International Reports*. On the basis of this work, I collaborate with several international disease consortia, including the Global Burden of Disease Study, the NCD

Risk Factor Collaboration, the Project on Access to Care for Cardiometabolic Diseases, and the NIH's "Chronic Kidney Diseases of Uncertain Etiology in Agricultural Communities" Research Consortium.

COVID-19 response in Indigenous Communities (2020-present)

In Guatemala, I have led efforts at Wuqu' Kawoq | Maya Health Alliance to customize COVID-19 response efforts and vaccination commands to the needs of Indigenous Maya populations. This has included massive media campaigns (social media, radio) in multiple languages to millions of listeners, telemedicine services in Mayan languages, and efforts to secure PPE supply chains for frontline workers.

### **Report of Teaching and Education Innovations**

Methods for Indigenous Languages in the Delivery of Primary Care (2007-present)

I developed methods for teaching clinicians and case managers how to provide culturally and linguistically appropriate care to speakers of minority indigenous languages. These included formal linguistic methods for introducing technical vocabulary and medical neologisms. The model is widely borrowed by other organizations in Guatemala. I am regularly asked to speak and train others on the model at academic and development institutions worldwide. The model was formally published in a major linguistics journal, *Language Documentation and Conservation*, and has led to numerous invited national and international presentations and opinion pieces, including in *Lancet Global Health*.

### **Report of Technological and Other Scientific Innovations**

Smart-phone-based decision support application for lay midwives (2017-2018)

Published in the *Journal of Medical Engineering and Technology* and *Reproductive Health*.

I served as Co-Investigator on an NIH-sponsored project to develop a phone-based decision support algorithm for low-literate lay midwives in rural, low-income global health settings. The application was featured in a front-page spread in Guatemala's newspaper of record *Prensa Libre* on August 26, 2018 ("App Salva Vidas" [App Saves Lives],

<https://www.pressreader.com/guatemala/prensa-libre/20180826/281479277275442>). Currently the research consortium is working to expand this work

through the safe+natal platform  
(<https://safenatal.wordpress.com/>)

Open-source methods for fetal heart rate maternal blood pressure, and intra-uterine growth restriction estimation and from one-dimensional Doppler ultrasound (2017-present)

Published in *Physiological Measurement* and *Frontiers in Artificial Intelligence*.

I serve as a clinical collaborator collecting clinical Doppler ultrasound recordings in rural Guatemala. Working with an engineering team (PI Dr. Gari Clifford) at Emory University, we trained algorithms on these recordings to improve the usability of low-cost ultrasound in remote low-resource settings. Our algorithms robustly predict maternal hypertension and fetal growth restriction and have the potential to transform the way monitoring and detection of these priority conditions is conducted. Currently we are applying for NIH funding to validate findings prospectively in a pregnancy cohort.

Smart-phone-based decision support application for neonatal care (2018-present)

Published in *BMJ Quality Reports*

With funding from the Charles Hood Foundation, I have developed an Android application to facilitate neonatal examination by frontline workers in rural Guatemala. Evaluation of impact of the application on neonatal outcomes showed improvements in neonatal referrals and acute illness management.

Using limb motion analysis to detect early development delay in high-risk infants in low-resource settings (2020-present)

Working with physical therapy colleagues at Childrens Hospital Los Angeles (PI Dr Beth Smith) we are validating a novel method for analyzing accelerometer data collected on infant lower extremity movements, and correlating this movement data with longer-term developmental outcomes. If validated prospectively, this will represent a novel tool for risk-stratification for early intervention in infants at-risk especially in low-resource settings. This project is funded by the NIH.

## **Report of Education of Patients and Service to the Community**

*No educational activities below were sponsored by outside entities.*

### **Activities**

2013                      Hearing the Voice of the Poor: Toward a Theology of Accompaniment in Guatemala / Invited Lecture

Christian Studies Center, Gainesville, FL

- 2013 Indigenous Tweets: Visible Voices and Tech / Invited Panelist  
South by Southwest Interactive Conference, Austin TX
- 2013 Storytelling for Movement Building / Invited Panelist  
Ashoka Future Forum, Washington, DC
- 2015 Revitalizing Mayan Languages through Development in Guatemala /  
Invited Talk  
World Languages and Cultures Institute, Boston, MA

### **Educational Material for Patients and the Lay Community**

*No educational materials below were sponsored by outside entities.*

### **Books, Monographs, Articles, and Presentations in Other Media**

1. American Council on Education. Engaging the world: U.S. global competence in the 21<sup>st</sup> century [documentary film]. Washington, DC: American Council on Education; 2009.

I appeared as a featured expert on cultural and linguistic competency in global health.

2. Be the change, save a life [television broadcast]. ABC 20/20 News Program. New York, NY. 2010 December 17.

I appeared as a featured expert on child malnutrition.

3. Be the change, save a life [television broadcast]. ABC 20/20 News Program. New York, NY. 2011 December 16.

I appeared as a featured expert on child malnutrition.

4. **Rohloff P.** Diabetes – a rural snapshot. 2012 Aug 22 [cited 2016 Apr 6]. In Global Health Hub Blog [Internet]. San Francisco: Global Health Hub. c2012 - . Available from: <http://www.globalhealthhub.org/2012/08/22/diabetes-a-rural-snapshot/>

5. **Rohloff P.** Rural health care and the “problem” of language. 2012 Oct 10 [cited 2016 Apr 6]. In Global Health Hub Blog [Internet]. San Francisco: Global Health Hub. c2012 - . Available from: <http://www.globalhealthhub.org/2012/10/10/rural-health-care-and-the-problem-of-language/>

6. **Rohloff P.** Primary care – and complex illness. 2012 Dec 7 [cited 2016 Apr 6]. In Global Health Hub Blog [Internet]. San Francisco: Global Health Hub. c2012 - . Available from: <http://www.globalhealthhub.org/2012/12/07/primary-care-and-complex-illness/>



7. **Rohloff P.** Designing low-cost prosthetics. 2013 Jan 18 [cited 2016 Apr 6]. In Global Health Hub Blog [Internet]. San Francisco: Global Health Hub. c2013 - . Available from: <http://www.globalhealthhub.org/2013/01/18/designing-low-cost-prosthetics/>
8. **Rohloff P.** Language, culture and millennium development goals – An interview. 2013 Mar 5 [cited 2016 Apr 6]. In Global Health Hub Blog [Internet]. San Francisco: Global Health Hub. c2013 - . Available from: <http://www.globalhealthhub.org/2013/03/05/language-culture-and-millennium-development-goals-an-interview/>
9. **Rohloff P.** The history and future of community health workers – An interview. 2013 May 2 [cited 2016 Apr 6]. In Global Health Hub Blog [Internet]. San Francisco: Global Health Hub. c2013 - . Available from: <http://www.globalhealthhub.org/2013/05/02/the-history-and-future-of-community-health-workers-an-interview/>
10. **Rohloff P.** The limitations of “behavior change” – case studies from child malnutrition. 2013 Aug 28 [cited 2016 Apr 6]. In Global Health Hub Blog [Internet]. San Francisco: Global Health Hub. c2013 - . Available from: <http://www.globalhealthhub.org/2013/08/28/the-limitations-of-behavior-change-cases-studies-from-child-malnutrition/>
11. **Rohloff P.** So you wanna’ start a cancer program... 2013 Sep 18 [cited 2016 Apr 6]. In Global Health Hub Blog [Internet]. San Francisco: Global Health Hub. c2013 - . Available from: <http://www.globalhealthhub.org/2013/09/18/so-you-wanna-start-a-cancer-program/>
12. **Rohloff P.** Food affordability, Optifood, and the complexity of developing nutritional solutions for children. 2014 Jan 2 [cited 2016 Apr 6]. In Global Health Hub Blog [Internet]. San Francisco: Global Health Hub. c2014 - . Available from: <http://www.globalhealthhub.org/2014/01/02/food-affordability-optifood-complexity-developing-nutritional-solutions-children/>
13. **Rohloff P.** “Fetishism” and humanitarian aid – An interview. 2014 Jan 21 [cited 2016 Apr 6]. In Global Health Hub Blog [Internet]. San Francisco: Global Health Hub. c2014 - . Available from: <http://www.globalhealthhub.org/2014/01/21/fetishism-humanitarian-aid-interview/>
14. **Rohloff P.** Child nutrition – After the first 1000 days. 2014 Jun 10 [cited 2016 Apr 6]. In Global Health Hub Blog [Internet]. San Francisco: Global Health Hub. c2014 - . Available from: <http://www.globalhealthhub.org/2014/06/10/child-nutrition-first-1000-days/>
15. **Rohloff P.** Medical missions – A critical perspective. 2014 Jul 9 [cited 2016 Apr 6]. In Global Health Hub Blog [Internet]. San Francisco: Global Health Hub. c2014 - . Available from: <http://www.globalhealthhub.org/2014/07/09/medical-missions-critical-perspective/>

16. Big data meets modern medicine in a life-saving equation [television broadcast]. PBS News Hour Program. New York, NY. 2016 February 3.

I appeared as a featured expert on resource allocation in global health.

17. Cnop K\*\*, Hawkins J, Chary A, Flood D, Austad K, Martinez B, Lopez W, **Rohloff P**. Helping the most vulnerable: using patient navigators to strengthen health systems in Guatemala. 2018 Feb 27 [cited 2018 May 1]. In Healthcare: The Journal of Delivery Science and Innovation Blog [Internet]. New York: Elsevier. c2018-. Available from: <https://healthcarethejournal.org/2018/02/27/helping-the-most-vulnerable-using-patient-navigators-to-strengthen-health-systems-in-guatemala/>

### **Patient Educational Material**

1. Greiner M\*\*, Henretty N, **Rohloff P**. (2011). Rukab'il kik' chuqa' ilinem/Diabetes y nutrición (Diabetes and diet). Santiago Sacatepéquez, Guatemala: Wuqu' Kawoq.

Diabetes education materials in Spanish and Kaqchikel Maya.

2. Greiner M\*\*, Henretty N, **Rohloff P**. (2011). Rujotolem rukab'il ri kik'/Diabetes y su Salud (Diabetes and Your Health). Santiago Sacatepéquez, Guatemala: Wuqu' Kawoq.

Diabetes education materials in Spanish and Kaqchikel Maya.

3. Kaqchikel Cholchi'. (2012). Kaqchikel Choltzij: kolon chuqa' k'ak'a taq tzij (Kaqchikel Dictionary: Neologisms). Guatemala City, Guatemala: Kaqchikel Cholchi'.

I served as principal technical advisor for the production of this dictionary of medical and technical vocabulary in Kaqchikel Maya.

4. Melvin C\*\*, Henretty N, **Rohloff P**. (2012). Niños Comiendo Bien (Children Eating Well). Santiago Sacatepéquez, Guatemala: Wuqu' Kawoq.

Large format posters produced in Spanish for teaching about complementary feeding.

### **Articles in Newspapers or Magazines**

1. **Rohloff P**, Erb C. Diagnosis of a failing medical system. The Public I. 2003 Nov; p. 1,11.

2. **Rohloff P**. Mayan care. The Linguist. 2019;58(4):18-20.

\*\* denotes first author who was my mentee.

## **Report of Scholarship**

ORCID: 0000-0001-7274-8315

## **Peer-Reviewed Scholarship in Print or Other Media**

### **Research investigations**

1. Rodrigues CO, Ruiz FA, **Rohloff P**, Scott DA, Moreno SN. Characterization of isolated acidocalcisomes from *Toxoplasma gondii* tachyzoites reveals a novel pool of hydrolyzable polyphosphates. *J Biol Chem*. 2002;277:48650-6.
2. **Rohloff P**, Rodrigues CO, Docampo R. Regulatory volume decrease in *Trypanosoma cruzi* involves amino acid efflux and changes in intracellular calcium. *Mol Biochem Parasitol*. 2003;126:219-30.
3. Montalvetti A\*, **Rohloff P\***, Docampo R. A functional aquaporin colocalizes with the vacuolar proton pyrophosphatase to acidocalcisomes and the contractile vacuole complex of *Trypanosoma cruzi*. *J Biol Chem*. 2004;279:38673-82.
4. **Rohloff P\***, Montalvetti A\*, Docampo R. Acidocalcisomes and the contractile vacuole complex are involved in osmoregulation in *Trypanosoma cruzi*. *J Biol Chem*. 2004;279:52270-81.
5. Luo S, **Rohloff P**, Cox J, Uyemura SA, Docampo R. *Trypanosoma brucei* plasma membrane-type Ca<sup>2+</sup>-ATPase 1 (TbPMC1) and 2 (TbPMC2) genes encode functional Ca<sup>2+</sup>-ATPases localized to the acidocalcisomes and plasma membrane and essential for Ca<sup>2+</sup> homeostasis and growth. *J Biol Chem*. 2004;279:14427-39.
6. Cuevas IC, **Rohloff P**, Sanchez DO, Docampo R. 2005. Characterization of farnesylated protein tyrosine phosphatase *TcPRL-1* from *Trypanosoma cruzi*. *Eukaryot Cell*. 2005;4:1550-61.
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### **Scholarship without named authorship**

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#### **Proceedings of meetings or other non-peer reviewed scholarship**

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### **Letters to the Editor**

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*Type of material*: Training textbook. *Intended audience*: community health workers, international use.



- Bilingual Kaqchikel Maya- and Spanish-language textbook used for teaching community health workers in Guatemala about common medical conditions.
2. Melvin C, Striegel J, Melvin T, Hill M, **Rohloff P**. Ayudar al bebé a respirar después del parto. Bethel (VT): Wuqu' Kawoq; 2011.  
*Type of material:* Training textbook. *Intended audience:* community health workers and midwives, international use.  
Spanish-language training manual for teaching lay midwives in Guatemala neonatal resuscitation skills.
  3. Melvin C, Striegel J, Melvin T, Hill M, **Rohloff P**. Ruto'ik ri ney' richin nujik kaq'iq' chi rij toq naläx. Bethel (VT): Wuqu' Kawoq; 2011.  
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Kaqchikel Maya-language training manual for teaching lay midwives in Guatemala neonatal resuscitation skills.
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### **Local/Unpublished Clinical Guidelines and Reports**

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2. **Rohloff P**. STIs and women's health in rural Guatemalan communities. Bethel, VT: Wuqu' Kawoq; 2013.  
*Type of material:* Clinical protocol, for international use  
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*Type of material:* Clinical protocol, for international use  
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*Type of material:* Clinical protocol, for international use  
English and Spanish-language guidelines for community-based management of diabetes by community health workers.

### **Thesis**

**Rohloff P**. Osmoregulation in *Trypanosoma cruzi*: the role of the acidocalcisome [dissertation]. Urbana (IL): University of Illinois at Urbana Champaign; 2003.

### **Abstracts, Poster Presentations and Exhibits Presented at Professional Meetings**

1. Nandi M, Kurschner S, Wilcox K, Mux MS, Flood D, Barnoya J, Mendoza C, **Rohloff P**, Chary A. Perceptions of chronic kidney disease in an indigenous rural population in Guatemala. Poster presented at: Society for Applied Anthropology Annual Meeting, 2020 March 17-21; Albuquerque, NM
2. Nandi M, Flood D, Wilcox K, Kurschner S, Tschida S, Garcia P, **Rohloff P**, Chary A. A qualitative study of pathways to care among adults with diabetes in rural Guatemala.

Poster presented at: Consortium of University for Global Health Annual Conference, 2021 March 12-14; virtual.

3. **Rohloff P**, Gennaro F, Smith BA. Wearable sensors for early identification of poor neurodevelopment in Guatemala. Poster presented at: International Developmental Pediatrics Association Biannual Meeting, 2021 December 2-5; virtual.

4. Montenegro-Bethancourt G, Proaño GV, Yakes Jimenez E, Wallace TC, Steiber A, McCabe G, **Rohloff P**. Use of caregiver reported early development instruments (CREDI) tool to evaluate infant development in Maya Guatemalan children: The Saqmolo' Project. Poster presented at: International Developmental Pediatrics Association Biannual Meeting, 2021 December 2-5; virtual.

5. Montenegro-Bethancourt G, Wallace TC, **Rohloff P**, Yakes Jimenez E, Proaño GV, McCabe G, Steiber A. The Saqmolo' Project: Protocol for a randomized controlled trial examining the impact of daily complementary feeding of eggs on infant development and growth in Guatemala. Poster presented at: American Society of Nutrition Annual Meeting, 2021 June 7-10; virtual.

6. Montenegro-Bethancourt G, **Rohloff P**, Proaño GV, Yakes Jimenez E, McCabe G, Steiber A, Wallace TC. Implementing an improved COVID-19 mitigation protocol for the Saqmolo' Project, a nutrition-focused community based comparative effectiveness trial in Guatemala. Poster presented at: Society for Latin American Nutrition, 19th Congress, 2021 October 31-November 4; virtual.

7. Raut A, Mustafayev R, Srinivasan R, Chary A, Ertem I, Grazioso MdP, Gupta S, Krshnamurthy V, Lu C, Malieye C, Miller A, Wagenaar B, **Rohloff P**. Implementation of the International Guide for Monitoring Child Development intervention in rural India and Guatemala. Poster presented at: International Developmental Pediatrics Association Congress, 4-7 December, virtual.

8. Oh J, **Rohloff P**, Smith B.A. Full-day leg movement kinetics in infants at risk for poor neurodevelopmental outcomes in rural Guatemala. Poster presented at: The American Society of Neurorehabilitation Annual Meeting, 2023 14-16 March; Charleston SC.

\* denotes co-first or co-senior author

\*\* denotes first author who was my mentee.

## **Narrative Report**

I am an Assistant Professor of Medicine and of Global Health and Social Medicine at HMS, an Associate Physician in General Internal Medicine at BWH and BWFH, an Associate Physician (Research) in Global Health Equity at BWH, and Active Staff in Medical Oncology/Hospitalist Division at DFCI. My principal effort at BWH and HMS is in Clinical Expertise and Innovation, with a focus on complex chronic medical illnesses of both adults and children. I practice clinically within the Hospital Medicine

Unit at BWH/DFCI, where I serve as an attending physician coordinating the care of patients with chronic multisystem diseases, including severe cardiovascular and renal diseases and complications from malignancy and organ transplantation.

Through my affiliation with BWH's DGHE, I translate this clinical experience into health care delivery innovations and outcomes research for patients suffering from chronic illness--both adults and children--in Guatemala and other global health settings. Through my affiliation with the Division of Global Health and Social Medicine at HMS, I train students in the Global Health Delivery Master's Degree on methodologies for global health, especially mixed methods research. I also lead collaborations related to early child growth and development, through the Early Child Development Working Group. My remaining time is devoted to teaching and administrative tasks, including serving as Director of the Global Health Track on Hospital Medicine at BWH, Associate Editor at *BMJ Paediatrics Open*, and Academic Editor at *PLOS Global Public Health*.

**Area of Excellence:** I have experience translating and adapting evidence-based approaches to chronic disease management for low- and middle-income countries. Most of my work is in Guatemala, where I am the co-founder of a large primary health care system, Wuqu' Kawoq | Maya Health Alliance. In this setting, I have pioneered numerous clinical innovations, including a model for teaching cultural competencies to clinicians providing care to indigenous populations; building capacity for quality improvement (QI) methods in chronic disease management; implementing EMR systems; and development of novel clinical approaches to managing chronic illness of adults (kidney disease, diabetes, cervical cancer) and children (developmental delay, growth disorders) in low-resource settings. As a result of these innovations, I am considered a regional expert in chronic disease management and child growth and development. Within Guatemala, I am routinely consulted by both the public and the private sectors for advice on the management of pediatric nutritional disorders, pediatric genetic and metabolic disorders, and adult diabetes and malignancy. I collaborate globally through the International Developmental Pediatrics Association, the Global Burden of Disease Study, the NCD Risk Factor Collaboration, the Project on Access to Care for Cardiometabolic Diseases, and the NIH's "Chronic Kidney Diseases of Uncertain Etiology in Agricultural Communities" Research Consortium.

My work has been published in both the anthropology literature (*Human Organization*, *Medical Anthropology Quarterly*) and the medical literature (*Global Health: Science and Practice*, *British Medical Journal Global Health*, *Lancet Global Health*, *PLoS Medicine*). I am regularly asked to talk locally and nationally about my global health work and to provide policy advice. For example, in 2019, I was asked to provide scientific remarks on the burden of childhood undernutrition during a national televised debate during the Guatemalan run-off presidential election.

**Significant Supporting Activity, Investigation:** My research on barriers to health care access and QI in Guatemala has resulted in more than 70 peer-reviewed articles, as well as editorials, chapters, and conference presentations. I have served as Principal

Investigator or Co-Investigator on multiple clinical trials to use mHealth to improve obstetrical outcomes in rural Guatemala and to improve nutritional outcomes for young children. I was PI on an NIH-funded effort to conduct Guatemala's first population-level study of chronic kidney disease epidemiology, and another scale-up initiative for diabetes care funded by the World Diabetes Foundation. Currently, I am PI or Co-PI on 3 NICHD funded projects to study early child development outcomes in Guatemala and India; and I am Co-I on a NIDDK-funded consortium to study the epidemiology of chronic kidney disease.

**Teaching:** I am an active teacher at HMS, participating as guest lecturer in global-health-focused courses and seminars at HMS (DGHSM). Since 2005, I have served as primary mentor for multiple HMS medical students and MMSc (Global Health Delivery) students. Many of these students received funding to conduct extended research experiences with me in Guatemala or elsewhere. In addition, I supervise trainees at BWH in the internal medicine and internal medicine-pediatrics residency programs on their clinical hospital medicine rotations for 25 hours per week, 8-12 weeks per year. I have given a number of lectures to peers, including Grand Rounds presentations for BCH's Department of Medicine, BWH's Division of Global Health Equities, and BWH's Hospital Medicine Unit.