

# CAROLINA PUBLIC HEALTH

Gillings School of Global Public Health

The University of North Carolina at Chapel Hill

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The Advisory Council mourns the passing on May 12 of Keith Crisco, friend to the Gillings School and the state of North Carolina. (See page 85.)

# CAROLINA PUBLIC HEALTH

Gillings School of Global Public Health | The University of North Carolina at Chapel Hill



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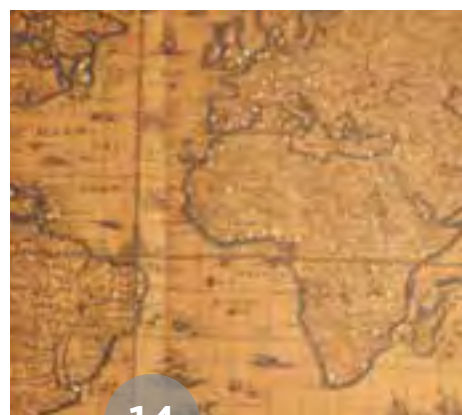
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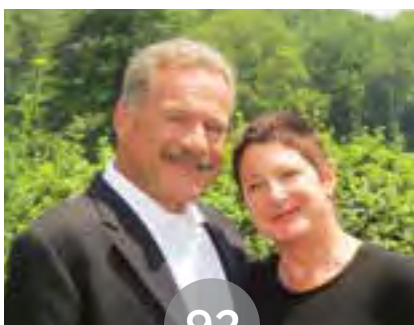
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# *from the* DEAN'S DESK

## *75 years young*



Dean Barbara K. Rimer

### Greetings:

In 75 years, we have taught thousands of students, published tens of thousands of papers, provided

hundreds of thousands of service hours (valued at millions of dollars), and solved problems in North Carolina and around the world. Yet, at 75 years young, we are still on the ascendancy.

We owe a great debt to those whose vision established this School at a time when public health education was dominated by a small number of private universities. *Public* schools of public health have different relationships to their communities than private schools. We are embedded in our state and its communities and always have been.

Frank Porter Graham, UNC system president, had the vision to recruit Milton S. Rosenau, MD, just as he was facing mandatory retirement from Harvard, to lead the Division of Public Health in the School of Medicine. Less than four years later, the division became an independent school, and Rosenau was its first dean. He led with

brilliance, tenacity and charisma. I am grateful to each of the deans who preceded me. (See page 108.)

The Gillings School of Global Public Health is an exemplar of the *public* university school of public health, ranked consistently among the top three public and private schools of public health. From the start, our faculty and staff members and students played central roles in reducing health disparities, ending segregation and enabling social justice. Today, we still do groundbreaking work to reduce disparities and deliver on social justice.

From the School's earliest days, we have been innovators, trailblazers, outstanding researchers, educators and global travelers who are rooted in the communities of North Carolina as we travel the world. The late Dr. Dan Okun, Kenan Distinguished Professor of environmental sciences and engineering, epitomized the interconnection of global and local. Okun traveled around the world to advise about water and sanitation systems, but he also did this in Chapel Hill. We thank him for our town's plentiful water.

As challenging as it was to start a new school of public health in tough

times, the challenges are not over. While we are grateful for generous support from the North Carolina legislature, our budgets have been cut for the past five years, and we face declining federal funding. Our wonderful donors never have been more important to our future.

There are many public health problems to solve in the world—malnutrition and obesity, infectious diseases such as Ebola and HIV/AIDS, and a staggering increase in noncommunicable diseases, such as cancer and diabetes, as well as climate threats, lack of access to safe water and sanitation, and so much more.

Members of our faculty are some of the world's experts in these and other areas. In 2014, three of them, Kenan distinguished professors Gerardo Heiss (epidemiology) and Barry Popkin (nutrition) and assistant professor Yun Li (biostatistics), were named among the world's most-cited authors, one mark of productivity and impact in their respective areas of cardiovascular disease, diet and biostatistics.

Our world is one in which geographic borders matter little, as the 2014 Ebola virus outbreak proves.

*There is only one reason to have a public university, and that is to serve the people of the state. That should be the touchstone of everything we do—whether it is in the interest of North Carolina and our citizens.*

—MICHAEL HOOKER, PhD, Chancellor, UNC-Chapel Hill (1995–1999)



Gov. Terry Sanford (left) and Dean Ed McGavran preside at the dedication of Rosenau Hall in 1963.

Income inequality is pervasive, and the world is roiling with political unrest. For faculty and students who work globally, safety is less assured.

At the same time, new technologies enable communication across the miles, and an increasing number of our classrooms have these technologies. Our students and faculty and staff members are facile with mobile devices and use them for communicating, teaching and research. More students than ever are interested in public health, and we must rethink how we educate them, developing a more seamless transition from undergraduate to master's to doctoral degrees and committing to education across the lifespan.

We hope this special issue of *Carolina Public Health* makes you feel as proud as I do of the School's magnificent history and our impressive present. Thanks to our editor, Linda Kastleman, for her fine work on this issue.

We're ready for the next 75 years of making the world safer, healthier and greener!

Warm regards,

Barbara K. Rimer

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code  
below.



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*From the School's earliest days*, its faculty members traveled across North Carolina and around the world—solving problems, teaching, extending the School's reach. Students followed. During World War II, fellowships from the Rockefeller Foundation and other sources increased the influx of foreign students, and veterans from North Carolina— young men and women who had seen the world from a soldier's vantage point—were arriving at the School, as well.

Alumnus Dr. Daniel McMillan worked in a clinic in the Dominican Republic in 2013.



Photo by Katie D. McMillan

# TAR HEELS AROUND *Global presence, local impact* THE WORLD

*In the years between 1940 and 1960, hundreds of international students took classes and received degrees from UNC's public health school. During that time, nearly all faculty members served as consultants to health agencies in developing countries. In the process, they made a curious discovery. The problem with the water source in Kenya needed the same solution as the well in rural North Carolina. The need for access to health care in Bertie County could be addressed with the same type of innovation used by a community in Jakarta. Breastfeeding was as important in Durham as in Tanzania. Local solutions could be applied globally, and 'global health' meant there was a world full of local communities trying to find ways to be healthy.*

*Our faculty members and students have traveled around the world, conducting research and teaching to improve the lives of millions of people in other countries. Their solutions can be applied in towns and cities near us, too.*

Many early faculty members served as consultants in developing countries or with entities concerned with international health. Lucy Shields Morgan, PhD, who in 1942 was founding chair of the School's health education department, is an example. During her tenure, she consulted with the World Health Organization and traveled to Iran, India, Burma, Ceylon and Egypt to help develop health education programs. Daniel A. Okun, PhD, Kenan Distinguished Professor, was another pioneer, helping a university in Peru establish a sanitary engineering program in the late 1950s. (Read more about Okun on page 14.)

During the 1960s, the School dramatically increased its international health work, and that work continues to this day.

"One of the hallmarks of international health was the idea that U.S. schools would train public health professionals in what were then called developing or 'third-world' countries," says Allan Steckler, DrPH, retired health behavior professor and the School's first associate dean for global health. The international health approach also focused on developing public health infrastructure in developing countries.

A 1968 addition to the faculty, Guy W. Steuart, PhD, was dedicated both to assisting people in developing countries and increasing the School's research capabilities. As health behavior department chair, he introduced the Action-Oriented Community Diagnosis (AOCD), a strategy he and other South Africans developed in the pre-apartheid 1940s. It has since become a cornerstone of the School's approach to community health education.

Like Steuart, health policy and management chair Sagar Jain, PhD, who came to the School from India in 1971 and founded the *Journal*

of *World Health and Population*, encouraged the faculty to have a more international presence. Jain is now professor emeritus in the department.

Students also had a profound influence on the School's increasing emphasis on international health. One of these was Robert A. Loddengaard, PhD, who worked for two years in the late 1960s with the U.S. engineering team at Kabul University (Afghanistan). Upon his return to the U.S., he earned a degree in public health administration at the School and later became a faculty member.

Student input regarding the School's orientation continues to this day.

Health, with Peggy Bentley, PhD, as director. Bentley, now Carla Smith Chamblee Distinguished Professor of nutrition and associate dean for global health, is a leader in the recently debuted Gillings Global Gateway ([sph.unc.edu/ggg](http://sph.unc.edu/ggg)), a dynamic unit that organizes and promotes the Gillings School's global activities in implementation, outreach, global learning and global partnerships.

One of the School's highly regarded global partnerships is with the U.K.'s University of Cambridge, co-chaired by Gillings School Dean Barbara K. Rimer, DrPH, and Cambridge's Carol Brayne, MD, MSc, professor and

understanding of disease progression and treatment. (Learn more at [tinyurl.com/unc-cambridge](http://tinyurl.com/unc-cambridge).)

"Global health is a much broader view," Steckler says. "It includes working abroad doing research. It's not limited to developing countries—and it's not just technical assistance, consultation and training."

Global health includes training American students to work abroad and recognize the interconnection of local and global.

Several factors prompted the change, Steckler says, including UNC's increasing emphasis on research. Meanwhile, infectious diseases

## Students who had lived and worked abroad were strong advocates for the School's becoming MORE GLOBALLY DIRECTED.

—Dr. Allan Steckler

"Students who had lived and worked abroad were strong advocates for the School's becoming more globally directed," Steckler says, adding that students who had served in the Peace Corps were a particularly influential group. (See [tinyurl.com/unc-peace-corps](http://tinyurl.com/unc-peace-corps).)

The transition from consultation-oriented *international health* to *global health research* gathered steam in the late 1990s. The School formalized its commitment to global health in 2003 by establishing the Office of Global

Health, with Peggy Bentley, PhD, as director of the Cambridge Institute of Public Health. The collaboration, begun in 2012, builds on the two universities' complementary strengths in biostatistics, epidemiology, obesity, noncommunicable diseases, aging, health behavior and global health.

In its first year, with additional support from Drs. Dennis and Mireille Gillings, the partnership committed research funding to dementia, obesity, tobacco and alcohol control policies, and health data gaps that limit

and other health problems became epidemic worldwide. In response, federal and private sources began making funds available to carry out global research on these problems, which included tobacco use, nutrition, obesity, HIV/AIDS and malaria.

School researchers stepped up to investigate these topics. In nutrition, Professor Linda Adair, PhD, studies nutritional stresses among women and children, in part through a large, longitudinal survey in the Philippines



Photo by Hilary Creed-Kanashiro

Dr. Peggy Bentley feeds a child in Peru. Taking a break from interviewing the child's mother about family feeding practices, Bentley introduces a snack prepared with an infant food grinder, a low-tech, inexpensive tool to provide young children with safe, nutritious food.

that has been ongoing for more than 30 years. Barry Popkin, PhD, W.R. Kenan Jr. Distinguished Professor, initiated the work in 1982, and Adair joined the project in 1986.

Professor Penny Gordon-Larsen, PhD, examines the interplay of ethnicity, disparities, neighborhood and obesity, and Popkin analyzes patterns of diet and physical activity and their health consequences all over the globe. Popkin has studied population-level nutrition-

al changes for more than 30 years in countries as diverse as Mexico, China and Russia. Now, he works with governments in some of these countries, using policy as a tool to change diets. Popkin recently was named to Thomson-Reuters' list of most widely-cited authors. (See [tinyurl.com/most-cited](http://tinyurl.com/most-cited).)

The School is a global leader in HIV/AIDS research. In epidemiology, Professor Emeritus Frieda Behets, PhD, studied HIV/AIDS and other sexually

transmitted infections in the Caribbean and sub-Saharan Africa. Myron S. Cohen, MD, Yeargan-Bate Eminent Distinguished Professor of Medicine, Microbiology and Immunology, and Epidemiology, led a groundbreaking study, finding that early antiretroviral treatment almost entirely eliminates HIV transmission in couples. The study was named *Science* magazine's "Breakthrough of the Year" in 2011. Associate Professor Annelies Van Rie,

MD, PhD, conducts community-based intervention research for tuberculosis and HIV/AIDS.

“One of the big differences between what we now call ‘global health’ and what previously was called ‘international health’ is the idea of global collaboration,” Steckler says.

That shift is evident, for example, in the career trajectory of Bruce Fried, PhD, associate professor of health policy and management, who in the mid-1990s ran management training workshops for directors of clinical epidemiology units in developing countries through the International Clinical Epidemiology Network (INCLEN). Today, his collaborations are truly global—they include joint projects with educational institutions in France, Germany, Kenya and the United Arab

Emirates. (See more about Fried on page 65.)

Global collaboration also characterizes the projects of many faculty members, including the following.

**ANNA MARIA SIEGA-RIZ, PHD**, professor of epidemiology and nutrition and associate dean for academic affairs, coordinates interdisciplinary teams to address problems related to prematurity, racial disparities and obesity.

**DEAN HARRIS, JD**, clinical associate professor of health policy and management, takes a comparative approach to health systems and health-care regulation.

**ROHIT RAMASWAMY, PHD**, clinical associate professor in the Public Health Leadership Program and

maternal and child health, helped develop and teach the School’s first Global Implementation Lab. Students work locally and abroad on similar health challenges—among them, clean water, smoking cessation, mental health, and maternal and neonatal care.

**STEVE MESHNICK, MD, PHD**, epidemiology professor, collaborates with public health researchers in Malawi and Southeast Asia, developing innovations in malaria surveillance.

Projects that improve disease surveillance globally have potential to save lives locally, Meshnick notes. “Infectious diseases don’t respect borders. Being a global institution helps the Gillings School serve North Carolina, as well,” he says.

Projects that improve disease surveillance globally can save lives locally. Infectious diseases don’t respect borders. Being a global institution helps the Gillings School serve North Carolina, as well.

—Dr. Steve Meshnick



Dr. Linda Adair



Dr. Penny Gordon-Larsen



Dr. Barry Popkin



Dr. Allan Steckler



Photo by Ariana Katz

Drs. Anita Farel (far left) and Rohit Ramaswamy (second from right) taught a unique interdisciplinary course in spring 2014—a Gillings Global Implementation Lab that solved health problems in N.C. and India.

Conversely, local projects ultimately can have global impact. Meshnick leads one such project, testing North Carolina-made clothing impregnated with insect repellent to protect outdoor workers from health risks caused by tick-borne diseases.

School faculty members have a distinguished record of acquiring insights and developing methods as they address health problems in one place, and then disseminating those insights and methods to address health problems in other places—including, in many cases, back home in North Carolina.

In the 1980s, Dr. Daniel Okun brought his global expertise to bear on a campaign that ensured clean water for UNC and Chapel Hill. (See page 14.) Likewise, over the decades, UNC public health students have used, in hundreds of North Carolina

communities, the Action-Oriented Community Diagnosis approach Guy Steuart brought from South Africa.

The tradition continues:

**JACQUELINE MACDONALD**

**GIBSON, PHD**, associate professor of environmental sciences and engineering, advised the government of the United Arab Emirates on environmental health risks. Now, she assesses the public health impacts of air pollution and water services disparities in North Carolina.

**JENNIFER S. SMITH, PHD**, associate professor of epidemiology, studies human papillomavirus (HPV) and cervical cancer worldwide, with key research sites in China, Kenya and North Carolina.

Members of the Gillings School faculty continue to hone cutting-edge methods to solve global health problems.

A research interest of **HARSHA THIRUMURTHY, PHD**, assistant professor of health policy and management, is the use of mobile phones to change health behaviors. Other faculty members also study whether such interventions—called *m*health or, more broadly, electronic or *e*health—can be cheaper and more effective than traditional approaches.

**KATE MUESSIG, PHD**, assistant professor of health behavior, uses websites and smart phones to build social support within marginalized groups in China and conducts U.S.-based research to improve vulnerable populations' access to mental and physical health services.

**VIVIAN GO, PHD**, health behavior associate professor, has found innovative ways to influence health behaviors. She analyzes the use of social networks to affect behavior

*(continued on page 13)*



Dr. Vivian Go



Dr. Kate Muessig



Dr. Harsha Thirumurthy



Dr. Suzanne Maman, who leads a research project in Tanzania, discusses the logistics of data collection with Lusajo Kajula at a field office in Dar es Salaam.

(continued from page 11)

related to HIV prevention among marginalized populations in Vietnam.

Another health behaviorist, Assistant Professor **CLARE BARRINGTON, PHD**, has studied social network norms, communication patterns and condom use among the male partners of female sex workers in the Dominican Republic.

**SUZANNE MAMAN, PHD**, health behavior associate professor, works in several countries to assess creative health behavior intervention strategies that aim to address both HIV/AIDS

and gender-based violence. Among those strategies are microfinancing and—in a project on which Audrey Pettifor, PhD, collaborates—community mobilization. Pettifor is associate professor of epidemiology.

A faculty oriented toward global research has had a tremendous impact on the School's teaching and service.

"We all incorporate aspects of our research into our teaching," Maman says. "By expanding our global faculty, we're expanding not just our global

research but the global curriculum for our students."

After students graduate, they don't have to look far to pursue an interest in global health, Meshnick says, noting that many global health research and drug-development companies are located in North Carolina. "Part of the reason they come here is that UNC generates smart graduate students immersed in global health."

—Kathleen Kearns

## MEASURE Evaluation spurs dramatic improvements in global health

**Led from its inception by public health faculty members**, MEASURE Evaluation exemplifies the School's global impact. By providing tools to monitor and evaluate big data related to health, the project has empowered the international community to control the HIV/AIDS, malaria and tuberculosis epidemics. USAID has made MEASURE Evaluation its flagship global health effort in population, health and nutrition. The agency recently awarded the project \$180 million for its fourth phase, and additional awards from individual USAID bureaus and missions may bring total funding of that phase to more than \$300 million. (See page 81.)

"The fact that UNC leads this project shows that we have a tremendous capacity, not only within the Gillings School but also in our capacity to collaborate," says Jim C. Thomas, PhD, associate professor of epidemiology and project director. "We've put together a team of organizations, each with wide reach and skills."

The MEASURE Evaluation consortium includes Futures Group, ICF International, John Snow Inc., Management Sciences for Health and Tulane University.

"Within the consortium, there is a high degree of trust," Thomas says. "When there is a challenge, people come forward and help, which makes for an incredible working environment." The mutual trust and collaborative spirit also facilitate innovation, he says.

Amy Tsui, PhD, now at Johns Hopkins Bloomberg School of Public Health, initiated MEASURE Evaluation at UNC's Carolina Population Center in 1997. Under the leadership of Siân Curtis, PhD, research associate professor of maternal and child health, from 2002 to 2012, the project more than tripled in size. It now conducts work in about 30 countries at any given time. During Curtis's tenure, USAID awarded \$181 million for the project's third phase. That and the project's most recent award are the two largest in UNC history.

"We have the breadth and depth to manage a project like this," Thomas says. "We have the experience. Most of our faculty members are in the Gillings School, and we also are able to reach across the university. Because we have had this project such a long time, because it has been sizeable and because it is a collaborative agreement with USAID—which opens doors for us globally—we are able to achieve great things around the world."

—Kathleen Kearns



Dr. Daniel Okun (2006)

# EARTH. AIR. WATER. GILLINGS.



Photo courtesy of The News and Observer

There were periods during the summer when clean, drinkable water was not available to meet the demands of the villagers. More and more people needed water to drink, bathe in, wash clothes—but their demand for water was greater than the nearby lake could provide.

You may think this story begins in a remote area of the world. That's not the case. The village was Chapel Hill, North Carolina, in the late 1960s.

Daniel Okun, PhD, former Kenan Distinguished Professor who chaired the UNC public health school's environmental sciences and engineering (ESE) department from 1955 to 1973, recognized the water scarcity problem as early as the mid-1950s. Local leaders weren't listening, though. It took a crippling drought in 1968 to grab the attention of University leaders—and every politician between Hillsborough and Raleigh.

"It was so bad, there was talk of the football season being cancelled," said Okun, in a 1985 interview. "Anything else doesn't matter, *but when you can't play football...!*"

Okun said the football threat started decision makers listening and talking. The more he heard, however, the more he was sure that no one had found a workable solution.

Okun knew—better than most—the validity of what was being proposed and considered. He had arrived at UNC in the 1950s, and before his death in 2007, he would travel to 89 countries, helping populations large and small gain access to clean, sustainable water resources. Some of his most important and impactful work, however, was the result of his and his students' efforts, virtually in their own backyards.

What happened next represents only one of hundreds of ways faculty members and students at UNC's Gillings School of Global Public Health have used knowledge and experience they gained globally to help people locally in North Carolina.

In 1968, the sole source of non-well water for Chapel Hill and much of Orange County, N.C., was University Lake. Many seemed to favor a proposal

that integrated University with Jordan Lake—either by connecting the aquifers or piping Jordan Lake water into University Lake.

“The problem there is that you’re taking a very good lake (University) and putting very bad water (Jordan) into it,” said Okun in the 1985 interview.

Every year, Okun directed his students to collect data about the Chapel Hill water supply. He was sure they had identified a new and better source of high-quality water—Cane Creek.

Better yet, building a reservoir and dam using Cane Creek offered the opportunity to triple available water resources by creating an aquifer larger than University Lake, one that could be enlarged as demand grew.

“The maximum yield for about 30 square miles is about 10 million gallons of water a day,” Okun said. “We had about three [million] from University Lake, and if we enlarged that, we’d get about ten. Going to Cane Creek, we get a *new* ten because it’s a different watershed.”

Okun and his students ultimately convinced UNC’s board of trustees that Cane Creek was the optimum long-term solution to the region’s burgeoning water needs. Even with Okun’s significant expertise behind the proposal, several legal challenges prevented the plan’s quick implementation.

“They took their interests to court, which extended construction of Cane Creek Reservoir by almost a decade, raising its cost,” Okun said. “But now we are assured of having high-quality water for the foreseeable future.”

The work of Okun and his students, aimed at bringing clean



Photos by Linda Kastleman



Today, Cane Creek Reservoir is both a pristine source of drinking water and a well-trafficked recreational area. A plaque commemorates Dr. Dan Okun’s contributions to planning and developing the reservoir.

water to communities locally and around the world, continues today at the Gillings School.

Gregory Characklis, PhD, ESE professor and director of the UNC Institute for the Environment’s

Center for Watershed Science and Management, has pioneered economical methods of water supply that dramatically can reduce the effects of droughts at one-tenth the cost and time of creating new

reservoirs. A new National Science Foundation grant will allow him to go even further in developing these and other methods.

Kenan Distinguished Professor Mark Sobsey, PhD, has co-developed economical clean water purification systems and a Ziploc-bag-sized, inexpensive test for microbial water-quality analysis. Both efforts have led to entrepreneurial ventures—WaterSHED and Aquagenx—which have been supported by the World Health Organization. His work influences state, national and global policy on water, sanitation and health.

Jacqueline MacDonald Gibson, PhD, associate professor of ESE, also has taken modeling and analysis into the policy world. Her efforts focus on the sources and impacts of environmental contamination upon human health and the development of policy proposals aimed at stemming pollutants and treating their effects.

In 2013, MacDonald Gibson received a prestigious research scientist development award from the Robert Wood Johnson Foundation to study disparities in water, sanitation and hygiene service access. A central focus of the project was the historically African-American Rogers Road/Eubanks neighborhood in Chapel Hill, where a landfill has caused health risks for the residents. This traditionally has been an area of Chapel Hill in which residents have not received access to public utilities, including water services.

Jill Stewart, PhD, ESE associate professor, has conducted this type of study internationally—in the Galapagos

Islands. Stewart is associate director of UNC's Center for Galapagos Studies, a partnership with the Universidad San Francisco de Quito, in Ecuador. The center advances conservation efforts in the Galapagos and promotes better understanding of ecologically sensitive and protected areas worldwide.

## THE GILLINGS SCHOOL HAS AN AMAZING TRACK RECORD OF SUCCESS AT THE JUNCTION OF PUBLIC HEALTH, WATER AND SANITATION.

—DR. JAMIE BARTRAM

Perhaps the most significant evolution in the School's leadership in promoting science, technology and policy aimed at increasing access and availability to clean water was the establishment in 2010 of The Water Institute at UNC, a transdisciplinary effort based in the ESE department, with start-up support from the Gillings gift and long-term salary support for the director committed by Erskine Bowles, MBA, then president of UNC.

The Water Institute focuses on practical, real-life solutions and policy strategy aimed at improving access to clean water worldwide. Its faculty and staff members provide global academic leadership in water, health and development, using sound science to inform good practices and appropriate policy.

"The Gillings School has an amazing track record of success at the junction of public health, water and sanitation," says Jamie Bartram, PhD, Don and Jennifer Holzworth Distinguished Professor of environmental sciences and engineering and director of The Water Institute. "Our vision is to break the boundaries that constrain problem-solving by bringing together disciplines and sectors to confront some of mankind's most critical challenges, whether at the local, national or global level."

Bartram's leadership at The Water Institute was instrumental in UNC's unique decision to focus on water issues as a cross-campus, two-year theme, a program which Bartram co-leads. (See [watertheme.unc.edu](http://watertheme.unc.edu).)

Bartram's hiring as the Institute's founding director also brings an almost perfect symmetry to the lineage of excellence and leadership in water research, teaching and implementation science at the Gillings School.

"Our first department chair, Herman Baity, left UNC to become the first director of environmental health at the World Health Organization," said Michael Aitken, PhD, ESE professor and department chair. "Sixty years later, Jamie Bartram left that same position to come to UNC."

The Gillings School also is a long-time leader in the area of that other vital resource—air.

Perhaps the greatest example of that leadership—literally, theoretically, functionally and educationally—is the UNC Dual Outdoor Gas Chamber, or as it's known more commonly, "the smog chamber."



Photo by Linda Kastleman



Its existence can be traced to the passing of President Nixon's Clean Air Act in 1968, but its legacy goes back even further, having been established by Lyman Ripperton, PhD, professor in the UNC School of Public Health's Department of Sanitary Engineering beginning in 1958.

Ripperton's specialty was atmospheric chemistry. When the newly determined U.S. Environmental Protection Agency (EPA) established measurements for air pollution, the focus was upon the quantity of pollutants in the air, rather than the interactions those pollutants may have with the sun and atmosphere. Many atmospheric scientists took issue with this, especially those in the gas-phase atmospheric chemistry field, which included Ripperton and one of his outstanding doctoral students, Harvey Jeffries.

By 1972, the EPA became intrigued enough to study *in situ* the ideas proposed by the atmospheric chemists. Doing so would require sampling polluted air from dozens of cities throughout entire days under controlled conditions—a virtual

impossibility. However, EPA scientists believed that a specialized facility might be able to recreate city-specific conditions in a single location. They also had a good idea who could make such a facility happen—namely, Ripperton and his team, which included Harvey Jeffries, PhD, as a new faculty member.

Jeffries, now professor emeritus, is a gas-phase atmospheric chemist specializing in volatile organic compound photo-oxidation, or what many scientists now refer to as “helio-chemistry.” Along with Richard Kamens, MSPH, now retired ESE professor, Kenneth Sexton, PhD, now retired ESE research associate professor, and others from the department, Jeffries built a two-sided, A-shaped structure outdoors in Pittsboro, N.C., just south of Chapel Hill, with walls of translucent, fluorinated ethylene propylene.

Or rather, he built *two* such structures.

“A unique aspect of the chamber design was to have two large side-by-side chambers in which the initial and physical conditions would be identical except for one chemical condition that

was the subject of the test,” Jeffries says. “Typically, all conditions were the same except for the total concentration of the test volatile organic compound mixture. Of course, it was important to show that, when identical initial conditions were injected, the two sides give identical results—and they did.”

Another similar chamber was built on the roof of the UNC School of Public Health in 2002. These unique study devices are among the only ones of their kind in the world for analyzing effects of sunlight on gases and aerosols—especially diesel and gasoline emissions from motor vehicles—over specific lengths of time in conditions that replicate virtually any rural or urban location on the planet. Refinements allow scientists to study direct effects of these emissions on lung tissue. The smog chambers and the faculty expertise that brought them into being has made UNC's Gillings School the go-to place for atmospheric scientists specializing in helio-chemistry, advanced process analysis of results for regulatory issues, and health and environmental policy.



Photo by Tom Fuldner

[Far left] Drs. Will Vizuite (left) and Ken Sexton describe the workings of Quantaire, a portable air-sampling device they developed. [Center] Professor Rich Kamens (circa 2002) stands inside the smog chamber in Pittsboro, N.C. [Right] Water and sanitation expert Dr. Jamie Bartram, director of The Water Institute at UNC, co-leads “Water in our World,” the university’s two-year, cross-campus theme.

Recently, Jeffries and Sexton partnered with William Vizuite, PhD, associate professor of ESE, and Glenn Walters, PhD, director of the ESE Design Center—as entrepreneurs. Their efforts have produced the Quantaire, a portable instrument for sampling and biologically assessing particulate matter, outdoors or in, for potential toxic effects. (See *quantaire.com*.) Vizuite, Sexton and Walters also have designed and built the Gillings Sampler, an electrostatic air sampler that serves as an alternative method for aerosol *in vitro* exposure studies.

Complementing these efforts, the Gillings School continues its leadership in other efforts focused on understanding and remediating pollutants in the air, ground and water that impact human health, and

on policy issues aimed at preventing further pollution.

Currently carrying on that legacy are faculty members including ESE chair Michael Aitken; Pete Kolsky, PhD, Professor of the Practice of ESE; Steve Whalen, PhD, professor; Howard Weinberg, PhD, and Jason West, PhD, associate professors; and Jason Surratt, PhD, ESE assistant professor.

Two faculty members are among those who study the impact of heavy metals upon human health. Rebecca Fry, PhD, ESE associate professor, studies ways that arsenic, cadmium and lead affect human prenatal development. Orlando Coronell, PhD, ESE assistant professor, examines membrane technologies as an effective way to filter metals from drinking water, both at the treatment plant and at point-of-use.

“The environmental problems we face today, both in North Carolina and globally, are no less challenging than the problems faced by our predecessors when the School of Public Health was founded 75 years ago,” says Aitken. “In fact,” he says:

*...many of them are even more complex, reflecting the knowledge gained over the decades in both the nature of the problems and the ways they can affect human health. Our faculty members and students are motivated to understand and solve these problems, and they will continue to lead their respective fields while carrying on a tradition of excellence that UNC and the Gillings School are known for.*

—David Pesci



A detailed history of the development of the UNC smog chambers, written by Drs. Harvey Jeffries (left), Richard Kamens and Kenneth Sexton, and published in the journal *Environmental Chemistry*, is at [tinyurl.com/smog-chamber-history](http://tinyurl.com/smog-chamber-history).



*PREVENTING*  
**DISEASE,**

*IMPROVING*  
**LIVES**

Photo from *Dreaming of a Time*

*Preventive medicine dreams of a time when there shall be enough for all, and everyone shall bear his share of labor in accordance with his ability, and everyone shall possess sufficient for the needs of his body and the demands of health. These things shall all have as a matter of justice and not of charity.*

*Preventive medicine dreams of a time when there shall be no unnecessary suffering and no premature deaths; when the welfare of the people shall be our highest concern; when humanity and mercy shall replace greed and selfishness; and it dreams that all these things will be accomplished through human wisdom.*

*Preventive medicine dreams of these things, not with the hope that we, individually, may participate in them, but with the joy that we may aid in their coming to those who shall live after us. When the young have vision, the dreams of their elders come true.*

—DR. MILTON ROSENAU

**F**or 75 years, the Gillings School of Global Public Health has been at the vanguard of research, education and in-the-field development of models to prevent and treat disease. Achievements by faculty members and students, often in collaboration with researchers from other UNC health affairs schools (medicine, dentistry, pharmacy and nursing) and colleagues elsewhere, have changed the practice of medicine, and more importantly, have changed the general public's health and lifestyle practices.

The School's commitment to interdisciplinary inquiry, broad partnerships and public engagement has made a powerful impact in communities throughout the world. By examining a few School initiatives—in infectious disease, obesity, cardiovascular health and cancer—it becomes clear how important the progression from academic research to implementation has been. The value of public health “book learning” at UNC, the people's University, is that discoveries are translated into workable solutions to improve health in North Carolina communities and in communities far, far beyond.

*Dr. John Larsh (right), then head of the Department of Parasitology and Laboratory Practice, confers with Polish researcher Dr. M. Stankiewicz about trichinosis research in this photo from the early 1970s.*

## INFECTIOUS DISEASE

Since the “father of preventive medicine” was founding dean of UNC's public health school, infectious disease is not a surprising focus for research at the School. Milton J. Rosenau, MD, an epidemiologist and self-described “disease detective,” was invited to UNC following his mandatory retirement as dean of Harvard's public health school, which Rosenau had founded as a collaboration between Harvard and the Massachusetts Institute of Technology.

One of the School's first major research projects in the early 1940s was aimed at controlling and eradicating venereal diseases. John Wright, MD, MPH, who headed the epidemiological study, adopted a number of innovative techniques in the project, including using computer technology to collect data, recording nurse-patient interviews to help train public health nurses, and developing filmstrips as an alternative instruction method for patients. Then, as now, the School was committed to understanding public health challenges and developing innovative ways to address them.





*Dr. Milton J. Rosenau*

Following World War II, the School helped extend the reach of public health services by training health educators at what was then called the North Carolina College for Negroes, now N.C. Central University, in Durham. In the segregated South, this was a progressive step and was due in large part to the dogged insistence

of Dr. Lucy Morgan. (See [tinyurl.com/UNC-SPH-timeline](http://tinyurl.com/UNC-SPH-timeline).)

“In public health, we’ve always believed in helping people and training people to get out there and do things, and you don’t do that by being very conservative,” said Dr. John Larsh, a parasitology expert who joined the faculty in 1943.

Today, the School continues its commitment to the prevention and treatment of infectious diseases among those with limited access to health services. The lab of Mark Sobsey, PhD, Kenan Distinguished Professor of environmental sciences and engineering, developed the compartment bag test, which makes water testing simpler and more accessible, thereby limiting human exposure to and negative health effects from disease-causing microbes.

School researchers have studied parasitic diseases, ranging from malaria—still endemic in the southern U.S. in the School’s early years—to HIV, a virus that emerged in the early 1980s. UNC has been a global leader in HIV/AIDS research for more than 20 years, having established a research site in Malawi in the early 1990s. (In 1993, among pregnant women in Malawi, the rate of HIV infection was about 30 percent; now the rate is less than 11 percent, but more than 1.1 million people still are HIV-positive.)

Myron Cohen, MD, Yeargan-Bate Eminent Distinguished Professor of Medicine, Microbiology and Immunology, and Epidemiology in the UNC schools of medicine and public



*Dr. Myron Cohen*

health, is an award-winning global leader who has conducted extensive research in AIDS prevention and treatment.

In fact, Cohen worked with David Savitz, PhD, then chair of the epidemiology department, in the early 2000s to increase dramatically the number of faculty members conducting infectious diseases

research. The intent was to leverage the strong infectious diseases and global health program at the medical school and make UNC a world leader in infectious diseases epidemiology.

One of the faculty members recruited then is Steven Meshnick, MD, PhD, epidemiology professor, who conducts malaria research in Malawi and elsewhere.

“With both malaria and HIV, we have been very active in trying to improve the treatment of people in developing

*(continued on page 24)*

*Dr. Steve Meshnick conducts research on malaria and HIV/AIDS in Malawi and elsewhere. He also makes an impact in N.C., where he studies tick-borne diseases.*



Photo by Linda Kastleman

*A photograph of a boy using Dr. Mark Sobsey's compartment bag test, a quick and reliable way to detect E. coli in drinking water, was featured on the cover of a 2014 USAID catalogue that described the year's best USAID-funded innovators.*



**USAID**  
FROM THE AMERICAN PEOPLE



(continued from page 22)

countries,” Meshnick says. “We are exploring behavioral approaches to improve the way that poor and relatively uneducated people cope with disease.”

Similarly, research by Annelies Van Rie, MD, PhD, associate professor of epidemiology, considers how to improve care for tuberculosis in developing countries.

Meshnick says that epidemiology is “a department that prides itself on doing applied research, work that will have an immediate impact on people.” His work closer to home, which examines tick-borne disease, is an example of this.

(See [tinyurl.com/Meshnick-ticks](http://tinyurl.com/Meshnick-ticks).)

“Infectious diseases researchers at the School are working across the spectrum to prevent disease transmission,” says epidemiology professor Ralph Baric, PhD, “from outbreak investigation to diagnosis, vaccine design, interventional strategies, behavioral and environmental considerations, and virology.”

Faculty members and their teams examine many different pathogens, from basic science to the treatment of human disease, with major initiatives in malaria, HIV/AIDS and tuberculosis, as well as emerging infectious diseases such as noroviruses and coronaviruses. These studies will lead to the discovery of preventive measures and treatments in the not-so-distant future.

**IN THE GLOBAL  
OBESITY-PREVENTION  
CATEGORY, WE ARE  
THE LONE LEADERS  
WORKING ON LARGE-  
SCALE EFFORTS TO  
CREATE CHANGE.**

**—DR. BARRY POPKIN**

## OBESITY

Through cutting-edge research and innovative delivery systems, the Gillings School has led the way in combating obesity. With about two-thirds of adults and one-third of children in the United States overweight or obese, the School has undergone a dramatic shift over the past 35 years from focusing on the problem of malnutrition to confronting the alarming epidemic of obesity.

In the early years of the School, obesity might have been measured as part of other studies, but it was not addressed as a unique issue. That changed after leaders including Barry M. Popkin, PhD, W.R. Kenan Jr. Distinguished Professor, joined the school's nutrition department in the late 1970s. Popkin's conclusion that U.S. food and nutrition programs were causing obesity led to his heading a nutrition panel that was part of President Jimmy Carter's Commission on Child Health.

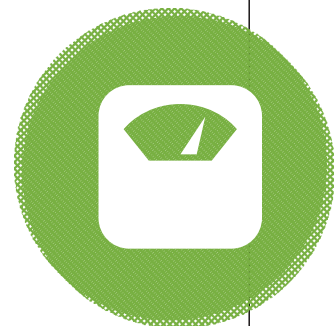
Popkin's “nutrition transition” concept, which explains how people's diet and exercise patterns shift in accordance with changes in technology and society, has led to policy changes throughout the world.

“In the global obesity-prevention category, we are the lone leaders, working on large-scale efforts to create change,”

Popkin says. In 2000 and 2013, he convened two international conferences in Bellagio, Italy, “to bring people from dozens of low- and middle-income countries together to recognize the obesity problem and push forward on large-scale regulatory efforts.”

The author of *The World is Fat*, Popkin has worked closely with a number of governments throughout the world, particularly China and Mexico, on policies to reduce obesity, including taxes on sugar-sweetened beverages and front-of-package profiling to identify healthy foods.

Popkin is not the only current faculty member whose research is having an impact upon health policy. A study conducted by Penny Gordon-Larsen, PhD, nutrition professor, along with Popkin and Robert G. McMurray, PhD, Smith Gunter Distinguished Professor of nutrition, was instrumental in the passage in 2000 of the U.S.



In addition to conducting innovative research, faculty members lead the way in disseminating solutions.

Similarly, a research team led by Alice Ammerman, DrPH, nutrition professor, initiated Food Explorers, a pilot social marketing campaign designed to promote healthy lunch menus and increased fruit and vegetable consumption in Rockingham County (N.C.) public schools.

When John Cassel, MD, became chair of the school's epidemiology department in 1958, he brought an innovative



*A photo from the 1970s shows epidemiology professors Gerardo Heiss and the late H.A. Tyroler discussing a research problem.*



approach built upon experience in his native South Africa. Cassel's understanding of the importance of social and cultural environments as a determinant of health helped shape his department and the public health school, as well as the field of epidemiology, both nationally and globally. Similarly, Bert Kaplan, PhD, professor emeritus

of epidemiology, followed up on Cassel's efforts to bring attention to the social and cultural determinants of cardiovascular disease, providing foundational work in these dimensions of behavior and health.

In addition to the School's ongoing presence and engagement with cardiovascular disease research over many years, School researchers translated results to the communities in which they worked. Gerardo Heiss, MD, PhD, Kenan Distinguished Professor of epidemiology, says that the training component of the School has been critical.

"We have had grants to train scientists in cardiovascular health for 38 years, ongoing and uninterrupted," says Heiss. "The School has been training our scientists working in community, government and private industry, contributing to the work on cardiovascular disease."

Heiss names Herman Alfred (Al) Tyroler, MD, whose career at UNC spanned 40 years, and former dean Michel Ibrahim, MD, PhD, as outstanding mentors and teachers who contributed greatly to the training of many scientists who now have international renown.

"The School has a very strong and interdisciplinary presence in addressing, diagnosing, quantifying and finding solutions for cardiovascular health," Heiss says.

UNC's public health school played a critical role in one milestone related to prevention of cardiovascular disease, namely, when clear proof was provided that cholesterol consumption was a risk factor for heart and vascular problems. The Lipid Research Clinics Coronary Primary Prevention Trial (LRC-CPPT) was the first trial in this country—large in scope and long in duration—that showed reducing cholesterol prevents heart attacks and decreases risk of cardiovascular disease. UNC was the coordinating center for that trial, which included 12 clinics throughout the country.

Heiss says the study is a great example of the School's research being translated into actions that literally change

the practice of medicine. Discoveries from the cholesterol studies are considered to be among the greatest successes in the area of public health over the past 25 years.

"Unfortunately, lifestyle and social changes are now promoting other risk factors for cardiovascular disease," says Heiss. "This requires us to anticipate challenges that lie ahead and try to deal with them."

To that end, a host of faculty and student researchers study diverse causes of cardiovascular disease. Among them are June Stevens, PhD, AICR/WCRF Distinguished Professor of nutrition, who aims to uncover and define links between obesity and diabetes, cardiovascular disease and cancer, and Wayne Rosamond, PhD, epidemiology professor, whose expertise in monitoring cardiovascular disease in populations and temporal trends has led hospital networks to recognize strokes early and admit to the hospital patients experiencing strokes.

## CANCER

The School's focus on cancer covers the spectrum, from discovering risk factors to reducing occurrence and impact of cancer to disseminating findings and changing models of care.

The Carolina Breast Cancer Study (CBCS) is a landmark in understanding the biology of breast cancer and disparities in breast cancer occurrence and prognosis. Started in 1993 by UNC's Lineberger Comprehensive Cancer Center and the UNC School of Public Health, the study has sought to understand differences in the etiology and outcomes of breast cancer among African-American and white women.

This work carried on a tradition established by Barbara Sorenson Hulka, PhD, former chair of the epidemiology department, who was an early pioneer in using a biological approach to studying cancer. CBCS is significant not only for its findings but because it was one of the few early studies that enrolled sufficient numbers of African-American women, based on population.

"By tying together lab work with population data, CBCS showed that one reason African-American women have poor survival might be the fact that the biology of their tumors is different," says Andrew Olshan, PhD, Barbara Sorenson



Hulka Distinguished Professor in Cancer Epidemiology, current department chair and associate director for population sciences at UNC Lineberger. New molecular epidemiological investigations of breast cancer biology, using CBCS and other study resources, are led by Melissa Troester, PhD, associate professor of epidemiology and pathology.

The School has built upon the CBCS's infrastructure and design, which was developed by the late Robert Millikan, PhD, epidemiology professor, and UNC School of Medicine faculty members Drs. Shelley Earp, Lisa Carey and Charles Perou, to create North Carolina-based studies of other forms of cancer. Robert Sandler, MD, MPH, Nina and John Sessions Distinguished Professor of medicine and of epidemiology, studies colorectal cancer; Olshan conducts the Carolina Head and Neck Cancer Study; and Marilie Gammon, PhD, epidemiology professor, leads the Long Island Breast Cancer Study Project, a landmark investigation of possible environmental causes of breast cancer.

"Over time, we have taken study designs looking at etiology and included an outcomes phase for men and women with cancer," Olshan says. "We follow them over time and look at treatment, quality of life and survivorship. We have evolved our studies in a collaborative way to expand the research question beyond *causes* of cancer to cancer outcomes."

Outcomes research is a recent and important development that is a collaboration of the departments of health policy and management, epidemiology and oncology. With funding from the University Cancer Research Fund, a team from the schools of public health and medicine developed a novel cancer health-care claims resource, the Integrated Cancer Information and Surveillance System. This electronic cohort will examine individual cancer patient interactions with the health-care system and study the impact of co-morbid conditions and treatments so as to answer outcomes questions.

The School also has led the way in innovations in the delivery of health information. A stellar example is the North Carolina BEAUTY (Bringing Education and Understanding to You) and Health Project, led by Laura

**THE LIPID RESEARCH TRIAL IS A GREAT EXAMPLE OF HOW THE SCHOOL'S RESEARCH IS TRANSLATED INTO ACTIONS THAT LITERALLY CHANGE THE PRACTICE OF MEDICINE.**

**—DR. GERARDO HEISS**

Linnan, ScD, health behavior professor. The program recruits and trains licensed hair stylists to serve as lay health advisers who offer cancer prevention messages to clients during salon appointments. These community-based strategies offer a gateway to ensure that those who suffer disproportionately high rates of disease and illness are reached.

Knowing that half of all premature cancer deaths can be prevented, School researchers focus on key risk factors including tobacco use, exposure to indoor tanning, sun exposure without protection, obesity and alcohol use. One such effort, which has the potential to reach the two million people in North Carolina and 46 million nationally who smoke, is better warning labels on cigarettes.

"Policy is effective because of its efficacy, reach and low cost," says Kurt M. Ribisl, PhD, health behavior professor and program leader in cancer prevention and control at UNC's Lineberger Comprehensive Cancer Center. Ribisl is particularly interested in using policy to change health behaviors.

The School's leadership in health policy is affirmed by President Barack Obama's 2011 appointment of Barbara K. Rimer, DrPH, dean and Alumni Distinguished Professor at the Gillings School, to chair the President's Cancer Panel. Rimer also serves as vice-chair of the Task Force on Community Preventive Services. She brings her expertise in health behaviors, cancer, population science and evidence-based public health to her role in shaping national cancer policy.

*—Michele Lynn*

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Today,  
UNC plays the  
strongest role  
in maternal and  
child health in  
the nation.

DR. PIERRE BUEKENS

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# A LEGACY OF CARING FOR WOMEN AND CHILDREN



A public health nurse gives a boy instructions to take home to his family (circa 1940).

In 1936, the sixth year of the Great Depression, adults still faced a 17 percent unemployment rate. Millions lived in grinding poverty, and the southeast endured the dubious distinction of having the nation's highest infant and maternal death rates.

"It was children who were dying disproportionately of malnutrition, malaria and measles," says Jonathan Kotch, MD, MPH, who until his recent retirement was the Carol Remmer Angle Distinguished Professor of Children's Environmental Health at the Gillings School.

Poor nutrition among North Carolina boys during the Depression had taken such a toll that, by the time they were teenagers, about half were rejected by the military.

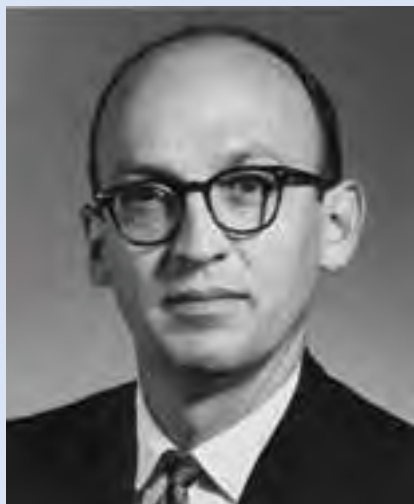
This context framed the UNC School of Public Health's founding in 1940. It also framed the sustained effort, from the School's earliest days, to improve health outcomes for women, infants, children and adolescents.



DR. JONATHAN KOTCH

## SPOTLIGHT ON IMPACT

### *Dr. Arden Miller*



"I became interested in children's health advocacy for two reasons. The first was the realization that one-on-one care was not going to accomplish very much for the children and their families and their countries. Second was the realization that we were poorly equipped to understand how to do anything else."

—Arden Miller, MD

Former professor and chair  
Department of Maternal and Child Health

A tireless advocate for children, Dr. Arden Miller served as president of the American Public Health Association (1974–1975); on the Institute of Medicine task force on prevention of low birth weight (1983–1985) and the Southern Governors' task force on infant mortality (1984); as chair of the board of the Allan Guttmacher Institute; and as visiting professor of maternal and child health at Shenyang Medical University in China (1988). In 1984, Miller received APHA's Martha Mae Eliot Award for extraordinary health services to mothers and children. (See [tinyurl.com/apha-miller](http://tinyurl.com/apha-miller).)

Seventy-five years later, although many women's and children's health challenges remain, huge improvements in this area rank as a top achievement in U.S. public health.

"Sometimes we forget about how well we have done [in the U.S.] in women and children's health," says Kotch. "We've reduced child mortality from infectious disease by over 99 percent in the last 100 years. Very few children in the U.S. now die of extreme malnutrition in infancy or early childhood."

### CROSS-DISCIPLINARY COLLABORATION AND A RESEARCH-TO-PRACTICE APPROACH LEAD TO GLOBAL IMPACT

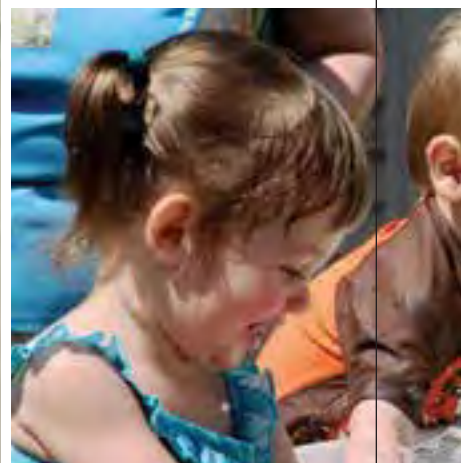
"[Since its founding, the Gillings School] has linked maternal and child health priorities at the state, national and international levels and has linked research and action," remarks former UNC maternal and child health professor and



DR. PIERRE BUEKENS



Photo by Lauren Kennedy



chair Pierre Buekens, MD, now W.H. Watkins Professor and dean of Tulane University's School of Public Health and Tropical Medicine. With the addition of a department of maternal and child health in 1950, the School gave this focus the institutional muscle necessary to make significant headway.

"Today," Buekens says, "UNC plays the strongest role in maternal and child health [in the nation]."

School leaders aim to:

- Increase access to comprehensive family planning domestically and globally;
- Improve nutrition for pregnant mothers and infants;
- Increase breastfeeding in N.C., the U.S. and around the world;
- Prevent childhood obesity;
- Reduce pregnant women's exposures to heavy metals and other toxins;
- Reduce HIV transmission;
- Improve the quality of child-care centers in the U.S.;
- Increase HPV vaccination in the U.S.; and
- Prevent injuries and interpersonal violence among teens domestically and globally.



Photo by Lauren Dunnington



Photo by Emily Zuenike



Photo by Lady Dragonfly/Creative Commons



Photo by Peggy Bentley

## SPOTLIGHT ON IMPACT

### *Strengthening child-care centers*

For 16 years (1997–2013), Jonathan Kotch, MD, MPH, led the National Training Institute for Child Care Health Consultants. Through this train-the-trainer program, School faculty and staff members helped develop a national infrastructure of qualified health and child-care professionals, an approach shown to improve quality of child-care programs.

# 15

MODULES DEVELOPED

# 20

TOOLKITS CREATED

# 477

INSTRUCTORS TRAINED

# 5,600

CHILD-CARE HEALTH  
CONSULTANTS TRAINED

# 100%

U.S. STATES AND TERRITORIES WITH  
QUALIFIED HEALTH AND  
CHILD-CARE PROFESSIONALS

Along the way, School faculty members helped establish the internationally



DR. A.M. SIEGA-RIZ

renowned Carolina Population Center ([cpc.unc.edu](http://cpc.unc.edu)), even as a number of School affiliates and others founded important global nonprofit organizations, such as the International Fertility Research Program (which has since evolved into FHI 360), Population Services International and Ipas.

“When we tackle complex problems, such as adverse birth outcomes or obesity, we all have to work together,” says Anna Maria Siega-Riz, PhD, professor of epidemiology and nutrition and the School’s associate dean for academic

affairs, explaining why cross-disciplinary approaches to maternal and child health have paid off.

The School’s commitment to implementation also has been essential.

“We work with public health practitioners to test interventions,” Kotch says. “If an efficacy study demonstrates we can do something that actually improves people’s health, then we can take the next step and determine whether disseminating that study beyond the experiment can have real impact on the community.”

## GLOBAL IMPACTS, REPRODUCTIVE HEALTH

“It’s hard to overestimate the importance of the connections School faculty

members have—and have had historically—with the Carolina Population Center (CPC) in the area of maternal and child health,” says Jason Smith, PhD, clinical associate professor of health behavior and deputy director of CPC’s Monitoring and Evaluation to Assess and Use Results (MEASURE) Evaluation program.

In 1964, faculty members Drs. Bernard Greenberg, John Gentry and Sydney Chapman had the prescience to join a pan-campus effort to establish the CPC, with Dr. Moyer Freymann, professor of health policy and administration, recruited to be its first director. The venture brought together researchers from many disciplines, including maternal and child health, who were interested in

## SPOTLIGHT ON IMPACT

### *Breastfeeding*

**Miriam Labbok, MD, MPH**, Professor of the Practice of maternal and child health and director of the Gillings School’s Carolina Global Breastfeeding Institute (CGBI), won three national awards in 2013–2014 for her impact upon women and children and for her applications of evidence-based research.

As a faculty member since 2007, and as founding CGBI director, Labbok has overseen development of a comprehensive program of research and service to local and global communities and education related to breastfeeding and optimal reproductive health.



DR. MIRIAM LABBOK

“Among the strongest new research findings are those in support of exclusive breastfeeding,” says Labbok. “Four major preventable causes of infant mortality—premature infant death, Sudden Infant Death Syndrome, respiratory disease and infection—as well as obesity and diabetes, can be reduced by breastfeeding.”

Among other efforts, she and colleagues have developed a national collaborative that accelerates systematic implementation of *Ten Steps to Successful Breastfeeding*, an effective tool maternity hospitals can use to support breastfeeding in their own communities.

“I have worked in 54 countries, carrying out applied research for program development and improvement, turning the evidence into action,” Labbok says. “Our research, service and training are designed to enable women to succeed in breastfeeding and to build future leaders in this field. This interconnectedness also applies to local/global. By staying on the national scene, we help the state, and vice-versa. The global interest is always there, so through this leadership, we also make national and international headway.”

population welfare. From its beginning in 1964, the CPC and its public health school affiliates trained health providers in family-planning methods, supported by major funding from the U.S. Agency for International Development (USAID). With the arrival of Dr.

J. Richard Udry, maternal and child health and sociology professor and chair—and CPC

director from 1977 to 1992—CPC shifted its focus to research. Under Udry's leadership, CPC affiliates applied for and received numerous National Institute of Health (NIH) grants. (See [tinyurl.com/2012-udry-obit](http://tinyurl.com/2012-udry-obit).)



DR. RICHARD UDRY

Former maternal and child health professor Amy Tsui, PhD, now professor of population, family and reproductive health

at the Johns Hopkins Bloomberg School of Public Health, senior scholar at the Bill & Melinda Gates Institute for Population and Reproductive Health and member of the Gillings School's external advisory committee, led the CPC to greater levels of influence by launching, with USAID funding, the Evaluation Project (1991) and then MEASURE Evaluation (1996).

The project, awarded \$180 million in 2014 to embark on Phase IV work, is USAID's most important mechanism



DR. AMY TSUI

to support population, health and nutrition monitoring and evaluation. It has helped 44 developing countries identify critical health needs (including nutrition, family planning, reproductive health, HIV/AIDS prevention, and maternal and child health) and then target scarce resources to achieve greatest impact.

Many Gillings School faculty members are MEASURE Evaluation researchers, including project director Jim Thomas, PhD, associate professor of epidemiology; research associate professor Siân Curtis, PhD, and research assistant professors Gustavo Angeles, PhD, Shelah Bloom, ScD, and Kavita Singh Ongechi, PhD, all of maternal and child health; adjunct assistant professor Heidi Reynolds,



Research by Dr. Anna Maria Siega-Riz helped establish the Institute of Medicine's 2009 guidelines for weight gain during pregnancy.



Photo by Kent Kessinger

Women and children wait to be seen at a clinic in Honduras.

PhD, also of maternal and child health; and Sharon Weir, PhD, research assistant professor of epidemiology. Many more contribute as well.

Through better measurement, combined with widespread implementation of life-saving interventions, maternal mortality has declined in many developing countries over the past 15 years, with some achieving more than 50-percent reductions in maternal deaths, according to a 2014 World Health Organization (WHO) report.

Yet, maternal mortality rates are still very high, and enormous challenges remain.

“Ninety-nine percent of all maternal and newborn deaths occur in developing countries,” says Bert Peterson, MD, Kenan Distinguished Professor and former chair of maternal and child health.

With colleagues, Peterson is widening the School’s impact in this area. He directs UNC’s WHO Collaborating Center for Research Evidence for Sexual and Reproductive Health, which has played a key role in developing—and supporting uptake of—WHO’s evidence-based guidance for family planning. These guidelines are now used in more than

50 national programs around the world, where there previously had been *no* guidelines. Such efforts, which help prevent premature deaths of thousands of women worldwide, are part of a field known as implementation science, an area in which the Gillings School is an early leader. (See page 56.)

## DIET AND NUTRITION

Research on maternal and child nutrition has flourished through robust interdisciplinary collaboration and applied research.

“I became interested in nutrition as an undergrad,” Siega-Riz says. “I saw that it was an important predictor of preterm delivery. That experience made me want to come back to grad school at UNC. I was interested in understanding nutritional determinants of poor reproductive outcomes.”

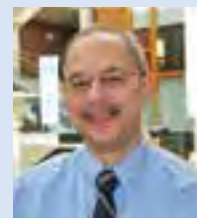
At Carolina in the 1990s, Siega-Riz began collaborating with former epidemiology chair David Savitz, MD



DR. DAVID SAVITZ

## SPOTLIGHT ON IMPACT

### *Linking science and policy to protect teen drivers*



DR. LEW MARGOLIS

In 1997, N.C. was one of the first two states to adopt graduated driver licensing, a process that

allows new drivers to acquire more experience before they are fully licensed. With colleagues at the UNC Center for the Study of Young Drivers, **Lewis Margolis, MD, MPH**, maternal and child health associate professor, has demonstrated declines in teen motor-vehicle deaths of 25 percent to 30 percent and declines of 25 percent in teen motor-vehicle hospitalizations. These findings led to adoption of graduated driver’s licenses by every state in the U.S.

(now at Brown University), on the Pregnancy, Infection and Nutrition (PIN) study, which recruited more than 3,000 pregnant women and followed them into the first year postpartum.

“That cohort,” says Siega-Riz, “has been extremely influential in the field of reproductive and perinatal health.”

Specifically, the research improved assessment and analysis of maternal dietary intakes and provided the basis of the Institute of Medicine’s 2009 weight-gain recommendations for women during pregnancy. (See [tinyurl.com/IOM-pregnancy-weight-gain](http://tinyurl.com/IOM-pregnancy-weight-gain).) The guidelines reach millions of women through health-care providers and information campaigns, giving them important benchmarks that show how diet and weight gain affect the course of pregnancy and the health of the unborn.

The work of Steve Zeisel, MD, PhD, Kenan Distinguished Professor of nutrition and director of the Nutrition Research Institute, in Kannapolis, N.C., has been similarly influential. With colleagues, he discovered that insufficient choline during pregnancy can affect fetal cognitive development and memory. His findings led to changes in IOM recommendations for pregnant women.



DR. STEVE ZEISEL

## GLOBAL IS LOCAL, AND LOCAL IS GLOBAL.

One core value of the Gillings School has been its dual focus on local and global populations.

“I always believed in the local-global connection and the importance of having a perspective that crosses cultures,” says Peggy Bentley, PhD, Carla Smith Chamblee Distinguished Professor of nutrition and the School’s associate dean for global health.

Bentley’s research has taken her to Peru, India, Malawi and across North Carolina. In collaboration with researchers from UNC’s School of Medicine and the Centers for Disease Control and Prevention, her research in Malawi on providing antiretroviral medication to infants of HIV-positive, breastfeeding mothers played a major role in changing WHO policy recommendations.



DR. PEGGY BENTLEY

The School’s local impact is significant too.

“We have grads who lead maternal and child health clinics in local health departments, who are local health directors, who do work in the state women’s and children’s section [[ncdhhs.gov/dph/wch](http://ncdhhs.gov/dph/wch)]. In that way, probably more than any other, we have made a real impact on the health of North Carolinians,” says Kotch.

Moreover, close ties between Gillings School faculty members and alumni have helped facilitate widespread early adoption in N.C. of nationally recognized interventions, including NAP-SACC, The Nutritional and Physical Activity



DR. DIANNE WARD

Self-Assessment for Child Care ([gonap-sacc.org](http://gonap-sacc.org)). Developed and tested by Dianne Ward, EdD, nutrition professor, it was one of three programs identified by the White House Task Force on Childhood Obesity as being effective at combatting early-childhood obesity. NAP-SACC has been adopted by child-care centers nationwide.



DR. REBECCA FRY

Also in North Carolina, Dr. Rebecca Fry, associate professor of environmental sciences and engineering and deputy director of the UNC Superfund Research Program, focuses on children’s environmental health. She studies effects of prenatal exposure to metals such as arsenic, cadmium and lead on the **epigenome**. (See definition below.)



## What is the epigenome?

A genome is the complete set of DNA in a cell. DNA carries instructions for building the proteins that make each creature unique. The epigenome (“above” the genome) consists of chemical compounds that mark the genome in a way that tells it what to do, and when and where to do it. The marks, not part of the DNA itself, can be passed from cell to cell as cells divide, and from one generation to the next.

—National Human  
Genome Research Institute  
([genome.gov](http://genome.gov))

“Prenatal arsenic exposure in humans results in potentially harmful epigenetic changes in newborns, and long-term health consequences in human populations are pronounced,” says Fry, summarizing her recent research results.

Finding the sources of such exposures is a challenge. In one study of private well water in N.C., Fry and colleagues identified counties in which inorganic arsenic is “off-the-charts high.” Dangerous levels of metals are found in foods as well, including such staples as apples and rice.

“There is currently no regulation of toxic metals in our food,” Fry says.

Fry also has carried out children’s environmental health-related work in Mexico, Thailand and (with Kotch) in Vietnam.

Stephanie Engel, PhD, associate professor of epidemiology, examines the impact of prenatal exposure to chemicals commonly found in consumer products such as shampoo, deodorant, medications and cosmetics.

With regard to tackling persistent disparities in birth outcomes in the U.S., Vijaya Hogan, DrPH, clinical associate professor of maternal and child health, has studied how the social environment and historical factors translate into adverse maternal and infant outcomes.

The research of Michael Kosorok, PhD, Kenan Distinguished Professor and chair of biostatistics, related to cystic fibrosis (CF) screening, was highly influential in the CDC’s decision to recommend newborn screening for the disease. In 1997, only three states required CF newborn screening;

by 2004, there were 12 states. Now, all 50 states have CF newborn screening programs.

## ADOLESCENT HEALTH

Contributions to adolescent health are another legacy of the Gillings School. Dick Udry, PhD, professor of maternal and child health and sociology from 1965 to 2004, was among the first to integrate biological and sociological models of human behavior.

In the 1990s, Udry designed the National Longitudinal Study of Adolescent Health (Add Health), an extremely ambitious study of teens in grades seven to 12. (See [tinyurl.com/cpc-add-health](http://tinyurl.com/cpc-add-health).) Four waves of data combine information on teens’ social, economic, psychological and physical well-being with contextual data on family, neighborhood, community, school, friendships, peer groups and romantic relationships. Carolyn Halpern, PhD, professor and interim chair of maternal and child health, is Add Health’s current deputy director and a co-investigator.

Udry developed strategies that made his valuable data available to other researchers while protecting research participants. For more than two decades, Add Health has provided unrivaled opportunities for more than 2,000 researchers to study how teens’ social environments and behaviors are linked to their health and achievement outcomes. Collectively, study publications have influenced dozens of disciplines, including sociology, psychology, criminology, education, economics, biostatistics, epidemiology, medicine, genetics

and aging. That research approach has been profoundly actionable.

Health behavior professors Karl Bauman, PhD (emeritus), Susan Ennett, PhD, and Vangie Foshee, PhD, followed Udry’s lead in developing similarly complex data sets on the social contexts of teen health and behavior. These data in turn informed development of effective interventions focused on alcohol and tobacco prevention (Bauman, Foshee and Ennett), understanding the social context of teen alcohol and drug use (Ennett), and preventing teen dating violence (Foshee and Bauman).

To date, Foshee’s Safe Dates program has been adopted by school systems across N.C. and used throughout the world. As of 2013, more than 8,400 Safe Dates curricula have been purchased, and well over 1.68 million young people have been introduced to the program.

“We have so much opportunity with kids to help shape health behaviors and help prevent risky behaviors when they are young,” says Ennett. “From an intervention standpoint, focusing on early adolescence is an opportunity to do prevention before there is the acceleration in those behaviors.”

—Elizabeth French & Rachel Gillman



DR. KARL BAUMAN



DR. SUSAN ENNETT



DR. VANGIE FOSHEE



ELIMINATING HEALTH DISPARITIES

# ENSURING EQUAL ACCESS FOR ALL

▶▶▶▶▶ **SINCE  
ESTABLISHING  
THE FIRST  
DEPARTMENT OF  
PUBLIC HEALTH  
EDUCATION IN THE U.S.  
TO SERVE ALL PEOPLE  
—IN A SOUTHERN STATE  
DURING THE JIM  
CROW ERA—UNC’S  
PUBLIC HEALTH  
SCHOOL CONTINUES  
LEADING RESEARCH,  
SERVICE AND TEACHING  
TO ADDRESS HEALTH  
DISPARITIES.**

A hallmark of that work has been an unrelenting focus on working with minority students, faculty members and communities in the study and development of programs that help equalize access to health care and information for underserved groups.

“You can’t address public health without addressing health disparities,” says Victor Schoenbach, PhD, associate professor of epidemiology and current director of the UNC Minority Health Project. “The School grew out of that awareness.”

In the 1940s, for example, when segregation laws barred black students from enrolling at UNC, School leaders, particularly health education professor and chair Dr. Lucy Morgan, developed a joint public health education program at what was then the North Carolina College for Negroes (now N.C. Central University). The School also established a health



Dr. Richard Andrews (left), professor of environmental sciences and engineering, was a panelist at a Minority Health Conference in the 1980s.

education program focused on the needs of American Indians.

In the 1950s, Dean Edward McGavran, frustrated that the epidemiology department was not as engaged as it might be, hired Dr. John Cassel, with Public Health Service funding, to lead a new chronic disease section in the department. Cassel, an émigré from South Africa and a strong anti-apartheid advocate, was soon joined by Drs. Sidney Kark and Guy Steuart.

Kark left after one year to work at the World Health Organization, but

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You can’t address public health without addressing health disparities. The School grew out of that awareness.

—DR. VIC SCHOENBACH

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Cassel and Steuart were appointed as chairs of epidemiology and health education, respectively. Their leadership brought a fresh perspective and a new focus on the social causes of disease.

Michel Ibrahim, MD, future dean of the School, came to UNC to study

biostatistics in 1960, but quickly transferred to epidemiology because of his admiration for Cassel.

“Cassel advanced the theory that social and psychological factors affect people’s health,” Ibrahim says. “He was concerned with cultural values, societal values and stress and how they related to illness.”

The 1960s brought political upheaval to UNC. The School’s faculty and staff members and students participated in protests against injustice and inequality, and their research explored health disparities that clearly resulted from poverty and racism. More black students were being educated at the School, and many went on to become national public health leaders. In 1964, William A. Darity and Edward V. Ellis were the first minority students to earn doctoral degrees from the School.

When a group of students formed the Minority Student Caucus and took their concerns to Dean Fred Mayes in 1971, Mayes appointed William T. Small, MSPH, to increase minority student enrollment. Small’s influence spanned more than 25 years, during which the Caucus organized the first Minority

## VIC SCHOENBACH

For nearly 35 years, Victor Schoenbach, PhD, associate professor of epidemiology at the Gillings School, has worked—often behind the scenes—to keep the issue of health disparities in the spotlight.

It was therefore no surprise that, when accepting the University's inaugural Martin Luther King Jr. Unsung Hero Award in January 2014, he deflected praise onto his students and colleagues in the Minority Student Caucus and the National Health Equity Research Webcasts.

"This award is shared by all of us, and I thank them for enabling me to play a part," he said.



Dr. Vic Schoenbach, in the 1970s (left) and today

Schoenbach has been at UNC since 1972, first as a master's student, then as doctoral student and postdoctoral fellow in psychosocial epidemiology. He joined the public health faculty in 1980.

Since 1991, he has advised the planning committee for the student-led annual Minority Health Conference, a project of the School's Minority Student Caucus. He also is devoted to preserving the history of the Caucus by collecting and curating materials with colleagues at the UNC Health Sciences Library.

A long-time champion of research and programming to address health disparities, Schoenbach leads the UNC Minority Health Project. The Project aims to expand awareness and strengthen relationships between groups whose members focus on eliminating disparities. Previously, Schoenbach led the UNC Lineberger Minority Cancer Control Research Program.

Despite his vast experience studying the complexities of society, economics and health policy, he sums up the problem rather simply.

"Poor health for anyone is a problem for everyone," he says.

—Elizabeth Witherspoon

Health Conference in 1977. The conference continues as an annual event. Now in its 36th year, it is the longest-running student-led health conference and has served as a model for such conferences at other public health schools. In 1999, then-dean William Roper, MD, MPH, named the event's keynote lecture to honor Small's contributions.

Through a strategic planning process in the 1990s and a grant from GlaxoSmithKline, School faculty members helped develop the UNC Program on Ethnicity, Culture and Health Outcomes (ECHO), an effort to foster research collaborations between academicians and communities, train scholars to address health disparities and develop resources. Anissa Vines, PhD, research assistant professor of epidemiology, co-directs ECHO's Carolina Community Network to Reduce Cancer Disparities and Community Research Core. The network addresses disparities in prostate cancer among African-American men. More recently, the group has studied malignancies related to HIV, a first for UNC, according to Vines.

In the early 1990s, Diane Rowley, MD, MPH, who joined the Gillings School in 2008 as Professor of the Practice of maternal and child health, worked with colleagues at the Centers for Disease Control and Prevention to develop a conceptual framework for research on health disparities that affect women and infants. That framework considers disease and health in the context of a social environment influenced by social behavior and cultural, historical, political and economic forces. Rowley continues this work with Vijaya Hogan, DrPH, clinical associate professor

of maternal and child health, who leads projects in Philadelphia and Jackson, Miss., that train and empower minority women as advocates.

“When you do planning around health disparities, you have to include people who are affected by those problems,” Hogan says.

Geni Eng, DrPH, professor of health behavior, has been a vital leader in community-based participatory research since her days in the Peace Corps and as a doctoral student at UNC. For the last decade, she has worked with the Greensboro Health Disparities Collaborative (GHDC), an academic-community coalition. Funded by the National Cancer Institute, Eng and colleagues have launched Accountability for

Cancer Care through Undoing Racism and Equity (ACCURE) to test the effectiveness of reorganizing cancer care to optimize quality and narrow treatment disparities between white and African-American patients with breast and lung cancers. If their approach is effective, it could lead to better care for minority patients, and, indeed, for all patients. (Read more at [tinyurl.com/eng-cph-2013](http://tinyurl.com/eng-cph-2013).)

Meanwhile, graduate students and professionals also can earn an Interdisciplinary Certificate in Health Disparities through a program that spans economics, sociology, psychology and anthropology.

Thanks to people in the Gillings School today and those who have come

before, there has been great progress in addressing health disparities. Still, there is work left to do.

A new epidemiology professor carrying on the legacy is Allison Aiello, PhD, who joined the faculty in 2014. She is founder and principal of Aiello Research Group ([aielloresearchgroup.org](http://aielloresearchgroup.org)).

“Our research group is dedicated to uncovering how social determinants and exposure to stress influence the biological pathways of health within minority populations,” Aiello says. “I am excited to join the Gillings School and its cadre of top-notch faculty members who are dedicated to addressing health equity issues.”

—Elizabeth Witherspoon

## THE SOUTH AFRICAN INFLUENCE

Health professionals in South Africa, denouncing the disparities caused by apartheid, left their home country and greatly influenced public health around the world, including at the UNC School of Public Health.

1946

**THE SOUTH AFRICAN INSTITUTE OF FAMILY AND COMMUNITY HEALTH** was established by Sidney Kark. Kark, John Cassel and Guy Steuart conduct some of the first empirical studies on the influence of poverty and discrimination upon health.

1950s

**JACK GEIGER**, a medical resident in the U.S., learns about the Institute and persuades the Rockefeller Foundation to support his spending one year there. The Institute disbanded in 1957 after a new apartheid government extended its segregationist policies to medical personnel. See Sidney Kark's letter (next page, top right).

INFLUENCE TREE GRAPHIC, ADAPTED FROM THE WORK OF DR. GENI ENG

Shown here is a portion of Sidney Kark's letter to the principal of University of Natal, protesting a new law allowing the apartheid government to control the medical school.

The government's intentions, as indicated in their Bill introducing the Separate University Act of 1957, makes any expectation for the furtherance of our work unrealistic. A mere extension of time before the implementation of this Act or any similar measure is in my view no answer to the particular issues now facing my department. It is not only the application of such an Act that would render our position untenable. The attitude of mind that the initial Bill conveys is of vital concern to us in this department. My personal experience in this regard must be my guide.

The publication of the government's proposals has had very serious effects on the morale of my staff. While we were part of the Union Health Department we were subjected to constant investigations and criticism, and, as you know, faced recommendations by various commissions that were aimed at our abolition. When we had the opportunity of working within the University and Natal Provincial Administration we felt that we had received a haven of at least comparative safety within which we would be able to pursue our studies and our approach to service. Our hopes were high that at last the tide was turning to allow us to do the work we so much wanted to do.

The government's intended actions have shattered all this.



Pholela Health Center (left), founded by the Karks, was a model for community health centers around the world.



**DR. SIDNEY KARK** spends a year in UNC's epidemiology department. In 1959, he and his wife, Dr. Emily Kark, permanently emigrate to Israel, where they develop a Master of Public Health program for physicians at Hebrew University's Hadassah Medical School.



**JACK GEIGER** and **COUNT GIBSON** at Tufts University receive federal funds to establish the first U.S. community health centers. Gibson heads the center at Columbia Point in Boston. Geiger hires John Hatch as community health action director, and together, they lead the center in Mound Bayou, Miss. Hatch eventually earns his Doctor of Public Health degree at UNC and joins the public health faculty.

Read Jack Geiger's account of Sidney Kark's pioneering work in social medicine, in the *American Journal of Public Health*. See [tinyurl.com/geiger-on-kark](http://tinyurl.com/geiger-on-kark).

See a National Library of Medicine exhibit, "Against the Odds: Making a Difference in Global Health," at [tinyurl.com/NLM-against-the-odds](http://tinyurl.com/NLM-against-the-odds). The exhibit describes the work of Jack Geiger and John Hatch at the Delta Health Center in Mound Bayou, Miss.



Kark's colleagues follow him to UNC. **JOHN CASSEL** and **CECIL SLOAME** (epidemiology), **GUY STEWART** (health behavior) and **HARRY PHILLIPS** (health policy) join the School's faculty and continue their leadership in social epidemiology.



Dr. Tom Bacon

*The Gillings School—*  
**A LEADER IN  
RURAL HEALTH-CARE  
INNOVATION  
AND SERVICE**



[Clockwise, from above]: Dr. Jack Geiger (left) and John Hatch oversee construction at the Delta Health Center in Mound Bayou, Miss.; Glenn Wilson (foreground) talks with UNC medical school staff (circa 1972) about a project proposal that led to an \$8.5 million contract to establish N.C. AHECs; Dr. Lucy Morgan; and Dr. Eunice Tyler.

## *It began with an ambitious thought—*

North Carolina would benefit from a provider network to deliver quality health care to the state's most far-flung locations. More importantly, the programs of care would be shaped to each community's particular needs.

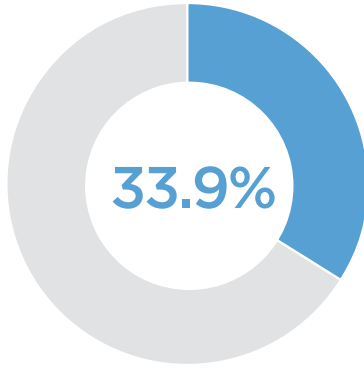
The establishment of the Area Health Education Centers (AHEC) program was the beginning of The University of North Carolina at Chapel Hill's more-than-40-year commitment

to outstanding health care for underserved citizens, the majority of whom live outside well-populated towns and cities.

Launched in 1972, AHEC was the vision of Glenn Wilson, MA, former associate dean for community health services in UNC's School of Medicine. As chair of the social and administrative medicine department in the medical school, he made it his mission to improve the accessibility of health care in the state.

Delivering services in collaboration with communities also has been the bedrock of the Gillings School's work in rural health care, says Tom Bacon, DrPH, clinical professor of health policy and management, who served as AHEC's director from 1996 to 2012.

"[Wilson] was determined AHEC wouldn't be the 'Great University' going out to help rural communities, taking its wisdom to share with lesser folks," says Bacon, who also



THE PERCENTAGE OF NORTH CAROLINIANS, ACCORDING TO THE 2010 U.S. CENSUS, WHO LIVE IN **RURAL AREAS** OF THE STATE

**478** OF N.C.'S **547**  
MUNICIPALITIES  
HAVE POPULATIONS  
**UNDER 10,000.**

**HALF** OF THESE ARE IN  
THE **COASTAL PLAIN.**

THE N.C. RURAL ECONOMIC  
DEVELOPMENT CENTER  
(*NCRURALCENTER.ORG*)

CLASSIFIES AS

**“RURAL”**

**85**  
**OF NORTH CAROLINA'S**  
**100**  
**COUNTIES.**

**80** OF THOSE HAVE AN  
AVERAGE POPULATION  
DENSITY OF **250 PEOPLE PER**  
**SQUARE MILE** OR LESS.

was executive associate dean in the School of Medicine. “We weren’t going to plunk down programs around the state. We went into communities and asked if they were interested in a partnership with the University—and assured them the work would be done their way.”

Wilson wasn’t alone in making AHEC a success. Other public health and community leaders joined him and, armed with an \$8.5 million grant from the N.C. General Assembly, they

developed one of the most successful rural health programs in the U.S.

“The School’s rural health history is a long, winding road that goes back to South Africa,” says Tom Ricketts, PhD, professor of health policy and management at the Gillings School and of social medicine at the UNC medical school. (See page 40.)

Though former faculty member Dr. Eunice Tyler’s students focused on tropical diseases in the Caribbean and the Philippines in the 1940s

(see [tinyurl.com/tyler-obit](http://tinyurl.com/tyler-obit)) and Dr. Lucy Morgan concurrently founded the School’s field training program to address rural and racial health disparities, the community-oriented primary care idea originated in the Pholela clinic in Zululand, South Africa.

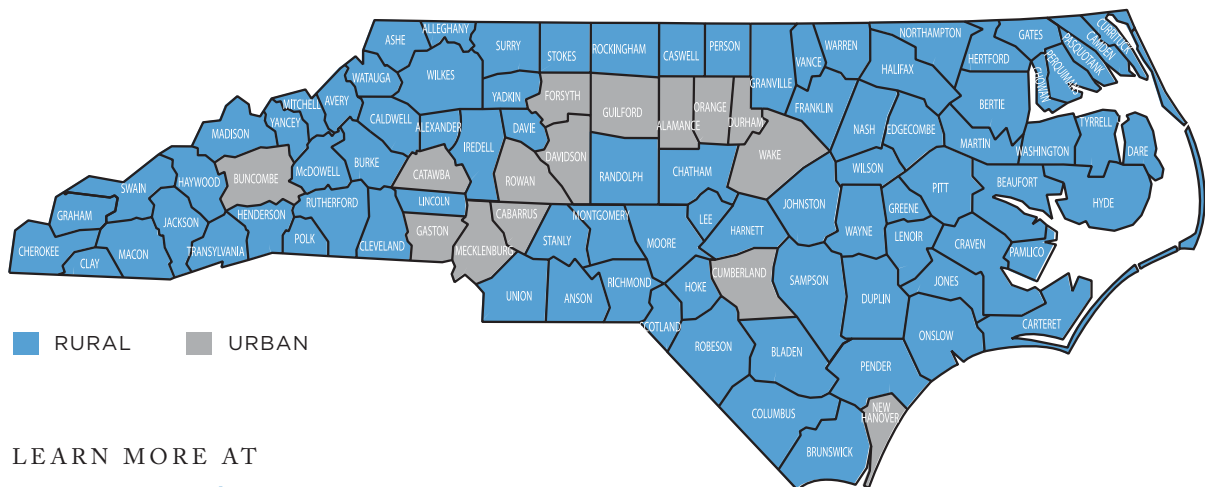
The philosophy made its way to Chapel Hill when the public health school’s dean, Edward McGavran, MD, recruited the clinic’s director, Sidney Kark, MD, to head the School’s epidemiology department. John

# SMALL TOWNS ARE LOSING POPULATION BECAUSE

**FEW** PEOPLE **MOVE** TO SMALL TOWNS FROM OTHER AREAS;  
THERE ARE FEW JOBS TO ATTRACT THEM.

PEOPLE WHO LIVE IN SMALL TOWNS ARE OFTEN **OLDER** AND **POOR**.

SMALL-TOWN RESIDENTS TEND TO HAVE  
**FEWER** MUNICIPAL AND MEDICAL SERVICES.



LEARN MORE AT  
[TINYURL.COM/NC-RURAL-TRENDS](http://tinyurl.com/nc-rural-trends).

Hatch, DrPH, who worked in the 1960s at the nation's first community health center in Mound Bayou, Miss., took up the mantle of that legacy when he arrived at UNC—first as a program development specialist, then doctoral student and faculty member—in what is now the Department of Health Behavior. (Listen to a 1992 interview about Hatch's life and work at [tinyurl.com/Hatch-interview](http://tinyurl.com/Hatch-interview).)

Health care for those living in rural areas of the state gained another

champion when former Peace Corps volunteer Jim Bernstein, MPH, enrolled as a global health fellow in the School's epidemiology doctoral program. He did not complete the doctorate, but his exposure to ideas at the School led him to establish the first state Office of Rural Health in the U.S., an endeavor that supported nurse practitioner programs and public health clinics statewide.

By 1978, the School's impact upon rural health care had garnered more

attention. That year, the Robert Wood Johnson Foundation and the U.S. Department of Health and Human Services awarded a \$3 million grant to the National Evaluation of Rural Primary Care Programs—with Tom Ricketts as project manager. A decade later, Ricketts received one of the first Rural Health Research Center grants and led that effort for 12 years.

The evaluation demonstrated the efficacy of community health centers in improving access for rural residents and

*(continued on page 47)*



Photo by Dan Sears



Photo by Linda Kaufman



Photo by Harry Lynch/News and Observer

[Clockwise, from above]: Then-doctoral student Dr. David Cavallo (left) and Dr. Alice Ammerman (second from left) meet at Chapel Hill High School with chef-trainer Ryan McGuire and kitchen manager Geneva Long to discuss the pilot project "Taste Texting," which allows students to pre-order healthy school meals using their cell phones; Dr. Tom Ricketts; Dr. George Pink (left) and Dr. Mark Holmes.

*We try to fashion opportunities that allow people to make good choices—rather than telling them what they should do and expecting them to do it without resources.*

—DR. ALICE AMMERMAN

(continued from page 45)

the cost-saving effects of using nurse practitioners and physician assistants in clinics. Both strategies have become deeply embedded in national and state policy to support primary care and provide access to health care.

## A LEGACY CONTINUED

Today, members of the Gillings School's faculty carry on Wilson's vision of community partnership to improve health. For example, nutrition professor Alice Ammerman, DrPH, helps people in Lenoir County, N.C., combat cardiovascular disease by adopting healthy diets.

Through Heart Healthy Lenior—a 5-year, \$10-million initiative—Ammerman's team uses individual and group counseling and business partnerships to promote healthy lifestyle changes. The team works with residents to create more nutritious versions of traditional dishes, and with restaurants to highlight their healthier options.

"It's a big-picture thing," says Ammerman, who is also director of the UNC Center for Health Promotion and Disease Prevention (HPDP). "We try to fashion opportunities that allow people

to make good choices—rather than telling them what they *should* do and expecting them to do it without resources."

First funded in 1985, HPDP enters its 30th year as one of the Centers for Disease Control and Prevention's most successful prevention research centers.

With Reidsville Area Foundation funding, Ammerman's team also tests a social-marketing campaign to promote healthy school lunches. The goal, she says, is encouraging and assessing increases in consumption of vegetables and fruits in school lunches.

Read more about the impact of Ammerman's work at [tinyurl.com/gazette-ammerman](http://tinyurl.com/gazette-ammerman) and [tinyurl.com/CAR-ammerman](http://tinyurl.com/CAR-ammerman).

Other School faculty members contribute to rural health through data collection and analysis.

Mark Holmes, PhD, and George Pink, PhD, have spent 10 years distributing financial information to 1,300 small, rural, critical-access hospitals nationwide and producing individual annual reports. These analyses are useful at the local, state and national levels.

"The hallmark of what I consider research strength is whether it's actionable—whether it can lead to

policy or management change," says Holmes, associate professor of health policy and management. "We can say, 'Here are strategies to use if your facility is weak in this measure.'"

For their work with rural hospitals, Pink won the 2013 National Rural Health Association's Outstanding Researcher award. Holmes won the 2012 *Triangle Business Journal* "40 Under 40" leadership award and UNC's 2014 Philip and Ruth Hettleman Prize for Artistic and Scholarly Achievement.

Bacon says these and other School research efforts maintain a connection to the formative years of rural health-care and its future possibilities.

"We're in a time that offers us great challenges and opportunities," he says. "What we do with those opportunities and with the public health skill sets we bring to the table will determine how well we design and manage our health-care system. It might be global pie in the sky, but I think we owe it to ourselves and each other to make it the best system it can be, to serve as many people well as is possible."

—Whitney L. J. Howell



Glenn Wilson



Jim Bernstein

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### READ MORE:

A tribute to the life and work of Glenn Wilson is at [tinyurl.com/NewsObserver-G-Wilson](http://tinyurl.com/NewsObserver-G-Wilson).

An article about the life and work of Jim Bernstein is at [tinyurl.com/NCMJ-bernstein](http://tinyurl.com/NCMJ-bernstein).

A profile on Dr. Tom Bacon and AHEC is at [tinyurl.com/gazette-bacon-on-ahec](http://tinyurl.com/gazette-bacon-on-ahec).

**S***INCE ITS FOUNDING*, UNC's school of public health has encouraged innovators who developed new ways of collecting and analyzing information and solving problems. At the heart of that effort has been a synergistic collaboration of the School's basic measurement science departments—biostatistics, epidemiology, and environmental sciences and engineering—along with other departments that have strong methods and measurement science foci. These include the School's departments of health policy and management, health behavior, maternal and child health, and nutrition, as well as others outside the School.

# DATA *DRIVEN BY* CARING *AND* CHANGE





IF YOU ALWAYS DO WHAT

YOU'VE ALWAYS DONE, YOU'LL ALWAYS

GET WHAT YOU'VE ALWAYS GOT.

—HENRY FORD



[Above, left to right]: Drs. Jim Grizzle, Bernard Greenberg, Dale Williams and Michel Ibrahim discuss plans for renewal of their research grant on lipids; Drs. Gary Koch and Dennis Gillings conducted clinical trials work from a trailer on School grounds; Dr. Gillings, as a faculty member in 1971.

## DEVELOPMENT

## OF BIOSTATISTICS

## METHODS

In 1940, UNC system president Frank Porter Graham took a chance in hiring Gertrude Cox, MS, as the first woman professor and department head at N.C. State University. Cox, professor of statistics and head of the Department of Experimental Statistics, likely met Graham's highest expectations; her hiring certainly set in motion a series of events that resulted in one of the finest biostatistics departments in the world.

As the UNC system's graduate program in statistics was housed at N.C. State, it was incumbent upon Cox to develop any additional statistics programs on other campuses. In 1946, she recruited Harold Hotelling, PhD, formerly on the faculties of Stanford and Columbia, to head the new

mathematical statistics department at UNC-Chapel Hill. In 1949, less than a decade after the School began, she helped establish the Department of Biostatistics in the UNC-Chapel Hill School of Public Health, selecting her former student, Bernard Greenberg, PhD, to lead it.

Greenberg, who later became the department's first Kenan Distinguished Professor, was awarded a National Institute of General Medical Sciences grant, "Multivariate Analysis for the Health Sciences," with co-principal investigator S.N. Roy, MSc. With support from Hotelling and others in the UNC-Chapel Hill statistics department, Greenberg also competed successfully for one of the first National Institutes of Health (NIH) grants to train biostatisticians and pioneered efforts to establish the practice of cooperative multicenter trials.

This groundbreaking, transformational research changed the course of practice for the evaluation of new

drugs. Under Greenberg's leadership, the department developed a roadmap for evaluating new drugs for efficacy. Without the clinical trials methodology and infrastructure developed by UNC's biostatisticians, many advances that benefit individuals might never have been made. Members of the biostatistics faculty continue to make innovations in clinical trials.

In 1967, NIH's National Heart Institute commissioned Greenberg to develop procedures for conducting large, multicenter clinical trials. His Greenberg Report ([see \*tinyurl.com/Greenberg-report\*](http://tinyurl.com/Greenberg-report)) is still a respected document, having established methods to evaluate new drugs and cancer treatments that have been used for nearly 50 years.

The tradition of statistical innovation for the betterment of humankind continues in a program led today by Michael Kosorok, PhD, W.R. Kenan Jr. Distinguished Professor and chair of biostatistics, who

collaborates with colleagues at UNC, Duke and N.C. State universities, and SAS (*SAS.com*), a business analytics software and services company. The National Cancer Institute (NCI)-funded program, “Statistical Methods for Cancer Clinical Trials,” is pioneering new methods that will help researchers more effectively discover and evaluate cancer treatments, as well as treatments for other diseases, and to more quickly deliver effective new therapies to patients.

The biostatistics department was successful from the start in attracting financial support through contracts and grants, says Jim Grizzle, PhD, who chaired the department from 1972 to 1987.

In 1955, the NCI awarded the department a contract to become the statistical coordinating center for the Southeastern Cooperative Cancer Chemotherapy Study Group (SCCC), believed to be the first large-scale clinical trials group in the U.S. (The first such study was published in England in 1949.) Faculty members from 10 medical schools and the coordinating center collaborated to investigate the effectiveness of chemotherapy agents.

The department developed some of the new mathematics necessary to analyze data from these large-scale, multicenter trials. In 1957, Greenberg hired Grizzle as a graduate research assistant.

Grizzle led the Lipid Research Clinics Coordinating Center, established in 1971, which was among the first groups to perform distributive data entry. The unit was renamed the Collaborative Studies Coordinating Center (CSCC) in 1986, and is now the oldest,

continuously funded NIH coordinating center in the U.S., having coordinated studies with hundreds of clinical centers in the U.S. and abroad. The late H.A. Tyroler, MD, Alumni Distinguished Professor of epidemiology, was a vital contributor to the study group and provided much insight into the tools and methods used by the CSCC. Grizzle, Clarence (Ed) Davis, PhD, retired former chair of biostatistics and director of the CSCC, and Dale O. Williams, PhD, took the lead in the first study, which found that lowering cholesterol reduces the risk of heart disease.



Dr. Gary Koch, in the 1980s, stands outside his office in ‘Trailer 39.’

“With that,” Grizzle says, “biostatisticians changed the world.”

Williams, who succeeded Grizzle as principal investigator for the study, says that trial “set the stage for the drug development that led to statins and lipid-lowering compounds.”

Grizzle’s methodology for crossover trials is still referred to today, some 50 years later. Another paper by Grizzle, on analyzing categorical data and whose co-authors included Frank Starmer, PhD, now with the Duke University-National University of Singapore Graduate Medical School, and biostatistics professor Gary Koch, PhD, is among the most-cited biostatistics papers in the world.

In 1958, Greenberg undertook another landmark epidemiological study—the first large study of cardiovascular disease that included African-Americans. All other large trials in the U.S. at the time had only white participants. The Evans County, Ga., study continued through the 1990s. (See [tinyurl.com/evans-county](http://tinyurl.com/evans-county).)

“All of these studies had a real impact on the health of society,” says Ed Davis. The studies led to insights and treatment options for widespread health problems, such as high cholesterol and congestive heart failure.

The impact continues with research in progress now, including the Hispanic

Community Health Study/Study of Latinos, the largest, long-range study to date on this population. An original \$22 million grant from the National Heart, Lung and Blood Institute supported the multi-center study of more than 16,000 Hispanic adults to examine the role of acculturation in the prevalence of disease. A six-year, \$21.7 million federal contract was also awarded to conduct a second examination of study participants, beginning in October 2014.

The study was initiated by Lloyd Chambless, PhD, now retired, and Lisa LaVange, PhD, now at the U.S. Food

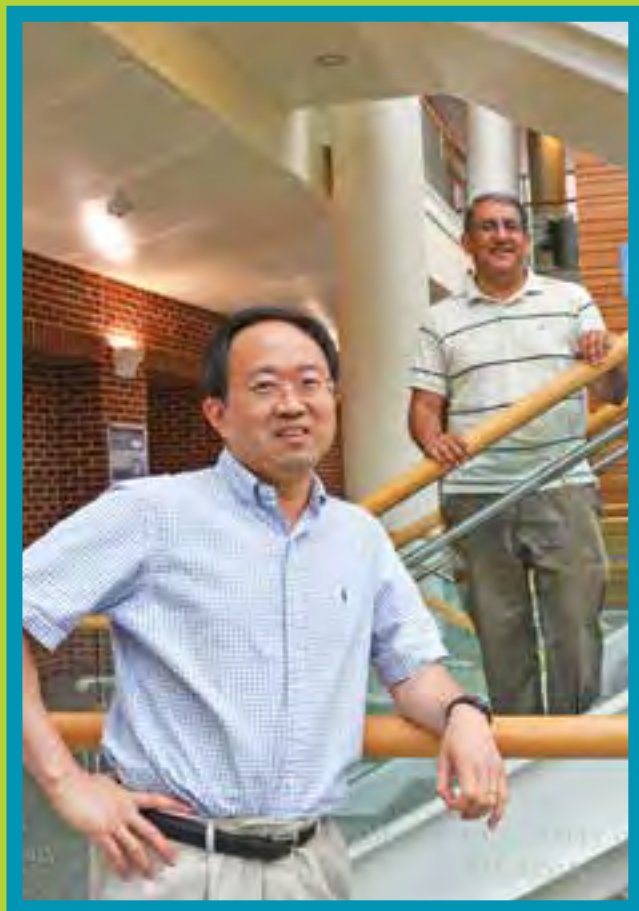
and Drug Administration, both former biostatistics professors and CSCC directors, and is currently overseen by Jianwen Cai, PhD, professor and vice chair of biostatistics. Twelve faculty members, 24 staff members and four students from UNC are involved in the study.

Grant funding reflected the biostatistics department's success. Grizzle recalled that his department's budget hovered close to \$6 million annually, but the state contributed only \$90,000. The rest came from grants and contracts. Dale Williams, who succeeded Grizzle as director of

the CSCC in 1991, had cumulative oversight of \$35 million in grants.

UNC's School of Public Health extended its international reach, particularly in the 1960s after Pranab K. Sen, PhD, DSc, Cary C. Boshamer Distinguished Professor, joined the faculty and strengthened ties to universities in India. Sen has contributed significantly to methodological studies related to diabetes, environmental health and bioinformatics, as well as clinical trials.

The lipids study also fostered a stream of global interactions, including ones with eastern European countries,



Drs. Danyu Lin (foreground) and Joseph Ibrahim

## *SPEEDING UP* DRUG DEVELOPMENT, *IMPROVING* CLINICAL TRIALS

Data pile up fast in large-scale, long-term, multisite clinical trials. As data collection methods evolve, so too must the means by which data are analyzed.

Early on, the Gillings School's biostatistics department developed a reputation for its program in Bayesian statistics, an analysis paradigm that involves determining probability of something based on particular pieces of evidence. The program is led by Alumni Distinguished Professor Joseph G. Ibrahim, PhD, who also directs the UNC Center for Innovative Clinical Trials (CICT) and the department's graduate studies program.

Ibrahim and colleagues in the CICT have conducted leading-edge research on innovative Bayesian clinical trials design, including development of new statistical methods to determine the odds that a large future clinical trial will be successful.

*Dr. Ed Davis recalls attending a conference in the 1960s in Chile. “There were only seven biostatisticians in the country,” he said, “and five of them had been trained at UNC.”*

China, Brazil, Israel, Poland and India. Excellent networks of UNC-trained statisticians in Brazil and Chile have opened the door to collaborations in teaching and training for UNC’s biostatisticians. Visiting professors and scholars from developing countries have added greatly to the development of biostatistics methodology, including clinical trials. Professor Kant Bangdiwala, PhD, whom Sen calls “our ambassador to Latin and South America,” has taught biostatistics classes around the world, including as visiting professor at Chile’s University of Valparaíso and University of Chile at Santiago.

In 2014–2015, he will be a Fulbright Scholar in Chile.

Some faculty members have established global corporations to expand the reach of their work.

In the 1970s, Gary Koch partnered with another faculty biostatistician, Dennis Gillings, PhD, CBE, to develop Quintiles, a contract research organization (CRO) that now employs some 30,000 people worldwide. Gillings led the organization; Koch remained in academia, directing UNC’s Biometric Consulting Lab, mentoring students and publishing. Quintiles provides

*(continued on page 56)*

“Bayesian methods are a powerful paradigm for complex clinical trials design and analysis since they can produce very efficient designs that potentially yield large reductions in the number of patients needed for a trial, and hence yield major savings in resources,” Ibrahim says.

Ibrahim and his team also have developed new statistical methods for data analysis, especially for cancer research. One such method assesses efficacy of a patient’s treatment when that course of treatment changes, as when the patient crosses over to an experimental treatment.

Missing data are a big problem in research, especially in longitudinal studies, where patients drop out before study completion. Ibrahim devises statistical models to understand why data go missing, so as to efficiently incorporate all the cases with missing values. CICT personnel also aim to develop user-friendly statistical software for the design and analysis methods they construct.

Ibrahim has received funding from several pharmaceutical companies to carry out this joint research with the CICT, and several National Institute of Health grants support his research.

Danyu Lin, PhD, the Dennis Gillings Distinguished Professor of Biostatistics, has led cutting-edge research

in many areas, particularly survival analysis and statistical genomics.

In a word, Lin says, “We do statistical research to create new tools for clinical trials.”

Survival analysis is indispensable to clinical trials. Many patients remain alive at the end of a trial, so their total survival times are unknown. Lin has developed survival analysis methods that are widely used in clinical trials. Many of them have been incorporated into standard software packages, such as SAS.

Lin received the prestigious Merit Award from the National Institutes of Health from 2005 to 2015, and the Royal Statistical Society selected one of his papers to be read and discussed at its meeting in 2007.

In recent years, he has devoted considerable energy to the development of statistical and computational tools for analyzing genomic data.

“Eventually, we want to use this information to guide the selection of treatments for personalized medicine,” Lin says. “It’s not clear how successful we’ll be, but whatever happens, statistics will be an important part of it.”

—Nancy Oates

**NORTH CAROLINA'S  
SCHOOL OF PUBLIC HEALTH**

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# *Then Now*



---

*75 years*

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**COMMITTED  
TO NORTH  
CAROLINA AND  
THE WORLD**



Dr. Michael Kosorok (far left) posed recently with former CSCC directors (l-r) Drs. Lisa LaVange, Lloyd Chambless, Ed Davis, Dale Williams and Jim Grizzle.

*(continued from page 53)*

training opportunities for students and real-world experiences for faculty members. CSCC director Sonia Davis, DrPH, Julie MacMillan, MPH, managing director of the School's Research and Innovation Solutions, and clinical professor and former Public Health Leadership Program director William Sollecito, DrPH, are among those who held leadership positions at Quintiles.

In 1984, biostatistics professor Ron Helms, PhD, founded Rho, a CRO focused on clinical data management that now employs more than 300 people in the Triangle. In 2001, Jean Orelie, DrPH, who received his

doctoral degree from the Gillings School, launched SciMetrika, a leading population health research company based in Durham, N.C.

"Our biostatistics faculty members carry out absolutely groundbreaking theoretical work," says Dean Barbara K. Rimer, "but another great strength is their commitment to finding solutions to important health problems. They show that outstanding faculty members can excel at both theoretical and applied research."

Amy Herring, ScD, professor and associate chair of biostatistics, lauds her department's highly rigorous training in the foundations of statistics

that makes students nimble and able to adapt to ever-changing technologies and new problems in public health.

"Students benefit from the mentored hands-on experiences they get working with top-notch investigators on high-impact research across multiple domains of public health and medicine," she says.

Herring, with Rebecca Fry, PhD, associate professor of environmental sciences and engineering, and Marilie Gammon, PhD, epidemiology professor, leads a National Institute of Environmental Health Sciences (NIEHS) grant to train postdoctoral scholars in biostatistics, epidemiology and environmental sciences. The training award, renewable every five years, has been held by UNC's public health school continuously since it was awarded first to Dr. Bernard Greenberg in 1971.

Larry Kupper, PhD, retired former Alumni Distinguished Professor of

biostatistics, was instrumental in obtaining that original NIEHS grant and led it from 1972 through 2006. Kupper studied the development and application of innovative statistical methods for design and data analysis of public health studies, with particular emphasis on environmental, occupational and women's health issues. His work led to improved statistical methods for quantifying human health risks due to harmful substances in the workplace and external environment.

Today, the biostatistics department is the statistical home for many studies in the UNC schools of medicine and nursing and provides statistical support for UNC Lineberger Comprehensive Cancer Center and the N.C. Translational and Clinical Sciences Institute (NC TraCS). Educational preparation for the next generation is assured through a biostatistics leadership course, the first of its kind in the U.S., which has received national attention for its timely and meaningful content. (See [tinyurl.com/BIOS-leadership-course](http://tinyurl.com/BIOS-leadership-course).)

Kosorok says the development of data tools and methodologies begun in his department seven decades ago is still thriving.

"A number of leaders in the department are doing excellent work," he says. "I'd mention Drs. Jianwen Cai, Jason Fine, Amy Herring, Joseph Ibrahim, Danyu Lin, Hongtu Zhu, Haibo Zhou, Fei Zou, Donglin Zeng, Michael Hudgens, Wei Sun, Yun Li and others, whose methodology is being widely used. Dr. Yun Li has been

recognized by Thomson Reuters as one of the most cited researchers in the world." (See [sph.unc.edu/most-cited](http://sph.unc.edu/most-cited)).

An excellent history of the UNC biostatistics department, compiled by Drs. Jane Monaco, Jianwen Cai, Lisa LaVange and Michael Kosorok is at [tinyurl.com/unc-bios-history](http://tinyurl.com/unc-bios-history).

## EPIDEMIOLOGICAL

## AND

## OTHER TOOLS

The Gillings School's expertise in clinical methodologies extends beyond biostatistics.

Barbara Hulka, MD, MPH, joined the epidemiology department in 1967. In a discipline that traditionally analyzed medical records and surveys for disease prevalence and causes, Hulka was among the first to integrate molecular biology into the field, a transformation that shifted the emphasis of discoveries.

Kenan Distinguished Professor Gerardo Heiss, MD, PhD, who joined the epidemiology faculty in 1974 and is one of the most cited researchers in his field, is a CSCC investigator who has made a huge impact in multicultural collaborations. (See page 25.)

Today, epidemiologists often augment self-reported participant data with biological data (e.g., from blood or cheek swabs) and combine genetic analyses with other data to get a

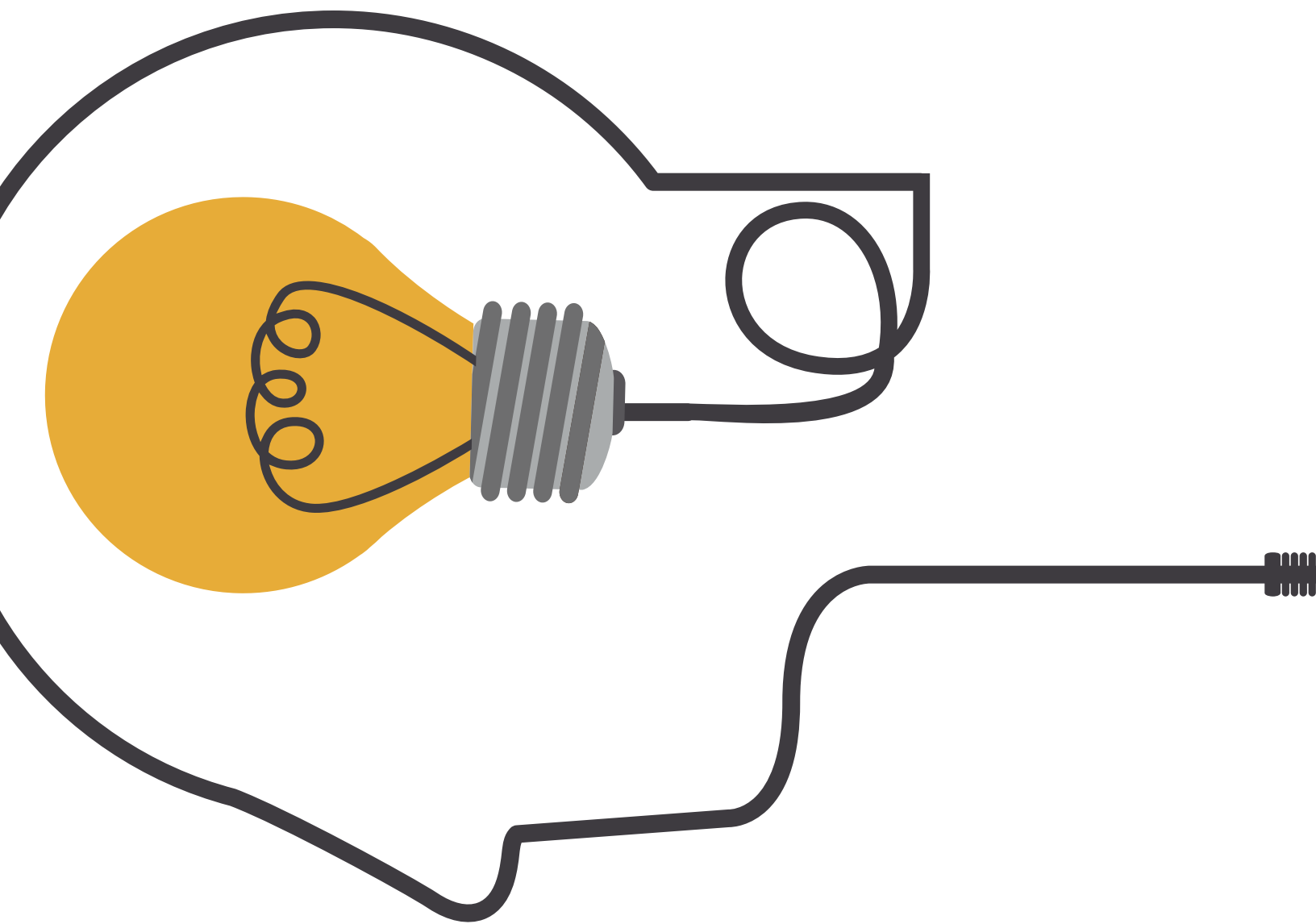
richer understanding of issues such as genetic susceptibility to diseases. The epidemiology department now has labs for molecular biology, genotyping and immunohistochemistry.

In the health policy and management department, associate professor Bryce Reeve, PhD, concentrates on patients' experiences of risks, diseases and illness. Reeve designs Web-based questionnaires that integrate patient-reported data into electronic medical records systems to give clinicians real-time feedback from patients to improve the efficiency and value of the clinical encounter. Patients' data also may be a better way of understanding issues such as adverse events experienced by patients in clinical trials and how different medication regimens affect patients' quality of life.

"It's the wave of the future," Reeve says. "We're not replacing what doctors already do, but rather facilitating their discussions with patients. We're trying to identify what's going on in the patient's life, what's most important to him or her, so clinicians can respond quickly and thus improve the quality of care."

In preparing the next generation of researchers, Reeve deliberately allows large classes to include diverse expertise, backgrounds and interests. Medical students, residents, fellows and students from the schools of pharmacy, nursing and public health approach the same patient from different perspectives.

—Nancy Oates



## implementation science

[im-pluh-muhn-tey-shuhn] [sahy-uhns]

### noun

1. the dissemination and implementation of research into real-world settings.



# FROM RESEARCH TO *real world*

**Bryan Weiner, PhD**, professor of health policy and management, specializes in implementation science, the dissemination and implementation of research into real-world settings.

Implementation researchers collect a growing body of evidence about what works, when and for whom.

“There’s a gap, however, between what we know and what we do,” Weiner says. “The intention of implementation science is to close that knowing-doing gap by systematically identifying and addressing the barriers.”



Implementation science requires partnerships with community and provider organizations because we're attempting to solve real-world problems. We have highly effective evidence-based interventions, but they are only of value if someone uses them.

DR. BRYAN WEINER

Weiner tackles practical projects. For instance, he has stepped in to help investigators who study demand-price models. Researchers develop and test interventions, but rarely do they consider how much the intervention costs users. Yet, cost is often critically important to potential consumers in deciding whether to use a product or service. By studying demand-based pricing, for instance, investigators determine what health departments can afford and relay that feedback to researchers—who then can develop and test interventions that meet a particular price point.

Weiner also consults on a Dynamic Simulation Modeling project that enables users to interact with models that predict the efficacy of an evidence-based intervention. Typically, success levels are calculated based upon the average of the trial participant pool. However, people who might use the intervention want to know what kind of success they'll have with their particular patient population.



DR. BRYAN WEINER

With Dynamic Simulation Modeling, users can adjust the parameters to tailor an accurate prediction.

Thanks in part to the gift from Dennis Gillings and Joan Gillings, the Gillings School funded a consortium for implementation science with RTI International, led by Weiner and Leila Kahwati, MD, from RTI.

"Implementation science requires partnerships with community and provider organizations because we're attempting to solve real-world problems," Weiner says. "We have highly effective evidence-based interventions, but they are only of value if someone uses them."

A number of faculty members throughout the Gillings School use implementation science in their research. Among them are Brian Pence, PhD, assistant professor of epidemiology; Susan Ennett, PhD, and Vangie Foshee, PhD, professors of health behavior; Rohit Ramaswamy, PhD, clinical associate professor in the Public Health Leadership Program and



DR. BERT PETERSON

We know why mothers and babies are dying, and *we know what we need to do* to prevent those deaths. But the interventions require functioning health systems—trained surgeons and midwives, sufficient supplies of safe blood, adequately equipped surgical facilities. Those are things we don't have in the places where most deaths occur.

—DR. BERT PETERSON

maternal and child health; and Ilene Speizer, PhD, research professor of maternal and child health, along with other MEASURE Evaluation colleagues.

▶ SEE [cpc.unc.edu/measure](http://cpc.unc.edu/measure).

Nowhere is implementation science more important than in the field of maternal and child health. Herbert Peterson, MD, Kenan Distinguished Professor and former chair of the maternal and child health department, says that 99 percent of maternal and newborn deaths occur in developing countries.

"We know why mothers and babies are dying, and we know what we need to do to prevent those deaths," Peterson says. "But the interventions require functioning health systems—trained surgeons and midwives, sufficient supplies of safe blood, adequately equipped surgical facilities. Those are things we don't have in the places where most deaths occur."

Overcoming those barriers requires that multiple disciplines work together. Schools of medicine, public health and engineering can develop technological innovations feasible to implement in low-resource settings. People who understand healthy systems and processes can develop

innovative ways to fit the technology into complicated structures.

Peterson notes that business sciences are an essential part of the mix, so that interventions can be implemented to scale and in a fiscally sustainable way.

UNC has begun to offer new concentrations for degree programs in implementation science. The Gillings Global Implementation Laboratory, a course first taught in spring 2014, engages a small team of students to design and implement solutions to complex public health problems in real-world N.C. and global settings. Developed and taught by Ramaswamy, along with Suzanne Hobbs, DrPH, clinical professor of health policy and management and of nutrition, and Anita Farel, DrPH, clinical professor of maternal and child health, the lab fielded student teams in Wake County, N.C., and in a program led by FHI 360 to prevent sexually transmitted infections (STIs) in India. The Wake County group implemented changes that significantly reduced patients' waiting time in STI clinics and drew high praise from clinic administrators.

Undergirding the success of such programs will be the capability to carry out interdisciplinary research—something at which Gillings School researchers have excelled for decades.

When Dale Williams founded UNC's Center for Health Promotion and Disease Prevention in 1985, he reported to all five health sciences deans (medicine, dentistry, nursing, pharmacy and public health)—an indication of the interdisciplinary nature that set the Gillings School apart from its contemporaries. Nearly 30 years later, that collaborative attitude remains strong, Peterson says.

"Implementation science works when it develops its own methodologies, approaches and tools, when it becomes interdisciplinary, then transdisciplinary," Peterson says. "UNC is well-positioned to be a global leader not only because we excel in those different disciplines but also because of our collaborative spirit."

—Nancy Oates

Management  
*and*  
Leadership  
Training  
*on a*

**LOCAL**

*and*

**GLOBAL  
SCALE**



# DEVELOPMENT OF THE SCHOOL'S PUBLIC HEALTH LEADERSHIP PROGRAM

*A whole greater than the sum of its parts*



Twenty-five years ago, as is the case today, the UNC School of Public Health was comprised of seven distinguished departments, each with outstanding faculty members and excellent reputations. The School's dean, then Michel Ibrahim, MD, faced increasing financial constraints that prevented funding of many worthy department initiatives.

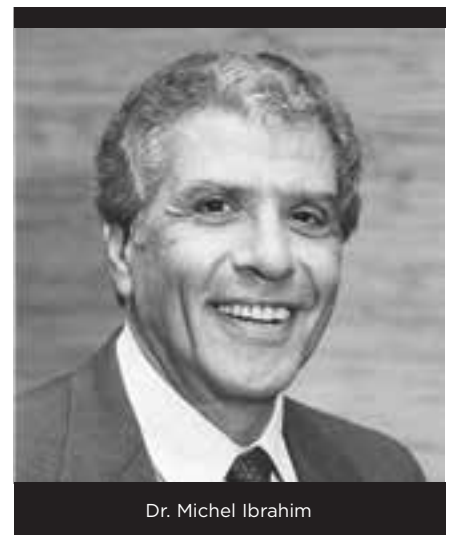
As a result—at UNC and at public health schools across the nation—initiatives, and even departments, central to public health's mission were being reassigned to other schools within the university.

Ibrahim's challenge was to assure sustainability of those essential programs by assuring that the whole (the School's mission) was greater than its parts (departments). The mission included clear focus on public health practice and continuing education for public health professionals in the state and region.

In fall 1989, Ibrahim appointed a faculty task force co-chaired by

Arnold Kaluzny, PhD, professor in what was then the Department of Health Policy and Administration, and Rachel Stevens, EdD, RN, from Public Health Nursing. Ibrahim charged the group, whose members had expertise in health services and in quantitative, social, management and engineering sciences, to propose a structure—one not allied with department affiliation, but based on discipline training—that would capitalize upon the School's academic resources and multidisciplinary expertise. Ibrahim hoped that there were “opportunities at the intersection” of the disciplines and that from the intersection would emerge recommendations that indeed would allow the School to function as an entity greater than the sum of its parts.

It was decided that a matrix model would provide the best structure to align disciplinary expertise with the School's orientation toward public health practice. As a result, the Interdisciplinary Curriculum in Practice and Leadership (ICPL) was implemented in 1990.



Dr. Michel Ibrahim

ICPL was recognized by the UNC Graduate School as a “department” that would jointly appoint faculty members from the other public health departments. Stevens was appointed ICPL director, a number of faculty members received joint appointments, and important programs—including public health nursing, the doctoral program in public health leadership (DrPH), and health care and prevention—were incorporated into the new entity. ICPL also developed and administered a new Master of Public



Dr. Ed Baker



Dr. Anna Schenck



Dr. William Sollecito



Dr. Rachel Stevens

Health degree in leadership in public health practice, which included interdisciplinary courses taught by medical and public health faculty members.

In 1997, Dean William Roper, MD, MPH, noting that the demands of residential teaching, research and continuing education projects were beyond the capacity of the ICPL's faculty members, established the N.C. Institute for Public Health (NCIPH) as a means of separating academic activities from practice and continuing-education efforts.

The Institute, under Stevens' leadership, was to provide technical assistance to public health professionals in the state. The newly developed Public Health Leadership Program (PHLP), under Kaluzny's direction, would offer a range of residential and distance-learning academic programs. To further expand PHLP's capability, dedicated PHLP faculty members were hired.

In 2000, William Sollecito, DrPH, succeeded Kaluzny as PHLP director. Sollecito, a UNC-trained biostatistician with extensive leadership experience gained at

Quintiles Transnational Corp., oversaw expansion of the PHLP, adding new interdisciplinary efforts, including online certificate programs designed for working public health practitioners. Growth in the MPH program included new online and residential courses, most notably customized leadership courses designed for medical and public health practitioners. By 2005, the role of public health practice and leadership was well established within the School, and schools of public health across the U.S. were emphasizing these areas as well, with demand growing exponentially.

This past year, PHLP celebrated the graduation of its 1,000<sup>th</sup> student.

In 2009, Sollecito was succeeded as PHLP director by Anna Schenck, PhD, a UNC-trained epidemiologist, who has experience in local public health and state-level quality improvement of public health and health care.

Meanwhile, at NCIPH, Stevens was succeeded in 2003 by Edward Baker, MD, former U.S. assistant surgeon general and director of the CDC's Public Health Practice Program office.

In 2011, Dean Barbara K. Rimer, DrPH, appointed Schenck the School's associate dean for public health practice, with leadership responsibilities for both NCIPH and PHLP. Although independent in structure, the two entities interact and continue to evolve. Under Schenck's leadership and with support from dedicated faculty and staff members in both PHLP and NCIPH, there is a continuing commitment to the overall mission of public health. The focus is on practice, service and teaching, drawing on resources from all departments at the School and ensuring that the Gillings School of Global Public Health will continue to be a force greater than the sum of its parts.

*Drs. Arnold Kaluzny, Rachel Stevens, Anna Schenck and Bill Sollecito contributed to this article.*

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Read a description of the N.C. Institute for Public Health, written in 2000 by Dean William Roper and Dr. Rachel Stevens, at [tinyurl.com/UNC-NCIPH](http://tinyurl.com/UNC-NCIPH).

# TRAVELING THE GLOBE WITH PROJECT HOPE

## AND OTHER LEADERSHIP, MANAGEMENT PROGRAMS



he Gillings School builds on a long tradition of global engagement. One such continuing activity is faculty members' work with

Project HOPE (Health Opportunities for People Everywhere), a nongovernmental organization (NGO) that has provided health services to developing countries since 1958.

In 1991, William Walsh, MPH, then president and chief executive officer of the NGO, extended the mission to include management training for hospital administrators in Poland, the Czech Republic, Slovak Republic and Hungary. Walsh worked with William Pierskalla, PhD, then professor at the University of Pennsylvania's Wharton School and later, distinguished professor and dean of UCLA's Anderson School of Business, and Arnold Kaluzny, PhD, professor of

health policy and management (HPM) at UNC's School of Public Health, to develop a management curriculum relevant to the needs of central Europe's changing health system.

William Zelman, PhD, now professor emeritus, and Bruce Fried, PhD, now associate professor, both in HPM at the Gillings School, were among faculty members from across the U.S. involved with the program. Each worked collaboratively with an in-country counterpart to tailor training in strategy, finance, operations and human resources that would meet the needs of participating students, who included executive and mid-level managers from hospitals and health-care institutions.

The program expanded over the next decade to include Baltic countries—Lithuania, Estonia and Latvia—and, in 2002, China. Overall, the program provided management training to 3,000 health professionals.

"Project HOPE alumni have assumed leadership positions throughout Europe," Kaluzny says, "including ministerial positions in Hungary and the Czech Republic and in the rapidly expanding private health-care sector."

The seeds of the Gillings School's early commitment to global health management and leadership training are growing and thriving around the world. In Europe, a community of faculty members—some inspired by the model of Project HOPE and mentored by its original team—actively works to conduct research and develop evidence-based professional development programming in health management and leadership.

In 2013, HPM alumni Suzanne Havala Hobbs, DrPH, and Ken Rethmeier, DrPH, published a commentary on clinical leadership in *The Lancet* with colleagues in England and the



Netherlands. (See [tinyurl.com/lancet-leadership](http://tinyurl.com/lancet-leadership).) Hobbs, clinical professor of health policy and management and nutrition and director of the Gillings School's doctoral program in health leadership, leads the International Network for Doctoral Training in Health Leadership (NETDOC), a global network of schools dedicated to increasing access to and quality of doctoral-level health leadership training.

The Gillings School continues to make major contributions toward meeting the urgent global need for health management and leadership development. This year, alumna Irene Agyepong, MD, DrPH, Hobbs and others were funded by the Rockefeller Foundation to adapt the UNC program model and develop a pan-Africa doctoral program in health leadership.

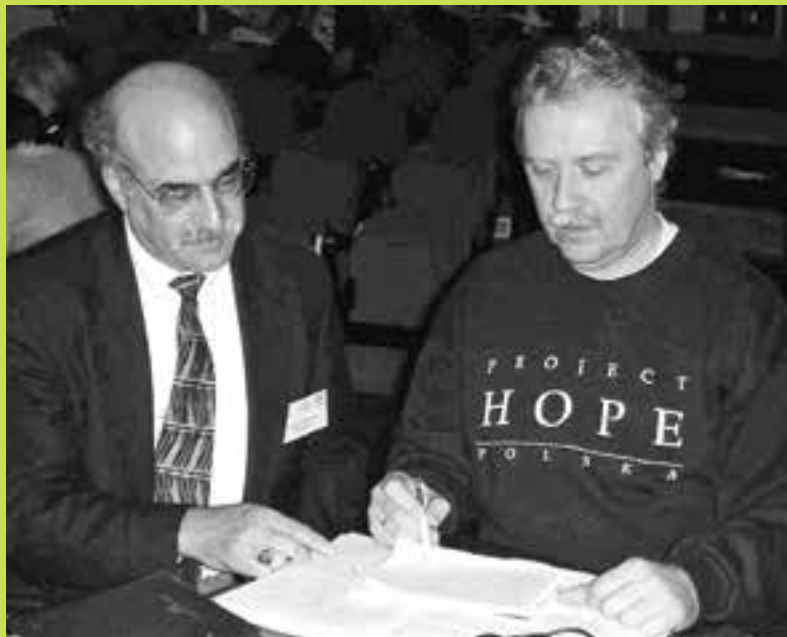
*Dr. Arnold Kaluzny, Dr. Sue Havalala Hobbs and Mr. Bill Walsh contributed to this article.*

Bill Walsh is preparing an article on the history of Project HOPE. Those who have been involved in the Project and would like to contribute information should contact Debra Reister, vice president of the Project Hope Alumni Association, at [dreister@projecthope.org](mailto:dreister@projecthope.org).

# Training global managers and leaders

[Clockwise, from right]: Dr. Sue Hobbs leads a discussion in 2011 with NETDOC members from around the world; Dr. William Zelman (left) works with a Project Hope participant in Poland in the 1980s; Dr. Bruce Fried (left) conducts a Project Hope workshop; and Dr. Arnold Kaluzny makes a presentation in the 1980s.





# *The way we were*

Faculty members who arrived at UNC in the 1960s and 1970s share their recollections of those earlier years. Also included here are profiles on Drs. Cecil and Mindel Sheps, one of the School's first power couples.

When Dr. Jo  
Anne Earp  
arrived  
at UNC in  
**1974**



COST OF A  
STAMP

**8c**



COST OF A GALLON  
OF GAS

**53c**



AVERAGE COST OF  
A NEW HOME IN  
THE U.S.

**\$38,900**



AVERAGE COST OF A  
NEW CAR IN THE U.S.

**\$3,750**



AVERAGE WAGE IN  
THE U.S.

**\$8,031**



TUITION (IN-STATE  
UNC STUDENT IN  
GRADUATE PUBLIC  
HEALTH STUDIES)

**\$336.50**



HIT SONG OF  
THE YEAR

**"The Way  
We Were"**

**(Barbra Streisand)**

# Jo Anne Earp, ScD

RETIRED PROFESSOR AND CHAIR, HEALTH BEHAVIOR



head the doctoral program one year later, then promoted to research assistant professor and eventually (1977) to assistant professor.

Our MPH program was only 18 months long, and was headed by Leonard Dawson, MSPH, graduate of the Department of Health Education, under Dr. Lucy Morgan, who was the first chair. MPH cohorts had 25-35 students (compared to 50-55 now), with 10-12 faculty members to teach them (now more than 25 faculty members).

Dr. Guy Steuart was department chair, Dr. Godfrey Hochbaum a full professor,

Leonard an assistant professor and John Hatch a doctoral student (later a faculty member). I was the first woman, after the Lucy Morgan era.

We had no bachelor's programs. One was eventually added in health behavior and lasted for about a decade through the interest of Harriet Barr, Ethel Jackson and John Hatch.

There were no scholarships for health behavior students. Bill and Ida Friday anonymously funded the Lucy Morgan fellowships in

honor of Ida's having studied health education here. In the beginning, we gave one small Lucy Morgan fellowship, at less than half the level we give now for each of three.

—Dr. Jo Anne Earp



**When I arrived at the School in 1974:**

**W**hen I arrived at the School in 1974: Gillings was the name of an assistant professor in biostatistics, not the name of the School, and Greenberg was the name of the dean, not a building. Our one building, Rosenau Hall, had a very convenient parking lot where the Michael Hooker Research Center was built.

There were 17 schools of public health in the country, not more than 50 as there are now.

Smoking was allowed in all offices, and many faculty members smoked at this school and others.

All department chairs were men, with the exception of the Department of Public Health Nursing.

The N.C. Institute for Public Health didn't exist; all faculty members were required to teach a certain number of continuing education credits each year.

There were no personal computers—only a mainframe for the School.

**When I arrived in the Department of Health Behavior:**

I was a research associate, promoted when I began to

*Earp, recently retired, was appointed professor in 1992. She served as chair of the health behavior department from 1996 to 2005, and again from 2009 to 2012. She was interim chair from 2008 to 2009. She still teaches and conducts research in phased retirement.*

## C. M. Suchindran, PhD

PROFESSOR OF BIOSTATISTICS

I arrived in Chapel Hill from India on Labor Day 1967 as a newly admitted student in the Department of Biostatistics' MSPH degree program. During a two-week orientation, we visited a number of rural-area health departments in N.C. to gain first-hand knowledge about public health activities in the state. For a person whose studies had focused on mathematics and statistics, this field experience and a 10-week practicum in the Washington, D.C., health department were great eye-openers.

After successful completion of the master's program, I was admitted to the doctoral program. At that time, it was quite new, having formally begun in fall 1965. The program allowed me to specialize in demography.

A number of career-enhancing personal events took place early in my doctoral training, including the invitation to work with Dr. Mindel Sheps. (See page 73.) Her personal attention helped to build my research career. I was also fortunate to learn from Dr. [Bernard] Greenberg the art of *teaching* biostatistics, a skill he emphasized and valued.



Dr. C.M. Suchindran

In the late 1960s, the School's student body included many international students from India, Pakistan, Afghanistan, Vietnam and elsewhere, and interactions with them offered great lessons in global health. One pleasant memory is of international students' yearly visit to the home of Dean Fred Mayes and his wife, Dorothy, for dinner.

I was fortunate to receive an offer to join the faculty when I completed my doctorate in 1972. My initial challenge was to build a

strong demography training program in the department. The International Program for Laboratories for Population Statistics (POPLAB), established in 1969 with funding from USAID, grew considerably during this time by attracting prominent researchers in the field to work for the program, including Dr. Dan Horvitz, now senior vice president of RTI, and Dr. Dick Bilsborrow, now research professor of biostatistics.

The biostatistics department received one National Institute of Child Health and Human Development (NICHD) grant in 1971 to train biostatisticians in population studies and another for "Measurement methods for population change." The department's success in

winning the latter highly competitive grant enhanced opportunities for faculty members and students. Drs. Greenberg, Jim Abernathy, Bradley Wells, Mindel Sheps and Gary Koch led auxiliary projects. My part in the project, under the direction of Dr. Sheps, involved work in the area of models for human reproduction. My significant achievement as a population researcher is that, under my leadership, the population statistics training program received continuous NIH funding for 35 years. This success allowed the department to recruit highly qualified students to the doctoral program.

Significant changes at the Carolina Population Center (CPC) shaped population



Dr. Suchindran (far right) poses with other international students in 1970. Dr. Bernard Greenberg (fourth from left) was biostatistics chair at the time.

research on campus. The public health school's training and research in population studies also were enhanced by the addition of prominent researchers including Dick Udry and Jerry Hulka (maternal and child health), Abdul Omran (epidemiology) and Sagar Jain (health policy and management), to name a few. I became a CPC fellow and, with Professor David Guilkey (economics), established a CPC statistical services core to improve population researchers' analytical skills. The core received continued NIH support from the time of its establishment in 1984.

It is gratifying to know that many well-established population centers followed our example in forming a

statistical services core. Through the UNC core, I was able to interact with faculty members Schoolwide to win federal research grants. I also helped train population researchers in these departments. These activities resulted in my serving more than 75 students at the School in their doctoral research. Through these activities, I feel I helped train the future generation of population researchers—one of the primary goals in my career.

—Dr. C. M. Suchindran

*Read more about the POPLAB at [tinyurl.com/RSS-Poplab](http://tinyurl.com/RSS-Poplab).*

## Pranab K. Sen, PhD

CARY C. BOSHAMER DISTINGUISHED PROFESSOR OF BIOSTATISTICS



Dr. P.K. Sen

### *Celebrating 50 years*

*In fall 2015, Dr. Pranab K. Sen, Cary C. Boshamer Distinguished Professor of biostatistics, will celebrate 50 years of service on the biostatistics faculty at The University of North Carolina's public health school.*

*An interview about his life is transcribed in a 2008 issue of the journal Statistical Science (23:4, pages 548-564). See [tinyurl.com/2008-Sen-interview](http://tinyurl.com/2008-Sen-interview).*

**E**ven after I came to Chapel Hill in fall 1965, I had not decided whether I should stay for a long time or go back to Calcutta. I remember during the three years (1964–1967) when I was on leave from Calcutta, I used to write both my affiliations on all my publications. Some Chapel Hill colleagues asked me whether I was serious about continuing this dual affiliation. I had to defend myself—Calcutta University was my home, and I couldn't give it up.

Eventually, I realized that UNC was one of the best places for statistics in America, if not the world, and by being here I could not only strengthen my background but develop additional ties with Indian schools. In this way, UNC induced me to settle in Chapel Hill, despite offers from other universities over the years.

—Dr. P.K. Sen

## Cecil G. Sheps, MD, MPH

FOUNDER AND FIRST DIRECTOR OF THE UNC HEALTH SERVICES RESEARCH CENTER

### *His legacy—The Cecil G. Sheps Center for Health Services Research*

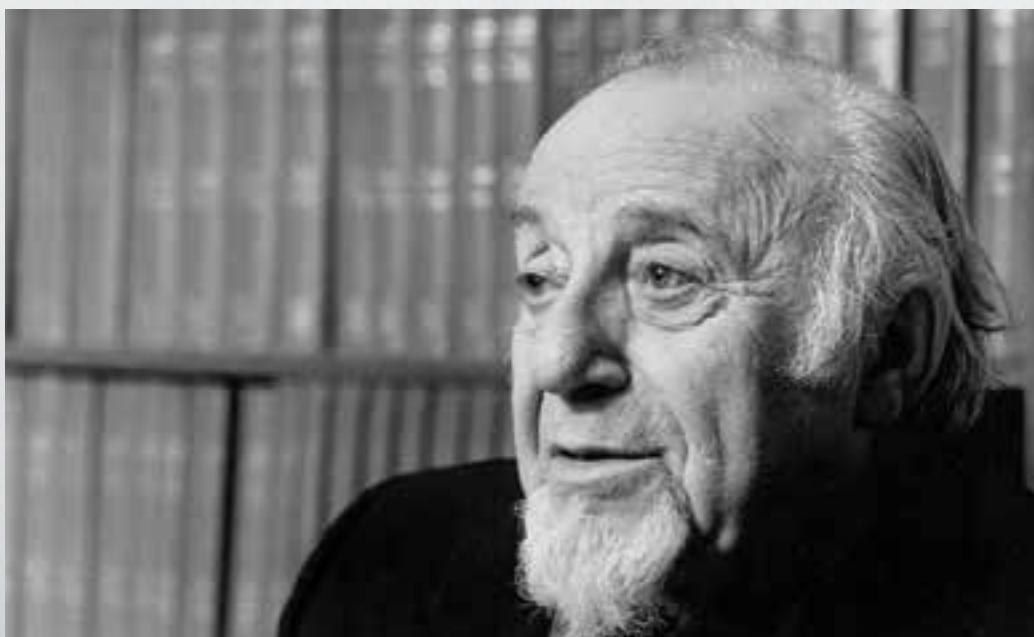
**C**ecil G. Sheps, MD, MPH (1913–2004), was a founder and first director of the UNC Health Services Research Center, which was renamed in his honor in 1991.

Sheps was born in Winnipeg, Canada, where he received a medical degree from the University of Manitoba in 1936. As a member of the Saskatchewan Department of Public Health from 1944 to 1946, he played a major role in the development of universal medical and hospitalization insurance. He earned a Master of Public Health degree from Yale University in 1947, after which he became director of program planning in the division of health affairs and research professor of health planning at UNC–Chapel Hill, perhaps the first in the U.S. to hold such a title.

In 1953, he became general director of Beth Israel Hospital (Boston) and professor at Harvard Medical School. In 1965, he was named director of Beth Israel Medical Center in New York and taught at Mount Sinai School of Medicine.

Upon returning to UNC in 1968, Sheps founded UNC's health services research center and soon became vice chancellor for health affairs. Six years later, he left that position to devote himself to being professor of social medicine and epidemiology in UNC's schools of medicine and public health. In 1980, he was appointed Taylor Grandy Distinguished Professor.

Sheps was a founding member of the Institute of Medicine of the National Academy of Sciences and member of the New York Academy of Medicine.



Dr. Cecil Sheps

# Mindel Cherniack Sheps, MD, MPH

(1913–1973)

FORMER BIOSTATISTICS PROFESSOR

*This article is compressed from a biographical entry in The Jewish Women's Archive Encyclopedia, written by Cecil G. Sheps and Sam Sheps, son of Mindel and Cecil. Read more at [tinyurl.com/mindel-sheps-bio](http://tinyurl.com/mindel-sheps-bio).*

The only hope of solving the problems of this planet lies in the application of scientific understanding and skills in the service of human dignity, freedom and welfare. I suggest it would be well to approach all human problems with humanity, with a strong sense of the limitation of our knowledge and of the existence of large areas of ignorance, and with readiness to admit the errors we made. In short, we must approach human problems in the best traditions of science.

—Dr. Mindel Sheps

**A**s a physician, biostatistician and demographer, Mindel Cherniack Sheps was acutely aware of the role science could play as a powerful social force. She taught that peace, social justice and science were inextricably bound.

She was one of the few Jewish women admitted, under a strict quota system, to medical school at the University of Manitoba, graduating in 1936. She received a master's degree in public health from the University of North Carolina in 1950 and an honorary Doctor of Science degree from the University of Manitoba in 1971.

She married Cecil George Sheps in 1937. As a resident at the Children's Hospital in Winnipeg in 1937, she became aware of the social issues underlying maternal and child health. In 1938, she and her husband went to London, where she worked at the Marie Curie Hospital in Whitechapel, further observing the effects of poverty on health.

In 1944, Sheps became secretary to the Health Commission in Saskatchewan. In this position, she surveyed hospital services and strongly supported the hospital insurance scheme enacted in 1945, the first in North



Dr. Mindel Sheps

America, giving political expression to her experiences and leading her toward a broader vision of epidemiology and the social factors influencing the health of individuals and populations. In this vision, she was supported by her husband, who also was trained in public health, health administration and health services research.

Further training in public health established Sheps as a leading thinker in the fields of statistics and demography. She held academic positions at the University of North Carolina, Columbia University, and the University of Pittsburgh.

While trained in mathematics and biostatistics, Sheps was largely self-taught in demography, publishing in that field almost exclusively after 1963 and achieving an international reputation. Her interest in demography stemmed from a strong social conscience, from her experience in the 1940s as a physician, school board member, and particularly from the struggle of Planned Parenthood for recognition in Winnipeg. She was intellectually stimulated by biostatistical applications in demography, and a critical element of her work was her recognition of the links among poverty, fundamental social inequality and population growth.

For Sheps, demography became a science that could achieve social justice and clarify issues of women's rights and equality. Her statistical and demographic research was innovative and insightful, founded on solid mathematical principles; however, it was the social application of this knowledge that she believed to be crucial.

## John Anderson

PROFESSOR EMERITUS OF NUTRITION

**T**he old Phipps House at 315 Pittsboro Street (named for a local judge) served as the home of the nutrition department from 1972 until the McGavran-Greenberg building was constructed in the mid-1980s. The Phipps House was razed soon thereafter for the new building that houses the School of Social Work (Tate-Turner-Kuralt).

In spring 1972, while I was a visiting professor in orthopedics, I gave a few lectures on nutrients for a required Master of Public Health course. Subsequently, I joined the nutrition department as a faculty member.

Despite limited space and laboratories, the department launched two new academic programs in 1975, the first a nutrition BSPH degree that was part of a schoolwide program for undergraduates, and the second, a DrPH program that focused on applied research projects that benefited North Carolina and the nation.



When we moved from the Phipps House and Rosenau Hall to our new home on the second floor of McGavran-Greenberg, our space was ample for the first time in many years. The new laboratories and other facilities permitted the expansion of faculty members in both nutritional biochemistry and public health nutrition.

The doctoral program, first offered around 1992, provided more opportunities for basic nutrition investigations in the three newly

defined divisions in nutrition—nutritional biochemistry, applied and public health nutrition, and nutritional epidemiology. An influx of new faculty researchers and federal funds has propelled the department into a national and international leadership position that attracts outstanding students.

Of course, when the Michael Hooker Research Center opened in 2005, its state-of-the-art laboratories included 20,000 square feet dedicated to nutrition research.

—John Anderson, PhD



In 1984, Dr. John Anderson gave a talk in Krasnodar, Russia (then the U.S.S.R.), about the impact of diet upon chronic diseases.

*Anderson, professor emeritus of nutrition at the Gillings School and past president of the American College of Nutrition, has written more than 150 peer-reviewed journal articles and co-authored several books, his most recent about the cardiovascular benefits of the Mediterranean diet. He has had a long research career in the field of calcium and bone metabolism.*



# OUR

*18,000 and counting*

# ALUMNI

Featured here are only a few of our nearly 18,000 accomplished alumni. They have changed lives for the better in North Carolina—and around the world.



## GLOBAL LEADERS



**Greg Allgood, MSPH, PhD (ESE, 1983)**

Allgood established Procter & Gamble's Children's Clean Drinking Water program; he was the School's 2014 Foard Lecturer. (See video at [tinyurl.com/foard-allgood-2014](http://tinyurl.com/foard-allgood-2014).)



**Saye Baawo, MD, MPH (MCH, 2006)**

Assistant minister for curative services at the Ministry of Health in Liberia. A number of women's health issues face Baawo's country after a prolonged civil war (see [tinyurl.com/womens-issues-liberia](http://tinyurl.com/womens-issues-liberia)). Most recently, an Ebola epidemic threatens the country.



**Garry Conille, MD, MHA, PhD (HPM, 1999)**

Former prime minister of Haiti and senior adviser to Liberian president Ellen Johnson Sirleaf in her role as co-chair of the United Nations' Development Programme; now regional director of the U.N.'s Office for Project Services in Africa.



**Paul Hebert, PhD (ESE, 1984)**

Received Virginia Military Institute's Jonathan Myrick Daniels Humanitarian Award in 2010. Hebert has consulted with NGOs on four continents about water resource management, humanitarian and other issues.



**Heather Munroe-Blum, PhD (EPI, 1983)**

Recently retired principal and vice chancellor of McGill University (Montreal).



**Rich Vinroot, MD, MPH (PHLP, 2004)**

Physician who employs public health practices in distressed areas, including in New Orleans after Hurricane Katrina, in Haiti after the 2010 earthquake, now in Afghanistan; the School's 2011 Foard Lecturer. (See video at [tinyurl.com/foard-vinroot-2011](http://tinyurl.com/foard-vinroot-2011).)



## NATIONAL LEADERS



**Mayra E. Alvarez, MHA (HPM, 2005)**

Associate director of the U.S. Department of Health and Human Services' Office of Minority Health.



**Alfredo Armendariz, PhD (ESE, 2002)**

Research associate professor at Southern Methodist University; was appointed by President Obama as administrator of Environmental Protection Agency's Region 6; now works on environmental issues with the Sierra Club.



**Brenda Edwards, PhD (BIOS, 1975)**

Senior adviser for cancer surveillance in the National Cancer Institute's Division of Cancer Control and Population Sciences; has helped make NCI's Surveillance, Epidemiology and End Results program an important resource for monitoring the nation's cancer burden and monitoring cancer control progress.



**Eric Feuer, PhD (BIOS, 1983)**

Branch chief in the Surveillance Research Program (SRP) in the National Cancer Institute's Division of Cancer Control and Population Sciences. Prior to joining SRP, Feuer was a cancer center statistician at Mt. Sinai School of Medicine.



**Lisa LaVange, PhD (BIOS, 1983)**

Director of the U.S. Food and Drug Administration's Office of Biostatistics Organization; formerly director of the Gillings School's Collaborative Studies Coordinating Center and executive at Quintiles and Inspire Pharmaceuticals.



**Jerry Linenger, MD, MPH, PhD (HPM, 1989; EPI, 1990)**

NASA astronaut who made more than 2,000 orbits around the Earth during his 132-day mission on the Russian space station Mir in 1997. See his TedX-UNC talk at [tinyurl.com/youtube-linenger](http://tinyurl.com/youtube-linenger).



**Jerry Mande, MPH (NUTR, 1983)**

Deputy Under-Secretary for Food Safety, U.S. Department of Agriculture.



**Gregorio Millett, MPH (HB, 1995)**

Vice president and director of public policy at amfAR ([amfar.org](http://amfar.org)). Millett worked to develop HIV/AIDS policies at the CDC and White House, where he helped construct President Obama's national HIV/AIDS strategy.



**Deborah Parham Hopson, MSPH, PhD, RN (HPM, 1979, 1990)**

Assistant U.S. Surgeon General and associate administrator at the U.S. Department of Health and Human Services' HIV/AIDS Bureau.



**Roy Ramthun, MSPH (HPM, 1987)**

Expert on health savings accounts and consumer-directed health-care issues; founder of HSA Consulting Services; former George W. Bush appointee as health-care policy adviser at the White House; chair of the School's 75th anniversary campaign.



**Chesley Richards, MD, MPH (HPM, 1997)**

Deputy director for public health scientific services and director of the Office of Public Health Scientific Services at the CDC, where he oversees the National Center for Health Statistics, the *MMWR* and *Vital Signs* publications, the Epidemic Intelligence Services and other programs.

**Rebecca Slifkin, PhD (HPM, 1994)**

Former director of UNC Sheps Center's N.C. Rural Health Research and Policy Analysis Center; director of the Office of Planning, Analysis and Evaluation in the U.S. Health Resources and Services Administration. See video at [tinyurl.com/slifkin-rural-health](http://tinyurl.com/slifkin-rural-health).

**Robert Verhalen, MHA, PhD (HPM, 1972)**

Risk analyst at Verhalen & Associates; presidential appointee in 1969 to study product safety; senior U.S. regulatory scientist at Consumer Product Safety Commission; established National Electronic Injury Surveillance System.

**Deborah M. Winn, PhD (EPI, 1980)**

Deputy director of the National Cancer Institute's Division of Cancer Control and Population Sciences.

**STATE LEADERS****Lynn W. Blanchard, MPH, PhD (HB, 1985, 1989)**

Clinical associate professor of health behavior and director of the Carolina Center for Public Service, which offers programs to support service and engagement. Learn more at [ccps.unc.edu](http://ccps.unc.edu).

**Leah Devlin, DDS, MPH (HPM, 1984)**

Has served the state of N.C. with more than 30 years of public health practice, including a decade as N.C. State Health Director; now Professor of the Practice in health policy and management at the Gillings School.

**Lisa Macon Harrison, MPH (PHLP, 2006)**

Director, Granville-Vance (N.C.) District Health Department; has led a number of initiatives in the School's Public Health Leadership Program, including the N.C. Public Health Incubator Collaboratives and Southeast Public Health Leadership Institute.

**Pam Silberman, JD, DrPH (HPM, 1997)**

Former president and chief executive officer of N.C. Institute of Medicine, and publisher of *North Carolina Medical Journal*; clinical professor of health policy and management.

**Paula Brown Stafford, MPH (BIOS, 1992)**

President of clinical development at Quintiles; president of the Gillings School's Public Health Foundation board.

**LEADERS IN OTHER STATES****David Ballard, MD, MSPH, PhD (EPI, 1984, 1991)**

Senior vice president and chief quality officer at Baylor Health Care System in Dallas, Texas; member and former president of the Gillings School's Public Health Foundation board.

**Stacy-Ann Christian, JD, MPH (HPM, 2006)**

Director, research administration and finance, Northeastern University (Boston); co-founder and president of the Jamaican Children's Aid Network, which funds primary schools in Clarendon Parish; and member of the Gillings School's Public Health Foundation board.

**Edward Ehlinger, MD, MSPH (MCH, 1980)**

Serves as Minnesota's Commissioner of Health.

**Kelly Weidenbach, DrPH (PHLP, 2013)**

Executive director of the Casper-Natrona County Health Department in Casper, Wyo.



**C. Marjorie Aelion, PhD (ESE, 1988)**

Dean, University of Massachusetts-Amherst School of Public Health and Health Sciences; winner of the Gillings School's 2014 Barr Distinguished Alumni Award.



**James Burdine, DrPH (HB, 1979)**

Interim dean, School of Public Health, and associate dean, public health practice, Texas A&M Health Science Center.



**Robert Dittus, MD, MPH (EPI, 1985)**

Director, Vanderbilt University Institute for Medicine and Public Health; associate vice chancellor for public health and health care.



**Paul Campbell Erwin, MD, DrPH (PHLP, 2009)**

Head, Department of Public Health, University of Tennessee at Knoxville.



**Robert M. Goodman, PhD (HB, 1987)**

Professor, applied health science, and former dean, Indiana University at Bloomington School of Public Health.



**Paul Halverson, DrPH (HPM, 1997)**

Founding dean, Indiana University's Richard M. Fairbanks School of Public Health.



**Matthew Kreuter, PhD (HB, 1993)**

Eugene S. and Constance Kahn Family Professor of Public Health; associate dean for public health; and director, Center of Excellence in Cancer Communication Research at Washington University in St. Louis' George Warren Brown School of Social Work.



**Max Michael III, MD**

Dean, University of Alabama-Birmingham's public health school. *Michael was a Robert Wood Johnson Foundation clinical scholar at the Gillings School from 1974 to 1976.*



**Edith A. Parker, MPH, DrPH, (HB 1989, 1995)**

Professor and head, community and behavioral health; director, Prevention Research Center for Rural Health, University of Iowa College of Public Health.



**Celette Sugg Skinner, PhD (HB, 1991)**

Parkland Community Medicine Professor; chief, Division of Behavioral and Communications Sciences, Department of Clinical Sciences, University of Texas Southwestern Medical Center; member, Gillings School Public Health Foundation board.

# May–October 2014 SCHOOL NEWS

READ MORE AT [sph.unc.edu/news](http://sph.unc.edu/news).

## Selected Publications

**Meagan Vaughn, PhD**, recent alumna, and mentor **Steve Meshnick, MD, PhD**, EPI professor, found repellent-treated clothing reduces tick bites by 80 percent among North Carolina forestry workers. The study was published online April 16 in the *American Journal of Preventive Medicine*.

**Barry Popkin, PhD**, W.R. Kenan Jr. Distinguished Professor of NUTR, authored a study published online April 17 in the *Journal of Nutrition* that found easy availability of sugary drinks in Mexico is linked to the country's escalating obesity crisis.

**Elizabeth Mayer-Davis, PhD**, NUTR professor and chair, and colleagues with the SEARCH for Diabetes in Youth Study examined data from more than three million children across the U.S. and found that prevalence of Type 1 and Type 2 diabetes increased significantly between 2001 and 2009. The findings were published May 7 in the *Journal of the American Medical Association*.

One-third of all children affected with febrile urinary tract infections suffer

from vesicoureteral reflux (VUR), a condition in which urine flows backward from the bladder into the kidneys. A new study, co-authored by **Myra Carpenter, PhD**, senior investigator in BIOS, found that children with VUR who received antimicrobials over a two-year period had a substantially reduced risk of urinary tract infection recurrences. The study was published online May 4 in *The New England Journal of Medicine*.

A collaboration of researchers at UNC and Harvard found that one reason for increased suicide risk for young people on antidepressant therapy is that patients are started on a higher-than-recommended dose. **Til Stürmer, MD, PhD**, EPI professor and director of the UNC Center for Pharmacoepidemiology, co-led the study, which was published online April

28 in the *Journal of the American Medical Association Internal Medicine*.

About 40 percent of the people who contract the emerging Middle East Respiratory Syndrome coronavirus (MERS-CoV) will die in the course of the infection. A new study, co-led by **Ralph Baric, PhD**, EPI professor, and published online April 28 in *Proceedings of the National Academy of Sciences*, describes a novel panel of human monoclonal antibodies that bind to the virus and prevent infection.

A study co-led by **Gary Rozier, DDS**, HPM professor, found that the “Into the Mouths of Babes” program led to a significant increase in the number of children age four and younger who receive preventive dental care. The



Dr. Meagan Vaughn displays forestry workers' uniforms treated with tick repellent.

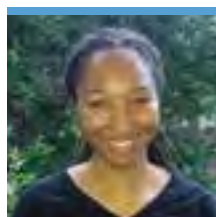
### KEY TO DEPARTMENTS

- BIOS Biostatistics
- EPI Epidemiology
- ESE Environmental Sciences and Engineering
- HB Health Behavior
- HPM Health Policy and Management
- MCH Maternal and Child Health
- NUTR Nutrition
- PHLP Public Health Leadership

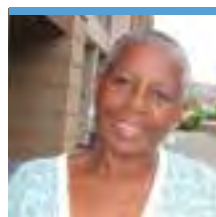
A study published May 6 in *PLOS Medicine*, co-authored by Robert Bain, MEng, visiting scholar at The Water



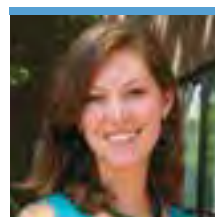
Institute at UNC, and Jamie Bartram, PhD, Don and Jennifer Holzworth Distinguished Professor of ESE and director of The Water Institute, found that improving water sources does not mean a household in the developing world necessarily will have safer drinking water. Fecal contamination still occurs in about 25 percent of water from “improved” sources. This study and another by Bain, Bartram, Ryan Cronk and Kyle Onda, of The Water Institute at UNC, and other authors, published online May 8 in *Tropical Medicine and International Health*, made quite a stir in the Twitterverse. See [tinyurl.com/WASH-tweets-1](https://tinyurl.com/WASH-tweets-1) and [tinyurl.com/WASH-tweets-2](https://tinyurl.com/WASH-tweets-2).



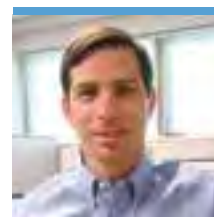
Brionna Hair



Dr. C. Samuel-Hodge



Dr. Stephanie Wheeler



Dr. Bryan Weiner

Two recent studies by **Stephanie B. Wheeler, PhD**, HPM assistant professor, and colleagues reveal that breast cancer patients insured by Medicaid and African-American breast cancer patients are less likely to receive life-saving endocrine therapy (ET) to prevent cancer recurrence. One, published in May in the *Journal of Cancer Survivorship*, assessed ET use among low-income Medicaid-insured women in North Carolina. Another, published in May in *Breast Cancer Research and Treatment*, compared ET use among privately insured African-American women and white women.

Web-based and live counseling programs effectively can reduce risk of heart disease for patients at high risk for the disease, and Web-based programs are particularly cost-effective. So found a study published online May 26 in *JAMA Internal Medicine*, co-authored by **Carmen Samuel-Hodge, PhD**, NUTR research assistant professor; **Kelly Evenson, PhD**, EPI research professor; **Bryan Weiner, PhD**, HPM professor; **Shrikant Bangdiwala, PhD**, BIOS professor; and **Alice Ammerman, DrPH**, NUTR professor and director of the UNC Center for Health Promotion and Disease Prevention. The study adds to a growing body of evidence suggesting that nontraditional approaches to health care are becoming ever more important in managing health and disease.

Two new studies on e-cigarettes, both published in a special July issue of the journal

*Tobacco Control*, were led by Gillings School researchers. “The availability of electronic cigarettes in U.S. retail outlets, 2012: Results of two national studies” was led by **Shyanika Rose, PhD**, HB doctoral candidate at the time of the study. “Effects of advertisements on smokers’ interest in trying e-cigarettes: the roles of product comparison and visual cues,” was led by **Jessica Pepper, PhD**, HB doctoral candidate at the time of the study and now a postdoctoral fellow at the UNC Lineberger Comprehensive Cancer Center.

Barbershops and beauty salons have long been seen as excellent venues for distributing health information and increasing community awareness. **Laura Linnan, ScD**, HB professor, and others led the first synthesis review of the literature on outcomes associated with barbershop- and salon-based activities. Results are published in the July print issue of *American Journal of Preventive Medicine*.

A study led by CDC researchers has found that the rate of HIV infections diagnosed in the U.S. has decreased by one-third over the past decade, offering hope that the AIDS epidemic in the U.S. may be slowing down. **Amy Lansky, PhD**, Gillings School alumna and deputy director for surveillance, epidemiology and lab science in the National Center for HIV/AIDS, Viral Hepatitis, STD and TB Prevention’s Division of HIV/AIDS Prevention, co-authored the article, available in the July 23/30 issue of the *Journal of the American Medical Association*.

program was designed to encourage dentists and physicians to use an interdisciplinary approach to reducing cavities in young, low-income children. The study was published in the April issue of *Pediatrics*.

Physical activity after breast cancer diagnosis has been linked with prolonged survival and improved quality of life, but most participants in a large breast-cancer study did not meet national physical activity guidelines after they were diagnosed. Moreover, African-American women were less likely to meet the guidelines than were white women. Led by EPI doctoral student **Brionna Hair** and published online June 9 in *Cancer*, the findings indicate that efforts to promote physical activity in breast cancer patients may need to be enhanced significantly.



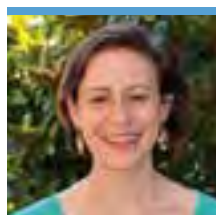
Dr. Amy Lansky



Dr. Laura Linnan



Dr. Brian Pence



Dr. Jessica Pepper



Greg Pereira



Dr. Shyanika Rose

Antiretroviral treatment has transformed HIV from a death sentence to a chronic condition, enabling infected adults to pay more attention to their quality of life. Yet quality of life is affected strongly by depression, which plagues HIV-infected adults at a higher rate than the general population. A new study by **Brian Pence, PhD**, EPI assistant professor, and EPI doctoral candidate **Angela Bengtson** indicates that treating depression effectively improves quality of life in a number of areas for HIV-infected individuals. The study was published online Aug. 8 in *AIDS Care*.

More than half of emergency department patients ages 65 and older who were seen at UNC Hospitals during an eight-week period were either malnourished or at risk for malnutrition. These were among findings in an article published online Aug. 13 in *Annals of Emergency Medicine*, co-authored by **Greg Pereira, BSPH**, recent NUTR alumnus; **Mark Weaver, PhD**, BIOS research assistant professor; and **Cynthia Bulik, PhD**, distinguished professor of psychiatry and NUTR.

**Allison E. Aiello, PhD**, EPI professor, studied hand hygiene in health care

facilities and developed guidelines and strategies to increase adherence to hand hygiene practices. Published online July 16 in *Infection Control and Hospital Epidemiology*, the study finds that alcohol-based hand rubs are more effective than soap in most cases and that antibacterial soaps are no more effective than regular soaps and can make users susceptible to other infections. Aiello made a presentation about triclosan, a chemical used in antibacterial soap, at a U.S. Food and Drug Administration hearing on topical antiseptics in Silver Spring, Md., on Sept. 3.

## Selected Grants



Chancellor Carol Folt (left) congratulates Dr. Jim Thomas on the \$180M award to MEASURE Evaluation.

### Thomas is PI of \$180M USAID grant

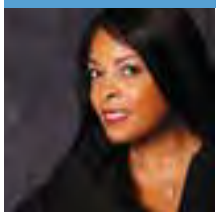
**James Thomas, PhD**, EPI associate professor, is principal investigator for a five-year, \$180 million award for the Carolina Population Center's Monitoring and Evaluation to Assess and Use Results (MEASURE) Evaluation project from the U.S. Agency for International Development (USAID). Read more about the MEASURE Evaluation success story at [tinyurl.com/MEASURE-renew](http://tinyurl.com/MEASURE-renew).



Dr. Allison Aiello



Dr. Gregory Characklis



Dr. Wisdom Powell



Dr. Paula Song

**Wizdom Powell, PhD**, HB assistant professor, has received a National Institutes of Health grant to study how neighborhoods and daily stress affect substance abuse by black men. The five-year award is for \$775,602.

**Gregory Characklis, PhD, ESE** professor, will lead a team that has been awarded a \$2.2 million grant from the National Science Foundation (NSF) and the U.S. Department of Agriculture (USDA).

**Paula Song, PhD, HPM**, associate professor, is principal investigator for a

three-year, \$1.9 million grant from the Patient-Centered Outcomes Research Institute (PCORI) to study a new model of health delivery. Song and Marisa Domino, PhD, HPM professor, will work with academics and stakeholders from Ohio and Washington state, along with the Carolina Survey Research Lab, to assess the efficiency of accountable care organizations (ACOs), groups of health-care providers that organize in new ways to take responsibility for the care of a specific health need population. ACOs emerged from the Affordable Care Act as vehicles to improve both the quality and efficiency of health care.

## Other News



Dr. Folt

### Folt appointed professor in ESE

**Chancellor Carol L. Folt, PhD**, was appointed as joint professor in ESE and biology this summer. Prior to becoming UNC-Chapel Hill's 11th—and first woman—chancellor in July 2013, Folt had a distinguished career at Dartmouth University. She was named associate director of Dartmouth's Toxic Metals Research Program in 1998 and, in 2000, became associate director of the university's Center for Environmental Health Sciences. In 2007, she was named a distinguished professor, and in 2010, was named a fellow of the American Association for the Advancement of Science. In addition to faculty appointments, she served at the highest administrative levels at Dartmouth, including as dean of graduate studies, dean of faculty, provost and interim president.

"Chancellor Folt is an exemplary scientist, teacher and leader," says Gillings School Dean Barbara K. Rimer, DrPH. "That combination is inspirational, and we are so grateful that she chose to affiliate with our School."

**The UNC Graduate School has announced two new degree programs** affiliated with the Gillings School that will be available to students beginning fall 2014—the Master of Professional Science in Biomedical and Health Informatics and the Professional Science Master's Program in Toxicology. Learn more about the health informatics degree at [chip.unc.edu/mps-bmhi](http://chip.unc.edu/mps-bmhi). Learn more

about the toxicology degree at [tinyurl.com/UNC-tox-degree](http://tinyurl.com/UNC-tox-degree).

A partnership with North Carolina's McDowell County will enable **Laura Linnan, ScD**, HB professor and director of the Carolina Collaborative for Research on Work and Health (CCRWH), to study workplace health in the county. Linnan and her team will

seek input from about 400 employers about their current health programming and their interest in developing other such workplace programs. Her project will help meet four of McDowell County's five current community health assessment priorities, including ones addressing tobacco use, healthy eating and active living, substance abuse and behavioral health, and access to care.

# May–October 2014 AWARDS & RECOGNITIONS

READ MORE AT [sph.unc.edu/news](http://sph.unc.edu/news).

## KEY TO DEPARTMENTS

BIOS	Biostatistics
EPI	Epidemiology
ESE	Environmental Sciences and Engineering
HB	Health Behavior
HPM	Health Policy and Management
MCH	Maternal and Child Health
NUTR	Nutrition
PHLP	Public Health Leadership

**Karl Umble, PhD**, HPM clinical assistant professor, was honored April 22 with a Chancellor's Award for teaching excellence and service to undergraduates.

**Leah McCall Devlin, DDS, MPH**, Professor of the Practice of HPM, has joined The Robert Wood Johnson Foundation (RWJF) board of trustees. The board leads the nation's largest philanthropy devoted to "building a culture of health in America, enabling all to live healthier lives now and for generations to come."

**Racquel Kelly Kohler**, HPM doctoral candidate, won *The Lancet* and Consortium of Universities for Global Health award for best student poster at the consortium's 2014 conference May 10-12 in Washington, D.C.

**Gillings School BIOS students** won four of eight student research awards presented by the International Chinese Statistical Association and Korean International Statistical Society. Their



Ting-Huei Chen (left) and Ran Tao won biostatistics research awards at the Joint Applied Statistics Symposium in June.

work was acknowledged during the 2014 Joint Applied Statistics Symposium of the two organizations, in June, in Portland, Ore. Winners are:

**Guanhua Chen** (Drs. Michael Kosorok and Donglin Zeng, advisers), for *Personalized Dose Finding Using Outcome-weighted Learning*;

**Ting-Huei Chen** (Drs. Wei Sun and Jason P. Fine, advisers), for *Using a Structural Equation Modeling Approach with Application in Alzheimer's Disease*;

**Ran Tao** (Dr. Danyu Lin, adviser), for *Analysis of Sequence Data Under Multivariate Trait-Dependent Sampling*; and

**Qiang Sun** (Drs. Hongtu Zhu and Joseph G. Ibrahim, advisers), for

*Hard Thresholded Regression Via Linear Programming*.

**Sarah Rutstein**, HPM doctoral student and medical student in UNC's School of Medicine, received the AIDS 2014 Young Investigator Award from the International AIDS Society and the French National Agency for Research on AIDS and Viral Hepatitis. She accepted the award at the 20th International AIDS Conference in July, in Melbourne, Australia.

HPM doctoral student **Caroleen Quach** was a "Best Poster" finalist at the 19th annual conference of the International Society for Pharmacoeconomics and Outcomes Research. Of the more than 1,800 poster presentations, hers was

selected as one of the top 100. Quach's study measured the impact of colorectal cancer upon the lives of older American adults. It is one of the first population-based studies to quantify health-related quality-of-life changes from before to after colorectal cancer diagnosis for Medicare Advantage enrollees ages 65 years and older, compared to matched controls without cancer.

**Natalia Gouskova, BIOS** doctoral candidate, received a "Best Poster" award at the Statistical Analysis of Multi-Outcome Data workshop, held June 30-July 1, at the University of Cambridge (U.K.).

**Wizdom Powell, PhD**, assistant professor of HB, received a Professional of the Year Award from the American Psychological Association. She accepted the award at the national APA conference in Washington, D.C., in August, during which she presented a keynote address.

Three Gillings School of Global Public Health faculty members are among the most-cited researchers in the sciences and social sciences, according to data collected by Thomson Reuters. They are **Gerardo Heiss, MD, PhD**, Kenan Distinguished Professor of EPI; **Yun Li, PhD**, assistant professor of BIOS and of genetics (UNC School of Medicine); and **Barry Popkin, PhD**, W.R. Kenan Jr. Distinguished Professor of NUTR. About 3,200 researchers earned the distinction by writing the greatest number of reports officially designated as highly-cited papers, thereby being ranked within the top one percent most cited for their subject field and year of publication.

**Pam Silberman, JD, DrPH**, immediate past president of the North Carolina Institute of Medicine and clinical professor of HPM, received the North Carolina Hospital Association's 2014 Meritorious Service Award. The prize is given each

year to recognize outstanding service to the field of health care.

**Gary G. Koch, PhD**, BIOS professor, was named recipient of the American Statistical Society's 2014 Karl E. Peace Award for Outstanding Statistical Contributions for the Betterment of Society.

BIOS graduate students **Avner Halevy** and **Nicolas Ballarini** led a Gillings School production team that tied for first place in the American Statistical Association's "You've Got Talent!" contest. The finalists performed during the Joint Statistical Meetings in August, in Boston. See video at [tinyurl.com/UNC-Gillings-statistical-love](http://tinyurl.com/UNC-Gillings-statistical-love).

**Jianwen Cai, PhD**, professor and vice chair of BIOS, was elected to lead the International Biometric Society's (IBS) Eastern North American Region (ENAR), the international biostatistics professional organization. Cai will take office as president-elect on Jan. 1, 2015, and will serve successive years (2016–2017) as president and past-president. A number of Gillings School biostatistics faculty have held the three-year leadership role in ENAR, most recently Amy Herring, ScD, professor and associate department chair, who served from 2010 to 2012.

**Mark Holmes, PhD**, HPM associate professor, was awarded UNC's Phillip and Ruth Hettleman Prize for Artistic and Scholarly Achievement by Young Faculty in September. Holmes' work focuses on rural health, comparative effectiveness and complex methods for policy analysis, particularly in relation to public health and health policy. He is recognized for visionary, innovative research that is grounded in economics and sheds light on issues relevant to health policy.



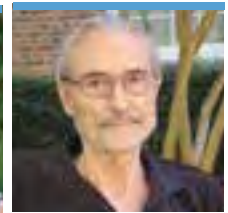
Dr. Jianwen Cai



Dr. Leah Devlin



Natalia Gouskova



Dr. Gerardo Heiss



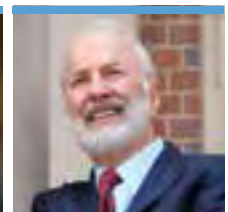
Dr. Mark Holmes



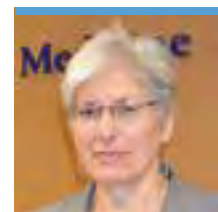
Dr. Gary Koch



Dr. Yun Li



Dr. Barry Popkin



Dr. Pam Silberman



Dr. Karl Umble

# *In* MEMORIAM

READ MORE AT [sph.unc.edu/news](http://sph.unc.edu/news).



## ***Diane Calleson, PhD***

Dr. Diane Calleson, clinical associate professor in the Public Health Leadership Program, lost a long, brave fight with a rare ovarian cancer on Aug. 15.

Calleson was a gifted and beloved mentor to many students during her almost 15 years at UNC. Just prior to her last recurrence of cancer, she was preparing to leave for Fogo Island, Newfoundland, to pursue research as a Fulbright Scholar and recipient of a National Geographic Society grant.

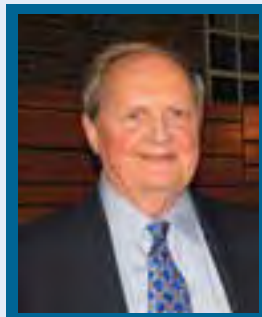
She leaves behind her husband Jerry Calleson, manager of the online instruction group in the School's Instructional and Information Systems unit, and many colleagues who were inspired by her courage and mourn her loss.



## ***Keith Crisco***

Keith Crisco, Gillings School Advisory Council member, died at his home in Asheboro, N.C., on May 12, apparently as a result of cardiac failure. He was 71.

His rags-to-riches life story was an inspiration. Born to parents who did not finish high school and reared on a farm in Stanley County, N.C., he completed college at nearby Pfeiffer University and then obtained a Master of Business Administration degree at Harvard. He served as a White House fellow in 1970–1971. Crisco became president of Stedman Elastics, in Asheboro, in 1978. In 1986, he co-founded Asheboro Elastics and continued to oversee the company until his death.



## ***Clarence Edward Pearson, MSPH***

Clarence Pearson, global health consultant and alumnus of UNC's school of public health, now the Gillings School of Global Public Health, died May 24 in New York City. He was 89.

"In losing Clarence, we have lost one of the 'greats' among our School's alumni," said Jo Anne Earp, ScD, professor of health behavior at the Gillings School. "For the past 20 years, well beyond the age when many have retired, he was a national leader on global aging. As an AARP board member and author and editor of many books, he was a powerful advocate for leveraging public health approaches to support healthy global aging, including walkable communities, universal housing design and more."



1940

CELEBRATING **75** YEARS—



*From the Well to the World*

2015

The donors profiled in the following pages have chosen to be part of a once-in-a-lifetime effort, championed by alumni leaders, to commemorate the 75th anniversary of UNC's public health school. Bolstering scholarships and enhancing faculty support are prime objectives of the campaign—but there are many ways to participate.

1 2 3

## Connect

- Go online to [sph.unc.edu/alumni](http://sph.unc.edu/alumni) and update your listing in the online directory.
- Call the School's advancement staff at 919.966.0198, and provide us with your contact information for work and home.
- Email any updates to [alumni.sph@unc.edu](mailto:alumni.sph@unc.edu).

1 2 3

## Engage

We are hosting events for alumni and friends across the country throughout 2015. Watch for email announcements and postcards about events in your area. We hope to see you and your classmates!

For more information about the School's anniversary events, please see [sph.unc.edu/alumni/75-years](http://sph.unc.edu/alumni/75-years).

1 2 3

## Invest

We have special giving opportunities for recent graduates and for the Rosenau Society (see page 101) to honor our 75th anniversary.

We invite you to invest in our mission—to *improve public health, promote individual well-being and eliminate health disparities across N.C. and around the world*—by:

- Making a gift online at [giving.unc.edu/gift/sph](http://giving.unc.edu/gift/sph)
- Speaking to someone in the School's advancement office by calling 919.966.0198
- Mailing a check, payable to the *Public Health Foundation*, to:  
Public Health Foundation  
P.O. Box 309, Chapel Hill NC 27514-0309



## *Gillings School of Global Public Health*

### **HONOR ROLL OF DONORS AND PARTNERS**

JULY 1, 2013 TO JUNE 30, 2014

We are honored to recognize and thank the following alumni, friends, faculty, staff, students and organizations for their dedication and generosity to the School during fiscal year 2014 (July 1, 2013 to June 30, 2014).

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#### **\$1,000,000**

AND ABOVE

Anonymous  
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AccessCare Inc.  
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#### **\$25,000**

TO **\$49,999**

American Thrombosis and  
Hemostasis Network  
Boston University



Photo by Tom Fuldner

Joy and Chester Douglass

## NEW PROFESSORSHIP IN DENTAL PUBLIC HEALTH ESTABLISHED

The UNC School of Dentistry and the UNC Gillings School of Global Public Health announced the establishment of a new dental public health professorship on June 5. Made possible by a gift from Chester Douglass, DMD, PhD, and Joy Douglass, the R. Gary Rozier and Chester W. Douglass Distinguished Professorship in Dental Public Health will support a jointly appointed faculty member who specializes in dental public health.

The professorship, which also honors Gary Rozier, DDS, MPH, professor of health policy and management at the Gillings School and a respected national leader in dental public health (see page 91), was announced after a day-long symposium held at both schools, during

which panel discussions addressed the future of dental public health. At a dinner planned to celebrate his career, Rozier learned that the professorship would bear his name as well as Douglass'.

Douglass dedicated his career to improving dental care for those living in the U.S. He authored more than 140 papers, served as chair of Harvard School of Dental Medicine's Department of Oral Health Policy and Epidemiology, and mentored students, encouraging them to "think big" and continue learning.

While on the UNC faculty from 1971 to 1978, Douglass spent one year (1975-1976) as a Robert Wood Johnson Health Policy Fellow in Washington, D.C.,

working as a member of the health staff in the U.S. Senate.

Why would a professor from Harvard give so generously to a school he didn't attend?

"Gary Rozier's career has been an inspiration for those of us in dental public health," Douglass says. "I am delighted to be able to honor him with this named professorship."

Douglass also taught with and collaborated on research with Dennis Gillings, PhD, CBE, when Gillings was a member of the biostatistics faculty at UNC. That relationship led to Douglass' 20 years of service on the board of directors of Gillings' company, Quintiles.

"Gary's transformative work, Dennis' innovations, and seeing the mission of the University of North Carolina's public health school through their eyes have made me want to give back to the School that facilitated my association with these extraordinary leaders," Douglass says.

Rozier says he is deeply honored to share the name of the professorship with Douglass, "an admired teacher and respected leader in dental public health" throughout his career.

"The professorship will strengthen UNC's ability to provide learning experiences focused on dental public health and population health and to provide research opportunities that will help solve the many oral health problems faced by residents of North Carolina and beyond," Rozier says.

Learn more about the ways your gift can support the mission of the Gillings School. Please see [sph.unc.edu/giving](http://sph.unc.edu/giving) or call (919) 966-0198.

—Linda Kastleman

▶ See photos and video from the June 5 symposium and dinner at [tinyurl.com/douglass-rozier-video](http://tinyurl.com/douglass-rozier-video).

# Dental public health impact in NC



Dentists trained in public health visited N.C. schools in the 1930s, teaching about prevention and treating children whose families could not afford a private dentist.

A 1936 summer short course in public health dentistry was among the first offerings of the UNC School of Medicine's Division of Public Health, which later became the School of Public Health. The course helped strengthen and sustain an oral hygiene program that reached public schools across N.C.

Today, Gillings School faculty members, with partners from the School of Dentistry and others, continue the legacy of dental public health impact in North Carolina and across the U.S. The "Into the Mouths of Babes" program, developed by Gary Rozier, DDS, professor of health policy and management, and others, began in 2000 as a randomized trial to test the potential benefit of training pediatricians to apply fluoride to children's teeth. A strong evidence base shows that the program reduces dental caries (and related treatment and costs), averts hospitalizations and improves oral health among vulnerable children. The program reached 130,000 children in N.C. last year—and 35 other states have adopted N.C.'s model.

"It is a great innovation—the kind that makes a real difference for children, families and communities," says Dean Barbara K.

Rimer, DrPH. "And looking toward the future, the new R. Gary Rozier and Chester W. Douglass Distinguished Professorship in Dental Public Health (see page 90) ensures that this tradition of public health dentistry in the School will continue for the foreseeable future."

—Elizabeth French

## HONOR ROLL, CONTINUED \$25,000 TO \$49,999

Brigham and Women's Hospital  
CVR Global Inc.  
Dauer Family Foundation  
Denka Seiken  
Diane E. Medcalf Living Trust  
Nancy Ann Dreyer  
Greater Kansas City  
Community Foundation  
Henry M. Jackson Foundation

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UCLA Biomedical Research Institute  
United Health Foundation  
United Therapeutics  
University of Cape Town  
Vinyl Acetate Council  
Wake Forest University  
CONTINUED, PAGE 93

# JILL AND MICHAEL KAFRISSEN

## IN SUPPORT OF RESEARCH ON AGING

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Michael and Jill Kafrissen

As the population of older adults grows globally, Jill and Michael Kafrissen want to bring more resources to meet the many challenges that come with aging.

Their concern is evidenced in their professional lives. Jill Kafrissen, LCSW, has broad experience in social work, legislative advocacy and philanthropic activities. Michael Kafrissen, MD, MSPH, who has had a long career in public health and pharmaceuticals, is currently chief executive officer of STE Health International LLC, director of research and innovation for UNC–Chapel Hill’s World Health

Organization Collaboration Center, based in the Gillings School’s maternal and child health department, and a researcher at Massachusetts Institute of Technology’s AgeLab. The AgeLab invents and translates technologies to address the practical issues of aging.

In 2010, the Kafrissens arranged for a generous legacy gift from their estate. Now, they have provided a new gift to fund scholarships for students with leadership potential who are committed to addressing issues of aging.

“While there are many areas of need in public health,” Jill says, “this gift is an effort to support aging research

Aging is a universal reality that will benefit from our best thinking.

The Gillings School is and will be an important source of these benefits.

—JILL KAFRISSEN

and highlight the need for more study in the area. Aging is a universal reality that will benefit from our best thinking, now and in the future, and the Gillings School is and will be an important source of these benefits. Our conversations with Dean Rimer and other School leaders have confirmed for us the School’s commitment to innovative solutions and a sustainable and valuable program.”

Michael Kafrissen also serves as a member of the Gillings School’s advisory council and adjunct professor in maternal and child health. He was a key player, through the MIT Agelab and in partnership with Cambridge University, in the Gillings School’s first international summit on aging issues, held in February 2014. (See [tinyurl.com/uncgillings-aging-summit-2014](http://tinyurl.com/uncgillings-aging-summit-2014).) He earned his master’s degree from the School in 1981.

—Elizabeth Witherspoon

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The following donors made a Mother's Day gift to the Gillings School's Department of Maternal and Child Health in honor or memory of a loved one.

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# MILLER NAMED NEW ASSOCIATE DEAN FOR ADVANCEMENT



Crystal Hinson Miller

Crystal Hinson Miller, MA, is the Gillings School's new associate dean for advancement, effective Sept. 1.

Miller most recently was vice president for children's programs at The Medical Foundation of North Carolina Inc., part of the UNC Health Care System and UNC Medical School.

As lead development and communications officer for UNC Children's Hospital since 2005, Miller managed all aspects of fundraising, donor and volunteer relations, board management, development strategic planning and communications related to the hospital and to the School of Medicine's Department of Pediatrics.

During fiscal year 2014, she was credited with a 26 percent increase in private gift commitments and with increasing unrestricted gifts threefold.

"We are thrilled to have Crystal join us," says Barbara K. Rimer, DrPH, dean of the Gillings School. "She is a seasoned development professional, with a great track record, who brings tremendous energy, experience, drive and commitment to our goals and values."

A native North Carolinian, Miller received a bachelor's degree from UNC-Chapel Hill and master's degree, with honors, from Appalachian State University. She succeeds Sandy Moulton, JD, MPH, interim associate dean for advancement, in the position last permanently held by Peggy Dean Glenn.

—Linda Kastleman

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# PAULA BROWN STAFFORD

## IN GRATITUDE FOR A WONDERFUL CAREER

Fortunate is the graduate who can reflect on her college years and name a professor whose influence has shaped her life and career. For Paula Brown Stafford, one of those professors was Craig Turnbull, PhD.

Turnbull established the UNC biostatistics department's Bachelor of Science in Public Health program in 1975 and led it until his retirement in 2006. The program was the first of its kind in the country and has served as a model for others. Turnbull was on the UNC public health school's faculty for 35 years, enabling hundreds of students to find rewarding careers in public health and medicine.

Brown Stafford (BSPH, 1986; MPH, 1992), president of clinical development at Quintiles and of the School's Public Health Foundation board, says she is grateful for Turnbull's mentorship and

the career the program empowered her to have. That is why she and her husband, Gregory W. Stafford, have established the Craig D. Turnbull Endowed Scholarship Fund.

"I am honored to have worked for Quintiles for 29 years and have the financial ability to recognize not only the School, but the biostatistics program and Craig Turnbull," she says. "Greg and I set up the fund in a way that will allow others also to give in Dr. Turnbull's name to help support future BSPH students in biostatistics."

Brown Stafford describes being a sophomore without a major. A biostatistics student in her dorm recommended she pay a visit to Dr. Turnbull.

"I remember meeting this enthusiastic professor who had frog paraphernalia throughout his office," she says. "He showed such passion! As he shared

details of the BSPH program, I knew it was the perfect fit for me."

In her junior year, she learned of Quintiles, then a start-up company, and applied for an internship. That led to a full-time position after graduation.

"If it weren't for Craig Turnbull," Brown Stafford says, "I wouldn't have been at the right place at the right time to be blessed by such a wonderful career."

—Elizabeth Witherspoon

### FIND OUT MORE

Read an article about the history of the biostatistics BSPH program at [tinyurl.com/UNC-bios-turns-35](http://tinyurl.com/UNC-bios-turns-35).



Charlie Bradley and Ruth Shults

## SHULTS FUNDS INJURY PREVENTION SCHOLARSHIP

When Ruth Shults, PhD, and her husband Charlie Bradley decided to endow a scholarship for the study of injury epidemiology, there was more than one beloved alma mater from which they could choose. Because of Ruth's positive experience as a doctoral student, they selected UNC Gillings School of Global Public Health.

"What really impresses us about the Gillings School is not only its strong history as one of the top academic schools of public health, but also its zeal for and leadership in public health practice. It's that combination of being

top in academics and public health practice that you don't often see in schools of public health," she said.

Shults, a senior epidemiologist on the Transportation Safety Team at the National Center for Injury Prevention and Control at the Centers for Disease Control and Prevention, is a 1999 epidemiology graduate. She worked on her doctorate in public health at UNC as a mid-career professional through the U.S. Public Health Service's long-term training program and has devoted much of her career to prevention of motor vehicle crashes by teens.

What really impresses us about the Gillings School is not only its strong history as one of the top academic schools of public health, but also its zeal for and leadership in public health practice.

—DR. RUTH SHULTS

Continuing to reduce teens' injury burden is critical to improving their health and survival, Shults says, given that injuries kill more young people in the U.S. than all diseases combined.

Shults and Bradley want to encourage doctoral students to consider career options in injury epidemiology and prevention. The scholarship provides funds to cover travel and living expenses for dissertation work related to injury prevention, with particular interest in students whose dissertation topics are in conjunction with the UNC Injury Prevention Research Center or the UNC Highway Safety Research Center.

—Elizabeth Witherspoon

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Dr. John Wiesman

## JOHN WIESMAN— 'I GOT ALL THAT AND MORE' FROM THE GILLINGS SCHOOL

When John Wiesman, DrPH, was searching for a doctoral program in leadership as a mid-career public health professional, he wanted one that allowed him to continue working full-time while studying full-time in a practice-based program—and to integrate that learning into his work along the way.

He said he got all that—and more—from his experience at the UNC Gillings School of Global Public Health. Now, he wants to pay his good fortune forward with a legacy gift from his estate. The John Wiesman and Ted Broussard Scholarship fund, a gift made jointly with his husband, will support student scholarships in the Department of Health Policy and Management's executive Doctor of Public Health program in leadership.

Wiesman, who graduated from the program in December 2012, now serves as Secretary of Health for the State of Washington and is an adjunct assistant professor in health policy and management at the Gillings School.

His purpose in making the scholarships available, he says, is particularly to empower those working on public health issues in government positions, "to make the program affordable and accessible" for students who might not have funding.

Wiesman was inspired by his studies at the Gillings School. "It was a classroom experience that I could take into my work, and I could take my work into the classroom," he says. "I also was looking for a cohort of people outside my normal networks to share invigorating ideas and teach me about systems I hadn't been exposed to."

From his first visit to campus, Wiesman says, he realized there was something special about Carolina.

"It was clear that the faculty here, especially in this program, saw themselves as guides and that we were going through the journey together," he says. "They learned as much as we did from the program, and they brought out the ability in us to learn from each other in the cohort. It modeled for us that learning is lifelong."

—Elizabeth Witherspoon

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7

**BARBARA K. RIMER, DRPH**

# Seven Decades, Seven Deans

“I am grateful to each of the deans who preceded me. Their unique strengths, vision and leadership have guided the School ever onward and upward, keeping it at the forefront of research, education and service in the field, and in a way that has exemplified the meaning of the *public* university.”

**DR. ROSENAU** was the innovator who inspired many and brought the dream of a public health school to reality. He built strong infectious diseases programs, attracted hundreds of international students, and during his leadership, most faculty members served as consultants to developing world agencies. Shortly before he died, he was ready to establish a department of nutrition. “Our school is booming,” he wrote in 1945, “and prospects are glamorous.”

**DR. MCGAVRAN** built a field station for training students and dramatically developed the School’s laboratory

component. What a forward-thinking approach to field work! During this time, the School’s laboratory became the Public Health Service’s Venereal Disease Laboratory—one of the best anywhere. Faculty and students were active in N.C.’s Good Health Campaign ([tinyurl.com/NC-good-health-campaign](http://tinyurl.com/NC-good-health-campaign)) to improve the health of North Carolinians. “The School continued to ... reach out to the people of the state,” noted an official of the Commonwealth Fund during that period. “There is about the School of Public Health an interesting atmosphere of confident assurance.”

**DR. MAYES** led the School during the late 1960s and early 1970s, a period characterized by historian and *Dreaming of a Time* author Robert Korstad, PhD, as one of contrasts. Mayes was the first dean to pay serious attention to recruiting women and minority students and faculty. He hired Bill Small to oversee minority recruitment and dealt with students’ increasing insistence that courses be relevant. Our annual Minority Health Conference began during this time.

**DR. GREENBERG**, beloved and renowned founding chair of the



6 WILLIAM L. ROPER, MD, MPH



5 MICHAEL IBRAHIM, MD, PhD



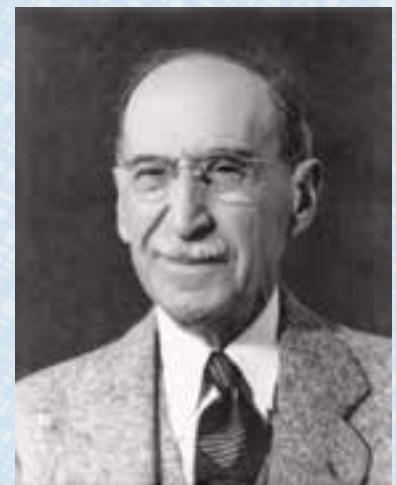
4 BERNARD GREENBERG, PHD



3 FRED MAYES, MD



2 EDWARD MCGAVRAN, MD



1 MILTON J. ROSENAU, MD

biostatistics department, took the School to new heights, increasing federal funding dramatically and leading the School and the world into the modern era of clinical trials. He raised academic standards, reached out across the university and achieved the first step on the path to the much-needed new public health building by obtaining support to plan it. It was an era that presaged an even grander future.

**DR. IBRAHIM**, already an outstanding School faculty member, became dean in 1982 and accomplished what had seemed impossible—*providing* the new building,

after years of overcrowding. His vision led the faculty to examine challenges that continue to this day—such as the need to increase interdisciplinary collaboration, improve teaching quality and achieve balance between School and department missions. He commissioned Robert Korstad's *Dreaming of a Time* ([tinyurl.com/uncsph-DOAT](http://tinyurl.com/uncsph-DOAT)), a history of our first 50 years.

**DR. ROPER** recommitted the School to practice and to North Carolina, strengthening its role in the policy arena. He brought outstanding people from diverse sectors onto our advisory boards

and led the School through the crisis period after Sept. 11, 2001. Today, as dean of the UNC School of Medicine, he cultivates the many connections and collaborations between our schools.

We remain dedicated to improving public health for the people of North Carolina and the world. We take pride in being the best *public* school of public health in the world, and we are committed to earning our reputation every day.

—Barbara K. Rimer



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