Homing in on Asthma

Asthma in children has skyrocketed in the last two decades, and it hits inner-city children especially hard. Now researchers from the Bloomberg School and Hopkins’ School of Medicine are zeroing in on the role indoor pollution plays in provoking asthma attacks.

In a paper published in February in *Environmental Health Perspectives*, the researchers reported that higher levels of indoor particulate matter in the home were positively correlated with higher incidences of asthma attacks in children already suffering from asthma.

What causes some people to develop asthma in the first place still isn’t understood. Neither is the reason for the doubling of asthma rates from the 1980s to the 1990s. Minority and inner-city children are hardest hit: 12.8 percent of black children suffer from asthma, compared with 7.9 percent of whites. And black children are more likely to visit the emergency room because of asthma, and are also much more likely to die.

“We’re focusing on kids because that’s where the morbidity is the greatest,” says study co-author Patrick Breysse, professor of Environmental Health Sciences. Breysse is director of the Johns Hopkins Center for Childhood Asthma in the Urban Environment.

Last year the Bloomberg School received $12 million from the National Institute of Environmental Health Sciences (NIEHS) to continue the center’s funding.

For the study, Breysse, PhD ’85, MHS ’80, and Gregory Diette, MD, associate professor of Medicine and of Epidemiology, working with six other Hopkins colleagues, chose 150 asthmatic children between the ages of 2 and 6 from East Baltimore. Most of the participants were poor and African-American, and most lived in aging single-family rowhouses.

Diette says that the houses ranged from immaculately clean and well-maintained to deteriorating and poorly kept.

At baseline, at three months and six months, they had a technician...
About 750,000 children visit emergency departments (EDs) yearly because of asthma attacks, accounting for about 2.8 percent of all childhood ED visits.

About 450,000 people are admitted to the hospital with asthma yearly, with stays averaging 3.2 days.

Asthma increased dramatically in the 1980s and '90s before leveling off. From 1980 to 1996, asthma prevalence in children 17 and under more than doubled, from 3.6 percent to 7.5 percent.

Baby Blues
Giving birth to multiples increases the mother's odds of having depressive symptoms by 43 percent nine months after birth, according to a study in Pediatrics. Yoonjoung Choi, DrPH, lead author and a research associate in International Health, also found that regardless of multiple-birth status, few mothers with symptoms of depression seek help from medical providers. In addition, a history of mental health problems was found to be a risk factor for maternal depression, and black mothers were more likely to be depressed than white mothers.

Diet and Neighborhood
Where you live plays a big role in dietary health, according to two studies published in the American Journal of Clinical Nutrition and American Journal of Preventive Medicine. Manuel Franco, MD, PhD, associate in Epidemiology and lead author of the studies, found that 46 percent of lower-income neighborhoods in Baltimore City and Baltimore County, Md., had a poor availability of healthy foods, and that low availability is a risk factor for low-quality diet.

Grandparent Care
Grandparents provide safer childcare than organized daycare or care by the mother or other relatives, according to a study in Pediatrics. Lead author David Bishai, MD, PhD, MPH, associate professor in Population, Family and Reproductive Health, found that childcare provided by grandparents is associated with a decreased risk of injury for the child, by roughly half, when compared to other caregivers. The study also indicates that the kids most protected are those whose parents stay married and live together throughout the child's life.
In Abu Dhabi, Public Health in a Hurry

"The goal is to reach the best level of health services. It's very tempting just to reinvent the wheel but it doesn't help. The more we learn from the setbacks, the problems that the U.S. has had, the more likely we'll be able to achieve our goal with minimum casualties."

—Dr. Omniyat Al Hajeri, Manager, Health Professionals Licensing Department, Health Authority–Abu Dhabi (HAAD)

When it comes to building a public health system, few places in the world can surpass Abu Dhabi’s resources, political support and ambitious agenda.

Perched atop an estimated 10 percent of the world’s oil reserves, Abu Dhabi—one of seven emirates in the United Arab Emirates—is accustomed to moving fast. When oil was discovered in the area 50 years ago, Abu Dhabi’s population was just 46,000. Today, the population is 1.7 million (more than three-quarters of whom are expatriate workers).

However, vaulting from a developing country to a developed one has not come without costs, including high rates of chronic diseases like diabetes, cardiovascular disease and cancer.

In 2006, Abu Dhabi instituted universal health insurance and envisioned a new role for the Health Authority–Abu Dhabi (HAAD). Instead of providing care, HAAD would be responsible for regulating health care policies and setting the public health agenda. HAAD is moving quickly to build a public health infrastructure to tackle the chronic disease problems, manage the health care system and handle other critical issues. As they launched these initiatives, HAAD officials realized that public health graduate education for an interdisciplinary cadre of health leaders driving the agenda would be essential.

"We hope to show how Abu Dhabi can be used as a world example of how to solve a lot of the issues that health systems today suffer from and cannot answer.” —H.E. Zaid Al Siksek, CEO, HAAD

"The Emergency Medical Service is currently run by the police, and there are many hospitals that own ambulances. My big dream is to combine that into a state-of-the-art EMS system.” —Dr. Saleh Fares, Fellow, Disaster Medicine Section, Harvard Medical School

"I want people to know that in Abu Dhabi there are hard-working and very ambitious people looking forward to seeing their country reach a place where it can be compared to the most developed countries.” —Nadia Younis, Drug Registration and Pricing Section Head, Ministry of Health

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Enter the Bloomberg School.

HAAD officials turned to the Bloomberg School because Abu Dhabi has had a long-standing connection with Johns Hopkins. Hopkins Medicine currently manages three of the Emirate’s major hospitals. They were also drawn by the School’s reputation, says H.E. Zaid Al Siksek, HAAD’s CEO. “Hopkins is a very strong school for public health and has a lot of resources and information,” says Al Siksek. “The total reason for us being here is to tap into the knowledge transfer that may be used in Abu Dhabi to address public health issues.”

The School has previous experience in preparing health leaders for massive reform. Since the early 1990s, the School has educated a generation of health leaders in Taiwan, which launched its own universal health insurance initiative in 1995. The School drew on its Taiwan program experience and designed a specialized MPH-DrPH program in health management and leadership for 25 professionals from the Emirate’s health care system. Launched in November 2008, the cohort of physicians, nurses, pharmacists, administrators and others will take courses in Abu Dhabi, Baltimore and online.

Their goal is typically Abu Dhabian: audacious and fast-tracked. “Within five years with our limited population and unlimited access to resources, we hope to take Abu Dhabi to a position as one of the top providers, in terms of world rankings in health care quality, reform and service delivery, and maybe even to have some of the highest-end public health indicators that show a healthy population,” says Al Siksek. “From a leadership perspective, if we can achieve that in five years, we will have done wonders.”

The Abu Dhabians will take courses in epidemiology, biostatistics, health administration and others in the standard MPH and DrPH programs, drawing on their Abu Dhabi work experience for their theses. The Abu Dhabi program coursework is designed to be completed in four years. Students will also complete MPH Capstone projects and DrPH dissertation projects on topics important to their public health system.

Through its national health insurance program, HAAD will be able to collect comprehensive data on its population’s health status and health care utilization that will allow them to spot trends and target programs most effectively, says Laura Morlock, PhD, director of the Abu Dhabi MPH-DrPH program. “For example, once they know that diabetes is one of their serious health issues, they will be able to track blood sugar test results for diabetes and examine, over time, the impact of health promotion programs and improved health services on blood sugar levels. This capability may help them prevent the complications of diabetes over time,” Morlock says. They will eventually be able to gauge the impact of health promotion programs and improved health services on cardiovascular disease, diabetes, road traffic injury outcomes and other issues.

That kind of centralized, linked data is difficult to come by in the U.S., for example, where data often has to be extracted from different insurers and then pieced together, notes Morlock, a professor of Health Policy and Management.

Having a single health system regulator with accurate and comprehensive public health data is important, “but you also need the management and leadership skills to use those data to design, implement and evaluate good public health programs,” says Morlock.

The Abu Dhabi program, she says, is designed to train health care leaders to do just that.

—Brian W. Simpson

“i believe that if you have a goal in mind, it’s better to proceed scientifically. in the future if i have a plan to implement, this program will give me all that i need to do so effectively.”

—Dr. Huda Bani-Shemaili, General Practitioner, Disease Prevention Screening Center, SEHA

“I would like the West to view us as a partner so we could work side by side to improve a lot of things. From a health care perspective, we all work for humanity. We are one world.”

—Samya Al Mamari, Assistant Chief Nurse, Zayed Military Hospital

GREAT RESOURCES VS. GREAT CHALLENGES

Population: 1.7 million
   (about 450,000 are citizens; the rest are expatriates)
Life expectancy: 74.5 women / 73.4 men
Infant mortality rate/1,000 live births: 8.7
Under-5 mortality rate/1,000 live births: 10.7
Hospitals: 33
Health centers: 389
Clinics: 188

Leading causes of death (rate/100,000 population):
   Accident and poisoning: 37.5
   Cardiovascular disease: 29.8
   Cancer: 21.7
   Diabetes mellitus: 11.9
   Congenital anomalies: 10.7

SOURCE: HAAD, 2007
The notion of fresh-faced teens pledging chastity until marriage through abstinence-promoting programs such as “True Love Waits” may be comforting to many adults. But it may be false comfort, at least according to a new study by Janet Rosenbaum, PhD, a postdoctoral fellow in Population, Family and Reproductive Health.

Earlier studies, using data from the National Longitudinal Study of Adolescent Health, had shown that pledgers start having sex later than their nonpledging peers. Rosenbaum used that same data but analyzed it in a different way, comparing teens who took virginity pledges (overall, a very religious group) to nonpledging teens who were similarly religious and conservative.

What she found: Not only are religious teens who took virginity pledges just as likely to delay having sex, so we could measure the difference—if any—that the virginity pledges were making.

Both groups had similar rates of vaginal, oral and anal sex and, on average, delayed their first sexual encounters until age 21, four years later than the average American adolescent. Those studied also had similar rates of STDs, and reported an average of three lifetime sexual partners. The majority, more than 50 percent, had premarital sex. (The study tracked adolescents from about age 16 to 22.)

But when it came to using condoms and other forms of birth control, the two groups parted ways.

“Teens who took the virginity pledge were 10 percent less likely to use condoms than were similar nonpledgers, and also less likely to use birth control. Fifty-four percent of nonpledgers used condoms most of the time or always, but only 42 percent of the pledgers did,” says Rosenbaum. She attributes this difference to abstinence-only sex education programs that “tend to be very negative and disseminate inaccurate information about condoms and birth control.”

This is a serious concern from a public health point of view, Rosenbaum says. “Some people still worry that teaching adolescents about safe sex is the same as encouraging them to have sex, and dozens of studies show that doesn’t have any basis in reality,” she notes. “It’s absolutely critical that parents talk to their kids about sex and about safe sex.”

Just as troubling, she says, is that measurements of the “success” of abstinence-only sex education programs are often based, at least in part, on how many adolescents take virginity pledges. This can create a false sense of security, she says, leaving many teens unprepared and uneducated about safe sex practices.

—Lisa DeNike
The safety of home childbirth in rural India is a gamble, with thousands of women dying annually from postpartum hemorrhage and many more suffering severe complications from anemia. So it seems fitting that two Bloomberg School researchers used a computer simulation named after a famous casino to investigate an approach to making childbirth a safer process for women in that developing country.

Graduate student Tori Sutherland and David Bishai, associate professor of Population, Family and Reproductive Health, used what is called a “Monte Carlo simulation” to find out whether administering a commonly used and widely available ulcer medication, misoprostol, is an effective way to save mothers’ lives in India. (Monte Carlo simulations use numbers and probability statistics to investigate problems ranging from nuclear physics to traffic patterns.)

Not only was the answer “yes,” but the study also concluded that misoprostol is cost-effective.

“We knew that misoprostol can prevent blood loss by women in labor. We wanted to learn how many lives could be saved by [giving] misoprostol postpartum.”

— David Bishai, health economist

According to the simulation, there was a 38 percent reduction in maternal mortality among mothers who were given 600 micrograms of misoprostol by trained village workers immediately after delivery.

“Better Odds for Surviving Childbirth
Each year, a half million Indian women die in childbirth. Misoprostol could save many of their lives.

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“We knew that misoprostol can prevent blood loss by women in labor. That's been proven in previous studies,” says Bishai, MD, PhD, MPH. “What we wanted to learn was how many lives could potentially be saved by administering misoprostol immediately postpartum. Our study is the first to link the concepts of prevented blood loss with prevented death.”

Each year in India, 535,000 women die in childbirth. Experts estimate that one quarter to one half of these women succumb to postpartum hemorrhage. In developed countries such as the U.S., the condition is rare because most women deliver their infants in settings where emergency care is readily available. In developing nations such as India, however, the majority of women give birth at home, raising their risk of complications.

Bishai and Sutherland’s computer program was designed to reflect the delivery outcomes of 10,000 women in India. It included data about blood loss, hemoglobin levels and the corresponding probability of mortality culled from peer-reviewed literature, population-level datasets and expert consultations. The program then predicted women’s risk of death from both hemorrhage and anemia, and the predicted impact of misoprostol on those outcomes.

According to the simulation, there was a 38 percent reduction in maternal mortality among mothers who were given 600 micrograms of misoprostol by trained village workers immediately after delivery.

“These results are so impressive and may get the attention of decision makers in countries where misoprostol is not yet on the formulary for the prevention of postpartum hemorrhage,” says Suellen Miller, director of Safe Motherhood Programs at the University of California San Francisco.

A single dose (600 micrograms) of misoprostol costs about $1 in India and 36 cents in Bangladesh. The research team’s simulation concluded that, taking into account the cost of the medication, provider training and delivery fees, it costs about $1,400 to save a life using misoprostol.

“To understand that figure, you have to compare what it would cost to improve the quality of comprehensive emergency obstetric care there—about $10,000 per life saved,” says Sutherland.

—LD

—LD
A WORLD OF HURT: GLOBAL INJURIES

In the developing world, children sustain injuries largely unfamiliar in high-income countries: They’re burned while cooking on unsafe stoves, they drown by falling into uncovered wells, and they’re poisoned by the kerosene used for lamp fuel.

“Globally, the high burden of injuries has been neglected,” says Adnan Hyder, associate professor in International Health. “Injury prevention has been difficult to integrate into public health in a meaningful way because it’s not considered a ‘disease.’” Additional obstacles to reducing injuries in developing countries include a lack of data and advocates, as well as a traditional perception of injuries as acts of fate beyond human control. The word “accident” itself implies a lack of control, which is why experts in injury prevention don’t like to use it. But injury ranks high among killers of children, alongside diarrhea, pneumonia, tuberculosis and malaria, and Hyder wants injury prevention mainstreamed into the public health agenda.

Hyder, MD, PhD ’98, MPH ’93, believes there is another essential element to injury prevention—increasing awareness of injury as a social justice issue. “The poorer you are, the more likely you are to get injured, and the care for your injury is worse,” he says. Children in Africa, for example, suffer unintentional injury at a rate of 53 per 100,000; in countries such as Australia, Sweden, United Kingdom and Canada, the rate is about five per 100,000.

WHO and UNICEF published the first World Report on Child Injury Prevention in December 2008. The report, which Hyder co-edited, outlines intervention strategies—well covers, window guards, motorcycle helmets and nontip lanterns—and policies such as speed limits, playground standards and urban design that mandates sidewalks. Already, the report has generated discussion about interventions. For example, in Vietnam, where many children ride motorcycles but few wear helmets, there is research under way to produce affordable child helmets that meet safety standards.

As director of the International Injury Research Unit (IIRU) in International Health, and a core faculty member of the Center for Injury Research and Policy (CIRP), Hyder touts the cost-effectiveness of interventions. A recent IIRU study of poisoning among South African children looked at kerosene stored in old soda or juice bottles. It found that distributing child-resistant containers for kerosene storage was effective at preventing poisoning. “People think you can’t do anything about injury, and that it’s too expensive,” says Hyder, “but that is a myth.”

—Christine Grillo
Injury in the U.S.

Although they face different types of injuries than children in developing countries, American children remain at great risk. Injury is the leading cause of death for children in the U.S., and the millions of nonfatal injuries cost society an estimated $50 billion annually. For poor children, globally and nationally, the burden is worse. CIRP director Andrea Gielen and colleagues have done research showing that the injury rate for low-income children in Baltimore is twice the national rate. One explanation for the gap is that low-income families often do not have access to safe environments, products and information that can protect them from injuries.

Since 1987, U.S. deaths from unintentional injury have dropped dramatically—43 percent for children ages 0 to 14—as a result of education, safety product development, policy change, research and other measures. “The good news about this field,” says Gielen, ScD ’89, ScM ’79, professor of Health, Behavior and Society, “is that we don’t have to hunt for a gene. We know a great deal about the causes of injury, and we have already identified many of the solutions. Our challenge is to get them implemented.”

—CG

The Economics of Injury

Injury prevention products such as smoke detectors, bike helmets and cabinet latches are cheap and work well. But who should pay for their large-scale implementation? That question plagues David Bishai, PFRH associate professor and core faculty in IIRU and CIRP.

In countries with nationalized health care systems, the government pays for medical care and therefore has a financial interest in preventing injuries. In the U.S., though, managed care organizations (MCOs), not the government, bear the costs. So shouldn’t MCOs want to invest in injury prevention? Not necessarily, says Bishai, a health economist. “There’s too much turnover,” he says. On average, a person switches to a new MCO every five years. Some interventions, such as alcohol and drug rehabilitation programs, pay off in the short-run. But other interventions—smoke detectors, for example—need to be in place much longer before they pay off. “There’s no incentive for MCOs to invest in long-term prevention,” Bishai says.

Real progress in injury prevention may require a sea change, says Bishai. A single-payer universal health care system or portable lifelong private insurance contracts would solve the problem. “With the new [presidential] administration, these options are on the table this year,” he says.

—CG
Once known as the breadbasket of the world for its robust agriculture, Zimbabwe is now a nation of ruptured sewer pipes, unsanitary water and walls of garbage piled high along roadsides. “You can’t mistake the stench of sewage,” says Chris Beyrer, MD, MPH ’90, director of the Johns Hopkins Center for Public Health and Human Rights, who made a covert trip there in December.

Traveling through several of the country’s provinces with colleagues from Physicians for Human Rights (PHR), Beyrer saw firsthand the situation that has caused more than 4,300 cholera deaths since August of last year. Escorted by a group of Zimbabwean doctors who risked arrest by associating with PHR, Beyrer and the team visited boarded-up hospitals and met with health care workers who detailed the insurmountable challenges to managing the outbreak: unaffordable medical supplies, no running water, uncollected waste and the dollarization of the health care system. With 231 million percent inflation, the Zimbabwean dollar has been discontinued and replaced with the U.S. dollar and the South African rand. The country and its regime, says Beyrer, offer a classic lesson in public health: When government neglects its basic services, its citizens get sick and die, often in great numbers. “The cholera epidemic in Zimbabwe is a man-made disaster, the outcome of the collapse of the most basic water and sanitation measures.”

When municipal elections in 2006 resulted in opposition party gains, President Robert Mugabe stopped maintaining water and sanitation systems in targeted areas. His campaign of spite against supporters of political rival Morgan Tsvangirai soon led to the cholera outbreak. In September the UN arranged a power-sharing deal between Mugabe and Tsvangirai, which initially went unheeded by Mugabe, and in November the regime shut down the public hospitals.

In January, Beyrer and his PHR team published editorials and released a report calling attention to the crisis in Zimbabwe—at that time, the death toll was 1,600—and he and his team issued two press releases and attended briefings in Washington, D.C. On February 11, Tsvangirai was sworn in as prime minister as part of a power-sharing agreement with Mugabe, and U.S. President Barack Obama extended sanctions against Mugabe and his regime on March 5. The next day, Tsvangirai and his wife, driving on a notoriously dangerous road, crashed into a truck carrying U.S. aid. Refuting any foul play, Tsvangirai survived his injuries; his wife did not. “The power-sharing government has really just started. Her death is a real blow,” says Beyrer, an Epidemiology professor. “[But] we think our advocacy was useful.”

What remains to be seen is how and if Tsvangirai will be able to restore basic services and halt the outbreak, which has now reached rural Zimbabwe and neighboring Malawi, Mozambique, South Africa and Zambia.

“All of this is evidence of why good government is so central to public health,” says Beyrer. “The basic functions of public health really are state functions. When a state ceases in that, public health fails.” —CG
You Are What You Drink

It seems that America is perpetually on a collective diet. We struggle to avoid chips, cheeseburgers, chocolate and ice cream.

According to Bloomberg School researchers, however, cutting back on soft drinks and other sugar-laden drinks might be more effective in the fight against fat.

A study published in April in the American Journal of Clinical Nutrition found that adults who reduced their consumption of sugary, high-calorie drinks (caloric beverages) lost more weight at 6 and 18 months than did individuals who cut back on solid foods.

“A calorie is a calorie, so if people consume too many calories it doesn’t matter where they come from,” says Benjamin Caballero, MD, PhD, senior author of the study and a professor in International Health. "But in the case of fluid calories, it seems it matters.”

Caloric beverages, which include soft drinks, fruit drinks or other sugar-sweetened high-calorie beverages, may cause less satiety than solid calories, and have few, if any, essential nutrients.

The study, according to Caballero, is the first to show a causal link between caloric drinks and body weight.

Over the past two decades, Americans have increased their daily caloric intake by 250 to 300 calories, with approximately half of the additional calories coming from sugar-sweetened drinks. Previous Bloomberg School studies have shown a link between caloric drinks and the sharp rise in the obesity epidemic, which could affect 75 percent of Americans by 2015.

Study researchers recorded the solid and liquid dietary intake of 810 adults, measuring their weight and height at 6 and 18 months. Participants who eliminated 1 serving of a caloric beverage lost 0.5 kg at 6 months and 0.7 kg at 18 months.

“We were surprised by the consistency of it,” Caballero says, “the linear reduction between reduction in caloric beverages and the reduction in body weight and the fact that it was sustained over 18 months.”

Caballero said the findings demonstrate the benefits of limiting sodas and other high-calorie drinks, as a weight loss tool.

“If you reduce your consumption of caloric beverages, just one can of soda over a period of time, if you do it consistently, our study suggests that it will make a difference,” he says.

—Benjamin Caballero, MD, PhD

Moving Up: New Honors for Leaders

Karen Bandeen-Roche, PhD, was installed as the Frank Hurley and Catharine Dorrier Professor and Chair of the Department of Biostatistics on March 31, after serving as the interim chair and later department chair since July 2008. She succeeds Scott Zeger, PhD, who was appointed vice provost for research and now serves as interim provost for The Johns Hopkins University.

On February 4, William W. Eaton, PhD, chair of the Department of Mental Health, was installed as the inaugural Sylvia and Harold Halpert Professor in Mental Health. He’s served as chair of the department since 2004.

Jane Schlegel, MBA, has been named senior associate dean for finance and administration. Schlegel has held positions at the Johns Hopkins Hospital, the School of Medicine and the Bloomberg School for the past 19 years. Prior to Schlegel, Herb Hansen served as senior associate dean for finance and administration for 17 years.
In a whirlwind, first visit to the Bloomberg School on March 11, Ronald J. Daniels—the new president of The Johns Hopkins University—glimpsed the intensity of the School’s mission and met the people who make it happen.

His compressed morning visit took him up nine floors, through labs, classrooms, a Distance Education recording studio and the School’s common spaces. Daniels, who began his tenure as Hopkins’ 14th president on March 1, met with students, faculty, the School’s deans and department chairs, and others.

“I believe in interdisciplinary approaches to solving societal and world problems. Clearly, they are a trademark of the research and scholarship at the Bloomberg School,” says Daniels, JD, LLM. “The conversations I had at the School represent the best of what the academy can be.”

During the visit, Daniels met with a half-dozen Sommer Scholars who are doctoral candidates in four different departments. He was sufficiently wowed by the students to invite several of them to make presentations to the May 2 Board of Trustees meeting.

Later, he greeted colleagues from academic institutions in Ghana, Nigeria, Uganda, Malawi, Ethiopia, Egypt and China, who are partners with the Bill and Melinda Gates Institute for Population and Reproductive Health and were in Baltimore for a semi-annual meeting. With Gates Institute support, the partners have established graduate programs in population and reproductive health at their respective institutions and are collectively launching a multi-year Family Health and Wealth Study.

Peter Agre, Nobel laureate and director of the Johns Hopkins Malaria Research Institute, introduced Daniels to Malaria Institute faculty and gave him a tour of the School’s insectaries, which are among the world’s largest for keeping and breeding mosquitoes used in basic research. (No mosquito bites were reported.)

“It was an exhilarating morning,” says Dean Michael J. Klag, MD, MPH ’87, who led Daniels’ tour. “It’s clear that he grasped the breadth of our public health mission. The faculty and students were energized by his visit, and we all look forward to working closely with him in the future.”

Soledad: The Humanitarian

CNN anchor and special correspondent Soledad O’Brien was presented with the inaugural Goodermote Humanitarian Award November 18 at the Bloomberg School. O’Brien (pictured with Dean Michael J. Klag, left, and Dean Goodermote) was recognized for her coverage of natural disasters such as the 2004 Asian tsunami, which killed and displaced more than 200,000 people, and Hurricane Katrina, which devastated New Orleans in August 2005. The Goodermote Humanitarian Award was established by Dean Goodermote and the Goodermote family to support the Bloomberg School’s training and education mission and to honor the commitment of the School’s alumni to advancing public health worldwide. In addition to the award, the Goodermote family has established a scholarship for students committed to addressing the needs of displaced people and to furthering the mission of the School’s Center for Refugee and Disaster Response.
Going Molecular on Mosquitoes

New breakthroughs seek to stop malaria parasite development in the Anopheles mosquito.

Complementing current efforts deployed against malaria—drugs, bed nets, insecticides and others—two new pieces of the malaria puzzle have been discovered by researchers at the Johns Hopkins Malaria Research Institute (JHMRI). The discoveries target two key events in the transmission cycle, one that occurs in the mosquito’s midgut, and one that takes place in the mosquito’s salivary glands.

As part of the transmission cycle, *Plasmodium*, the malaria parasite, reproduces in and on the mosquito’s midgut. Typically, the mosquito’s immune system attacks *Plasmodium*, but does so too late to kill all of the parasites. But what if the mosquito were better at killing the parasite in its gut? George Dimopoulos, PhD, associate professor in the W. Harry Feinstone Department of Molecular Microbiology and Immunology (MMI), and colleagues have discovered how to make the mosquito mount a better defense. Their study shows that the mosquito’s defense against *Plasmodium* is activated by the protein known as Rel 2, which is ultimately regulated by the caspar gene. When caspar is expressed, Rel 2 is suppressed; likewise, when caspar is silenced, Rel 2 is activated, and the mosquito launches a successful defense against the parasite. Dimopoulos and colleagues used a method known as RNAi (RNA interference) to silence the caspar gene, and the results were good—the mosquito’s immune defense prevailed against *Plasmodium*. Even better news is that by activating Rel 2, not just one, but several, immune defenses are launched: “This will make it very difficult for *Plasmodium* to develop resistance,” says Dimopoulos.

Another discovery, by Marcelo Jacobs-Lorena, PhD, and Nirbhay Kumar, PhD, both professors in MMI and JHMRI, targets the disease later in the transmission cycle, after the parasites have traveled from the mosquito’s gut to the salivary glands. While scientists have known for some time about the parasite’s infection of the salivary glands, little has been known about the specific molecular activity that takes place during the infection. Jacobs-Lorena, Kumar and colleagues identified for the first time a mosquito salivary protein known as saglin, which acts as a receptor for a protein produced by the parasite. In binding, the two proteins make the salivary gland vulnerable to invasion by the parasite. As part of the study, the researchers were able to switch off the expression of saglin, which reduced salivary gland invasion. By targeting saglin and turning it off, scientists may be able to reduce or even halt the transmission of malaria when the mosquito takes its bloodmeal from humans.

Having identified new molecular targets, both discoveries provide incentive to do further research on transgenic mosquitoes—and how they could be introduced into wild populations.

A multifaceted attack on malaria is required, says Jacobs-Lorena: “We need to implement a concerted effort in using all the weapons we have available: drugs, bed nets, insecticides, transgenics, vaccines—if we use it all, there is hope of eliminating malaria one day.”

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**In Memoriam**

**W. Harry Feinstone**, ScD ’39, a pharmaceuticals pioneer, died on Thanksgiving at the age of 95. In a seven-decade career, he pioneered the development of sulfa drugs, served as vice president for research and development at Schering-Plough and became the University of Memphis’ first Distinguished Research Professor. A School alumnus, Feinstone created the Alfred and Jill Sommer Chair in Molecular Microbiology and Immunology. The School’s Feinstone Hall and W. Harry Feinstone Department of Molecular Microbiology and Immunology are named in his honor.

**Janet Hardy**, a pediatric epidemiologist, died October 23 at age 92. Hardy is best known for linking maternal age, nutrition and health with fetal health and adult well-being, and for leading the Baltimore cohort of the Collaborative Perinatal Project.

**John “Jack” Frederick Kantner**, professor emeritus, died February 3 at the age of 88. He served as chair of the then-Department of Population Dynamics (now Population, Family and Reproductive Health) from 1976 to 1985, having come to the School in 1968.

**Michael Koenig**, PhD, PFRH professor, died January 26 of cancer at age 56. After coming to the School as a postdoctoral fellow in 1981, he worked within PFRH (formerly the Department of Population Dynamics), focusing on maternal mortality, family planning, partner violence, sexual abuse and HIV prevention.

**Marcia Pines**, who pioneered guidelines for human volunteers in clinical research, died April 12 of complications from lymphoma, at age 83. Pines came to the School in 1966 as an assistant in Epidemiology. She quickly became director of special projects and led the effort to formalize rules for use of human volunteers in research in the 1970s and worked to establish Hopkins’ first institutional review board.