Carotenoid supplements tied to increase in breast cancer deaths

While the benefits of vitamin supplement use for breast cancer patients are unclear, some supplements may actually be harmful, according to a new study published in Cancer by lead author Dr. Heather Greenlee, Assistant Professor of Epidemiology and Medical Oncology (in Medicine), and colleagues.

The researchers analyzed data from the Life After Cancer Epidemiology (LACE) prospective cohort study of 2,300 women with early-stage breast cancer, finding that those who regularly took either vitamins C or E supplements had a lower risk of cancer recurrence over five years compared to those who didn’t take them.

However, women who regularly consumed a mix of carotenoids like vitamin A, beta-carotene, and lutein, were at greater risk of dying from breast cancer, and at risk of dying from any cause, when compared with those who didn’t take them.

Moreover, much of the benefit associated with vitamins C and E could be explained by “healthy user bias,” which means that women who use dietary supplements generally have healthier lifestyles, according to Dr. Greenlee. Healthy user bias did not explain the findings found with mixed carotenoids.

“Our paper adds to the growing body of literature suggesting that dietary supplements containing high doses of carotenoids may be harmful, and people should think twice before taking them,” Dr. Greenlee says. “Dietary supplement use is high among cancer patients and they need specific guidance on what is safe and effective.”

Concerns have been raised that taking supplements with antioxidant properties, like carotenoids, vitamin E, vitamin C, selenium and zinc, during chemotherapy or radiation can interfere with treatments. This could occur because the supplements may protect tumor cells from the “pro-oxidant” effects of cancer treatments. However, antioxidants cannot be assumed to uniformly act in a similar function, since they have different physiological functions in the body, Dr. Greenlee stresses.

Although the study could not prove that carotenoids are harmful to cancer patients, the results heighten concern about carotenoids’ health effects, following on previous randomized controlled trials that found beta-carotene to increase the risk of lung cancer among smokers.

MESSAGE FROM THE CHAIR

Dear colleagues,

Welcome to the December 2011 issue of Two by Two, the Epidemiology Department newsletter. Dr. Inge Goldstein, Special Lecturer in Epidemiology, is featured in this issue as a Pioneer Among Us for her groundbreaking early studies on air pollution and health. Our December faculty profile endeavors to capture the spirit of the prolific Dr. Lloyd Sederer, Adjunct Professor of Epidemiology and Medical Director of the New York State Office of Mental Health. And as always, we highlight the accomplishments of our faculty, staff, and students over the last two months.

This issue also launches a new regular feature, Partner Profiles, in which we provide a closer look at the outstanding centers and institutes with which our faculty collaborate. These partnerships are essential to the cutting-edge interdisciplinary research and training conducted in Epidemiology, and our first Partner Profile, the Centre for the AIDS Programme of Research in South Africa (CAPRISA) is a superb exemplar.

As we move toward the close of 2011, we are also beginning to reflect on the past year and to look ahead. We have a wealth of accomplishments to look back upon and exciting plans underway for the coming year. Many of these have been featured in the pages of Two by Two over the course of 2011. We will provide a comprehensive summary in our Department annual report, which will be published in January 2012.

I would like to take this opportunity to say thank you once again to the faculty, students, and staff who have made Two by Two possible over the past 12 months. As always, we welcome comments and ideas for future issues of Two by Two.

Wishing everyone a joyful and safe holiday season,
Cancer treatment responsiveness varies by genetic mutation

Dr. Victor Grann co-authored an editorial in JAMA about the association between genetics and treatment outcomes for those with breast and ovarian cancer. Dr. Grann, Clinical Professor of Medicine, Epidemiology, and Health Policy and Management, commented on an accompanying study by researchers at the University of Texas who investigated women’s responsiveness to chemotherapy related to mutations in one of the 2 genes associated with breast cancer. Women with mutations in either the BRCA1 or BRCA2 gene have an elevated lifetime risk of developing breast or ovarian cancer. However, the Texas study found that women with BRCA2 mutations have an improved chance of survival compared to women with BRCA1 mutations or without mutations in either gene. This discrepancy “should encourage attention to the differences in treatment between the 2 groups, particularly among women with ovarian cancer,” says the editorial. “Further refinement in the understanding of the differences in the DNA repair deficits due to BRCA1 versus BRCA2 mutations could lead to therapy that is better targeted.”


Prenatal use of folic acid supplements may reduce risk of severe language delay in children

A large pregnancy cohort study in Norway has found that maternal use of folic acid supplements during the period around conception could reduce the risk for severe language delay in offspring at age 3. Published in JAMA by senior author Dr. Ezra Susser, Professor of Epidemiology and Psychiatry, and lead author Ms. Christine Roth, a visiting researcher, the study adds to what is known about the use of folic acid supplements, which are commonly recommended for pregnancy. The researchers found that the risk for developing severe language delay among 3-year-olds was reduced twofold among women who took folic acid supplements during the period four weeks before conception and eight weeks after. The study was carried out from 1999-2008 and had a cohort of 38,954 children. Significantly, it is the first to look into the relation between folic acid and language development in infants. The researchers will follow up again with the children at age 5.

New evidence sheds light on timing co-treatment of HIV and TB

A new finding in the ongoing Starting Antiretroviral Therapy at Three Points in Tuberculosis (SAPit) study has been published in the New England Journal of Medicine by Drs. Salim and Qurarrasha Abdool Karim (Professor of Clinical Epidemiology and Associate Professor of Clinical Epidemiology, respectively), and co-authors Dr. Wafaa El-Sadr, Professor of Medicine and Epidemiology and director of ICAP, and Dr. Gerald Friedland, Adjunct Professor of Epidemiology and Professor of Medicine at Yale University.

The study investigates how to time the treatment of individuals infected both with tuberculosis (TB) and HIV in sub-Saharan Africa. It is a critical issue for a region in which 70% of individuals with TB are also HIV-positive. Overlapping anti-retroviral therapy (ART) with treatment for TB poses the risk of increased side effects and other hazards.

The timing, according to the study results, should depend on the state of the patient’s immune system. While those with stronger immune conditions could start ART treatment 3-months into TB treatment, individuals with a low T-cell count—a sign of an immune system that has been severely weakened by HIV—were better off if they began ART within the first four weeks of TB treatment.

The latter group showed a two-thirds decline in the death rate, compared to those with severely weakened immune systems who had started ART later. For more on the history of SAPit, see page 17.


Off-label use of female condoms poses health question

A new study provides the first documented evidence that the female condom is being used for heterosexual anal intercourse, adding to questions about the vaginal contraceptive’s efficacy for off-label uses. The study in the American Journal of Public Health was first authored by Dr. Elizabeth Kelvin, a PhD graduate from the Department of Epidemiology, with co-authors Dr. Zena Stein, Professor Emerita of Epidemiology and Psychiatry, and Dr. Susie Hoffman, Assistant Professor of Clinical Epidemiology (in Psychiatry), along with other colleagues at the HIV Center for Clinical and Behavioral Research at the New York Psychiatric Institute / Columbia University and collaborators at Gay Men’s Health Crisis. The researchers surveyed 111 clients of an HIV/AIDS service organization in New York City finding that 17% had used a female condom for anal sex. Among that group, 21.4% used the condoms for anal sex with female partners.

The female condom has been approved for vaginal use by the US Food and Drug Administration but not for anal use, highlighting “the urgent need to evaluate the safety and efficacy of the female condom in anal intercourse,” the study says.

Marijuana use may double risk of driving accidents

Drivers who test positive for marijuana or who report marijuana use are more than twice as likely as other drivers to be involved in motor vehicle crashes, according to the results of a meta-analysis senior authored by Dr. Guohua Li, Professor of Epidemiology, with co-authors Dr. Charles DiMaggio, Associate Clinical Professor of Epidemiology; Ms. Joanne Brady, a PhD candidate; and Mr. Keane Tzong, an MPH candidate. The analysis, which pooled data from 9 epidemiologic studies conducted in 6 different countries, also indicates that 28% of fatally injured drivers and more than 11% of the general driver population tested positive for non-alcohol drugs, with marijuana being the most commonly detected substance. Dr. Li cautions against inferring from the epidemiologic data that marijuana use causes car accidents. However, “if the crash risk associated with marijuana use is confirmed by further research, this is likely to have major implications for driving safety and public policy,” he says.


The Early Determinants of Adult Health Study: A milestone

The first set of articles emanating from the Early Determinants of Adult Health (EDAH) and related studies have been published as a theme issue in the December Journal of Developmental Origins of Health and Disease. The seven papers include six on which MSPH faculty are first or senior author (Drs. Pam Factor-Litvak, L.H. Lumey, Ian McKeague, Ezra Susser, and Mary Beth Terry). The project is historically significant, as well as important for having developed a promising new resource. The core EDAH study, led by principal investigator Dr. Susser, combined two major US pregnancy cohorts born 1959-1966 to provide a large enough sample to study prenatal exposures and midlife health among same sex sibling pairs. Related grants by principal investigators Dr. Marybeth Terry and Dr. Pam Factor-Litvak extended the core study to other outcomes and other designs. Dr. Howard Andrews provided vital data management support, and Ms. Kim Fader was a superb project director of this complex study. The EDAH study was based in the Imprints Center for Genetic and Environmental Lifecourse Studies.
In the News

Dr. Neugut comments on studies of vitamin supplements and cancer

In a Huffington Post column, Dr. Al Neugut offers some perspective on a widely-reported medical study that showed Vitamin E seemed to increase the risk of prostate cancer. Dr. Neugut, who is the Myron M. Studner Professor of Cancer Research (in Medicine) and Professor of Epidemiology, points out that nearly all of the randomized trials that have looked at an association between vitamin supplements and cancer have shown that, for people who are not vitamin deficient, there is no benefit in taking supplements to prevent cancer. “If anything, as the studies are starting to suggest, it may be more harmful than beneficial,” he says.

Dr. Schluger quoted in story about respiratory hazards of indoor stoves

Dr. Neil Schluger, Professor of Medicine, Environmental Health Sciences, and Epidemiology at NYPH/CUMC, is quoted in an article on PBS’s “News Hour” website about the adverse health effects of stoves used in fast-developing nations like India. The makeshift stoves, which families typically power by burning wood, dung, or other biomass fuels, emit smoke and pollutants that contribute to an estimated 2 million deaths a year, according to new figures by NIH. “This creates levels of air pollution in homes that are astronomical, hundreds of times more than what you might breathe in New York, for example,” says Dr. Schluger, who is also chief scientific officer at the World Lung Foundation. The United Nations Foundation is currently working on an initiative to create a demand for cleaner electric or solar-powered stoves.

Dr. Salim Abdool Karim comments on tenofovir’s effectiveness against herpes

In 2010, the CAPRISA trial of tenofovir vaginal gel found that it not only lowered the likelihood of HIV transmission in women but did an even better job of protecting them against genital herpes. At the time, it was not clear why. Now, a follow-up study by researchers from the National Institutes of Health [NIH], Gilead Sciences Inc., and universities in Belgium and Italy, reported on in October by the New York Times, has biologically confirmed tenofovir’s preventative effect on herpes transmission using lab experiments. “We were very pleasantly surprised to see such a potent effect. However, until now, we had only a hypothesis for the mechanism of action—no clear-cut data,” says Dr. Salim Abdool Karim, director of the 2010 CAPRISA trial.
MPH alum receives APHA abstract award

Laura Stadelmann, MPH ’11, received the American Public Health Association's (APHA) Epidemiology Section Student Award, for her abstract “Comparing models of HIV transmission risk on concurrent HIV/AIDS diagnosis using multiple imputation and other methods for handling missing risk data, New York City 2008.” Ms. Stadelmann is currently a Council of State and Territorial Epidemiologists Applied Epidemiology Fellow at the New York City Department of Health and Mental Hygiene.

MPH alum receives APHA best paper award

Dustin Carpenter, MPH ’11, has been awarded the 2011 Best Paper Award for the Injury Control and Emergency Health Services Section of APHA. His winning paper was adapted from his thesis on road safety, titled “Graduated driver license night-time compliance in US teen drivers involved in fatal motor vehicle crashes.”

Dr. El-Sadr honored by Infectious Diseases Society of America

Dr. Wafaa El-Sadr, director of ICAP and Professor of Epidemiology and Medicine, has been selected by the Infectious Diseases Society of America (IDSA) to receive the 2011 Society Citation Award for her outstanding contributions to the field of infectious disease. First presented in 1977, the Society Citation is a prestigious award that recognizes exemplary contribution to IDSA and outstanding achievements in the field of infectious diseases in research, clinical investigation, or clinical practice.

Dr. Lumey joins University of Chicago's Health Inequality Network

Dr. L.H. Lumey, Associate Clinical Professor of Epidemiology, was invited to become a member of the Health Inequality Network, a multidisciplinary research network at the University of Chicago. The aim of the group is to combine insights from several disciplines into a unified approach, in order to build up a comprehensive framework for the emergence and the evolution of health disparities over the lifecycle and across generations.

Dr. Genkinger and Dr. Hall awarded Calderone Junior Faculty prize

Dr. Jeanine Genkinger, Assistant Professor of Epidemiology, and Dr. Megan Hall, Associate Research Scientist, have each been awarded one of this year’s 3 Calderone Junior Faculty Awards. The prestigious award supports the research efforts initiated by junior faculty at the Mailman School. We are proud that Epi won 2 out of 3 of this year’s Calderone awards.

Dr. Greenlee receives leadership award from the Society of Integrative Oncology

Dr. Heather Greenlee was honored with the Outstanding Service Award in Leadership at the Society for Integrative Oncology’s annual international meeting.
Awards & Grants

Dean Fried honored at Bipartisan Congressional Awards Gala

In a ceremony attended by approximately 300 members of Congress and key Executive Branch figures, the Alliance for Aging Research honored Mailman School Dean Linda P. Fried at its 25th Anniversary Bipartisan Congressional Awards Gala held in Washington, D.C. Dean Fried, who is also the DeLamar Professor of Public Health and Professor of Epidemiology and Medicine, was presented with the organization’s inaugural Silver Innovator Award for her work as a scientist who has been an exemplary leading innovative researcher in improving the health and well-being of aging Americans.

Dr. Ottman awarded grants to research epilepsy

Dr. Ruth Ottman, Professor of Epidemiology (in Neurology and the Sergievsky Center), was awarded R01 funding from the National Institute of Neurological Disorders and Stroke funding program, called Centers without Walls for Collaborative Research in the Epilepsies. The project, entitled “Epi4K: Gene Discovery in 4,000 Epilepsy Genomes,” is designed to identify genetic variations that contribute to risk for specific forms of epilepsy using whole genome or whole exome sequencing in 4,000 affected individuals. It includes six linked R01 grants (three cores and three scientific projects), each of which has multiple principal investigators from an international team. Dr. Ottman is principal investigator on two of these grants, worth a total of $3.1 million.

Drs. Hornig, Lipkin, and Hammer awarded chronic fatigue grant

Drs. Mady Hornig and Ian Lipkin of the Center for Infection (CII) and Immunity have been awarded a substantial grant from the Chronic Fatigue Initiative to investigate the role of pathogens in causing chronic fatigue syndrome. Dr. Hornig, an Associate Professor of Epidemiology and Director of Translational Research at CII, will direct research on biomarkers and pathogen discovery.

The Initiative was established by the Hutchins Family Foundation with a donation of more than $10 million in order to study chronic fatigue syndrome. The initial phase of funding also supports New York-Presbyterian Hospital/Columbia University Medical Center, where the Hutchins Family Fellowship in Infectious Disease will be established under the direction of Dr. Scott Hammer, Professor of Medicine and Epidemiology.

“This is a truly exciting opportunity to understand the causes of this often neglected disorder,” said Dr. Hornig. “We hope our findings will lead to better diagnoses and the development of an effective treatment.”

Submitted Grants

Department of Epidemiology, January–November 2011

Assistant Professor

Associate Professor

Professor
New York’s chief psychiatrist ventures into public writing

In 2009, after nearly 35 years practicing as a psychiatrist, and with a CV full of academic journal publications and textbooks, Dr. Lloyd Sederer, the chief medical officer of the New York State Office of Mental Health (OMH), began writing for a different audience.

He had always enjoyed writing, having published his first medical articles in the American Journal of Psychiatry when he was a resident. “I was pretentious back then,” he says, scoffing a bit at the punny title of some of his early articles: “Moral Therapy and the Problem of Morale” and “Second-Hand Rose”.

But Dr. Sederer, who in addition to being New York’s chief psychiatrist is an Adjunct Professor of Epidemiology, didn’t think his academic publications were getting him any closer to patients and their families—the groups he truly wanted to reach.

“I was trying to speak to the people who received services,” he says. “They are the ones who need to understand medical care. They are yearning for someone to help them and in a personal way, to answer questions like, ‘Why’s it so impossible to get an appointment? Why does my loved one not get better? Where do I turn when that happens? Why does the doctor not answer my calls?’

“I started to realize, answers to those questions are not what’s in journals.”

So Dr. Sederer approached the world of online media. A professional writer friend of his introduced him to an editor at The Huffington Post who quickly responded that the website wanted to publish an article he had sent in. Soon, his pieces were appearing regularly in the The Huffington Post.

Today Dr. Sederer serves as a medical editor of mental health for the Huffington Post. His work has also appeared in the International Herald Tribune/New York Times, the WSJ.com and Washington Post, and he runs a website called Ask Dr. Lloyd (asklloyd.com), which is dedicated to helping people figure out how to get care for a mental illness or addiction.

His writing combines story-telling with facts, figures, and an insider’s insights about mental health care in America. Several of his columns have used journalistic techniques to highlight the story of a troubled patient or a family member in despair.

“A literary friend of mine told me this is called ‘narrative non-fiction,’ another said it was memoir,” he says of an October 5 piece he wrote for Psychiatric Times. “All I know is that it is a true story.”

In that article, Dr. Sederer recounts his experience as a young intern in a Veterans Administration hospital. He is assigned to evaluate Billy, a 19-year-old Vietnam War veteran for a pre-trial evaluation pending a court martial for robbing dead American soldiers. Dr. Sederer must decide whether Billy is suffering from a psychotic disorder or is a criminal.

After meeting daily, Dr. Sederer comes to believe Billy has a mental illness that has been made worse by a difficult childhood, drug abuse, and the war. Dr. Sederer makes a convincing case in a grand rounds session that Billy should not be treated as a menace to society. “Billy taught me more about mental illness than any book or paper I had read or seminar I had attended that year,” he says in the article.

Despite being chief medical officer of the largest mental health care system in the country, he is not shy about calling out the mental health care system’s inadequacies.

“Mental health care in the U.S. is broken, as you have or soon will see,” Dr. Sederer says in a Huffington Post article that gives advice for those who have family with a mental illness. “Like it or not, you will need to become a vocal spokesperson for what your loved one needs in a system that is fragmented, not organized to be accountable, not funded to incentivize effective care, and very uneven in its quality, despite good people trying to do the right thing,” he continues.

It is an insight gleaned firsthand from his many years in hospital administration positions, including as medical director and...
executive vice President of McLean Hospital in Belmont, Mass., a Harvard teaching hospital. After 11 years at McLean and most of his adult life spent in Boston, he moved to New York City to become executive deputy commissioner for mental hygiene services in at the Department of Health and Mental Hygiene.

Not long after beginning his tenure at OMH in 2007, he implemented sweeping reforms in licensing of mental health clinics in the state—basing the process on clinical care rather than paperwork and “exit signs.” The effort came about in 2009 after several gruesome murders might have been prevented, Dr. Sederer found, had the people involved gotten good mental health treatment. He reported on this story with his boss, Commissioner Michael Hogan, in Health Affairs in 2009.

The new licensing requirements mandate communication between caregivers, screening for drug and alcohol use, and having someone on call and available to patients and families after 5 pm, all previously not expected by the state’s licensing procedures.

Public writing, Dr. Sederer likes to say, is very reinforcing. Articles are published days after they are written and readers can get in touch with him directly—and do—when they have a question or comment about his article. While Dr. Sederer says he cannot give medical advice to those who contact him by email, he wants to serve as a public, human face of mental health, a doctor who can at the very least encourage people to seek treatment and assure them that mental disorders need not be a life sentence.

Although he intends to keep his day job—the Huffington Post gig is unpaid—Dr. Sederer has taken on increased writing and editorial responsibility for a number of publications. He is also frequently called on to review movies and books, focusing in particular on those that say something about the human condition.

These days, he is finding himself getting pretty comfortable in his new role. At a fundraising dinner for autism, he was seated at the same table as New Yorker editor David Remnick, who complimented Dr. Sederer on his work as a public servant. When they exchanged contact information, Dr. Sederer opted for slipping Mr. Remnick his Huffington Post card instead of the OMH card.

A selection of Dr. Sederer’s articles


“Advice for Those with a Loved One With Mental Illness” in The Huffington Post [March 14, 2011]


“Pay for Health Reform with an Alcohol Tax” with Eric Gopelrud in The Washington Post [September 28, 2009]

“Mental Health Crises and Public Policy” with Michael Hogan in Health Affairs [Vol 28, No 3, 2009]
As the Senior Cluster Administrator (SCA) for the chronic disease epidemiology cluster, Kathleen Flandrick’s intelligence and professionalism is well known to faculty and fellow staff.

“Kathleen is so good at her administrative and organizational activities that I have to make up reasons to go in to talk to her,” says chronic epidemiology cluster leader Dr. Al Neugut.

Her duties include handling the cluster’s pre- and post-award grant administration and management, along with many other projects. She also serves as a liaison between chronic disease epidemiology faculty and staff and the Department’s central administration.

“She supports an extremely productive group of the Department’s faculty, and she’s done a fantastic job of becoming fluent in their various activities and research projects in a very short period of time,” says Christina McCarthy, interim Department Administrator.

Kathleen appreciates how being an SCA keeps her involved with both public health and grant making. “The chronic disease cluster has a diverse set of research activities and funding sources, and they always keep me on my toes,” she says.

Arriving here this past June, Kathleen came with a wealth of education and experience in public health and administration, including an MPH from University of Pennsylvania. While there, she worked as a research program development manager, project managing large institutional grant proposals and editing and producing an annual grant writing manual.

She has also worked as a financial administrator in London at South Bank University’s business school, and as an administrative specialist at the Amherst H. Wilder Foundation in St. Paul, where she edited and designed a collaborative newsletter, organized large events, and worked closely with grantees on reporting.

In New York, she has worked as a development associate at Regis High School on the Upper East Side, where she managed the daily operations of the annual fund, edited and designed the monthly magazine, and produced the annual report. She also worked as a grants coordinator at the CUMC Dental College, where she focused on pre-award grant administration.

Kathleen hails from Stillwater, Minnesota. Her parents have a small organic farm where they raise free range chickens, sheep, pigs, and bees. A number of animals keep watch over the farm, including a llama, several Chinese geese, and two large dogs.

Currently, she and her husband, an emergency medical resident at Stony Brook University Medical Center, live in Great Neck, Long Island, the halfway point between their jobs. Her commute to Columbia gives her ample time to read fiction. A recent favorite of hers was Jennifer Egan’s A Visit from the Goon Squad.

In her free time, Kathleen enjoys catching live indie or punk rock shows, visiting her friends in Brooklyn, and taking in modern and contemporary art. Some of her favorite artists are Richard Serra, Anselm Kiefer, Gordon Matta-Clark, and Zoe Strauss. Both travel enthusiasts, Kathleen and her husband recently visited Iceland and are planning a vacation to Istanbul in the spring.
First annual Master’s Student Day showcases student work

On October 28, the Department of Epidemiology held its first annual “Epi Master’s Student Day.” The event was created to give master’s students an experience similar to that of presenters at professional conferences.

The event kicked off with an hour-long session in which master’s students in all six Department clusters presented posters about their practicum research and experience. The diversity of practicum sites offered by the Department was well represented, from the New York City Department of Health and Mental Hygiene to UNICEF Ghana, from the National Institutes of Health to the Shanghai Centers for Disease Control. Faculty and students also gathered to listen to presentations by our 3 abstract winners and to ask questions, which allowed our students to demonstrate their command of complex epidemiologic principles. The winners also received cash prizes.

Special acknowledgements go out to Dr. Joyce Pressley, who heads up the practicum program and brought this impressive event together. Ebony King, Anthony Diaz, Erin Gilbert, Liliane Zaretsky, and Elizabeth Ferrari were critical in making sure the event happened smoothly. Dr. Ruby Senie, Dr. Parisa Tehranifar, and Dr. Megan Hall reviewed and submitted abstracts and judged posters. PhD students Carolyn Herzig and Catherine Richards and master’s students Diane Addison, and Patrick Dawson also helped with all stages of the event.

We look forward to this becoming a long-term tradition in the Department, showcasing the best of our students’ work.

Following is a list of the winners of our practicum awards, in the best abstracts category and in the best posters category, which was broken down by cluster:

**PRACTICUM DAY AWARDS**

**Best abstracts**

- **First place** Patrick Dawson, Infectious disease epidemiology, for “The epidemiology of tuberculosis among New Yorkers living in public housing, 2001-2009”
- **Second Place** Ashleigh McGirr, Epidemiology innovation, for “Assessing the effects of human behavior in distributing post exposure prophylaxis: A computer simulation approach”
- **Third place (tie)** Rhea Powell, Chronic disease epidemiology, for “Does genetic ancestry modify the relationship of smoking to lung function? The MESA Lung Study”
- **Sarah Reber**, Epidemiology innovation, “Child protection systems and outcomes in Northern Uganda CPC Learning Network”

**Best posters**

- **Chronic disease epidemiology (tie)** Jennifer Brite, “Height and the risk of gestational diabetes: Does maternal race make a difference?”
- **Stephen Mooney**, “Using Google Street View to assess physical characteristics of neighborhoods”
- **Epidemiology innovation** Alexandra Kravitt, “Birth outcomes among pregnant women exposed to the World Trade Center attacks on September 11, 2001”
- **Infectious disease epidemiology (three-way tie)** Stephanie Shiau, “Body composition and metabolic abnormalities of perinatally HIV-infected children in South Africa on long-term ARV treatment”
- **Man Kai (Alyssa) Wong**, “Strengthening active case finding of tuberculosis among deported migrants in Cambodia”
- **Frank Zadravec**, “Spectral decomposition of the viral meteorological seasonal forcing reactivated tuberculosis incidence in urban Brazil”
- **Lifecourse epidemiology** Colette Friedenson, “Do offspring of mothers exposed to constant, low levels of organochlorine compounds have increased risk of autoimmune thyroid disease?”
- **Psych/neuro epidemiology** Seema Kara, “Socioeconomic disparities and modifiable risk factors amongst people with serious mental illness”
- **Social epidemiology** Niloufer Taber, “Castle Gardens: Affordable and supportive green housing for low-income New Yorkers”
First EPIC Fund Cycle awards

In October, six trainees were awarded funds in our first EPIC Fund cycle from a total of 13 applicants. The EPIC Fund was established by the Department to provide our trainees with an opportunity to access resources beyond those covered by their standard tuition. Drawn from revenue generated by our annual summer institute, EPIC, trainees apply for funding for such things as travel; purchase of datasets or samples for a study; and expenses for short workshops, software packages, or training in lab techniques. The next funding cycle will be in January 2012.
This is the first of our “Partner Profiles.”
Over the coming year, Two by Two will feature
some of the many innovative centers across
the University with which the Department of
Epidemiology partners.
For the Department of Epidemiology, where both Abdool Karims have faculty appointments, the tenofovir trial was emblematic of a commitment to public health research and interventions that are shaped by social realities. It also highlighted the long history the Abdool Karims have with the Department, dating back to their time as graduate students here in the late 1980s, when they studied and experienced the public health response to the HIV epidemic in New York City.

While the collaboration between Columbia and CAPRISA was made official nearly one decade ago, when the latter was founded, the relationship between the Abdool Karims and the Department of Epidemiology has endured for nearly 25 years.

“It is a cross-Atlantic partnership that has deep roots going back the fight against apartheid and the struggle for human rights, social justice and health for all,” Slim says.

**Education in Epi**

The couple came to New York in 1987 so Slim, a physician, could begin a new fellowship started at the Gertrude H. Sergievsky Center by Dr. Mervyn Susser to train South Africans in public health. Slim enrolled in the MS in epidemiology program at Columbia in 1987 and Quarraisha joined him at the beginning of 1988, doing research in the Microbiology laboratory while studying epidemiology and parasitic diseases at Columbia.

During their year in New York, the newly married couple became involved with the public health debates about AIDS. Quarraisha was mentored by Dr. Zena Stein who would, in 1990, publish a
groundbreaking article about HIV prevention in the *American Journal of Public Health* that highlighted the importance of HIV prevention methods that women could control.

“She really imprinted on me the importance of looking at everything through a gendered lens,” Quarraisha says.

After the Abdool Karims returned to South Africa at the end of 1988, Slim started his 3-year residency in public health medicine at the Nelson R. Mandela School of Medicine.

Meanwhile, Quarraisha began her career in public health research at the South African Medical Research Council. As she was working to establish research priorities, she thought of her experience in New York, having seen the HIV epidemic’s effects on communities like Greenwich Village, Harlem, and the Bronx.

It inspired her to conduct one of Africa’s first population-based studies on AIDS in rural districts of the province of KwaZulu-Natal.

The study results showed that a disproportionate impact of the HIV burden was born by young women, and that transmission was intertwined with population migration. Furthermore, women on average were 5 to 7 years younger when they acquired the virus than men, suggesting that female-targeted prevention had to begin at an early age.

“This study was one of the first reasons why we started focusing on women,” Quarraisha says.

The study also suggested that the worst was yet to come, that “we were only at the very early stage of the epidemic.”

**Joining the epi faculty**

In 1994, the couple returned to New York for a semester, this time as faculty. They taught infectious disease epidemiology in the Department, worked with Dr. Zena Stein to set up the Fogarty AIDS International Training and Research Program, and established several collaborations to build their AIDS research efforts in South Africa. Since then, they have continued as faculty in Epidemiology, including in their Mailman collaborations with Dean Allan Rosenfield, Dr. Alan Berkman, Dr. Ron Bayer, and Dr. Anke Ehrhard.

In 1995, Quarraisha was appointed by Nelson Mandela’s government to lead the country’s AIDS control program, where she faced the daunting task of converting evidence into policy and policy into action. During this time, Slim was the director of the South African Medical Research Council’s Center for Epidemiologic Research in South Africa (CERSA) and in 2001 took up the position of Deputy Vice-Chancellor for Research at the University of KwaZulu-Natal in Durban.

**Founding of CAPRISA**

CAPRISA was established in 2002 through a groundbreaking agreement that brought five partner institutions together, made possible by a National Institutes of Health (NIH) grant. The various legal and other requirements of each partner institution, and the trans-continental relationships between Columbia and the four South Africa institutions (University of KwaZulu-Natal, University of Cape Town, University of Western Cape, and the National Institute for Communicable Diseases in Johannesburg) made the agreement both a challenge and a great achievement, Slim says.

At the outset CAPRISA became an official research center at both Columbia and the University of KwaZulu-Natal, one of only two organizations that received funding in the first cycle of the NIH’s new Comprehensive International Program of Research on AIDS (CIPRA) to fund international centers of excellence in AIDS research.

CAPRISA today has a strong collaborative relationship with several senior faculty members of the Department of Epidemiology. Drs. Zena Stein, Mervyn Susser, Wafaa El-Sadr, Scott Hammer, Sharon Schwartz, Al Neugut, Ian Lipkin, Seth Berkley, and Ezra Susser all work with CAPRISA scientists.

With several collaborating research laboratories across the country, the organization has a significant presence in Durban, Cape Town, and Johannesburg. CAPRISA has clinics that are accessible for walk-in patients in the Durban city center and rural Vulindlela, about 90 minutes from Durban.
DECEMBER 2011

The FACTS001 study that is like an expanded CAPRISA 004 study. If these are successful and the gel becomes an approved medicine, the gap between evidence, policy, and implementation will be substantially reduced owing to an early entreaty CAPRISA made with Gilead headquarters in California to secure a royalty-free license, which has now enabled a joint government—private partnership to manufacture and distribute the gel.

"The idea is to make enough gel to supply the whole of Africa on a straight not-for-profit basis."

The year 2010 was a triumphal one for the organization. In February, CAPRISA came out with the results of the seminal Starting Antiretroviral Therapy at Three Points in Tuberculosis Therapy trial (known as "SAPiT"), which made recommendations on treating concurrent TB and HIV. (Treatment of a patient with both diseases can often cause serious side effects, which has made it difficult for doctors to decide when to start antiretroviral therapy during TB treatment). The World Health Organization and the US Department of Health and Human Services subsequently used SAPiT as the basis for their guidelines for the treatment of TB-HIV co-infected patients. When fully implemented, the findings of SAPiT could save thousands of lives a year, Slim says.

Then there was the announcement of the CAPRISA 004 findings, which was ranked in the "Top Ten Scientific Breakthroughs of 2010" by the journal Science. The Abdool Karims had begun their first microbicide trial in 1993. They first investigated the feasibility of a vaginal microbicid by interviewing the sex workers who frequented truck stops in South Africa—a population that was considered significantly at-risk for HIV transmission.

Although their early trials met repeated failure, the exigencies of the time made it impossible to stop working on the technology; an HIV prevention method for women was desperately needed.

"In many ways, you have to be somewhat pig-headed to persist in the presence of all of this failure," Slim says. "When the going got tough, our friends and colleagues in Epi were always sympathetic and actively supported us in our efforts to stay the course."

By the late 1990s, the HIV epidemic in South Africa was no longer asymptomatic—that is, people had moved past the early stages of infection and were now showing telltale AIDS symptoms and dying, much like the US experience in the mid-to-late 1980s. The trend of women being infected with HIV at a higher rate than men continued to bear out in the higher number of young women presenting to hospital with AIDS.

"We were constantly being reminded about the needs for methods that women could initiate and use," Quarraisha says. "As we continued to do our prevention work and tried to identify uninfected women, we started to find more women who were infected than uninfected. It was a dire response to a real situation. It wasn’t whether we wanted to do it. We had to do it."

The future of CAPRISA

Despite the good news of the tenofovir trials, the Abdool Karims’ agenda for CAPRISA has not slowed. They are now conducting a TB prevention study that looks at HIV patients who get infected for a second time with TB.

Quarraisha is also heading up a study that focuses on preventing HIV by incentivizing certain behaviors in adolescents. The 2,500 school children enrolled will receive a financial incentive every time they engage in certain preventative behaviors, such as getting HIV testing. They also will receive money as an incentive if they do well academically, based on findings that the longer children are in school, the less likely they are to contract HIV.

A trial of a new AIDS vaccine—thus far an elusive goal for AIDS researchers—is also being planned for 2012 with a research group from Harvard.

As for tenofovir gel, it is currently going through what are called confirmatory trials, including the VOICE study of 5,000 women and the FACTS001 study that is like an expanded CAPRISA 004 study.

If these are successful and the gel becomes an approved medicine, the gap between evidence, policy, and implementation will be substantially reduced owing to an early entreaty CAPRISA made with Gilead headquarters in California to secure a royalty-free license, which has now enabled a joint government—private partnership to manufacture and distribute the gel.

"The idea is to make enough gel to supply the whole of Africa on a straight not-for-profit basis," Slim says.

It is a remarkable prospect, considering most pharmaceuticals take years to make it to a mass market in Africa. It signifies the way in which CAPRISA bridges science and implementation, as well as evidence and public health.

Says Slim: "We’ve never seen ourselves in any other way than being scientists of the world."
Inge F. Goldstein, Special Lecturer in Epidemiology, has spent nearly 45 years at the Mailman School of Public Health, researching the health effects of air pollution, air-borne allergens, and asthma. She was one of the earliest researchers to realize, as the late Dean Allan Rosenfield put it, that “asthmatics [might] be canaries in the mine shafts—a sensitive population whose health status might have implications for all of us.”

Through her research, she “pioneered in thinking about how urban environments contribute to the burden of asthma and developed new methods for studying air pollution and health,” says Dr. Jonathan Samet, Director of the Institute for Global Health at University of Southern California. “She was among the first to notice that people who live in northern urban environments spend more time indoors than outdoors and to study the health effects of indoor environmental exposures. She was also among the first to use time-series approaches to investigating air pollution, now a standard and informative methodology. She did this work in a typically quiet but determined fashion, and, in my opinion, she should have been more widely recognized for her early contributions.”

From biophysics to epidemiology

Dr. Goldstein came to the US in 1949 after serving in the Israeli army during the War of Independence. She earned a degree in chemistry at Wellesley College and a master’s in biophysics from the University of Pittsburgh. She began PhD courses at the University of Michigan but interrupted her graduate work to move to New York City in 1965 with her husband and their 3 children. There, her career plans changed as she became interested in the possibility of applying the scientific rigor of the physical and natural sciences in which she had been trained to studying health-related issues of communities.

From a chance meeting with Dr. Jack Elinson, the founder of the Mailman School’s Department of Sociomedical Science, Dr. Goldstein learned about the field of epidemiology, which seemed to represent exactly this kind of research. Dr. Elinson suggested she talk to Dr. Mervyn Susser, the Chair of what was then known as the Division of Epidemiology. Under Dr. Susser’s supervision, Dr. Goldstein in 1968 began studying health effects of air pollution.

During this time, public awareness of air pollution had led to acrimonious debates between affected communities and industry. Observing that these conflicts sorely needed good science, Dr. Goldstein served as a scientific adviser to the New York City Department of Environmental Protection (DEP) and testified as an expert witness for the New York City Department of Health in a dispute over Consolidated Edison Co.’s application for an exemption from fuel quality standards. After the hearings ended, Mitchell E. Blum, the Department of Health’s director of air pollution studies, wrote her a grateful letter of praise for having “taken risks that others might have chosen to avoid; withstanding cross-examination in a legal proceeding that is not the
Dr. Goldstein was also appointed as an epidemiologist on an expert committee assembled by DEP to evaluate a lawsuit filed by a group of Bronx parents over a landfill in their neighborhood where toxic chemicals had been illegally dumped. The parents alleged that the dumping was responsible for excess leukemia cases in their children. During the trial, Dr. Goldstein also served as an interpreter of the scientific issues involved to the mostly lay audience at the hearings.

Toward a rigorous measurement of air pollution

Shortly after beginning her work and study for the MS in Epidemiology at the Mailman School, Dr. Goldstein authored her first paper, which pointed out the weaknesses in the then-customary methods of correcting for weather variables in air pollution monitoring. Subsequent papers based on collaborative studies with Dr. Leon Landowitz of the City University of New York demonstrated the inadequacy of using a single, centrally-located monitoring station on a Manhattan rooftop to represent people’s exposure to air pollution across all five boroughs of New York City. The research also showed that the other 45 aerometric stations around the city did not provide a good representation of air pollution in their immediate neighborhoods. The papers attracted considerable attention in the field and led to better accuracy in future assessments of air pollution exposure.

After earning her DrPH in 1975, Dr. Goldstein moved into developing new statistical methods to study the health effects of air pollution regulation, working with Dr. Jack Cuzick of Oxford University. In the 1980s, Dr. Goldstein was the first researcher to go into inner city homes to conduct measurements of indoor air pollutants, including emissions from gas stoves, which were often used by residents not only for cooking but also for supplemental heating in the winter. She recruited families in poor African American and Hispanic neighborhoods with high asthma prevalence to participate. The studies could be trying, but the families were cooperative, allowing Dr. Goldstein’s study team to bring cumbersome equipment into their homes to measure pollution levels, and agreeing to wear personal exposure monitors. Drawing on these studies, Dr. Goldstein, with Dr. Charles Reed of the Mayo Clinic, pioneered indoor air monitoring of allergens. They helped show that allergens and chemical irritants in people’s homes, particularly allergens emitted by cockroaches and mice, and pollutants from gas stoves and space heaters, could be significant triggers of asthma.

Understanding asthma epidemics

Although not a communicable disease, asthma occasionally occurs in “epidemics”—periods of a day or two in which attacks, as measured by daily emergency room visits, skyrocket to ten or twenty times the usual number. Such epidemics have occurred in disparate parts of the world: New Orleans, Brisbane (Australia), Barcelona, and to a lesser extent New York City. For decades these events went unexplained.

Then, in the late 1980s, with the help of statistical methods Dr. Goldstein and colleagues had developed, Drs. Josep Anto and Jordi Sunyer demonstrated that the Barcelona epidemics occurred only
“One of Inge’s many inspirational qualities is her interest in and concern for everyone with whom she has worked. She encouraged me to get an MPH, to get up the courage to apply to the doctoral program in epi, and was there for me when I went back to asthma research after spending many years researching cancer.”

Dr. Judith Jacobson

“Dr. Goldstein is one of the most dedicated professionals in the field of environmental epidemiology. As a former student of hers, I am continually impressed by her commitment to educating the public, her concern about environment justice, her dedication to helping students refine their interests in this field, and her adherence to rigorous scientific standards when investigating environmental hazards.”

Dr. Andrew Goodman

“Dr. Goldstein is a gifted and inspiring scientist, teacher, researcher, advocate and mentor, and I am grateful to have been touched by her wisdom, patience and leadership in the field of environmental epidemiology.”

Dr. Susan Klitzman

when cargoes of soybeans, whose dust contains allergens, were being unloaded in the harbor. After the appropriate filters were installed, the epidemics disappeared. Building on their findings, Dr. Goldstein and collaborators at the Center for Disease Control in Atlanta reviewed 25 years of data gathered from records of the emergency room of Charity Hospital in New Orleans as well as records of what cargoes had been handled in the port and found that the soybean loading there had also been responsible for the long-unexplained and severe epidemics. Dr Sunyer, currently Co-Director of the Centre for Research on Environmental Epidemiology and Director of the Research Program on Environmental Epidemiology at the Municipal Institute for Medical Research—both research centers in Europe—says, “Dr Goldstein was one of the first searching for the role of the urban indoor and outdoor air in asthma.”

A researcher and an author

Having worked in several fields of science, Dr. Goldstein has become aware that not only students and the general public but even many scientists need a better understanding of general scientific concepts. Together with her husband Dr. Martin Goldstein, a professor of chemistry, she has written 4 books with this purpose. They include How We Know: An Exploration of the Scientific Process and The Experience of Science: An Interdisciplinary Approach (Plenum Press 1978 and 1984) dealing with the methods and processes of science in general, How Much Risk (Oxford, 2002), which uses case studies to illustrate basic principles of environmental epidemiology, and The Refrigerator and the Universe (Harvard, 1993), which explains the concepts of energy and entropy. All are still in print. Dr. Goldstein is currently collaborating with colleagues in the Department of Environmental Health Sciences (EHS) on studies that use novel biomarkers to increase the accuracy and precision of exposure assessment of agents that are suspected of playing a role both in the high prevalence of asthma in the inner-city areas of New York City and in the exacerbation of its symptoms. They are also seeking to detect the biological effects of such agents. Those who work with her fully appreciate how her earlier research has laid the groundwork for these studies. Says Dr. Matthew Perzanowski, an Associate Professor in EHS who works on the NYC Neighborhood Asthma and Allergy Study with Dr. Goldstein, “In many ways, we’re still investigating the risks of the things she was looking at 30 years ago.”


Hardin M, Silberman EB, Barr RG, Hansel NN, Schroeder MD, Jarbe MJ, Crapo JD, Hersh CR. Investigators C. The clinical features of the overlap between COPD and asthma. Respir Res. 2011;12:117. PMID: 21951550


Hesdorffer D, Beghi E. ILAE epidemiology commission report. introduction to the supplement. Epilepsia. 2011;52 Suppl 7:1. PMID: 22018295


