Health Systems:

The Next Generation

Friday, November 9, 12:30pm – 4:30pm

Roger A. and Helen B. Krone Engineered Biosystems Building (EBB Krone)

Children's Healthcare of Atlanta (CHOA) Seminar Room
950 Atlantic Drive
Atlanta, GA 30332

Hosted and Sponsored by

Georgia Tech Health & Humanitarian Systems
Interdisciplinary Research Center

Co-Sponsored by

Georgia Tech ISyE H. Milton Stewart School of Industrial and Systems Engineering

Georgia Tech Institute for People and Technology

Program Committee

Georgia Tech School of Economics

Georgia Tech College of Computing

Georgia Tech Scheller College of Business

Children's Healthcare of Atlanta Pediatric Technology Center

Georgia Tech

Dear Participants,

The **Georgia Tech Center for Health and Humanitarian Systems** (CHHS) in collaboration with School of Economics, Scheller College of Business, College of Computing, and Children's Healthcare of Atlanta would like to welcome you to the 2018 forum on ***Health Systems: The Next Generation.*** This event will focus on improving health systems, with a focus on promoting wellness in addition to treating disease, and how data and technology might enable and support a transformation. Through panel discussion, we will explore the theme of "Moving from Sick-care to Healthcare" and further dive into the topic of "Proactive Innovations Moving Healthcare Forward." Rapid fire presentations and the poster sessions will showcase ideas for the future, allowing for dialogue and networking between presenters and participants.

We are very grateful to this year's sponsors, The Georgia Tech Center for Health and Humanitarian Systems, The Georgia Tech School of Industrial and Systems Engineering (ISyE), and The Institute for People and Technology (IPaT) for making this event possible. We also thank the staff of CHHS and ISyE at Georgia Tech, and the student volunteers who have helped to make the event possible. If you or your organization is interested in collaborating with CHHS or sponsoring future events, please contact Joscelyn Cooper at CHHS at Georgia Tech (J.Cooper@ISYE.GaTech.edu).

If you need any assistance during the event please see any event managers with a ribbon.

We hope you enjoy the event!

Sincerely,

2018 Health System Event Organizers

- **Pinar Keskinocak, PhD**, William W. George Chair, School of Industrial and Systems Engineering; Co-director, Center for Health & Humanitarian Systems (CHHS); ADVANCE Professor, College of Engineering |Georgia Institute of Technology
- **Beth Mynatt, PhD**, Distinguished Professor and Executive Director Institute for People and Technology (IPaT) | Georgia Institute of Technology
- **Michael Best, PhD**, Associate Professor, School of Interactive Computing; Joint with the Sam Nunn School of International Affairs | Georgia Institute of Technology
- **Shatakshee Dhongde, PhD**, Associate Professor and Director for Graduate Teaching and Training, School of Economics | Georgia Institute of Technology
- **Sherry Farrugia**, Chief Operating and Strategy Officer Pediatric Technology Center, Director, Children's Healthcare of Atlanta Partnership
- **Bill Todd**, Professor of the Practice, Scheller College of Business |Georgia Institute of Technology

Health Systems- The Next Generation
Forum 2018
Agenda

Time	Description
12:30pm – 1:00pm	**Registration** (Network over refreshments) ***(Atrium)***
1:00pm – 1:15pm	**Welcome – Pinar Keskinocak, PhD**, Co-director, Center for Health and Humanitarian Systems, William W. George Chair and Professor, Milton Stewart School of Industrial and Systems Engineering | Georgia Institute of Technology ***(Seminar Room)***
1:15pm – 2:15pm	**Rapid Fire Research Presentations *(Seminar Room)*** • **Jennifer R DuBose, MS,** Associate Director of the SimTigrate Design Lab, Principal Research Associate | Georgia Institute of Technology • **Danny Hughes, PhD,** Professor in the School of Economics and Director of Georgia Tech's Health Economics and Analytics Lab (HEAL) | Georgia Institute of Technology • **Omer T. Inan, PhD,** Associate Professor of Electrical and Computer Engineering and Adjunct Associate Professor of Biomedical Engineering | Georgia Institute of Technology • **Zihao Li, PhD,** Prevention Effectiveness Fellow, Division of HIV/AIDS Prevention | Centers for Disease Control and Prevention • **Mark Styczynski, PhD,** Associate Professor, School of Chemical & Biomolecular Engineering | Georgia Institute of Technology
2:15pm – 2:45pm	**Poster Session Break** ***(Atrium)*** ****light refreshments will be available***
2:45pm – 4:00pm	**Panel –** Moving from Sick-care to Healthcare and the Proactive Innovations Moving Healthcare Forward ***(Seminar Room)*** • **Bridget Hurley,** VP of Clinical and Regulatory | Evidation Health • **Jim McClelland,** Executive Director for Drug Prevention, Treatment, and Enforcement | State of Indiana • **Patrick O'Neal, M.D.** Commissioner & Director of Health Protection | Georgia Department of Public Health (DPH) • **Vivian Singletary, JM, MBA** Director | Public Health Informatics Institute (PHII) • **Tabia Henry Akintobi, PhD,** MPH | Morehouse School of Medicine *(MODERATOR)*

4:00pm – 4:15pm	**Closing Remarks** ***(Seminar Room)*** • **Tabia Henry Akintobi, PhD, MPH** | Morehouse School of Medicine; Professor, Department of Community Health and Preventive Medicine; Associate Dean, Community Engagement; Director, Prevention Research Center; Director, Evaluation and Institutional Assessment; Department of Community Health and Preventive Medicine
4:15pm – 4:30pm	**Concluding Poster Session and Networking**

Thank you to our generous Sponsors!

This event is made possible by generous support from The Center for Health & Humanitarian Systems, The H. Milton Stewart School of Industrial & Systems Engineering (ISyE), and The Institute of People and Technology (IPaT) at Georgia Tech!

Organizer Bios

Beth Mynatt, PhD
Georgia Institute of Technology
Distinguished Professor and Executive Director Institute for People and Technology (IPaT)

Dr. Elizabeth Mynatt is Distinguished Professor in the College of Computing and the Executive Director of Georgia Tech's Institute for People and Technology (IPaT). IPaT is pursuing innovative new ideas to promote healthy, productive and fulfilling lives on a global scale. By fostering an interdisciplinary and collaborative environment between Georgia Tech faculty, students, and external partners, IPaT provides the continuity and capacity to address and solve today's scientific, social, and economic grand challenges surrounding the health and well-being of people, their families, and communities. Mynatt is an internationally recognized expert in the areas of ubiquitous computing and assistive technologies. Her research contributes to ongoing work in personal health informatics, computer-supported collaborative work and human-computer interface design.

Michael Best, PhD
Georgia Institute of Technology
Associate Professor, School of Interactive Computing; Joint with the Sam Nunn School of International Affairs

Michael L. Best directs the United Nations University Institute on Computing and Society (UNU-CS) in Macau SAR, China. He is an associate professor, on leave, with the Sam Nunn School of International Affairs and the School of Interactive Computing in the College of Computing at the Georgia Institute of Technology, where he directs the Technologies and International Development Lab. Best's research focuses on information and communication technologies (ICTs) for social, economic, and political development. In particular he studies mobile and Internet-enabled services and their design, impact, and importance within low-income countries of Africa and Asia. Additionally, he researched engineering, public policy, and business issues as well as methods to assess and evaluate development outcomes. Professor Best is also interested in the impact of ICTs on the development-security nexus and on post-conflict reconstruction and reconciliation.

Professor Best is cofounder and Editor-in-Chief Emeritus of the widely read Information Technologies and International Development journal, and he spearheads the Global Computing column for Communications of the ACM. He holds a doctorate from MIT and has served as director of Media Lab Asia in India and head of the eDevelopment group at the MIT Media Lab. Best has over 100 published papers in journals, proceedings, and books. He is the recipient of awards including the Stephen A. Denning Faculty Award for Global Engagement (2014), People & Technology Award, Georgia Tech Research Corporation (2011), and Ivan Allen Faculty Legacy Award (2009).

Bill Todd
Georgia Institute of Technology
Professor of the Practice, Scheller College of Business

Bill Todd joined the Scheller College of Business faculty after serving as president and CEO of the Georgia Cancer Coalition for eight years. Under his leadership, the Georgia Cancer Coalition raised and invested more than $300 million to support research and prevention efforts to reduce cancer deaths. His 40-year career has focused on health care and technology management in Atlanta, Georgia. He was the founding president of the Georgia Research Alliance in 1990, nurturing the independent not-for-profit organization that has helped build Georgia's reputation as a center for discovery and invention and fostered major advances in science, medicine and technology. He also founded Encina Technology Ventures in 2000. Todd began his career at Emory University hospitals, clinics and the medical school, where he held a variety of administrative posts over two decades, ultimately serving as assistant vice president for Medical Administration at the Robert W. Woodruff Health Sciences Center.

Since returning to his alma mater in 2011, Bill Todd developed three courses in Healthcare Management. He teaches Management in the Healthcare Sector each semester, and has written four original cases. He also has taught Principles of Management for the non-management majors, as well as the Entrepreneurship Forum and Strategic Management. He also serves as Faculty Guide in the Stamps President's Scholars Program. He has been invited to teach in the Study Abroad Program at Worcester College at the University of Oxford in 2013 and 2015 and at the Biomedical Engineering Study Abroad Program at the National University of Ireland in 2016 and 2019. He has received excellence in teaching awards from both the College and the Institute.

Shatakshee Dhongde, PhD
Georgia Institute of Technology
Associate Professor and Director for Graduate Teaching and Training, School of Economics

Shatakshee Dhongde is an Associate Professor in the School of Economics. She obtained her Ph.D. from the University of California, Riverside. She is a research affiliate with the Institute of Research on Poverty at the University of Wisconsin, Madison. Her research has focused on studying the impact of globalization on economic growth and income inequality and measurement of poverty and multidimensional deprivation. She was awarded the Nancy and Richard Ruggles Prize by the International Association for Research in Income and Wealth in 2012. The award is given for the best research paper by a young scholar under the age of 35. Her work has been published in leading economics journals. In addition to her research, she enjoys teaching and is the recipient of multiple teaching awards at Georgia Tech. She has been selected in the inaugural cohort of the Provost Teaching Learning Fellows Program.

Sherry Farrugia
Georgia Institute of Technology
Chief Operating and Strategy Officer Pediatric Technology Center
Director, Children's Healthcare of Atlanta Partnership

As a Strategic Partners Officer for Georgia Tech Sherry works closely with corporate leaders to develop partnerships between companies and campus. By understanding their business and technology interests and applying an in-depth knowledge of Georgia Tech's expertise, research initiatives and health information technology, Sherry develop the connections and collaboration models that best meet a company's strategic goals, specifically as it relates to Health IT. This includes providing insight into the innovations, new technologies and startup ventures developed at Georgia Tech.

Prior to Georgia Tech, Sherry was senior vice president of gBehavior, a company that delivers custom-designed behavior modification solutions to the self-insured to measurably change behavior in health and wellness, ultimately reducing the cost of providing health care to its employees. She also co-founded and sold a health care IT company to McKesson HBO & Company in the early '90s whose technology was focused on point-of-care documentation and tracking both clinical and financial outcomes – technology McKesson is still using in their systems today.

Pinar Keskinocak, PhD
Georgia Institute of Technology
William W. George Chair, School of Industrial and Systems Engineering; Co-director, Center for Health & Humanitarian Systems (CHHS); ADVANCE Professor, College of Engineering, Georgia Tech

Dr. Keskinocak has over 20 years of experience in logistics and supply management. Her work focuses on the applications of operations research and management science with societal impact, particularly health and humanitarian applications. She co-founded and co-directs the GT Center for Health and Humanitarian Systems, which was recently named an Interdisciplinary Research Center at Georgia Tech. Her recent work has addressed infectious disease modeling (e.g., cholera, pandemic flu), evaluating intervention strategies, and resource allocation; catch-up scheduling for vaccinations; medical decision-making (e.g., disease screening); hospital operations management; disaster preparedness and response (e.g., prepositioning inventory, debris management). She has worked on a variety of projects with companies, governmental and non-governmental organizations, and healthcare providers, including American Red Cross, CARE, CDC, Children's Healthcare of Atlanta, Emory University Hospital, Grady Memorial Hospital, Pan-American Health Organization, and the Task Force for Global Health.

Speaker Profiles

Rapid Fire Presenters

Jennifer R DuBose, MS
Georgia Institute of Technology
Associate Director of the SimTigrate Design Lab, Principal Research Associate

Jennifer R. DuBose is the associate director of the SimTigrate Design Lab and principal research associate in the College of Design at the Georgia Institute of Technology. She is responsible for the operations of the Lab as well project development and research. Her research focuses on evidence-based design for healthcare facilities projects including the development of a business case for evidence-based design, collaboration on the exhaustive 2008 literature review on the subject and investigating the role of innovation in improving design for healthcare systems. She has worked on projects for the Robert Wood Johnson Foundation, the Military Health System and the Louisiana State University Hospital creating materials to support transformation of new hospitals based on emerging evidence. She has authored numerous peer-reviewed journal articles, several book chapters, and has been an invited speaker at national and international meetings.

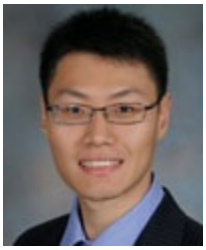
Danny Hughes, PhD
Georgia Institute of Technology
Professor in the School of Economics and Director of Georgia Tech's Health Economics and Analytics Lab (HEAL)

Dr. Hughes is a Professor in the School of Economics and Director of Georgia Tech's Health Economics and Analytics Lab (HEAL). He also serves as Executive Director of the Harvey L. Neiman Health Policy Institute. His research focuses on the roles of technology, innovation, and incentives in the delivery and usage of health care services – with a specific focus on the economics of diagnostic imaging. His externally funded research has focused on exploiting large scale data to explore contemporary health policy issues. He has published over 80 articles in leading journals across economics, health services research, and operations research.

Prior to Georgia Tech, he spent two years at the University of Oklahoma and four years at the University of South Alabama. He has also held research and management positions at the American College of Radiology, Logistics Management Institute, and Tecolote Research. Prior to his undergraduate studies, he served as a Nuclear, Biological, and Chemical Operations Specialist in the United States Army.

Omer T. Inan, PhD
Georgia Institute of Technology
Associate Professor of Electrical and Computer Engineering and Adjunct Associate Professor of Biomedical Engineering

Omer Inan is an Associate Professor of Electrical and Computer Engineering and Adjunct Associate Professor of Biomedical Engineering at Georgia Tech. He received his BS, MS, and PhD in Electrical Engineering from Stanford in 2004, 2005, and 2009, respectively. From 2009-2013, he was the Chief Engineer at Countryman Associates, Inc., a professional audio manufacturer of miniature microphones and high-end audio products for Broadway theaters, theme parks, and broadcast networks. He has received several major awards for his research including the NSF CAREER award, the ONR Young Investigator award, and the IEEE Sensors Council Early Career award. While at Stanford as an undergraduate, he was the school record holder and a three-time NCAA All-American in the discus throw.



Zihao Li, PhD
Centers for Disease Control and Prevention
Prevention Effectiveness Fellow, Division of HIV/AIDS Prevention

Dr. Li is a Prevention Effectiveness Fellow at the Division of HIV/AIDS Prevention of CDC. His work focus on developing and improving HIV models, including an agent-based simulation model Progression and Transmission of HIV (PATH), a compartmental model HIV Optimization and Prevention Economics (HOPE) and a resource allocation model (RAMP). Dr. Li earned his PhD and MS degrees in Operations Research at Georgia Institute of Technology, and his dissertation applied mathematical and computer algorithms to the problem of allocating limited resources to people with preferences. He works with Georgia Tech professors and students to estimate the value of vaccine inventory and identify risk factors related to unplanned extubation.

Mark Styczynski, PhD
Georgia Institute of Technology
Associate Professor, School of Chemical & Biomolecular Engineering

Dr. Styczynski's research focuses on the experimental and computational study of the dynamics and regulation of metabolism, with ultimate applications in metabolic engineering, biotechnology, and biosensors/diagnostics. Metabolism, which is the process of cells taking in nutrients and turning them into energy and the building blocks for more cells, is at the core of many biotechnological processes, as well as numerous diseases. The Styczynski lab studies the network of reactions that constitutes metabolism via "metabolomics": measurement of the concentrations of the biochemical intermediates in that network — sugars, amino acids, etc. — that are direct, real-time readouts of cellular state. Tracking these intermediates over time reveals details about the cell's metabolic dynamics that may then be used for modeling and analysis of metabolism. The group works with a variety of systems, including cancer cells, stem cells, yeast, and E. coli. The ultimate aim is to use an increased understanding of metabolic dynamics in order to exert control over the cells, whether by keeping cancer cells from proliferating or by metabolic engineering of yeast to overproduce valuable chemical feedstocks.

The group also has significant efforts in synthetic biology, including its use in the context of metabolic engineering. They are currently developing the underlying technology for diagnostics that use bacteria as biosensors that generate pigments as a visible readout. This application requires significant metabolic engineering of the cells to precisely control their pigment production, in terms of both time and pathway utilization.

Panelists

Bridget Hurley
Evidation Health
VP of Clinical and Regulatory

Bridget is the VP of Clinical and Regulatory at Evidation Health based in San Mateo, California. Evidation is a new kind of health and measurement company that provides the technology and guidance to understand how everyday behavior and health interact. Bridget has over 20 years of US and International experience in medical device product development and clinical and regulatory affairs. Prior to Evidation, Bridget was the head of clinical and regulatory for two bay area medical device start-ups, Element Science and Pulmonx. Bridget also held leadership roles across R&D and clinical at Abbott and Guidant–playing key roles in the development and manufacturing scale-up of the MitraClip mitral valve repair system and the XIENCE V drug-eluting stent. Bridget holds BS and MS degrees in Mechanical Engineering from The University of Texas and Georgia Tech.

Jim McClelland
State of Indiana
Executive Director for Drug Prevention, Treatment, and Enforcement

In January 2017, Governor Eric Holcomb appointed Jim McClelland to the newly-created position of Executive Director for Drug Prevention, Treatment, and Enforcement for the State of Indiana. He reports directly to the Governor and also chairs the Indiana Commission to Combat Drug Abuse. As Indiana's Drug Czar, Jim is charged with coordinating, aligning, and focusing the relevant work of a wide array of state agencies that affect substance abuse issues. In addition, he seeks to leverage the state's resources with those of entities in other sectors – business, higher education, health care, philanthropic, faith-based, and others – to respond as effectively as possible to the current opioid crisis and to substantially reduce the likelihood of a crisis of similar magnitude arising from the use of any addictive substance in the future.

In 2015 Jim concluded a 45-year career with Goodwill Industries, the last 41 of those years as President and CEO of Goodwill Industries of Central Indiana, based in Indianapolis. During the last decade of his career, Goodwill became heavily involved in efforts to help raise education attainment levels and reduce intergenerational poverty. The organization created a unique high school, The Excel Center, to provide a diploma option for older youth and adults who left school before graduating. Goodwill now operates 17 Excel Centers in Indiana and has licensed the model to numerous groups in other states.

In 2011 Goodwill began implementing Nurse-Family Partnership (NFP), a highly effective home visitation program for first-time moms in low income households. Goodwill places great emphasis on the use of holistic, two-generation approaches with continuity of key relationships over an extended period of time, and NFP moms are able to take advantage of education and employment services offered by the organization. Goodwill also places great emphasis on leveraging its strengths and relationships with those of other organizations in focused ways to increase long term impact in the lives of people and help strengthen communities.

Active in Goodwill's international development throughout his career, Jim was instrumental in establishing new Goodwill organizations in several South Korean cities. Jim has served on the boards of numerous not-for-profit organizations at local, national, and international levels and chaired several of them. He currently serves on the Dean's Council of the Indiana University Kelley School of Business – Indianapolis, the Advisory Board of the School of Industrial and Systems Engineering at Georgia Tech, and the Board of Directors of Building Tomorrow. In 2009 Jim was inducted into the Central Indiana Business Hall of Fame; in 2011 he received the Distinguished Entrepreneur Award from the Kelley School of Business at Indiana University; and in 2018 he was inducted into the Georgia Tech College of Engineering Hall of Fame.

A native of Florida, Jim earned a Bachelor of Industrial Engineering degree from Georgia Tech and an MBA from the Kelley School of Business at Indiana University. He is married to Jane, and they have two grown children and two grandchildren.

J. Patrick O'Neal, M.D.
Georgia Department of Public Health (DPH)
Commissioner & Director of Health Protection

J. Patrick O'Neal, M.D. was appointed Commissioner of the Georgia Department of Public Health (DPH) July 7, 2017, by Governor Nathan Deal. As Commissioner, Dr. O'Neal oversees various state public health programs, the Office of Vital Records and the Georgia Public Health Laboratory.

In addition to his role of commissioner, Dr. O'Neal serves as the DPH director of Health Protection, where he has oversight responsibility for Emergency Medical Services (EMS) and Trauma, Emergency Preparedness, Epidemiology, Infectious Disease, Immunization and Environmental Health.

Since 2002, Dr. O'Neal has served as the medical director for the Office of EMS/Trauma in the Georgia Division of Public Health under the Department of Community Health (DCH). For 29 years prior, he practiced emergency medicine at DeKalb Medical Center in Decatur. In his final seven years at DeKalb Medical Center, he served as the regional medical director for EMS throughout the Greater Atlanta area. Dr. O'Neal formerly served as director of the Outpatient Clinic at the Medical Center of Central Georgia for two years before his work at DeKalb.

He completed an undergraduate program at Davidson College in North Carolina and received his medical education at the Tulane University School of Medicine in New Orleans, Louisiana. Following medical school, he completed a rotating internship at Providence Hospital, Portland, Oregon, before entering the United States Air Force for training in flight medicine. Dr. O'Neal served as a flight surgeon in Viet Nam in 1970-71.

Vivian Singletary, JM, MBA
Public Health Informatics Institute (PHII), Task Force for Global Health
Director

Vivian Singletary, JM, MBA serves as director of the Public Health Informatics Institute (PHII), a program of the Task Force for Global Health. In this role, Vivian guides PHII's work to improve health outcomes worldwide by strengthening health practitioners' abilities to use information effectively.

Vivian's experience combines almost 20 years in systems development and in public health. Earlier in her career, she served in leadership positions in supply chain management and information systems implementation for Home Depot and M&M before transitioning into public health. She was introduced to the Task Force for Global health in 2009 as the global supply chain manager for the International Trachoma Initiative, where she oversaw the pharmaceutical supply chain of over $1 billion in Zithromax donations and built in-country capacity for over 15 African and Asian countries.

Vivian has played an integral role in developing PHII's global portfolio. Her work for the institute began with improving, designing and analyzing business processes and developing functional requirements for health insurance information systems. She established PHII's Requirements Laboratory business unit in 2012. As the unit's director, Vivian played an essential part in managing informatics projects in both the U.S. and in developing countries. Key projects include her leadership role in developing the African Workforce Planning project—a tool that helps allocate health care practitioners to areas of greatest need in Mozambique and Tanzania—and acting as director of informatics practice for the Child Health and Mortality Prevention Surveillance (CHAMPS) initiative, which addresses the causes of childhood mortality in developing countries.

Vivian holds a master's of business administration degree from Kennesaw State University, and has a juris master degree from Emory University School of Law, with a focus on global health. She also holds a bachelor's degree in industrial engineering from the Georgia Institute of Technology.

Moderator

Tabia Henry Akintobi, PhD, MPH
Professor, Department of Community Health and Preventive Medicine
Associate Dean, Community Engagement
Director, Prevention Research Center
Director, Evaluation and Institutional Assessment
Department of Community Health and Preventive Medicine
Morehouse School of Medicine

Tabia Henry Akintobi, PhD, MPH is Professor of Community Health and Preventive Medicine, Associate Dean of Community Engagement and Director of Evaluation and Institutional Assessment at Morehouse School of Medicine. As Principal Investigator of a Centers for Disease Control and Prevention-funded Morehouse School of Medicine Prevention Research Center, Dr. Henry Akintobi demonstrates leadership in local, national and global community-based participatory approaches and research addressing health disparities. She leads or collaborates in several federal and privately-funded initiatives that model community-driven research, including but not limited to the Georgia Clinical and Translational Science Alliance, The Georgia Center for Diabetes Translational Research and the Morehouse School of Medicine/ Tuskegee University / University of Alabama at Birmingham Comprehensive Cancer Center Partnership. Her public health leadership is also evident through appointments to national taskforces designed to shape the science and practice of effective community-based participatory and translational research and collaborations bridging the gaps between basic, clinical and community-based stakeholders to address disparities and advance health equity. Among them include the National Institutes for Health National Center for Advancing Translational Sciences Collaboration and Engagement Taskforce Lead Team, designed to advance team science towards becoming a major academic model through more equitable community-academic partnership -from conceptualizing to dissemination. Her research and public health interests in maternal and child health, diabetes and cardiovascular risk reduction and HIV/AIDS prevention are guided by training in public health social epidemiology, social marketing and community based participatory research and evaluation.