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Boston University School of Public Health

Dean's Report 2007-2008

meeting the mission



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- Child marriage in India
- Chemical exposure in the home
- Health disparities for black women
- The truth about the rise in c-section rate
- Better organization for hospitals

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Meeting the Mission

Compiling data, changing minds

Welcome to the 2007–2008 issue of the Boston University School of Public Health Dean's Report, which we publish annually to highlight the accomplishments of our faculty and their contributions to public health locally, nationally, and globally.

Our mission is to prevent disease and improve the health of populations through teaching and by conducting research. Our faculty members train practitioners and academics in the latest thinking and best practices in public health, and they conduct vital and relevant research that propels the field ever forward.

In any given year, faculty members participate in hundreds of investigations on topics as diverse as domestic violence, malaria, and AIDS, toxic chemical exposure, pandemic surveillance, and race-related health disparities. Year after year, these studies gather the evidence about what works and what doesn't work in public health, adding to a constantly growing body of scientific knowledge that enables practitioners and policy makers to improve approaches and achieve better outcomes over time.

But the quality of our researchers' careers should not be judged solely by the value of the data they collect, or by the number of studies they conclude or the journal articles they publish. The best researchers advance public health by the passion they bring to their work and through their ability to help their colleagues—and the wider world—see new approaches to old problems.

In this issue of the Dean's Report, we have chosen to feature the work of six investigators who bring not only talent and skill to their work, but also personal perspectives, passion, and new approaches to important public health issues. They are Martin Charns, Yvette Cozier, Eugene Declercq, Michael McClean, Anita Raj, and Tom Webster—men and women at various stages of their careers, studying widely ranging topics of concern, each with the ability to connect seemingly random dots with productive results. Together they represent the breadth and talent of the BUSPH faculty-at-large.

In the years ahead, the School's ability to conduct research of this breadth and depth will depend increasingly on the philanthropic support of people who appreciate the impact that public health advancement can make in their own lives and in the lives of people around the world. We are grateful to those individuals and organizations who contributed in the past year, and we look forward to your continued support.

Robert F. Meenan, MD, MPH, MBA

Dean





when children marry

BY ANN-MARIE MENTING

Anita Raj investigates the cultural contexts of child marriage

Americans are apt to say that home is where the heart is. For millions of women throughout the world, however, home is also where they encounter the effects of unwanted pregnancy, family violence, and social isolation, some of which are associated with marrying too young. Social scientist Anita Raj is working to change those harsh realities in South Asian populations.

Raj, associate professor of social and behavioral sciences, uses the tools of public health to investigate the intersection of gender-based violence and sexual and reproductive health within its cultural context. This work requires an appreciation for the fact that practices such as child marriage are grounded in tradition, values, and well-meant concerns for the welfare of young women.

"One of my primary goals is to understand precisely what child marriage, as a cultural practice, is intended to accomplish—that is, that parents perceive it will help to protect their daughter from greater harm," says Raj, who was born and grew up in Mississippi, the daughter of South Asian parents. "No form of governmental or humanitarian intervention will work unless we grasp that parents believe young girls who remain unmarried are vulnerable to rape and abuse. That's an incredibly powerful motivation for wanting a girl to be married early."

Research undertaken by Raj—in India, in Bangladesh, and, most recently, in Afghanistan—reveals some of the most damaging health aspects of child marriage: high infant and maternal mortality; unwanted pregnancy; and elevated incidences of sexually transmitted disease, as well as depression and vulnerability to suicide. In addition, girls are often confronted with personal violence made all the more devastating because of its source: an intimate partner.

"For me, having my research inform the debate on a current problem is not just a professional goal; it is also a personal one. I have a great pride in my Indian heritage and am excited to be a part of anything that supports India—just as I am for work that supports reform efforts in the U.S."

— ANITA RAJ

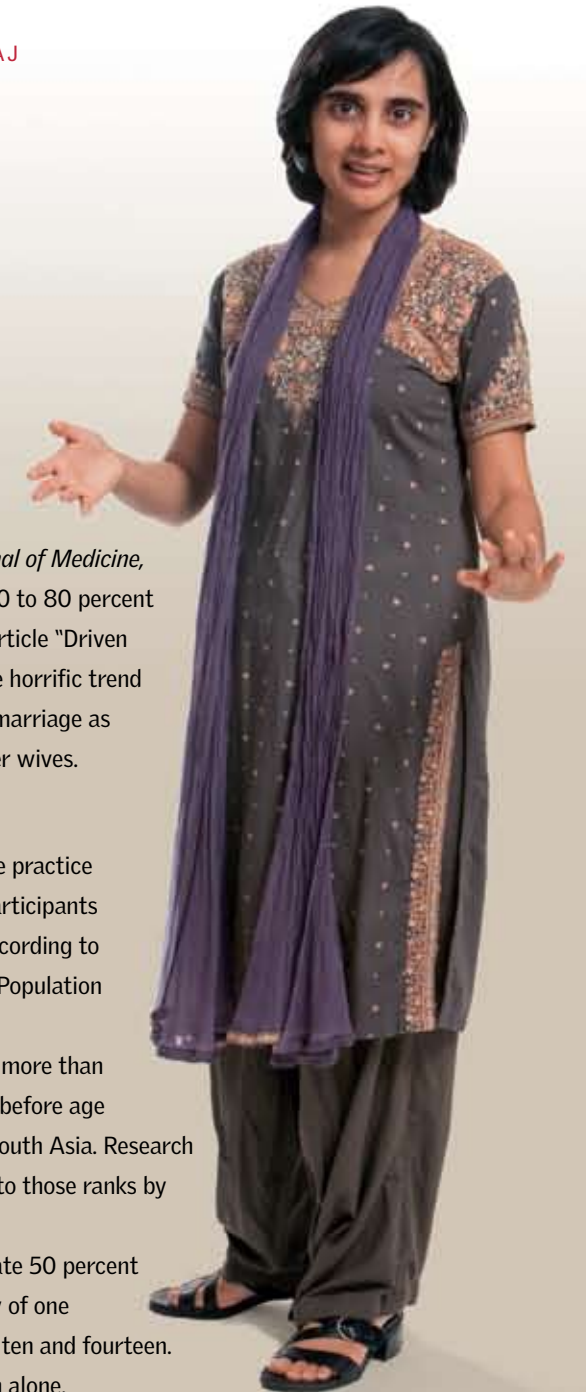
In a commentary published in the May 22, 2008, issue of the *New England Journal of Medicine*, Raj reported especially bleak statistics regarding life for Afghani women and girls: 70 to 80 percent are forced into marriages, and 57 percent are married before they are sixteen. Her article "Driven to a Fiery Death—the Tragedy of Self-Immolation in Afghanistan" also discussed the horrific trend among Afghani women toward self-immolation, spurred in part by forced and child marriage as well as violence against women committed by husbands, in-laws, and husbands' other wives.

Illegal, but widely practiced

Given the harmful outcomes of child marriage, numerous countries have declared the practice illegal. Despite such legislation, the arrangement—marriage involving one or both participants under eighteen years of age—remains a robust cultural practice in many regions. According to statistics from the United Nations Children's Fund (UNICEF) and the United Nations Population Fund (UNFPA), girls are most often the underage participants in such unions.

Surveys taken by UNICEF between 1987 and 2006 in developing countries show more than 60 million women between the ages of twenty and twenty-four reported being wed before age eighteen. More than half that number—31 million—of these young women lived in South Asia. Research presented in 2004 by UNFPA projected that another 100 million girls will be added to those ranks by the year 2014.

In India, where Raj is working closely with the government, similar reports indicate 50 percent of girls between the ages of fifteen and nineteen are married. In fact, a 1998 survey of one Indian state revealed that 14 percent of girls had been married between the ages of ten and fourteen. Such patterns reflect a deep-rooted practice that cannot be eliminated by legislation alone.



Anita Raj

"In order to get to the heart of the matter, we must throw out the baggage of cultural chauvinism that dismisses child marriage, out of hand, as an ignorant and backward arrangement," Raj says.

Belief in the value of marriage as a form of social and personal protection is prevalent within all levels of Indian society. Raj observes that her own upbringing transmitted similar concerns for the welfare of young women. Aware that one of her grandmothers had been married at age thirteen, Raj recalls, "Even though my parents married in their twenties, I



Only a multi-pronged, family-based approach can address the abuses faced by adolescent and young-adult wives.

nonetheless received the message that Indian culture emphasized the importance of marrying by a certain age, and that marriage provides a girl a degree of protection she might not otherwise enjoy."

Indian parents believe such pairings ensure a better life for their daughters. Often, child marriage is a way for the family to gain economic security or social status; it can settle conflicts between families or other social groups. In regions of political or social unrest, pledging a daughter to marriage early in her life may also be considered a means of protecting the girl from kidnap or rape.

Child marriage is one aspect of a far larger concern for safety and well-being within Indian family life. Working closely with colleagues at the Mumbai-based National Institute of Research and Reproductive Health (NIRRH), Raj is taking an active role in informing the Indian government—as well as various humanitarian agencies, non-governmental organizations, and other sources of funding and programs—about abusive conditions in South Asian societies. She is convinced that only a multi-pronged, family-based approach can address the abuses faced by adolescent and young-adult wives.

One of her projects with NIRRH involves interviews with postpartum women who bring their infants to clinics for vaccination. While at the clinic, mothers are screened briefly to determine whether abuse is a part of their lives.

"We're defining 'abuse' quite broadly in this effort," Raj says. "It can be emotional—not just physical—abuse. We want to know about women's situations, so the in-depth interviews that follow this initial screening are sometimes highly sensitive. Fortunately, we are able to support training for master's-level psychologists who can work in the clinics. These are local professionals who can meet with the women in a safe and secure setting and whom the women can visit easily and without suspicion."

Collecting accurate data

Beyond assessing women's immediate fear of abuse, researchers also face the problem of collecting accurate data about both social attitudes and personal behavior. A peer project involving uneducated sex workers infected with HIV is helping Raj bridge this gap. Through a government-affiliated program—NMP+ (Mahashatra Network of People Living with HIV/AIDS)—she coaches HIV-positive volunteers on how to engage sex workers and their male clients in candid discussion about sexual activities. This approach ensures that information gathered by researchers and subsequently used by the government to inform public policy is accurate.

Raj, who has a master's degree in experimental psychology and a doctorate in developmental psychology, both

from the University of Georgia, is also involved, as a scientific adviser and planner, with a World Health Organization-sponsored conference in 2009 on gender-based violence and its effects on sexual and reproductive health. The conference, which will be held in Mumbai, is being developed under the direction of NIRRH. Its goal is to help shape programs and policies on family planning and maternal and child health within India and elsewhere. Raj hopes the project's results will be used by the Indian government to craft policy intended to alleviate violence against women.

"This is another great opportunity to collaborate with the government of India," says Raj. "It's exciting to know that ongoing research is being used directly to guide government action."

"For me, having my research inform the debate on a current problem is not just a professional goal; it is also a personal one. I have a great pride in my Indian heritage and am excited to be a part of anything that supports India—just as I am excited about work that supports reform efforts in the United States."

Making a difference in the United States

This is not the first instance in which her research has had an impact on public policy. In the late 1990s, Raj and colleagues began a small study investigating domestic violence among visa-holders, in particular, women who had come into this country on what are known as H4 visas. These visas are issued to dependents, most often spouses, of individuals whose entry into the United States is being sponsored by an employer. The H4 visas admit spouses into the country but do not allow them to be employed or to obtain a social security number—a situation that makes opening a bank account or obtaining a driver's license next to impossible.

Raj's interest was sparked after she learned that a large number of the calls received by volunteers at Saheli, a Boston-based South Asian women's support group in which Raj is active, were from women who held H4 visas. She and colleagues began polling this population and discovered a high number of domestic violence, sexual abuse, and abuse-related injuries. "What we found," she says, "was that, if a woman was here on a spousal visa, she was significantly more likely to experience domestic violence."

The research drew the attention of National Institutes of Health, which funded a subsequent study that found its way to the desks of U.S. senators Edward Kennedy of Massachusetts and Joseph Biden of Delaware. Armed with its findings, the congressmen in 2000 helped craft a revision of the Violence Against Women Act that broadened its protections to include immigrant women. Now immigrant wives on spousal-dependent visas who show they have severed marital ties as a result of domestic abuse can qualify for a new visa that allows them to secure employment and stay in this country.

It is the ability to foster social change serving the needs of the vulnerable and voiceless that fuels Raj's dedication to her research. "When you are able to establish a truly collaborative relationship with governmental and non-governmental agencies, culturally informed research can result in sustainable, evidence-based solutions. More than anything, that's what I want to do: create change to improve the health of vulnerable populations."



Child marriage is one aspect of a far larger concern for safety and well-being within Indian family life.



trouble at home

BU researchers track the path of a chemical threat from our living rooms to our hormones

BY ART JAHNKE

Reprinted from *Bostonia*

A collective gasp rushed through the Stockholm conference room when environmental health experts saw the data flashed on a screen. It was 1998, and an analysis of breast milk from Swedish women was showing that concentrations of PBDEs, a close chemical cousin of long-ago-banned PCBs, were doubling every five years. PBDEs have been used for twenty years as a fire retardant in items from furniture to televisions; now, the researchers reported, they were in us.

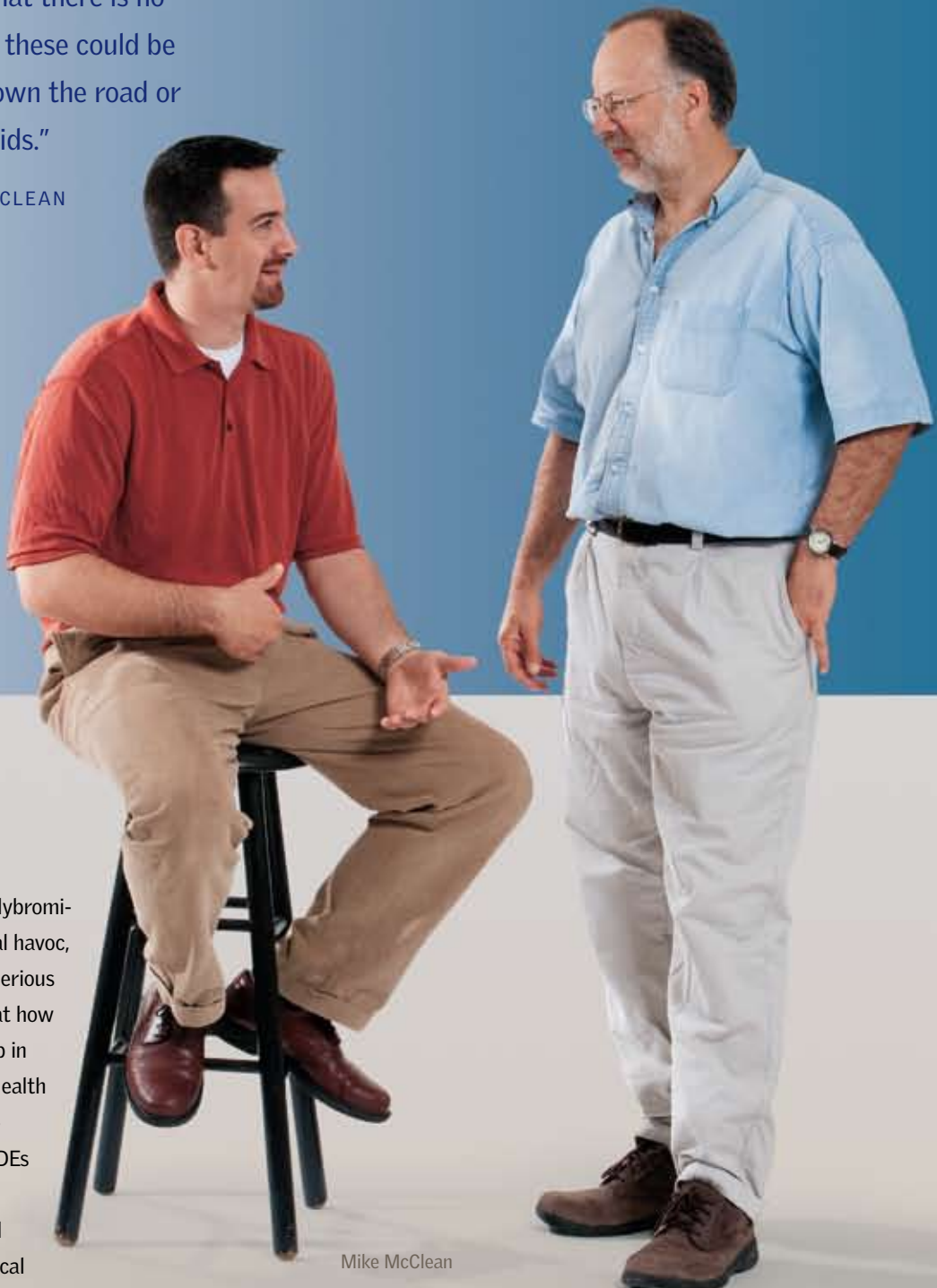
The findings were so alarming that they were the talk of environmental conferences for years, says Thomas Webster, a Boston University School of Public Health associate professor and associate chair of the environmental health department, who heard about the report from a colleague who had attended the Stockholm meeting. "For those of us who follow these things," Webster says, "it was stunning."

Persistent Pollutants

Within a short time, hundreds of scientists in labs all over the world had resolved to figure out exactly what kind of trouble we were in.

"Just because you are not experiencing symptoms does not mean that there is no risk of harm. Chemicals like these could be contributing to problems down the road or even to problems for your kids."

— MICHAEL MCCLEAN



Animal studies showed that PBDEs (polybrominated diphenyl ethers) can wreak hormonal havoc, damage reproductive systems, and cause serious learning problems. Other research looked at how quickly the toxic compounds were piling up in our bodies. Using data from the National Health and Nutrition Examination Survey, statisticians in the United States learned that PBDEs were present in virtually all of the several thousand people surveyed. Epidemiological surveys suggested that PBDE levels in typical U.S. citizens are about ten times higher than those found in most Europeans and that Americans between the ages of twelve and nineteen—the youngest group tested—had the highest concentrations in their blood. "The evidence showed that they are in all of us," says Webster. "And they are in some of us at levels approaching those that harm rats."

Environmental scientists are particularly worried about three aspects of PBDEs. They reside where we reside, having been used for decades in couches, mattresses, carpet padding, televisions, computers, car stereos, car seats, and padded dashboards. They are fat-seeking, meaning they aggregate in the body's adipose tissue. And, like PCBs, most PBDEs do not quickly biodegrade. In science lingo, they are POPs—persistent organic pollutants—and instead

Mike McClean

Tom Webster



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of breaking down, they bioaccumulate, piling up as they move up the food chain from plants to animals to humans. What that means, says Webster, is that if your body has PBDEs now, it will have them until you die, and, if you have children, they will have them too.

"The thing to consider," says Michael McClean, a BUSPH assistant professor of environmental health and Webster's longtime collaborator, "is that just because you are not experiencing symptoms does not mean that there is no risk of harm. Chemicals like these could be contributing to problems down the road or even to problems for your kids."

Webster and McClean decided to pursue a piece of the PBDE puzzle that had, at the time, attracted scant attention: tracking the path of the chemicals from products to people, or, as the scientists say, from source to "body burden."

Now, ten years later, their research, conducted with grad students and researchers from other institutions, has positioned the two at the head of the class of PBDE experts. In June, Webster and McClean were awarded a grant of approximately \$1 million from the National Institute for Environmental Health Sciences (NIEHS), a branch of the National Institutes of Health, for a four-year study of exposure pathways of PBDEs. It is one of the largest PBDE research projects to be funded by a federal or state agency.

The Pigpen effect

In the years since Webster focused his attention on PBDEs, some regulatory agencies and manufacturers have taken action. In 2004, the European Union banned two of the three forms (penta and octa) of PBDEs. In the United States, manufacturers of those two forms of PBDEs voluntarily ceased production. The third form, deca-BDE, escaped restriction because there was less evidence that it was accumulating in humans or animals. More recent research has revealed, however, that when exposed to sunlight, deca breaks down into other brominated and potentially harmful substances. That concern convinced European regulators to ban deca from all electronics in April of this year. It also persuaded Philips, Electrolux, Sony, Dell, Intel, Apple, and Hewlett-Packard to commit to eliminating deca-BDE from their product lines.

In fall 2006, Webster sent his first proposal to the NIEHS. At the time, he had already begun a series of more modest research projects, funded by the New York Community Trust and BU. "We wanted to know how this gets into people," he recalls. "We knew that, with PCBs, the main source was diet, but this was different, since PBDEs are used in consumer products. We wanted to know if exposure occurred primarily via diet or indoor exposure."

In one project, BUSPH doctoral student Nerissa Wu took samples of breast milk from forty-six first-time mothers and compared the PBDE concentrations to that from house dust collected from their Boston-area homes. "We found strong correlation levels in breast milk and in dust," says Wu. "There had been a lot of speculation about diet, but our work showed that dust is a huge reservoir for this stuff."

Next, Webster's team tried to correlate the number of furnishings—televisions and couches—likely to contain PBDEs with the amount of PBDEs in house dust. Initially, says Webster, the effort failed.

"The problem," says Joseph Allen, BUSPH'08, who earned a PhD working with Webster and McClean, "is that manufacturers didn't say which products contained PBDEs, so we didn't know where they were. We knew they were in some couches, but not all couches, so counting the number of couches didn't help."

Webster and Allen found the tool they needed: a portable technology called X-ray fluorescence (XRF) that had been used for years to reveal the presence of lead in some environments. After lab tests proved to Allen that X-ray fluorescence could identify bromines, which are reliable indicators of PBDEs, he took his technology into nineteen homes in the Boston area. This time, Allen says, things went better than they had expected.

"The XRF didn't just tell us how many bromines were in couches," he says. "We were able to narrow it down to televisions as a source of deca, which was important, because that had never been documented."

While the results of Allen's tests were, in his words, intuitive, they were also profound. In finding the first scientific proof that the chemicals were escaping from furniture and electronics and winding up in house dust, he had disproved the contention of some manufacturers that PBDEs were incapable of escaping from products.

In another project that pushed the boundaries of PBDE research, Webster's group found a new way to measure the amount of deca-BDE in a home environment. They set up air sampling pumps in bedrooms and living rooms of Boston-area homes. A third pump, called a personal pump, was strapped to the hips of residents and worn for seven days.

"We did that," Allen says, "because we knew that as you walk, you kick up dust. We all end up walking around in a kind of personal dust cloud that has a higher concentration of particulates than the rest of the room. Tom calls it 'the Pigpen effect.'"

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As it turned out, the magnitude of the Pigpen effect (named for the character in the "Peanuts" comic strip) surprised even Webster.

Concentrations of PBDEs in the personal pumps were significantly higher than in the stationary pumps, leading the researchers to revise their assumptions about the importance of inhalation as a pathway.

"Previous estimations thought inhalation accounted for about 3 percent of exposure to deca," says Allen. "Our research showed that it can account for as much as 22 percent."

Heather Stapleton, an assistant professor of environmental science and policy at Duke University, who helped analyze the samples, credits Webster's team with the first scientific proof that our living environments were a major source of PBDE exposure.

"Tom's research is very important," says Stapleton. "It's leading us in new directions in trying to understand children's exposure to this stuff. Children crawl around on the floor and put their hands in their mouths. We don't know what that means for their health."

Despite all that, winning the NIEHS grant wasn't easy. Questioning the need for researching a chemical that had not yet been shown to be harmful to humans, the institute did not initially fund the scientists' 2006 proposal. While the news was bad, the timing was good.

A handful of new studies just appearing in scientific journals were tentatively linking PBDEs to hormone-related abnormalities in humans. One study conducted in Finland found that boys born to women with high levels of PBDEs in

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their breast milk had an increased likelihood of having undescended testicles. A Swedish study showed an increased risk of testicular cancer in men whose mothers had high levels of PBDEs. Other research, done in Japan, found lower sperm counts in men with high levels of PBDEs in their blood.

"The findings in human studies are consistent with the findings in animal studies," says McClean. "The animal studies demonstrated that PBDEs have potent anti-androgenic activity. They are powerful endocrine disruptors."

Citing the new research, Webster and McClean resubmitted their proposal. Meanwhile, in February, as researchers across the country were pondering the damage PBDEs might do to a human body, they learned what they can do to a career at the Environmental Protection Agency (EPA). Deb Rice, a respected neurotoxicologist, was ousted from her leadership position on an EPA panel after she warned Maine legislators about the probable health hazards of PBDEs.

A few weeks later, the journal *Nature* reported that her firing had followed a complaint to the EPA from the American Chemistry Council, an industry group. For environmental scientists, Rice's dismissal was proof that chemical companies would continue to fight efforts to regulate PBDEs.

Winning the grant

In June, Webster and McClean finally got the word that their proposal would be funded. The research, which Webster plans to launch this fall, calls for a four-year examination of PBDE pathways in three microenvironments: homes, workplaces, and cars—fifty of each. His team, including researchers from BUSPH, from elsewhere on the Boston University Medical Campus, and from the Centers for Disease Control, will use X-ray fluorescence to measure PBDE levels in appliances and furniture. They will sample the environments at three six-month intervals and will draw blood from fifty people (twenty-five men and twenty-five women) who inhabit those spaces. The men and women will also be queried about their diets. The goal, says Webster, is to track PBDEs from products to air and dust to humans, and to test the humans for hormonal abnormalities.

"Between the home and work environments, 90 percent of our time is spent indoors," says McClean. "We want to predict how these chemicals get into people. The industry has always said, 'We don't know how they get there, but they did not come from our product.' We want to find out. We want to learn how much comes from diet, how much from inhalation, and how much from other contact with dust."

What they hope to learn may help them understand not just what the consequences are, McClean says, but how we can make rational decisions about how to reduce exposure.

From indoors to out

Which, of course, is going to be the hard part. "PBDEs are an indoor problem now," says Webster. "But in the future, as people throw all this stuff out, it's likely to become an outdoor problem. It's really an environmental disaster waiting to happen."

Webster and McClean worry that even if residents of the United States and Europe dutifully dispose of their televisions and couches in environmentally sound ways, barges laden with PBDE-rich waste will end up in landfills in other parts of the world.

"Once that happens," says McClean, "PBDEs will get into food systems, and once they get into food systems they work their way up the food chain." And at that point, he says, we may no longer need to worry about PBDEs in house dust landing on our food: our food will arrive with them inside.

There are, Webster points out, a couple of reasons for hope. One, coincidentally, was also revealed at the 1998 conference in Stockholm where the alarm first sounded. The same research that found frightening increases in PBDEs in breast milk also found decreasing levels of PCBs, two decades after they were banned. Now, restrictions on the use of PBDEs in Sweden have led to declining levels of the substance in people there. "We need to be smarter in the future," he says, "and design products so that fire retardants stay in them or aren't needed at all."



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minding the gap

Yvette Cozier examines the causes of health disparities in black women

BY MICHAEL LASALANDRA

The fields of medicine and public health have long recognized a troubling health disparity between black and white women in the United States. Black women are more likely than their white counterparts to be afflicted by and die from serious diseases such as breast cancer, colon cancer, heart disease, and hypertension.

They suffer more often from lupus, an autoimmune disease that can affect various parts of the body, including the skin, joints, and kidneys. They experience premature birth more often and are more prone to develop uterine fibroids than white women. They also have higher rates of diabetes. The list is long; the gap is wide.

It is easy to jump to the conclusion that poverty and genetics are the culprits in this pattern of health disparity, says Yvette Cozier, assistant professor of epidemiology at the Boston University School of Public Health. But the only way to know for certain what is behind these trends is to study black women as a group over time, she says.

A historic study

"This is a population that has two to three times an increased risk for almost every major illness yet has not yet been studied in depth. The Black Women's Health Study is exactly the mechanism you need to do that," explains Cozier, an investigator with the study. The long-running project, which tracks the health of 59,000 black women, has been operating out of the Boston University Slone Epidemiology Center since 1995. Run in conjunction with Howard University Cancer Center, it is funded by grants from the National Cancer Institute (NCI) and other institutes. "You assemble a cohort and study it over time. What we are doing is important. It's historic. There isn't another study like this one," Cozier says.

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Participants are asked to fill out a questionnaire every two years, with some supplemental questionnaires given from time to time in between. A separate NCI grant funds an initiative known as the Cancer Genetics Study under the auspices of the Black Women's Health Study. In the genetic component, saliva samples have been obtained from participants. DNA from these samples serves as a resource for testing hypotheses about the genetic causes of disease.

The study is designed to follow this group over time to learn who remains healthy, who develops illness, and what factors are related to the development of various illnesses.

Questions to answer

Specifically, the study hopes to answer questions such as: Why does breast cancer occur more commonly among young black women than young white women? Do exercise and diet influence the occurrence of breast cancer in black women, and, if diet plays a role, what nutrients or foods are involved? Why do black women suffer more often from lupus, and why do they experience premature birth more often? The study is also looking at the effects of racism on health, a topic that is of special interest to Cozier.

So far, the study has generated more than fifty papers about conditions that affect black women's health. Investigators have found a reduced risk of diabetes among participants whose diet is high in cereal fiber; established a link between breast cancer and experiences of racism; found a possible link between polycystic ovary syndrome and increased occurrence of uterine fibroids; and, in a study conducted by Cozier, found an increased risk of high blood pressure in women who live in neighborhoods with low housing values.

Published in the *American Journal of Public Health* in 2007, Cozier's investigation found that rates of hypertension were nearly one-third higher among women living in neighborhoods with the lowest housing values. Notably, the difference was found among women with the highest levels of education and income and after adjusting for common health risk factors. Even among the thinnest women, a group generally considered at low risk for hypertension, incidence of the condition among residents of poorer neighborhoods was greater than incidence among those in wealthier communities.



Yvette Cozier

Something wrong in the neighborhood

The fact that higher education, higher income, and normal weight are not protective against the effect of poor neighborhood on hypertension suggests that it is something in these neighborhoods that affects health poorly, says Cozier. It's not enough to advise black women to exercise and eat a healthier diet to decrease their disease risk, she says, when their neighborhoods suffer from crime and lack safe places to exercise, convenient transportation, and nearby shops where they can buy healthy foods.

She notes that some black women, despite high educational levels and good incomes, continue to live in poor neighborhoods for a variety of reasons. "Their families and churches are there," she says. "Also, housing discrimination still happens, making it difficult to move to better communities. Sometimes, staying put presents the path of least resistance."

Participants in BWHS have generally higher educational and income levels than the general population of black women, in part because of the pool from which they were drawn—primarily the subscription list of *Esence* magazine. "Eighty percent of our participants pursued education beyond high school," she says. "The study requires participants who are able to complete these questionnaires."

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Seeing patterns

A Boston native who grew up in Dorchester, Cozier received an undergraduate degree at the Harvard Extension School. She was drawn to a career in public health after training as a medical technologist and working in the microbiology lab at Children's Hospital, Boston. There she witnessed a recurring cycle of young women who would come through the clinic testing positive for sexually transmitted diseases. They would be treated, only to return within a few months with another positive finding. "We always saw girls, never guys," she recalls. Young men were certainly involved in the process, she says, but there was no mechanism for treating or educating them. "It raised a lot of questions in my mind about how our health-care system is structured. It struck me as incredibly inefficient."

It was this experience that convinced her to pursue a master's degree in public health at BUSPH, where she was awarded a Schweitzer Fellowship, a prestigious award that provides funding for students working with underserved populations. One of the projects she undertook as a fellow was to help the Young Parents' Program at Children's Hospital develop a program aimed to draw in young men, as well as young women, for sexual health care by offering it in conjunction with the early health care of their children. "The master's work gave me a way to look at the system and to think of better solutions," she says.

It was during her doctoral studies that Cozier began working as a research coordinator for the BWHS, which was just getting off the ground in 1995. "I had originally thought of working with adolescents, but when I learned about the work on black women's health the idea of doing this research became more appealing." She received a doctorate

in epidemiology at BUSPH and has pursued her own investigations and collaborated on those run by other members of the BWHS team, each of whom brings a different perspective.

Bringing her own perspective

"Yvette is very interested in the psycho-social questions, in racism and neighborhoods," says Lynn Rosenberg, principal investigator of the study. "She is a solid researcher, and she brings tremendous insight into the culture and attitudes of African American women. She provides us all with guidance based on her own life experience."

Cozier was co-investigator on a study that showed the incidence of breast cancer was higher among women who reported more everyday and major experiences of racism, such as those experienced in the workplace, in housing, and in interactions with police. Published in the *American Journal of Epidemiology* in 2007, the resulting paper presented the first findings to suggest that racism is associated with an increased risk of breast cancer.

"Stress has damaging effects on the health of black women," she says. "The stresses we have measured include perceptions and experiences of racism and discrimination, and how they may, in turn, lead to physiological changes. They can affect blood pressure. Stress is a disruptor of the immune system. We have not only shown an association between racism and the incidence of breast cancer, but also demonstrated that racism may influence other outcomes, such as pre-term birth and uterine fibroids."

Significantly, however, another study conducted by Cozier that looked for a link between hypertension and experiences of racism found the relationship in only a small sub-group of foreign-born participants, and not among the larger group. Her paper was published in the *Annals of Epidemiology* in 2006. "The link between the two seemed intuitive, but we had no finding for the vast majority. That's why you conduct studies," she says.

Relevant research

Investigations conducted by other researchers collaborating with the BWHS have immediate relevance for black women, according to Cozier. For example, one that showed that the so-called "Gail Model," a widely used breast cancer risk assessment tool, is not accurate when it comes to black women. "It turns out that model is a very poor predictor," she says. "Doctors need to know that the Gail Model is not sufficient for their black patients."

Another study conducted by Rosenberg investigated whether breast cancer and pre-term birth might be linked to the chemical hair relaxers that are used on a regular basis by many black women. The study found no relationship. "This is an important finding for black women who apply these products throughout their adult lives," she notes.

While this body of research answers many questions about the health of black women, Cozier knows that her fellow investigators are only beginning to fit together the first few pieces of the much-larger puzzle surrounding black women's health.

"We have learned a lot, but we are careful to avoid using the word 'conclusion,'" she says. "I tell my students that each of these findings is another brick in the wall of knowledge. You have to recognize that you are adding to something much bigger. It can take decades for all the pieces to come together to make sense."

Future studies

In recognition of her future potential as an investigator, Cozier has received a training grant from the National Heart, Lung, and Blood Institute that will support her research for the next five years. These grants are awarded to promising young researchers, allowing them to study a topic in depth. Cozier will investigate sarcoidosis, an inflammatory disease that can affect almost any organ in the body.

BWHS investigators were surprised to find a number of study participants reporting sarcoidosis as a health problem in surveys they returned. "It seems to be another disease that is more common in African American women than other groups," notes Rosenberg. "This is a completely unknown area, and we all agreed this would be an important area for Yvette to look at from both psycho-social and genetic angles."



the truth about c-sections

Eugene Declercq applies the tools of social science to the business of birthing babies

BY THERESA PEASE

Described in literature for hundreds of years, the cesarean section was once regarded as an extraordinary measure to be applied when a vaginal birth goes seriously amiss. As recently as four decades ago, cesarean section was still a relatively rare obstetrical procedure in the United States, applied in only 5 percent of births. By 1980, the rate of c-section had grown markedly to 23 percent. Today, after a brief decline in use of the procedure, the number of c-sections performed nationally has skyrocketed to 1.2 million surgeries annually, representing more than one out of four births.

Nearly everyone has heard media accounts of what one British paper termed the “too-posh-to-push” phenomenon, of A-list celebrities who elect surgery in order to prevent stretch marks and labor pain, and of busy Wall Street moms who schedule births to fit between business deals. But BUSPH Professor of Maternal and Child Health Eugene Declercq says such stories are more myth than reality. Systematic studies that ask mothers whether their surgical births were based on maternal request have revealed that the on-demand cesarean is in fact quite rare.

Declercq, who holds a bachelor’s in business administration from the University of Massachusetts at Lowell, an MBA from the University of Massachusetts at Amherst, and MS and PhD degrees in political science from Florida State University, applies tools from the social sciences to probe childbirth-related questions such as these.

The truth is in the data

Declercq and colleagues use data sets derived from national surveys of mothers; birth certificate data based on 4 million annual U.S. births provided by the National Center for Health Statistics; and a data set developed in BUSPH’s maternal and child health department that tracks all Massachusetts births since 1998 through hospital discharge and administrative records. Using these comprehensive sources, the researchers have shown that, rumors aside, the cesarean crescendo has little to do with mothers wanting to circumnavigate the birth canal. Instead, the rise in c-sections is attributable to a change in U.S. obstetrical practices. Moreover, the researchers discovered that the dramatic increase in the cesarean usage is not without health consequences for mothers and babies.

Yet misinformation about the impetus for this practice continues to spread unabated, says Declercq. “I spent forty minutes on the phone the other day with a *Time* magazine reporter who called to ask about ‘the surge in maternal-request cesareans.’ I presented data and sent her reports trying to disabuse her of that notion,” he says. “Still, that *Time* article ran with the headline ‘Choosy Mothers Choose Cesareans.’ Clever headline, but, as an obstetrical trend, it’s just not true.”

Indeed, since beginning to release data on the topic, Declercq has become a national resource for journalists and others looking for facts relating to the rise in c-sections. He has spoken to news outlets ranging from the *New York Times* to webmd.com, written op-ed pieces for the *Boston Globe*, and served as a consultant and commentator on recent documentary films on childbirth. He publishes and speaks widely on the subject, presenting his research often in the United States and in Europe.

Eugene Declercq

C-section as time management tool

Besides throwing a wet blanket over the notion that mere convenience is behind the rising rate in c-sections, Declercq questions a popular assumption that the medical profession prefers cesareans because doctors simply want to make more money or get the blessed event over quickly so they can make tee-time on the local links. Yet he does think that some physicians promote cesareans for purposes of time management: they want to get back to their offices and see other patients on a tidier schedule than was customary in years past, when more babies arrived on their own timetables, Declercq maintains.

One reason for this shift in maternity-care practice, Declercq believes, is that practitioners lack the individual connection that existed with mothers back when a doctor embarked on a nine-month journey with a pregnant patient, committing to be there, day or night, for the tot's arrival. In a 2006 report on a national survey of mothers, Declercq and colleagues found 19 percent of mothers saying they never met the person who delivered their baby and another 10 percent saying they had barely met this person. "Old Doc Jones, who delivered me and might be expected to deliver my kids, is gone," he says.

Declercq also suggests that the threat of malpractice has moved the decision-making process in maternity care in the direction of a cesarean. The title of a British study put it succinctly, he observes: "The Rising Caesarean Rate—Same Indications but a Lower Threshold."

Declercq's role as a political scientist in the delivery room may seem unique, but the examination of childbirth in general and cesarean section in particular as a political issue led to Declercq being chosen for a prestigious Health Policy Investigator Award of \$250,000 from the Robert Wood Johnson Foundation.

Lois McCloskey, interim chair of the Department of Maternal and Child Health at BUSPH and herself the author of a major study on cesarean birth, notes that the medical establishment has succeeded in characterizing c-sections to the public as a "safer" alternative. "They have turned conventional wisdom on its head," McCloskey says. "Right now, you even hear people talking about 'the risks of vaginal delivery.'"

A valuable procedure, overused

The truth, as Declercq sees it, is that while cesareans can spell the difference between life and death in emergency cases, it is inaccurate to say that one-third of births rise to the level of an emergency. Far more reasonable is a standard of 10 to 15 percent, which is the rate that the World Health Organization deems a realistic goal for societies focused on improving health outcomes alone.

Studies conducted by Declercq and fellow researchers have shown that planned, medically elective cesarean sections result in a national rate of neonatal mortality, or infant death within the first twenty-eight days, that is 58 percent higher than the rate experienced in planned vaginal births, even when the latter includes unplanned cesareans. In a separate study—published in *Obstetrics and Gynecology* in March 2007—that examined data from Massachusetts, they found mothers in medically elective cesareans were 2.3 times more likely to be rehospitalized within the first month of a cesarean compared to a planned vaginal birth, which once again included unplanned cesareans.

To be sure, the dangers, in both cases, are small. Declercq nevertheless contends that, although c-sections can be life-saving in some situations, there is no justification for performing them under circumstances in which a safe vaginal delivery is possible. "When you do surgery on healthy people," he says, "you introduce unnecessary risk."

Man in a women's field

The father of four and grandfather of eight, Declercq became fascinated by childbirth in 1975 while preparing for the birth of his second daughter. As a young faculty member at George Washington University, he was interested in the process of teaching and found the childbirth education classes a fascinating setting in which to interact with people eager to learn. Although virtually all childbirth educators were—and are—female nurses, Declercq presented himself

confidently to the American Society for Psychoprophylaxis in Obstetrics (now Lamaze International) as a candidate for its rigorous training program. "I knew I could bring teaching skills other childbirth educators might not have," he notes. "Although there was an initial question of credibility, people liked my classes. I could say and demonstrate things in a direct way that wasn't boring, and people found the classes fun."

Throughout his nearly two decades as a Lamaze instructor, Declercq was intrigued by the larger issues surrounding childbirth. In particular, he was drawn by the emotional power of this area of investigation, as well as its unusual position at the nexus of many fields.

"You can look at childbirth as a medical-clinical issue," he says, "but also as a sociological and cultural issue, comparing different countries' vastly different systems for bringing babies into the world. There are interesting emotional and psychological issues around childbirth, along with policy questions. The history of childbirth is also endlessly engaging."



"You can look at childbirth as a medical-clinical issue, but also as a sociological and cultural issue, comparing different countries' vastly different systems for bringing babies into the world."

Asking mothers what they think

A highlight of Declercq's career was the study "Listening to Mothers," which encompassed the first national surveys (in 2002 and 2006) of moms about childbirth. Published by Childbirth Connection, a national non-profit organization that works to improve maternity care for women and their families, the surveys sought to examine mothers' attitudes about childbirth and to document mothers' childbirth experiences that were not currently measured. For example, they explored the use of medications and non-pharmacological pain relief methods during labor.

Says Mary Barger, associate professor of maternal and child health, "It would seem like a natural thing to do, surveying mothers about their childbirth experiences from a public health perspective—but, until Gene came along, no one had ever done it."

It was the data collected in 2006 that helped Declercq debunk the myth surrounding the purported maternal request for cesareans for non-medical reasons. Out of 1,573 women surveyed, he says, 252 women had undergone primary (first) cesareans. He used two simple criteria to determine if those c-sections were done as a result of a maternal request: first, that the mother had no medical indication, and, second, that she sought the cesarean before she went into labor. Declercq found that only one mother met the criteria for maternal-request cesarean. "That's one out of 252!" he says.

Also disproven was a popular notion that white women—specifically spoiled and upper-class white women—are the most likely to undergo cesareans. Instead, both the study and national data revealed that African American women in fact have the highest occurrence of cesarean deliveries.

The unexpected finding places the frequency of cesarean births among black, non-Hispanic mothers high on the team's future research agenda. Says Declercq, "We would like to find out what's going on there, asking both what's happening that is leading to this and what impact it has on birth outcomes inside the black community."



organization man

Martin Charns improves patient care through better hospital organization

BY SUE RARDIN

Forty years ago, while earning a doctorate at Harvard Business School, Martin Charns began examining the organization of academic health centers. He was perplexed by what he found. Widely accepted organizational behavior theory dictated that, in order to run well, a business should be organized in response to the tasks it tries to accomplish and in relationship to the environment it faces.

"You use organizational structure to help facilitate coordination," Charns says. Hospitals, however, were not organized around essential tasks, he found, but around the political-power interests of key groups—doctors, nurses, and administrators. "The way the typical hospital is organized doesn't facilitate coordination at all. What it does is separate the professionals from one another," he observes. "I thought, this is crazy."

The revelation became the basis for his doctoral thesis and the driving force in a long and productive career working to advance patient care through organizational improvement. His work has included writing award-winning studies on the effective organization of hospitals, beginning with *Health Care Organizations: A Model for Management* (Prentice Hall, 1983), a book that twenty-five years later still brings him praise. In the 1990s, he played a significant role in the reorganization of the Veterans Health Administration (VHA) that led to its recognition as the highest-quality integrated health care system in the country. He was one of the first to show a relationship between organizational factors (specifically, the coordination of surgeons, anesthesiologists, and nurses) and clinical outcomes (specifically, post surgical complications).

Now professor of health policy and management at BUSPH, as well as director of the Department of Veterans Affairs' Center for Organization, Leadership, and Management Research (COLMR), Charns has just spent a lively few months speaking formally and informally about his most recently completed research project, reported in the October–December 2007 issue of *Health Care Management Review*.

"The way the typical hospital is organized doesn't facilitate coordination at all. What it does is separate the professionals from one another."

— MARTIN CHARNS

That article, "Transformational Change in Health Care Systems: An Organizational Model," describes the work and findings of Charns's interdisciplinary team of researchers from BUSPH, COLMR, and the BU School of Management. Funded by the Robert Wood Johnson Foundation (RWJF), the project was an evaluation of the foundation's Pursuing Perfection program. His colleague, Carol VanDeusen Lukas, clinical associate professor of health policy and management, served as lead author on the paper.

In 2001, the National Academy of Science's Institute of Medicine (IOM) issued a report that sharply criticized the nation's health care system for failing to provide safe and high-quality care. According to Charns's research, many health-care systems have since then attempted to meet the challenge laid out by the Institute of Medicine, and many have attained isolated, short-term improvements; few have achieved sustained, system-wide change.

Several years ago, the Pursuing Perfection program awarded grants to seven health-care organizations interested in helping to support RWJF's own goals for spreading improvements throughout these institutions and beyond. The foundation contracted with BUSPH to evaluate those efforts as they were unfolding. The team studied those seven hospitals and, for comparison purposes, five others. All twelve institutions had already been recognized for progress in improving clinical quality and were clearly committed to further success.

The Charns team followed these hospitals through four years of site visits, phone calls, surveys, and analyses of changes in processes and outcomes. Its key finding, he says, was an explanation of why some organizations are able to sustain and spread their changes through the organization and others are not. "Being able to sustain these changes that you've worked so hard to achieve, and then to spread the techniques and expectations and skills through the work force—to embed them in an everyday way so that the organization works—is critical," he says.



Martin Charns

Identifying five key factors

The team identified five key factors necessary for the successful transformation of patient care and constructed an improvement model based on these features:

- (1) *Impetus* to transform
- (2) *Leadership's* commitment and actions to improve
- (3) *Improvement initiatives* (also called improvement projects) that actively engage staff in meaningful problem solving
- (4) *Alignment* (vertical), to achieve consistency of organization goals with resource allocation and actions at all levels of the organization
- (5) *Integration* (horizontal), to bridge traditional intra-organizational boundaries

Each of these key components had been identified elsewhere as being important in improving patient care, but Charns's study showed that all five are necessary and provided specific examples of how they can be achieved and how they interact.

A hospital's impetus to transform may be internal; at one site, the fact that one of its own physicians, as a patient, suffered a medication error prompted a major push for change. Usually, though, impetus comes from the outside—for example, from financial pressures, competition, or actions by government agencies or by the Joint Commission, an independent accrediting organization.



At one hospital, some project teams reported inefficiencies in their processes involving patient registration. Instead of working independently on a team-by-team basis to improve registration procedures, representatives from the teams worked together to streamline procedures jointly. Experiences like this caused one senior manager to observe, "We are better thinkers than before."

The commitment of the institution's leadership—passionate at the senior level and sustained throughout the organization—proved essential in steering the desired change at all levels, reinforcing expectations and accountability, and providing resources. This element of dedication accomplishes the most when it's also quite widely visible. In one of the hospitals that achieved broad change, the CEO and his management team—including, among others, the chief medical officer and the vice presidents of nursing, finance, and quality improvement—meet every morning to plan their visits to different sections of the hospital. They then make those visits, speaking with the staff and with patients, asking how they, as managers, can improve the patients' experience and help staff members improve what they're doing. Finally the team reassembles to discuss and act on their findings. They've done that every day for at least three years, Charns reports.

Improvement initiatives, or projects, are often where a hospital's change begins—as well, unfortunately, as where it ends. In a sample project, staff members may undertake to speed up their hospital's multi-step emergency response to patients arriving with symptoms of heart attack. Major change is advanced when senior managers actually participate in these improvement teams. "First," Charns explains, "that experience makes management knowledgeable. Second, it's a way of 'walking the talk'—managers learn the challenges the team is facing. Third, if the team needs particular resources or some political leverage within the organization, it doesn't need to go convince the managers, because they've been part of the team all along."

Most hospitals embarked on vertical alignment of their emphasis on clinical quality improvement by translating it into

organizational priorities and then into departmental goals for which managers were to be held accountable. The accountability part proved difficult, but those sites that did attain greater alignment achieved more significant improvement in quality of care.

Creating better thinkers

The horizontal integration of staff and departmental efforts was needed not only for effective ongoing delivery of care but also for individual improvement projects and for processes affecting several projects. At one hospital, for example, some project teams reported inefficiencies in their processes involving patient registration. Instead of working independently on a team-by-team basis to improve registration procedures, representatives from the teams worked together to streamline procedures jointly. Experiences like this caused one senior manager to observe, "We are better thinkers than before."

However, Charns's study report also states, "Often, teams could not obtain the commitment of resources or the cooperation from other departments needed to effect change," adding that only a few teams "moved beyond integration around improvement projects to build integration into the way they worked."

The habit of looking at the world from a different perspective came early to Charns. While growing up in Cleveland, he remembers, he read a book about Copernicus, the 16th-century astronomer who upended cosmology by positing a sun-centered rather than earth-centered universe. Charns was captivated—not by astronomy, but by the notion of questioning conventional wisdom, or, as he puts it, "stepping outside the crowd and taking a new point of view."

Questioning conventional wisdom

He spent much of his early career questioning the conventional wisdom of hospital organization. He tried to determine whether better quality and efficiency could be achieved if hospitals were organized not by professional departments (medicine, nursing, social work, and so on) but in "service lines" based on patient populations (such as children, women, and geriatric patients) or on patient conditions (such as heart disease, cancer, mental illness, and muscular-skeletal conditions). "What's gratifying to me," Charns notes, "is that when I started doing this work, nobody cared, nobody wanted to hear about how organization affects outcomes. But today there is a lot of interest in it. The Pursuing Perfection program is evidence of this. When I see places that are doing better than others, I think, 'Why can't other places do this?' It fuels my enthusiasm."

These days, besides presenting his transformational model in such venues as the Institute of Medicine, Charns is busy with related research. Because the team's initial study involved just twelve sites, they are using additional Robert Wood Johnson Foundation funding to test the model in another dozen hospitals. Charns looks toward the eventual development of a "tool kit" that hospitals can self-administer in their efforts to change.

Further, Charns's dual role as BUSPH professor and director of COLMR enables him and his colleagues to run a collaborative demonstration project with three of the VA's twenty-one regional health care networks. Under the direction of Carol VanDeusen Lukas, this project is quasi-experimental, attempting to implement transformational change according to the model—and then to determine whether the project yields the results found in the observational Robert Wood Johnson Foundation project.

Apart from being a researcher, Charns has also been a teacher for more than thirty years. Prior to joining BUSPH in 1998, he taught at Carnegie Mellon in Pittsburgh, the Harvard School of Public Health, and the Boston University School of Management. He says, "It's gratifying when students come back and say, 'I use what I learned in your class.'"

Like all good researchers and teachers, Charns cares about making a difference. To really do that, he says, his kind of researcher "has to work in collaboration with managers and clinicians, before, not after, the fact. Because the Robert Wood Johnson Foundation had the vision to allow this kind of front-end collaboration, Charns believes the tools of organizational science and evidence-based management practices can be brought to bear on improving care in a wide spectrum of hospital and health care organizations.

Highlights 2007–2008

Anita DeStefano, PhD, associate professor of biostatistics, was named as one of two associate directors of the Boston University Medical Campus Genome Science Institute, a newly formed collaborative aimed at unifying research and academic endeavors among BUMC faculty across the disciplines of genetics and genomics.

Lisa Sullivan, PhD, MA, professor and chair of the Department of Biostatistics, was appointed to the position of associate dean for education at BUSPH in July. Sullivan has been chair of the Department of Biostatistics at BUSPH since 2006 and served as assistant dean for undergraduate education. She is the recipient of numerous teaching awards, including the BUSPH Norman A. Scotch Teaching Award and the Metcalf Award for Excellence in Teaching, presented by Boston University.

After thirty years in the role of associate dean of academic affairs at BUSPH, **Leonard Glantz**, JD, professor of health law, bioethics and human rights, stepped down from the position in July. He has returned to full-time teaching and will oversee the School's self-study process for reaccreditation by the Council on Education for Public Health. "One of the School's founding fathers, Leonard, more than any other individual, is responsible for forging the School's identity as a first-rate teaching institution," said Dean **Robert F. Meenan**.

Roberta White, PhD, MA, professor and chair of the Department of Environmental Health since 2003, has been appointed associate dean for research. She is director of the BUSPH Center for Interdisciplinary Research in Environmental Exposures and Health and scientific director of the Research Advisory Committee on Gulf War Sciences. A neuropsychologist, White studies the effects of exposures to industrial chemicals and chemical pollutants on brain function, using both behavioral measures and neuroimaging techniques.

Mark Prashker, MD, MPH, who has held the dual roles of associate dean of research and associate dean of institutional development, stepped down from his research position in July to become the School's full-time development dean. Prashker had been research dean since 2004, overseeing growth in the School's research program from \$25 million to \$41 million in awards in 2008.

Ute Lütjens, MBA, joined BUSPH in May as the School's director of development. Lütjens was senior corporate relations officer for the Simmons College School of Management and before that oversaw the executive education program at Harvard Business School.

The **2008 BUSPH Commencement Address** was delivered by Massachusetts Department of Public Health Commissioner **John Auerbach** at a graduation ceremony held in May at the Sheraton Boston Hotel. Biostatistics Professor **Timothy Heeren**, PhD, was also awarded the Norman A. Scotch Teaching Award, the School's highest teaching award, annually presented at commencement.

Epidemiology Professor and Assistant Dean for Education **Wayne LaMorte**, MD, PhD, MPH, received an Advisor of the Year award from the BU Student Activities office for his work with the Undergraduate Public Health Association.

BUSPH's Alumni Board hosted a symposium in April titled "Controversies in Public Health," featuring BUSPH faculty addressing a variety of public health topics. The event featured talks by **Leonard Glantz**, JD, professor, health law, bioethics and human rights; **Deborah Maine**, MPH, DrPH, professor, international health; **Alan Sager**, PhD, professor, health policy and management; **Richard Clapp**, MPH, DSc, professor of environmental health; **Carol Louik**, MS, ScD, research assistant professor of epidemiology; and **Harold Cox**, MSSW, associate professor of social and behavioral sciences and associate dean of public health practice.

The School's Office of Public Health Practice awarded Health Policy & Management Adjunct Assistant Professor **Robert Restuccia**, MPA, executive director of Community Catalyst, the third annual Gail Douglas Award for Public Health Practice. The award was presented in April at the School's annual Community Partners Appreciation event.

The School's **Center for Healthy Homes and Neighborhoods** received a 2007 Champion of Toxics Use Reduction Award from the Toxics Use Reduction Institute at UMass-Lowell. The annual award honors leaders who have used innovative and collaborative approaches to reduce toxic chemical use throughout Massachusetts. Environmental Health Professor **Patricia Hynes**, MA, MS, and Associate Professor **Wendy Heiger-Bernays**, PhD, lead and participate in the project.

A team of faculty and staff from BUSPH's **Department of Health Policy & Management** and the **Center for Health Quality Outcomes and Economic Research** (CHQOER), at the Veterans Administration, in Bedford, Mass., was awarded the prestigious Peter Reizenstein Prize by the International Society for Quality in Health Care Inc. for an article titled *Use of risk-adjusted change in health status to assess the performance of integrated service networks in the Veterans Health Administration*. The article was published in the "International Journal for Quality in Health Care." BUSPH Team members include: Health Policy & Management professors **Dan Berlowitz**, MD, MPH, director of CHQOER, and **Lewis Kazis**, ScD, ScM, and Health Policy & Management Associate Professor **B. Graeme Fincke**, MD.

BUSPH Dean **Robert F. Meenan**, MD, MPH, MBA, traveled to Shanghai in September to sign a memorandum of understanding with the School of Public Health at Jiao Tong University. The agreement will lead to exchanges between faculty and students at the institutions and collaborative research on HIV/AIDS, community health, community mental health, and pharmacoepidemiology as well as other topics. During his six-day visit to China, Meenan also gave a talk at the fourth annual China Health Care Summit sponsored by the China Europe International Business School, Shanghai.

The *Chronicle of Higher Education* ranked faculty in the Boston University School of Public Health **Department of Biostatistics** as the tenth-most scholarly productive among biostatistics faculty at the nation's top research universities. *The Chronicle's* Faculty Scholarly Productivity Index measures productivity of faculty by discipline at 375 universities that offer a doctoral degree.

The **BUSPH Office of Public Health Practice**, headed by **Harold Cox**, MSSW, associate dean of public health practice, received a \$2.5 million grant from the U.S. Department of Health and Human Services to coordinate an effort to improve emergency and disaster response among public health and medical care providers serving 2.2 million people and 62 cities and towns throughout Boston and the metropolitan area. The project is expected to strengthen lines of communication and cooperation among hospitals, public health departments, long-term care facilities, ambulance services, and community health centers.

Assistant Professor of Biostatistics **Al Ozonoff**, MA, PhD, was appointed to the Massachusetts Cancer Registry Advisory Board. He will serve a two-year term, providing expertise on statistical issues as they apply to public health surveillance, his area of active research.

Associate Professor of Health Policy & Management **Jim Burgess**, PhD, MA, has joined the editorial board of *Health Services Research*, which is published by the Health Research and Educational Trust as an official publication of AcademyHealth, the organization for health services research and health policy.

C. Robert Horsburgh, MD, MUS, professor and chair of the Department of Epidemiology, was elected co-chair of the Tuberculosis Epidemiologic Studies Consortium, an organization established by the Division of Tuberculosis Elimination of the Centers for Disease Control and Prevention.

Wendy K. Mariner, LLM, MPH, professor of health law, bioethics and human rights, was appointed chair of the Boston University Faculty Council. As chair, Mariner will also serve a two-year term as an ex-officio member of the BU Board of Trustees. In June, Mariner also received the 2008 Jay Healey Distinguished Health Law Teacher Award at the health law professors conference held at the new Drexel University School of Law in Philadelphia. The award is given by health law faculty from around the United States.

Patricia O'Brien, MBA, PhD, formerly deputy dean of Harvard College and before that dean of the Simmons College School of Management, was named associate dean of administration and finance at BUSPH in July 2007. O'Brien is responsible for the School's administrative and financial operations, which include personnel, business services, and facilities. She plays a major role in directing and developing strategic initiatives and oversees the capital budget process and financial forecasting and analysis for the School.

Edward Bernstein, MD, professor of emergency medicine, BU School of Medicine, and **Judith Bernstein**, PhD,

associate professor of maternal and child health at BUSPH, co-directors of the BNI-ART Institute, were awarded funding from the Massachusetts Department of Public Health and the Bureau of Substance Abuse Services to establish a violence and substance abuse intervention program at the six Massachusetts emergency departments with the largest volume of gunshot and stab-wound visits. This six-site program will partner with public and private agencies to offer a broad spectrum of services to patients recovering from violent injury and will address the intersection of violence with substance abuse issues. The BNI-ART Institute is affiliated with the Youth Alcohol Prevention Center at BUSPH.

BUSPH was named as a participant in a five-year federal grant to advance population research on lesbian, gay, bisexual, transgendered health. Social and Behavioral Sciences Assistant Professor **Ulrike Boehmer**, PhD, MA, co-principal investigator of the grant, will work closely with the Fenway Institute, a Boston community advocacy and research program of Fenway Community Health.

"The HPV Vaccine: Is It Really a Public Health No-Brainer?" was the topic of the annual **William J. Bicknell Lectureship in Public Health**, held in September. The two-day event featured a lecture by **Susan C. Weller**, PhD, professor, Department of Preventive Medicine and Community Health, University of Texas Medical Branch, Galveston, who talked about the epidemiology of the human papilloma virus in the United States. A panel discussion included participation by **Adel Mahmoud**, MD, PhD, senior molecular biologist at the Woodrow Wilson School of Public Health and International Affairs and Department of Molecular Biology, Princeton University, and former president of Merck Vaccines; **Judy Norsigian**, founding member and executive director of Our Bodies, Ourselves; Massachusetts State Rep. **Peter Koutoujian**, house chairman of the Joint Committee on Public Health; and **Yves Bergevin**, MD, FRCPC, FCFP, senior program advisor, reproductive health, Africa Division, United Nations Population Fund. The panel discussion was moderated by International Health Professor **Deborah Maine**.

In a collaboration that brought together influential public health figures from Boston and India, Boston University School of Public Health faculty joined public health colleagues at Harvard and Tufts universities and the Massachusetts Institute of Technology to host the Boston-India Symposium on Essential Interfaces in Public Health. The event, organized in part by the Global Health Initiative at Boston University, was held to facilitate connections between the four Boston academic institutions and colleagues in India to share and foster the application of public health knowledge.

Donors 2007-2008

Boston University School of Public Health depends on the generosity of alumni and friends to support its mission of teaching, research, and service. The following lists acknowledge gifts to various funds, including the School's Annual Fund, made July 1, 2007, through June 30, 2008.

Gifts to BUSPH's Annual Fund provide unrestricted support to the School's highest priorities. Donors whose names are marked with the symbol ‡ have contributed to the School consistently for five years; donors noted with the symbol * have made donations to the Annual Fund at levels that qualify them for membership in the following Annual Leadership Giving Societies: President's Associates (\$10,000+); The Talbot Society (\$5,000+); Leaders Society (\$1,000+).

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Vanguard Charitable Endowment Program
VCA Antech Inc.
Worcester County Food Bank

Individuals

\$10,000 or more

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Terry Andreas
L. Adrienne Cupples*‡
Jeannine Rivet '81*‡
Abby Rockefeller

\$1,000 to \$9,999

Anonymous*‡
Anonymous*‡
Anonymous
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Frances Drolette*‡
Stanley Eisenberg
Christopher Gabrieli*
Paul Gertman*
Leonard Glantz‡
C. Robert Horsburgh Jr. and E. Britan Lundberg*
John Howe III*
Jonathan Howland '84*
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Joel Lamstein*‡
Russell Lopez '03 and Andrew Sherman

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Robert Meenan‡
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Kevin Phelan*‡
Mark Prashker '93*
Kenneth Rothman*
Jodi Sperber

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Larry Cross '93
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Rosemarie Ferri '89
Susan Flanagan '83‡
Paula Gallagher '86
Michael Grodin
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Neil Sherman
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Nelson Thaemert
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Raghavan Amarasingham '93
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Robert Bienkowski '85
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Harriet Brand '94
Andrea Bresnick '96
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David Britto '85
Sara Bruce '95
Rosemary Bryant '02
Valerie Buckley '03
James Burgess
Denise Burke '07
Elizabeth Caddick '83
Robert Canning '87
Kristen Carlson-Lewis '87
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Elizabeth Carroll '94

Nancy Carroll '84
Beth Carvette '94
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Josephine Crisostomo '02
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Cynthia Fodor '87
Colleen Fogarty '04
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Deborah Fox '86
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Merrill Griff '81
Martha Groton '89‡

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Hugh Hare '87
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David Healey '07
Suzanne Healy '01
Judith Hearst '80
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Nicholas Herold '92
M. Lise Hildebrandt '04
H. Patricia Hynes
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Katherine Hohman '04
Maureen Holden '94
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BY THE NUMBERS: A TEN-YEAR PERSPECTIVE

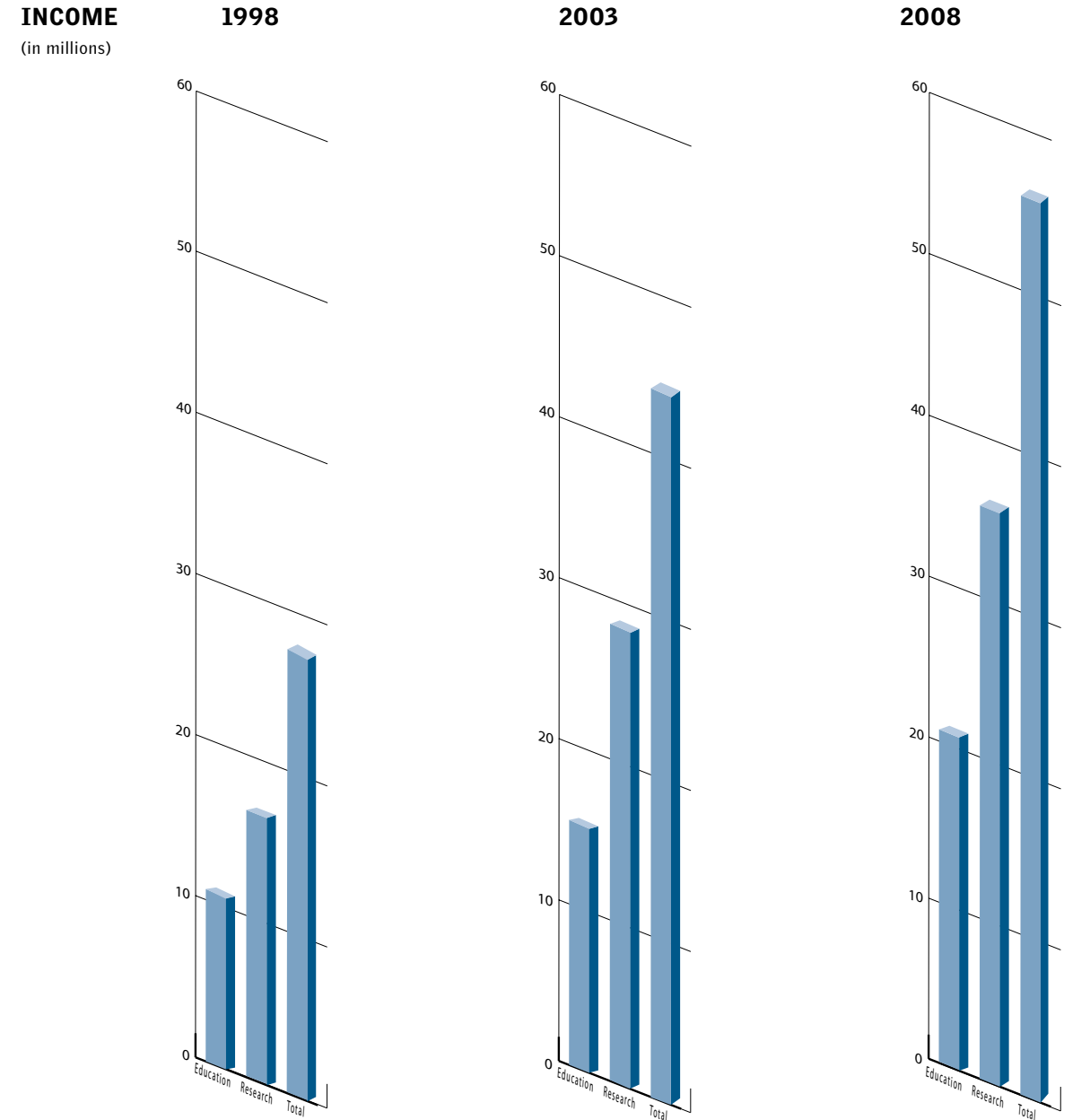
Eric Kim '07
 Judy Kipnis
 Ute Klockmann-Lütjens
 Howard Koh '95‡
 Ilona Kopits '99
 Milton Kotelchuck
 Elizabeth Kraft '84
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 Richard Lai
 Ruth Lamb '87
 Wayne LaMorte '94
 Joan Lane '80
 Lee Lanza '80‡
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 Suzette Levenson '84
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 Maria Loy '06
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 Colleen Mannering '96
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 Sarah Marter '83
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 Lois McCloskey
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 John McDonald '82
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 Gayle Irene Mendoza '08
 Jana Meyer '04
 Margaret Miller '92
 Vandna Mittal '08
 Ruth Montgomery '80‡
 Peter Moyer '03‡
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 Jabed Mustafa '06
 Dipesh Navsaria '95‡
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 Kathleen Oates '81
 Julie O'Brien '94
 Mary O'Brien '84
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 Sonali Patel '05
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 Marian Perez '06
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 Jean Peteet '83
 Rachel Pitek
 Linda Ann Piwowarczyk '97
 Richard Plotz '92
 Gay Plungas '93
 Elaine Poirier-Elliott '85
 Margaret Polito '93‡
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 Linda Powers '08
 Kristi Prather '08
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 Jirair Ratevosian '07
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 Ira Schlosser '03‡
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 Theresa Taylor '84

Melissa Temkin '03
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 Linda Velgouse '79
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 Jeff Waller
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 Thomas Webster '00
 Alicia Wedderburn '06
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 Rebecca Williams '07
 Ilga '99 and Hartmut Wohlrab
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 Irini Youssef '01
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Editing: Sharon Britton, Theresa Pease



INCOME	1998	2003	2008
Education			
Tuition & Fees	\$10,461,800	\$13,821,780	\$20,533,117
Other	\$481,860	\$1,233,315	\$474,450
Research			
Direct Cost	\$13,793,780	\$24,136,925	\$28,529,196
Indirect Cost	\$3,032,885	\$4,492,990	\$6,614,749
Total Income	\$27,770,325	\$43,685,010	\$56,151,512
Full-Time Faculty	88	147	154
Matriculated Students	532	565	663
Student Scholarship Program	\$931,495	\$1,448,160	\$2,165,856