Save the Date

The Bill and Melinda Gates Institute for Population and Reproductive Health is co-hosting with the Ministry of Health, Government of Senegal:

International Conference on Family Planning:
Research and Best Practices
Dakar, Senegal
November 29 – December 2, 2011
www.fpconference2011.org/

Technology is revolutionizing our world—and public health—at an ever-accelerating pace. Our upcoming special issue will document how high-tech (and low-tech) strategies are preventing disease and saving lives. Look for it in January 2012.
In celebration of the 10th anniversary of the founding of the Johns Hopkins Malaria Research Institute, the Bloomberg School is hosting a half-day symposium that examines the enormous burden imposed by this devilishly resistant disease and the groundbreaking research of scientists aligned in the battle against malaria.

To join us, please visit www.nyas.org/Malaria2011
September 11, 2001, left us many legacies. Most are wrapped in grief. Children lost parents. Brothers and sisters were separated forever. Marriages and relationships were severed. Friends disappeared. The human suffering was immense and long lasting.

Our nation was rocked by that morning’s horrific events. Almost instantly, we went from feeling secure to being at war. A month later, the anthrax attacks in Florida, New York and Washington fueled national fear and reinforced a sense of imminent danger.

In the immediate aftermath, my colleagues and friends in other countries reached out to me personally to express sympathy. Candlelight vigils took place in cities around the world to show support. And within the country, we shared a sense that we were all in it together. For a while at least, the political, economic and religious lines that can divide Americans fell away.

With that spirit, government and public health leaders worked together, realizing that the country was ill-prepared to face a disaster on the scale of 9/11. On that day, New York City firemen and police couldn’t talk to each other because of separate communications systems. This wasn’t just a problem for a single city, however. It reflected a national dearth of training and resources. We simply were not prepared. (See page 40 for our look at 9/11, then and now.)

At the time, there was an understandable urge to focus on terrorism and bioterrorism. But the government did something really smart. Instead of focusing exclusively on terrorism, policymakers took an “all hazards” approach to build infrastructure that could respond to a variety of disasters and major health emergencies. (If you doubt that was the right call, consider the following post-9/11 challenges: hurricanes, the H1N1 influenza pandemic, devastating tornadoes and numerous other extreme tests of U.S. public health preparedness.)

Actually, this common sense approach had roots well before 9/11. In 2000, the CDC began working to fund the Academic Centers for Public Health Preparedness, which had a mission of training public health and health care workforces.

Funding for the program increased after 9/11, and in 2004, the CDC established the Centers for Public Health Preparedness. Its mandate was to connect academic centers with local and state health departments to build up public health emergency preparedness. Since then, the centers have trained nearly 1.38 million people nationwide.

The Bloomberg School’s efforts in this area will give you an idea of what has been achieved thus far. The Center for Communication Programs created a media strategy—Ready? Set? Good—to educate citizens of Baltimore County on preparing for disasters. The Public Health Preparedness Programs, led by Professor Jon Links, has trained public health workers from all 50 states. Sixty thousand workers from public health, public safety, the military, NGOs and the faith community now have vital training to help them better serve the public in an emergency.

One of Jon’s early studies showed that many public health workers did not see responding to natural disasters or outbreaks as part of their responsibilities. Further digging found that they didn’t see their roles as important. But as Jon says, “The person who answers the telephone is profoundly important in an emergency.” Links and his colleagues then showed that additional training could help workers understand that they are valued, important first responders. They are now field-testing a new intervention to increase willingness to respond. Results thus far are promising.

Much has been accomplished yet much needs to be done. And that requires funding—even in tough fiscal times. However, President Obama has proposed eliminating the CDC Centers for Public Health Preparedness’s annual $30 million in the 2012 budget. As the Association of Schools of Public Health has argued, the program “represents a critical investment that will provide the best training and research to respond to continuing threats to our country.”

One of the challenges of maintaining prevention programs is that, when they work, we do not see all of the bad outcomes that are prevented. Instead, we focus on the cost of the program. The same is true of disaster response where, from a public health perspective, our mantra should be to prevent and prepare. Ensuring that our country has the adequately trained and prepared public health workforce that we need and deserve would be a positive legacy of that tragic day 10 years ago.

**In the wake of 9/11, our nation deserves nothing less than a well-trained, well-prepared public health workforce.**

**An Enduring Legacy**

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Ten-year-old Tyrone Carey moves into a runner’s lunge during an afternoon yoga sun-salutation at Robert W. Coleman Elementary in West Baltimore. Researcher Tamar Mendelson has found that school-based mindfulness programs can help promote healthy, effective responses to stress. (Photo: Chris Hartlove, September 2, 2011)
You do it once, and then again, and soon it has you hooked. It pulls you away from family and friends. Ruins your ability to focus on school or productive work. Drives you into debt, desperation—even thievery. And as you spiral downhill, the brief rush that it gives you becomes your only solace.

“Problem gambling is like a drug addiction; the behavioral and health consequences are virtually the same. And what most people don’t realize is that it is much more common among adolescents than adults,” says Silvia S. Martins, MD, PhD, an epidemiological psychiatrist in Mental Health and senior author of two new studies of gambling behaviors among youths in West Baltimore.

With their still-developing forebrains, youths tend naturally to be more impulsive than adults, and to that extent are less resistant to addictive drugs and behaviors. Male youths, with their testosterone-driven culture of risk taking, seem particularly vulnerable. And what of youths in blighted inner-city neighborhoods? “No one had studied gambling behaviors in such a population before,” says Martins.

The Brazilian-born epidemiologist began her career with studies of problem gamblers in São Paulo. When she came to Hopkins to do postdoctoral research in 2003, she learned of an ongoing study in West Baltimore, headed by Mental Health Professor Nicholas Ialongo, PhD. Since 1993, researchers had been doing annual, school-based surveys of a single cohort of several hundred mostly African-American youths, and the study was designed among other things to highlight the childhood social and psychological antecedents of criminal and other undesired behaviors. Starting in 2004, when the youths in the cohort were about 17 years old, Martins and her colleagues added a standard gambling questionnaire known as the South Oaks Gambling Screen.

Gambling turned out to be the norm among the surveyed adolescents, especially the males, and “problem gambling”—a label that applied to about 12 percent of the sample—was much higher than the 1 to 3 percent normally observed in U.S. and Canadian adult populations. But the measured prevalence of gambling and problem gambling was not greatly different from what epidemiologists have seen in Caucasian adolescent populations. The types of gambling—card games, sports betting, lotteries, graduating to casino-type gambling as the youths grew up and could drive to Atlantic City, N.J.—also
were similar to those seen in other studied populations. “If we had done that study with white suburban kids in Baltimore County, we probably would have seen the same kinds of gambling activities,” says Martins.

For the boy gamblers—the girl gamblers being too few to permit much analysis—the data suggested a link between problem gambling and very bad experiences in childhood. “We found that certain kinds of adverse events, such as being directly threatened, or being involved in violent or other criminal behavior, were associated with frequent gambling in later adolescence,” says Martins. These findings were published online in May of this year in the Journal of Gambling Studies, with Carla Storr, ScD, MPH, a professor at the University of Maryland School of Nursing, and an adjunct professor in the Bloomberg School’s Department of Mental Health, as first author.

In a related analysis, Martins and colleagues, including first author Grace Lee, MHS, a Mental Health doctoral student, found that signs of depression at age 12 were linked to a greater likelihood of problem gambling in late adolescence.

“This replicates some other research that shows that if you have a lot of problems in your life, your parents are divorced, or you’ve lost relationships or you’ve had a sibling who’s died or been shot, then that increases your stress level—and gambling may be used as a way of escaping that,” says Jeffrey L. Derevensky, PhD, of McGill University, an expert on gambling and other adolescent high-risk behaviors, and a co-author of the Storr study.

One lesson from this may be that, as Martins says, “public health practitioners need to be more aware that kids in these bad situations are not only at greater risk of using drugs and alcohol to alleviate their mental health or depressive symptoms, they also may be at greater risk of getting into problem gambling—and so we need to think about how we can intervene effectively in such situations.”

But adolescent problem gambling isn’t merely an adverse outcome; it also seems to be a reliable marker of other ongoing behaviors whose ill effects are apt to cascade into adulthood. “It can be seen as part of a problem-behavior syndrome in adolescence, with potential adverse consequences in later life from the lack of education because the gambler dropped out of school, has a criminal record and so on,” says Martins.

What makes the situation in Baltimore particularly worrisome is that the opportunities for urban youths to gamble are about to expand. In 2008, Marylanders voted for a referendum that would enhance state revenues by allowing slot machines in certain locations; and discussions are under way to build a slot-machine casino in the Inner Harbor. “Prior studies have shown that the closer you are to a casino, the more likely you will be to gamble,” Martins says. “And slot machines are widely considered the most addictive form of gambling.”

—Jim Schnabel

ANTIDEPRESSANT SURGE
More Americans with no diagnosed mental illness are taking antidepressants and more non-psychiatrists are writing prescriptions for them, concludes Ramin Mojtabai, MD, PhD, MPH, associate professor in Mental Health and lead author of a study in the August Health Affairs. Analyzing data from the 1996–2007 National Ambulatory Medical Care Surveys, researchers found that the number of patients with no psychiatric diagnosis who were prescribed antidepressants grew from 60 to 73 percent of all antidepressant prescriptions; the share of non-psychiatrist providers who prescribed antidepressants with no diagnosis of mental illness rose from 30 to 55 percent.

“Problem gambling is like a drug addiction; the behavioral and health consequences are virtually the same. Most people don’t realize that it is much more common among adolescents than adults.”

—Silvia S. Martins

A BLOW TO BACTERIA
An experimental treatment for chronic obstructive pulmonary disease (COPD) relies on sulforaphane—present in broccoli in a precursor form—to strengthen the lungs’ bacteria-fighting properties by activating the Nrf2 pathway, according to a report in the April 13 Science Translational Medicine. Senior author and Environmental Health Sciences Professor Shyam Biswal, PhD, and researchers found that sulforaphane treatment restored the ability of macrophages—bacteria-killing white blood cells—from COPD patients to clear bacteria from the lungs, important in stimulating the lungs’ immune defenses. The research raises the potential for new COPD treatment approaches.

OF SMOKE AND TAXES
The 2009 U.S. federal cigarette excise tax increase (from $0.39 to $1.01 per pack) drove some smokers to search online for ways to quit smoking, while many more used the Internet to search for cheaper cigarettes, according to a study in the March 16 PLoS One. Lead author John Ayers, a doctoral candidate in Health, Behavior and Society, and colleagues analyzed queries to search engines a year before and after the tax increase. Smoking cessation searches rose about 50 percent but quickly returned to pre-tax levels; cheap-cigarette searches rose about 300 percent, and remained 60 percent higher a year later.
The Power of A … in Context

It was the closest thing to a research slam-dunk.

In 1999, after several years of painstakingly distributing vitamin A, beta carotene (a form of vitamin A) or placebos to thousands of pregnant women in Nepal, it seemed clear to Keith P. West, Jr., DrPH ’87, MPH ’79, that vitamin A was a public health powerhouse. West, the George G. Graham Professor of Infant and Child Nutrition, and his colleagues published a paper that year showing that women who had received the supplements had about a 40 percent lower risk of death up to three months after delivery than those who took capsules containing plain vegetable oil.

But in May 2011, West’s team published new results from a similar study in Bangladesh that, on the surface, seemed contradictory. There, the supplements seemed to have no effect on helping mothers and their babies survive, leading some public health researchers to question whether women anywhere might benefit from vitamin A at all. Why would these two populations—so close to each other—show such different results?

“It’s a reminder of how important context is for research, especially for nutrition,” explains West, director of the Center for Human Nutrition in the Department of International Health.

When he and his colleagues started planning the seven-year study in 1999, Nepal and Bangladesh were roughly equivalent in terms of poverty, with the resulting fallout on education, resources and nutrition. However, Bangladesh has gradually managed to pull itself up a few critical rungs on the economic ladder. Within a few decades, it has transitioned into a country where the population as a whole, including women and children, is becoming more educated. Roads were built at a dizzying pace, transporting Bangladesh’s more plentiful resources from place to place. As the country’s economic conditions improved, women had more access to vitamin A–rich foods, including fish, liver, dairy products, and fruits and vegetables.

“Even though Bangladesh is very poor, it’s still better off than Nepal,” says West. “In Bangladesh, vitamin A had already made its impact through a better diet, so the women there didn’t need supplements.”

Nancy L. Sloan, DrPH, an assistant professor in Population and Family Health at Columbia University, points out that another recent study by British researchers examining the effects of vitamin A supplementation in Ghana also showed no difference in deaths between those who received the nutrient and those who didn’t.

“Some people will say that now you have two out of three studies indicating vitamin A supplementation does not reduce maternal mortality, but I don’t think that’s necessarily conclusive,” she says. Sloan explains that as in Bangladesh, women in the study area of Ghana had no clinical vitamin A deficiency because they already eat a diet rich in vitamin A in the form of red palm oil, a favorite local condiment.

Until researchers can conduct more vitamin A research in different environments where clinical vitamin A deficiency continues to exist—an unlikely prospect, since each of the preceding studies held multimillion dollar price tags—the true value of supplementation could remain unknown, says Sloan.

—Christen Brownlee

Value of Vaccines

Vaccines can save a life for far less than the cost of a latte. But for cash-strapped countries, every cent adds up.

What’s the return on their vaccine investment? It’s potentially hundreds of billions of dollars, according to two new studies. Lead author Meghan L. Stack, MHS ’09, research associate at the International Vaccine Access Center (IVAC), and colleagues evaluated the potential economic benefit of the Decade of Vaccines—a global collaboration initiated by the Bill & Melinda Gates Foundation’s pledge to invest $10 billion over 10 years. Results show that if its goals are achieved, governments and households in the poorest countries could save about $151 billion on treatment and productivity. The study was published in the June Health Affairs.

In the same issue, Sachiko Ozawa, PhD ’10, MHS ’07, assistant scientist, and colleagues calculated that saving 6.4 million children’s lives through the Decade of Vaccines would be worth $231 billion in the value of the lives saved.

“Donors are increasingly focused on value for money. We’re showing that the cost is dwarfed by benefits. If you spend this money, you’ll see tangible results,” says Orin Levine, PhD, senior author of both studies and IVAC director.

—CB
In the centuries-long battle against malaria, people have tried a variety of ways to fight *Plasmodium*, the microscopic parasite responsible for the disease.

They've strung up bed nets, sprayed insecticides and used repellents to prevent infectious bites from *Plasmodium*'s mosquito hosts, and they've developed assorted medications that poison this parasite inside humans. Soon, scientists might have one more weapon to add to the anti-malarial arsenal: a microscopic foe. Researchers including George Dimopoulos, PhD, and Jason Rasgon, PhD, both associate professors in Molecular Microbiology and Immunology, are taking aim at *Plasmodium* using bacteria.

Dimopoulos' strategy relies on native bacteria that live in a mosquito's gut—much like the endemic bacteria that line people's intestines. In 1999, his lab was one of the first to discover that these bacteria can activate the mosquito's immune system in a way that kills *Plasmodium*. However, it was unclear then whether their results were relevant only to mosquitoes living under lab conditions, which may behave differently from mosquitoes in the wild.

In new research, Dimopoulos and his colleagues sampled bacteria from mosquitoes field-caught near the Johns Hopkins Malaria Research Institute site in Macha, Zambia. They discovered a species of *Enterobacter* bacteria that thwarted growth of the parasite by up to 99 percent, rendering most mosquitoes unable to transmit malaria.

Surprisingly, these bacteria work their *Enterobacter* "could be another great weapon in the fight against malaria."

—George Dimopoulos

magic without stirring up the mosquito’s immune system. In a May 13 *Science* article, Dimopoulos’ team discovered that this *Enterobacter* species spews out free radicals, which effectively block *Plasmodium*’s development. (Free radicals are highly reactive molecules that can cause tissue damage.) Eventually, Dimopoulos says, people might feed this bacterium to mosquitoes—perhaps mixed in artificial nectar, sprayed on vegetation—to kill the parasite before mosquitoes can transmit it to people.

“This approach would be low-cost, ecologically friendly and logistically simple,” Dimopoulos says. "It could be another great weapon in the fight against malaria."

Rasgon’s approach takes a different tack. His lab works on *Wolbachia*, a group of bacteria that infect many insect species—but not typically *Anopheles*, the mosquito genus that carries malaria. For the past decade, Rasgon has been working on goading *Wolbachia* to infect *Anopheles*, inspired by work on other mosquito species showing that the bacterium can knock out pathogens that infect people, such as dengue. In a new study, Rasgon’s team showed for the first time that artificially infecting *Anopheles* with *Wolbachia* by injecting the bacterium into the insects significantly reduces *Plasmodium* loads. Additionally, a particular strain of *Wolbachia* proved fatal to the mosquitoes when they fed on a blood meal, potentially also from production of free radicals.

If researchers can figure out how to more readily infect *Anopheles* with the bacterium, both effects could be useful to fight malaria, Rasgon notes, either through clearing the mosquitoes of the parasite or killing off mosquitoes altogether.

Such interactions between bacteria and disease-causing parasites have occurred from time immemorial. So, why are researchers just taking advantage of them now? It’s all in the technology, says Serap Aksoy, PhD, a Yale researcher who studies native bacteria in tsetse flies and how these might fight the parasite responsible for the African sleeping sickness these flies transmit.

“Many bacteria, often symbiotic in nature, cannot be cultured in the laboratory,” she says, “so researchers are only becoming aware of these microbes and their potential after PCR-based methods and genomic sequencing technologies became available. In general, we now have a greater appreciation of the extent of influences microbes have on their host’s biology.”

Gaining a better understanding of these newly discovered microbes won’t be the magic bullet against malaria, Aksoy says, but it could play an important part in the battle.

“The toolbox against this disease is still so limited,” she says, “so any advance is well worth trying.”

—CB
HIV-Free Girls: It Takes a Community

When it comes to educating children in less-developed countries about HIV prevention, it isn’t realistic to think they can go it alone in avoiding risky behavior, says Carol Underwood, PhD, assistant professor of Health, Behavior and Society.

“Girls in particular often live in environments that aren’t conducive to safe behavior,” says Underwood, a senior research associate at the Center for Communication Programs.

In parts of Botswana, Malawi and Mozambique, girls are often pressured by authority figures to engage in “transactional sex”—sex for favors. Some teachers demand sex for passing grades, and some mothers send their girls out to “bring home dinner.” Such arrangements are often viewed as consensual. Laws and school regulations to the contrary are ignored.

“It’s important to place some of the responsibility [for HIV prevention in children] on the larger social structure,” says Underwood.

To do that, she and her CCP colleagues created a yearlong program for promoting HIV safety for girls in three regions. It emphasized community, school and parent involvement. The results were encouraging. “We ended up with both statistical and anecdotal evidence that the interventions took hold, and were making a difference in the girls’ lives,” she says.

The CCP program—called Go Girls!—worked with local schools to make sure teachers understood they could be fired or criminally prosecuted for having sex with students. The program also pressured families to stop pushing daughters into transactional sex and prevented girls from illegally entering the many bars where they are typically welcome. Go Girls! also established “mobilization groups” of community members who, in some cases, confronted adults taking advantage of girls. Underwood’s team also tried to connect adults and girls with local agencies that could provide financial assistance and job training.

To reach the children, Go Girls! assisted schools in weaving “life skills” like safe behavior, reproductive and relationship information into existing classes. It produced a radio show that featured local people telling personal stories that reinforced the program’s themes. And groups of parents were trained in listening and talking skills.

In Botswana, about 60 percent of participating schools reported a decrease in teachers offering favors for sex, compared to a decrease of 35 percent in non-program schools. And in Malawi, about 90 percent of the daughters of mothers who had participated reported improved relationships with their mothers, versus an improvement for half the girls whose mothers didn’t participate.

Though Go Girls! has ended, many of its school- and community-based elements have become self-sustaining.

Mary Ellen Duke, gender adviser for the U.S. Agency for International Development in Mozambique, credits that encouraging sign to the program’s community emphasis. “It engaged the community from the very beginning,” she says. “That let local groups take ownership, instead of feeling that this was yet another project being imposed on them.”

—David Freedman

Gurir Girls! program helped to create an environment that protected girls from transactional sex.

CCP’s Global Meetup

Nearly 200 Center for Communication Programs staff from around the world gathered in late June in Baltimore to share best practices in strategic health communication.

Experts from Tanzania, Egypt, India and other countries shared evidence on the impact of strategic health communication programs that put families and communities in the driver’s seat to achieve social and behavior change, says Susan Krenn, CCP director. The meeting emphasized local ownership and sustainability as well as the use of new media such as texting, robo-call push messages, interactive games and contests using mobile phones.
Linking Sexual Pleasure to Healthy Development

For decades, the public health community has proclaimed that sexual health is more than the absence of disease and violence. Sounds good, but the science to back up the claims hasn’t been there. Few high-quality, population-level research studies ventured to answer questions like, Are the ostensible positive aspects of sexual health, such as sexual pleasure, related to other aspects of human health and development? If they are related, are the associations the same across the population?

With a June 2010 study in the *Journal of Adolescent Health*, Adena Galinsky, PhD ’09, and colleagues took a step toward answering these and other questions. Using data from 3,237 adults ages 18 to 26 who participated in the National Longitudinal Study of Adolescent Health, the study linked sexual pleasure among young adults to healthy psychological and social development. “Public health policy documents have been saying for decades that sexual health is more than the absence of sexual negatives, and for the first time we’ve done a study that looks at how one kind of positive sexual health is distributed in the population and is associated with other kinds of well-being,” says Galinsky, who recently finished her doctorate in the Department of Population, Family and Reproductive Health (PFRH), and is now doing postdoctoral research at the University of Chicago.

Previously, the national longitudinal study data had often been used to examine the links between sexual behaviors and attitudes and negative health consequences, such as sexually transmitted diseases. “The research typically has had a problem focus, and we have ignored the fact that people engage in these behaviors because they have positive consequences,” says Freya L. Sonenstein, PhD, a PFRH professor and senior author of the study.

In this recent study, Galinsky and Sonenstein compared the respondents’ self-reports of sexual enjoyment with three positive psychological measures: empathy, autonomy and self-esteem. “For the women respondents, all three of these psychological measures turned out to correlate significantly with measures of sexual enjoyment,” says Galinsky. For men as well as women, empathy was consistently associated with the types of sexual pleasure examined in the study. “It’s a mythbuster, in the sense that people tend to think of young men as ‘natural predators’ with little variation in their levels of sexual pleasure,” says Sonenstein, director of the Bloomberg School’s Center for Adolescent Health.

Previous qualitative work revealed the social pressures on young women to prioritize their partner’s wishes over their own and focus on their appearance rather than their own feelings and desires, says Galinsky. “In this context, a higher than average sense of autonomy and self-worth may enable young women to overcome the barriers they face in recognizing and effectively communicating their own sexual preferences and limits,” she says. An alternative take may also be true: Because the barriers are higher for women, achieving sexual enjoyment may boost their sense of autonomy and self-esteem in a way that it doesn’t for young men, says Galinsky.

**Tweet-Tweet: Fan of JohnsHopkinsSPH Yet?**

Though it hasn’t yet reached a Lady Gaga level of celebrity, the Bloomberg School has a growing mix of online fans, friends and followers. A go-to source for public health news and information, the School currently has more than 138,000 Twitter followers (with 1,000 more joining each week) as well as more than 4,000 Facebook fans, reports Tim Parsons, director of Public Affairs in the School’s Department of Marketing and Communications. “With our Twitter posts, we offer a mix of news about the School and information on important public health issues,” Parsons says. “The response has been terrific and has led to prominent media placements and increased interest from the general public.”

Look for JohnsHopkinsSPH (the School’s social media moniker) on Twitter, Facebook and YouTube.

— Natalie Wood-Wright
A Perfect Policy Marriage

In the world of public policy, an important new union is under way, as the Johns Hopkins Institute for Policy Studies joins the Bloomberg School’s Department of Health Policy and Management (HPM).

“The Department and IPS are both interested in making positive change through policy, and that’s what makes it a perfect marriage,” says Ellen MacKenzie, PhD, the Fred and Julie Soper Professor and chair of HPM. “What they bring to the table—and what we’re most excited about—is the focus on public policy across a wide range of issues.”

HPM has a long history of research in health and health care policy, while IPS is a leader in public policy, conducting research on such diverse topics as education, the environment, social issues, criminology, housing, health and international development.

Created in 1987 as a stand-alone program reporting to Johns Hopkins’ provost, IPS is nationally recognized. U.S. News & World Report ranked its two-year Master of Arts in Public Policy (MPP) 13th among such programs nationally. Its graduates go on to work in government agencies, nonprofits, corporations, consulting firms and other organizations.

The union actually began in 2010 and is almost complete. The 2012 incoming class will be the first to be granted the MPP degree by the Bloomberg School. Seventy-two students are starting the MPP degree this year—more than last year and about double the number of previous years. The School’s Master of Science in Public Health (MSPH) in health policy will continue to be offered, as will the MPP, which will allow students to broaden their studies to other areas of public policy.

Donald M. Steinwachs, PhD, professor of Health Policy and Management and interim director of IPS, says the new arrangement will address several challenges associated with the Institute’s unusual stand-alone structure.

For example, it will make it easier to recruit new faculty. IPS currently has five core faculty, and until now, it has had to rely on cross-appointments from other departments for its tenure-track positions. Within three years, IPS will likely add another three or four full-time faculty.

“There’s a compelling rationale [for the union],” says Sandra Newman, professor of Policy Studies, who was director of IPS for 12 years. “Both public policy and public health share the same orientation. They use high-quality methodologies and evidence-based interventions. Both are concerned with making a healthier society.”

MacKenzie says IPS will continue to address policy issues across an expansive range of topics and not focus its work on health policy alone. “After all, changes in education and housing policy, for example, can have major impacts on the health of our populations and are critical in assuring overall quality of life,” she says. “We’re very keen on keeping the breadth of IPS.”

—Kurt Kleiner

Podcasting from the Frontlines

“What will I do with a degree in public health?”

Students often ask this of Tom Burke, PhD, MPH, associate dean for Public Health Practice and Training. As host of the Bloomberg School’s new podcast series Public Health: On the Inside, he hopes to provide some answers in a monthly exploration of life on the frontlines of public health.

“I want folks to know that there is more to public health besides teaching and research,” says Burke. The first episode, released in June, featured Tala Fakhouri, MPH ’11, now a “disease detective” with the U.S. Epidemic Intelligence Service. Burke followed that podcast with veterinarian Monica Murphy, DVM, MPH ’10, who has pursued rabies from Bali to New York.

“I want to give listeners a feel for what’s really going on out there,” says Burke, a veteran of public health practice in New Jersey state government. New episodes will be available every month at jhsp.edu/podcast.

—Jackie Powder
Racing and bouncing through open country atop a growling 600-pound beast offers a basic, perhaps primal sort of thrill. That probably explains the explosive popularity of all-terrain vehicles (ATVs) in America over the last four decades—which has brought with it an explosive rise in ATV-linked deaths and injuries, even among children.

“From 1997 to 2006, the number of children hospitalized with ATV injuries rose from 1,618 to 4,039,” says Stephen M. Bowman, PhD, MHA, an assistant professor in Health Policy and Management, and lead author of a recent study in the Journal of Trauma: Injury, Infection, and Critical Care. “Four thousand hospitalized kids is a lot, and a third of them had traumatic brain injuries. Something should be done about this.”

Something was done about this in the 1980s, when thrill riding on ATVs first caught on in the U.S., and accident numbers rose sharply. The federal Consumer Product Safety Commission got ATV makers to agree, in 1988, to a set of injury-reducing measures—from a U.S. ban on selling new three-wheeled ATVs, which are even less stable than four-wheelers, to a prominent warning to buyers not to allow young children to operate the ATVs that were sold. Most of those measures have remained voluntarily in place since that “consent decree” expired in 1998. Yet the enthusiasm for ATVs seems to be growing, and annual ATV crash deaths among children have been averaging double what they were in the 1990s.

In the late 2000s, Bowman was on the faculty at the University of Arkansas for Medical Sciences. “We frequently heard anecdotal reports of increases in serious ATV-related injuries, especially to children,” he remembers. “That prompted my interest in doing research in this area.”

With his University of Arkansas colleague Mary Aitken, MD, MPH, a pediatrician and public health expert, Bowman began to study national data.

In an initial study, published in 2009 in Injury Prevention, they and their colleagues determined that severe brain injuries happened to unhelmeted ATV riders almost three times as often as to helmeted riders—and fatal brain injuries occurred about two and a half times as often. “For motorcycles, helmet laws are the norm in many states, but for ATVs, very few such laws are in place,” says Bowman, now a faculty member of the Center for Injury Research and Policy at the Bloomberg School. The strikingly high proportion of children among these brain-injury cases prompted Bowman and Aitken to follow up with the recent child-hospitalization study.

The question of what to do about all of this remains. “Many ATVs are driven on private land and in very isolated settings, so there’s the issue of who would have the resources and the will to enforce new laws restricting their use,” says Aitken, who did her pediatric internship and residency at Johns Hopkins Hospital in 1988–91. “Perhaps the most important factor is the very low level of awareness among parents about the dangers of ATVs, particularly for kids; in many areas, owning and riding an ATV is very much the norm and is not really considered risky; so I think there’s going to have to be some awareness building along with any new laws.”

—JS
Sweet Persistence

On a warm day in April 2010, Katherine Reiter drove her silver Honda Civic back to Baltimore after visiting a small house near Gunpowder Falls State Park.

Her precious cargo, carefully nestled in her backseat, weighed only 2 pounds but was droning an urgent tune. “I was terrified,” recalls Reiter, a Sommer Scholar and PhD student in Biochemistry and Molecular Biology. Reiter was transporting about 2,000 live and buzzing Apis mellifera linguistica—honeybees—for the inaugural hive of Sommer Scholars Apiary Club.

Before the bees’ arrival, Reiter and PhD students Stefanie Trop and Sarah Khasawinah had to win approval from School officials to build a hive on campus. After considerable back and forth, the students got the okay to place the hive beneath the trees on the south side of the Hampton House building. (“I don’t know that it’s the strangest request we’ve had, but it’s certainly a novel request,” says Michael Schoeffield, director of Facilities Management.)

Over the next 16 months, the hive thrived. The bees now number more than 60,000 and have produced 60 pounds of honey, says Khasawinah, a bee enthusiast who’s been stung more than 40 times in her apiary career.

Besides producing honey, honeybees provide a critical service in food production: They pollinate one-third of the world’s food sources. But they’re also under threat. Since about 2006, scientists have documented a dramatic disappearance of honeybees that they call “colony collapse disorder.” CCD occurs when a hive’s worker bees abruptly disappear. U.S. bee experts say CCD may be caused by everything from pesticides to varroa mites, nutritional deficiencies and viral infections.

With support from the Sommer Scholars, the Center for a Livable Future and the Hopkins Alumni Association, the club hopes to contribute to preserving honeybees against CCD. They also hope to raise awareness about the importance of honeybees and increase agricultural sustainability in Baltimore, say members who now include students from the schools of Medicine and Nursing as well as undergraduates from the Homewood campus.

On a drizzly Wednesday evening in August, a dozen or so students and friends watched as Reiter and Khasawinah opened the hive for the honey harvest. The plan is to bottle the honey and sell it on campus. (They haven’t yet decided on a name, though the alliterative “Hopkins Honey” has been suggested.)

What began as a quirky hobby has become a consuming passion. Reiter says she’s now much more aware of where her food comes from and that she incorporates honey into her diet whenever possible. Khasawinah is developing an antibacterial cream made partly from propolis, the hard, sticky, gum-like substance collected by honeybees from tree buds and bark.

“It started off as a little idea and has become a big movement with thousands of bees across Baltimore helping pollinate plants and make Baltimore beautiful,” says Khasawinah.

—Stacey DiLorenzo

Apivarists Sarah Khasawinah (left), Katherine Reiter (right) and friends have built a campus hive that yields research possibilities and lots of honey.
Kids in the U.S. are often bombarded with ads hawking high-sugar or high-fat foods and beverages. And families are buying these less-healthy foods in staggering quantities, with children now getting as much as a quarter of their calories from junk-food snacks alone.

But how do the child-focused ads get converted into parental purchases at the grocery store? The answer, according to a new Bloomberg School study, is simple enough: Kids nag their parents.

Dina Borzekowski, EdD, an associate professor in Health, Behavior and Society, and PhD candidate Holly Henry, MHS, interviewed 64 mothers of children ages 3 to 5 years in order to tease out some of the ties between the marketing and “the nag factor,” as well as to understand how parents react to the nagging. The results, if not entirely surprising, are a bit disconcerting. The study, published in August’s *Journal of Children and Media*, found that packaging and ads directly lead to children nagging parents for junk food, and that nagging typically pays off. “Parents give in,” says Borzekowski, “even though they know it’s a poor strategy.”

A problem highlighted by the study is that parents lack the proper tools for coping with nagging, according to Amy Jordan, director of the Media and the Developing Child program at the University of Pennsylvania’s Annenberg Public Policy Center. “They often have difficulty denying their children what they want, and don’t have a ready arsenal of scripts to deal with a meltdown in the grocery aisle,” she says.

Pinning down effective coping strategies is a challenge Borzekowski says she’d like to take on in a follow-up study. In the meantime, she notes that among some of the approaches the mothers reported as useful were simply keeping the children out of grocery stores, and shifting children’s attention to healthier food options that are also associated with popular characters—Dora the Explorer graces packages of a reduced-sugar Yoplait yogurt, for example. “But consistency seems the key,” adds Borzekowski. “If you [tell] your child she can have just one ‘special’ item, you have to stick to that.”

Just tell them SpongeBob said so. —DF

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**In Memoriam**

**Rajanikant Arole**, MBBS, MPH ’70, founding director of the Comprehensive Rural Health Project in Jamkhed, India, died on May 25 at age 77. Arole and his late wife, Mabelle, ran the project for more than 40 years, promoting health as a basic human right and training community health workers.

**Ross Joseph Brechner**, MD, MPH ’91, an ophthalmologist and former Maryland state epidemiologist, died on August 18 of heart disease at age 71.

**Bernice Cohen**, PhD, MPH ’59, a retired professor in Epidemiology and faculty member for over 50 years, died on April 12 at age 86. She joined the School’s Division of Chronic Diseases in 1960 and directed the School’s Genetic Epidemiology Program for more than a decade.

**David French**, MD, MPH ’69, a former Howard University professor who helped to coordinate first-aid efforts at major civil rights protests in the 1960s, died on March 31 at age 86. He established a network of health centers in Boston before moving to Africa in the 1970s where he led an effort to improve public health in 20 countries.

**Adam Lisiewicz**, a retired research associate in what was then the Health Services Administration department from 1979 to 1982, died on April 28 at age 76. He had a part-time appointment in International Health in the 1990s and was director of Monitoring and Evaluations at Jhpiego from 1991 to 1993.

**Barbara Starfield**, MD, MPH ’63, a professor in Health Policy and Management and a longtime champion of strong primary health care systems, died on June 10 at age 78. She helped developed important methodological tools for assessing diagnosed morbidity burden. A member of the Institute of Medicine, she led HPM’s Division of Health Policy for 19 years and was named University Distinguished Service Professor in 1994. A memorial service for Dr. Starfield will take place October 18 at the Bloomberg School.
It’s certainly no secret that our species is skilled at procreating.

By the end of October this year, humans will hit a major milestone: An estimated 7 billion of us will occupy the planet. By 2100, the total will probably reach more than 10 billion, according to UN demographers.

The latest population projections came as a bit of a surprise, says Amy Tsui, PhD, MA, director of the Bill and Melinda Gates Institute of Population and Reproductive Health. Until May of this year, projections had estimated that the population would level off at around 9 billion in 2050. While previous models incorporated a trajectory that had birth, or fertility, rates worldwide following the downward trend begun in the 1970s, explains Tsui, the new estimates show the pace isn’t guaranteed.

“Fertility hasn’t steadily declined in high-fertility countries as much as expected,” she says, especially in sub-Saharan African countries such as Niger and Mali. “It doesn’t take much with fertility for a population to continue to grow.”

That’s because momentum can continue to drive population numbers up, even if the growth rate itself drops. “It’s like compound interest on savings in a bank,” Tsui explains. “Once you have births in a population, those people reach childbearing age and have births themselves.” If momentum picks up, she explains, more births translate into more youth—a group that bears much of the brunt of slow economic development and public health problems.

While Niger and most of its sub-Saharan neighbors have started to recognize the value of slowing population growth and are actively implementing measures to do so, that’s not the case everywhere. Ugandan president Yoweri Museveni, whose country has a birth rate of about 6.5 children per woman, is encouraging birth rates to stay high. “He believes that the population should grow because it’s an important market opportunity—the more people you have, the more consumers you have,” Tsui says. “But he ignores the costs in getting there.”

One visible sign of unrestrained growth is immigration tensions, says Duff Gillespie, PhD, a professor in Population, Family and Reproductive Health (PFRH). Most of the rampant growth is occurring in Southern Hemisphere countries that can ill afford it, where economic and educational opportunities are slim and poverty is harming health. Many of those disenfranchised people are now seeking opportunity in wealthy Northern Hemisphere countries, much to the chagrin of some people there.

“It is definitely going to be a challenge to get the socioeconomic development in the South that the North has enjoyed for some time, and to do it as quickly as possible,” Gillespie says.

The easiest way to prevent population growth from causing severe problems is to put a stop to it, says Stan Becker, PhD, a PFRH professor. “The only sustainable population growth in the long term is zero,” he notes. “The question is how we get there.”

One proven solution is improving education, especially for girls and women, explains Becker. Education typically leads to later marriage and viable careers, giving women options other than being housewives and mothers. That’s been the case in the BRIC countries—Brazil, Russia, India and China—which have all experienced unprecedented economic growth in the last few decades, as well as lower birth rates.

Another obvious solution is providing access to contraception, he adds.

“The only sustainable population growth in the long term is zero. The question is how we get there.”

—Stan Becker

—Christen Brownlee

1 billion 1804

7 billion

2 billion

3 billion

4 billion

5 billion

6 billion

7 billion

10 billion

2011

140 million people born every year

227,000 people added to the world every day

1 billion

1804

1 billion

2011

It’s now 68.

3.42 billion people living in urban areas in 2009

3.41 billion people living in rural areas in 2009

5.0 average number of children per woman worldwide in 1950. It’s now 2.6

7.1 average number of births by women in Niger

1.7 average number of births by women in industrialized countries
57 million people die worldwide every year

140 million people born every year

227,000 people added to the world every day

47 average life expectancy worldwide in 1950. It's now 68.

5 average number of children per woman worldwide in 1950. It's now 2.6

7.1 average number of births by women in Niger

1.7 average number of births by women in industrialized countries

3.41 billion people living in rural areas in 2009

3.42 billion people living in urban areas in 2009

Sources: PRB, WHO, UN
“Inhale it back!” instructs James, a fifth-grader leading his classmates in yoga postures.

On hands and knees while stretching his polo-and-plaid-clad torso, James pauses. The next few seconds are positively breathless—and possibly transcendent. In withering afternoon heat, a dozen gangly kids perched catlike on purple mats unfurled atop the scuffed gym floor of a city school are calm and focused, respectful and balanced, belying the fact that all are teetering on the impulsive cusp of adolescence.

“Exhale it forward!”

Tamar Mendelson is breathing easy these days, having just been awarded a three-year $775,000 grant (with collaborator Mark Greenberg at Penn State University) to continue investigating the effects of a school-based mindfulness intervention involving yoga-based movement, much like the one James is now involved in. Ever since the Mental Health assistant professor reported positive results from a small stress reduction intervention in four Baltimore city schools, Mendelson has been gearing up for a more comprehensive study involving 270 fifth- and sixth-graders in six schools. Now, with new funding from the National Institute on Drug Abuse, that effort begins in earnest.

Her aim is to replicate data from the pilot study of 97 youth that showed mindfulness practices significantly reduced stress responses such as intrusive thoughts and emotional arousal. In addition, Mendelson will track long-term intervention effects by examining academic performance, neurocognitive abilities and other outcomes.

Mendelson, PhD, suggests the intervention (developed by Baltimore’s Holistic Life Foundation, Inc.) could serve as a much-needed buffer against not only the “normal” developmental stress of adolescence but also the traumatically chronic kind that weighs on kids from the inner city. In more affluent areas, privileged kids have their own stressors (and many more resources to cope with them). Regardless of locale, the fact remains: Adolescence is a badlands of stress.

The route from childhood to adulthood traverses complicated, often uncharted territory replete with slick slopes of emotion, hoodoos of hormones, and flash floods of physical and contextual changes, all of which demand risk taking and reward sensation seeking. Natural physiological changes necessarily drive young people toward new experiences —remember your first kiss? first car crash?—that are inherently stressful. Emerging evidence from the field of neuroimaging and elsewhere has convinced a dozen or so Bloomberg School researchers that adolescence is an inordinately rich time to wrestle stress to the mat to reveal its underlying mechanisms—and perhaps the opportune moment to intervene.

“When you shape the coping skills of young adolescents, you can have a distal effect because you’re intervening fairly early in the trajectory of lifespan development,” says Mendelson. “You might expect lots of bang for the buck if you improve their ability to regulate emotions and thoughts. It could have major public health significance if kids stay in school longer, if they are less violent and rely less on drugs and alcohol to cope.”

Most traditional interventions involve educating adolescents about things they already know, according to Jay Giedd, chief of Brain Imaging at the Child Psychiatry Branch of the National Institute of Mental Health, and an adjunct professor in Population, Family and Reproductive Health (PFRH) at the Bloomberg School.

Adolescents are adept at what Giedd calls “cold cognition.” In a neutral environment like a classroom or the family dinner table, cold cognition allows them to explain all the reasons it’s important to wear a helmet...
In 1904, psychologist G. Stanley Hall pegged the transition years between childhood and adulthood as a bona fide developmental period—one characterized by “storm and stress.”

A full 44 percent have symptoms of post-traumatic stress disorder.

Notably, stress-reactive mental disorders—anxiety, schizophrenia, eating disorders and depression, for instance—take off in adolescence, observes Catherine Bradshaw, PhD, a Mental Health associate professor and associate director of the Johns Hopkins Center for the Prevention of Youth Violence.

The scientific study of adolescence dates to 1904 when psychologist G. Stanley Hall pegged the transition years between childhood and adulthood as a bona fide developmental period—one characterized by “storm and stress.” Prior to Hall, observations from the reliable likes of Aristotle and Socrates describe those transitioning from childhood to adulthood as “heated by nature as drunken men by wine,” and note youths’ inclination to contradict parents and tyrannize teachers.

Though associated most with the teen years, adolescence is an emerging target. Some say it begins at puberty and ends at 18; others contend 21, at which point—presto!—adulthood is magically attained. The Centers for Disease Control lumps 10- through 24-year-olds into this developmental stage, though Giedd’s neuroimaging evidence shows the human brain continues to remodel in important ways clear through the late 20s.

Every bit as ambiguously amorphous as adolescence is the concept of “stress.” It can mean anything from flunking a physics test to years of sexual abuse. Its downstream consequences include everything from mood disorders to heart disease.

“If you look at stress as a demand that the brain needs to adapt to, and then, by virtue of adapting, it’s better at problem solving or memorizing or whatever skills matter, then the goal isn’t to eliminate stress but to get the right amount,” says Giedd. He proposes there’s likely a “sweet spot” of stress that’s unique to each individual, beyond which that person is either underwhelmed or overwhelmed.

Figuring out what to measure, as well as when and how to measure it, is a key question in stress research. Some investigators ask study subjects to document life events—in the recent past, have you lost a pet? witnessed a murder? had a child? started a new job?—in an attempt to quantify stress based on how many stressors individuals are exposed to, how often they happen and the nature of those stressors.

Others are more interested in how individuals perceive those stressors. Glass-half-full types who are good at reframing expectations and adjusting attitudes probably experience less stress than those who don’t have innate coping skills or haven’t learned any.

And increasingly, investigators are measuring stress by assessing its physiological effects on individuals.

“Imagine the body as a stress sifter,” says Sara Johnson, PhD ’05, MPH ’01, a PFRH assistant professor. “The size of the holes in an adolescent’s sifter depends on his coping resources and buffers. Forget what he thinks about stress, or what he remembers about it. What shakes out at the bottom is the stress that’s left; the stuff that gets past all the buffers, or lack thereof, is important because this is what affects developing biological systems.”

Douglas Granger shakes a plastic vial filled with spit. A psycho-neuroendocrinologist, Granger has much-sought-after expertise in collecting and analyzing saliva. He’s the go-to guy for behavioral researchers across the country who want to incorporate the biology of stress into their studies.

Spit, it so happens, contains a lovely assortment of chemicals, some of which serve as important biomarkers related to stress.

“Stress happens when the environment requires a person to adjust—something adolescents have to do all the time,” says Granger, PhD, director of the Center
Driven by Impulse to Bypass Plans

"The future" is a nebulous neverland for adolescents.

One reason is that their brains—particularly those parts where emotional control, rational decision making and planfulness happen—won’t be finished until . . . well, some point in the future.

Humans are unique—even among primates—in the complexity of their plan making. It’s a feat that calls on the frontal lobe of the brain, a region that’s still a work-in-progress in adolescents.

"Which is why we need to provide them with surrogate frontal lobes," says Sara Johnson, PhD ’05, MPH ’01.

A PFRH assistant professor and the mother of an almost adolescent son, Johnson is on a mission to inform public health policy and marshal resources to better protect developmentally vulnerable youth.

There are ways—for instance, graduated licenses that phase in risk gradually until a young driver’s skills catch up—to help kids make better choices, and to reduce the chances that they’ll die or be seriously injured if they do make a bad choice, Johnson says.

"We can do the basic research to figure out who’s vulnerable to stress, when and why, but then we also need to translate those findings by changing the environment," she says.

It’s a universal public health issue, she declares, citing a recent article in The Lancet reporting that unintentional injury is the leading cause of death among adolescents around the world.

"If we can help parents and policymakers to understand adolescent development a little better, we might get a handle on that," Johnson says.

—MY
Measles cases in the U.S. hit a 15-year high this year. Pertussis (whooping cough) resurged in the U.S. last year, especially in California where there were 9,100 cases and 10 deaths. These and other outbreaks are related to parents withholding recommended vaccines and obtaining exemptions for their children from childhood immunizations required for attendance at schools, says Neal Halsey, MD, director of the Bloomberg School's Institute for Vaccine Safety. Halsey has forged his convictions about vaccine safety and effectiveness through 40 years of rigorous evidence reviews and personal observation. In 1971, he witnessed measles tear through the pediatric ward of a Nicaraguan hospital, infecting young patients and killing two children. "That was an eye-opener to me about how severe this disease could be," says Halsey, now an International Health professor. In a summer interview with Brian W. Simpson, editor of Johns Hopkins Public Health, Halsey reflected on the persistence of vaccine-preventable diseases, parents concerned about vaccine risks, new vaccines and the difference between vaccination and immunization.
Are recent pertussis and measles outbreaks in the U.S. isolated cases or is the system failing?
We have high immunization rates in this country; well over 90 percent of children have received the recommended vaccines—over 95 percent by the time they enter school. But the system isn’t perfect, and the system isn’t getting children immunized as timely as they should. And with delays in immunization, you have enough susceptible children that can accumulate that you get disease outbreaks.

Can high rates of exemptions actually endanger children who have been immunized?
Yes. The vaccines are not perfect and so not everybody who gets vaccinated gets full protection against the disease. And so some remain susceptible. More importantly, there are children who have true medical contraindications to getting vaccinated. Children who have diseases [like leukemia] can’t get the live vaccines like measles, but we need to protect those children by immunizing everybody else. And those children should be allowed to go to school—and to go to school without fear of getting exposed to a disease that could kill them.

Are most cases of measles today in the U.S. homegrown or imported?
We do not have continued transmission of measles in the U.S. But we get these repeated introductions from travelers. And that’s going to continue until measles is eliminated everywhere.

When you look back over your career in vaccines, what’s most surprised you?
I think the thing that has most surprised me—and it’s a pleasant surprise—is the introduction of new vaccines like the hepatitis B vaccine and universal use vaccines against Haemophilus influenzae, pneumococcal disease and rotavirus. When I was an intern, I spent more than half the time taking care of children with meningitis from Haemophilus influenzae or pneumococcus. And now those diseases are largely disappearing due to the introduction of those two vaccines.

“...I can tell you from having talked to a few parents of children who have developed these diseases that, to a person, they said, ‘We had no idea it could be this bad.’”

Does it frustrate you when people avoid such vaccines for their children?
Yes. It is very frustrating to hear people perpetuate myths and misunderstandings about vaccines. And I can tell you from having talked to a few parents of children who have developed these diseases that, to a person, they said, “We had no idea it could be this bad.” That influenza could lead to death, which does occur. Or that not getting a vaccine could result in severe disease. I saw that repeatedly with measles. Many parents today think pertussis is a disease of the past, but it’s not true. It’s here.

What’s the best way to reach parents who have genuine concerns about vaccines?
If they raise questions, we have to talk about those. It’s our job to help separate the fact from fiction. We need to have our public health authorities and physicians armed with the information to show parents what’s true and what’s not true. And they need to be aware of the potential severe complications that are prevented by these vaccines. That’s what’s missing from the experience of most young parents. They don’t see children with measles or severe pertussis.

How would you rate the public health efforts thus far?
I think we’re doing a very good job in this country, but it’s not perfect and it would be nice if all children who were eligible to receive vaccines did receive them and receive them on the recommended schedule. But the reality is, there are some delays and there are some refusers. But we need to stick with those people and to help them through the process. Some will change their mind. Some won’t.

If you could change one thing about the vaccination system in the U.S., what would you change?
We should have a policy of universal immunization, but the high cost of some vaccines—like the HPV vaccine—is a barrier to the optimal policy of immunizing males as well as females. So if I could change anything, it would be to empower public health authorities to engage the manufacturers in discussions about vaccine prices to help make optimal vaccine policies highly cost-effective. In Canada they have the ability to negotiate like this. [In the U.S.,] we’ve got strict rules that prohibit that kind of a thing.

What new vaccines are in the pipeline?
There are a number of vaccines in development that have promise for being licensed and used on a widespread basis. Here at Hopkins, Anna Durbin is working on vaccines to protect against dengue infections. Ruth Karron is doing studies on [vaccines for] respiratory syncytial virus, a major cause of respiratory disease in children. We have the potential for other vaccines to protect against diseases such as group A streptococcal infections, staphylococcal infections, malaria and perhaps HIV. There is the potential for other vaccines to protect against cancer. I wouldn’t say that those are likely to be licensed within the near future. There is also the potential for vaccines to protect against autoimmune diseases like multiple sclerosis and rheumatoid arthritis.

Is there a difference between "vaccination" and "immunization"?
Yes. The terms are used interchangeably by many people, and that’s probably okay. Technically, vaccination is administering a vaccine. Immunization is the process of administering a vaccine that results in an immune response that’s protective.

Therefore, an immunization is a successful vaccination.
That would be one way to put it.
STAYING POSITIVE

Clockwise from top left: Marilyn Burnett, Mike Willis, Chris Camp and John Crockett
AGING WITH HIV

STORY BY MAT EDELSON
PHOTOS BY CHRIS HARTLOVE
“My partner is 52. I’m 55,” says Chris Camp. “When we’re together, people are constantly saying things to him like, ‘Oh, it’s great that you and your father spend so much time together.’

“And I’m like, ‘I’m not his father.’”

More than 25 years into his battle with HIV and AIDS, Camp is intimately familiar with his war wounds. The constant discomfort, the fatigue. What’s inside is difficult enough to cope with, but as he sits in Baltimore’s Mount Vernon Park on a beautiful late spring morning, the nattily attired Camp is focused on what the world can see of his illness. He’s clearly annoyed at his weathered appearance, the awkward comments, and really, who can blame him?

In one sense, HIV has been kind to Camp: It hasn’t killed him. The same can’t be said for the scores of people in his community who were diagnosed around the same time—1986—as Camp. His address book became a memorial to those men. Unwilling to erase their names and their memories, he chose instead to draw a red line through each lost friend’s entry, annotated with their date of death. In time, page after page became his personal testimony to an epidemic built on suffering.

By the grace of providence and medication, Camp survived. But to say he’s thrived? Even he’s not sure. “I feel like I’ve aged quite rapidly,” says Camp, and at first glance it’s hard to disagree. A tremor in his left hand, deep pouches under his eyes, a head full of snow white, well-kempt hair… he could easily be mistaken for a grandfatherly type by the gaggle of youngsters wandering by on a morning field trip.

What’s happened inside his body since his HIV diagnosis a quarter-century ago is just as debilitating. Three bouts of pancreatitis. Fourteen kidney stones. Diabetes. Triacylglyceride and lipid issues. Not that Camp, a full-time HIV/AIDS counseling trainer for public health officials, is complaining: Anything but. “Every time I came in to see my doctor for a checkup he’d ask me how I was doing. I’d say, ‘Fine.’ One day he finally said, ‘I want to stop you. Tell me what your “fine” means.’”

So Camp told his doctor his definition of “fine”: Ever-present bloating, nausea, cramping—and lots of understandable worrying. Camp pats his rounded paunch, which seem physiologically at odds with his thin arms and legs. “I have this stone of a stomach, filled with visceral fat that I can’t get rid of,” he says, referring to a common side effect from HIV antiretroviral therapy that redistributes fat away from the limbs and toward the gut. “All of this [visceral] fat is the biggest risk for heart attack and played into my getting diabetes.”

Given Camp’s ongoing battle and the devastating nature of HIV’s history, it’s easy—and somewhat logical—to assume that everyone aging with HIV is facing a day-to-day struggle. But as public health officials are learning, the prognosis for HIV-positive boomers and elders is far more complex—and perhaps for some, far more hopeful—than many might expect.

According to the CDC, by 2015, half of everyone diagnosed with HIV in the U.S. will be 50 or older. In raw numbers, that’s likely to be around 600,000 people. In one sense, this older boom in survivorship is an incredible public health success story. Consider: Before 1996 and the introduction of drug combinations that suppressed HIV, many people believed that an HIV diagnosis equaled a death sentence, and that they wouldn’t live through their 30s, let alone to 50.

The data backs up that perception. Hopkins epidemiology doctoral student Nikolas Wada, MPH, crunched figures from the Multicenter AIDS Cohort Study (MACS), which has been following nearly 7,000 HIV-positive and HIV-negative homosexual and bisexual men at four sites including Johns Hopkins since 1984. Wada found that pre-1996, the median age of death from all causes for the HIV-positive men he observed, using age 35 as a baseline—was only 43 years old—with the vast majority of deaths, 94 percent, coming from AIDS-related causes.

In the real world, that often meant that by the time men were showing any symptoms and finally went to a doctor’s office, their infections had been raging for years, their immune systems effectively destroyed, and their life expectancy at diagnosis a mere year and a half. “In the last three years of the ‘80s, I lost 175 friends. It all happened so quickly,” recalls John Crockett, who was diagnosed with HIV in 1987 and thought he’d die within months. “I can remember going to a funeral home in the morning, and going back in the evening to be in the same room with a different body.”

That Crockett is alive today is also reflected in Nik Wada’s data sifting. Post-1996, public health experts say a variety of
factors, including, new and less toxic medications, faster diagnosis and better clinical management, had greatly lowered the number of HIV deaths directly related to AIDS. Wada’s numbers showed that it had become a statistical tossup as to whether HIV-positive men in the MACS would die from AIDS or non-AIDS related causes. As a result, using his same baseline of 35-year-old infected men, the median age of death from all causes had jumped to more than 57 years of age. A 2009 CDC study confirms this lifespan increase. Looking at HIV surveillance data from 25 states, researchers estimated that as of 2005, people with HIV could now expect to live more than 22 years after diagnosis, and some experts feel the average survival time is even longer.

From a public health perspective, that extended timeline has essentially redefined an epidemic. While people are still getting infected—the CDC’s latest numbers state that more than 56,000 Americans contracted HIV in 2006—“the availability of medications has changed HIV from an acute infectious disease with a high mortality rate to one that behaves like a chronic disease that people can live with,” says epidemiologist Lisa Jacobson, ScD ’95, MS ’86, principal investigator for the MACS Data and Analytical Coordinating Center at the Bloomberg School.

Jacobson is by no means alone in her assessment of HIV management as it is practiced in America, where access to antiretroviral drugs is predictably far greater than in developing countries still ravaged by the disease. All of the more than a dozen Johns Hopkins public health and clinical faculty interviewed for this story, as well as several of their patients who have survived AIDS well into their AARP years, used the phrase “chronic disease” to characterize HIV infection.

But chronic diseases by their very nature cover a wide spectrum of severity. Even within a given chronic disease such as multiple sclerosis, progression and impact on daily life can vary greatly.

Which is why study of the aging HIV population is so important. As HIV-infected people reach their golden years, a host of questions has arisen—including how well will they age, and whether the virus long residing in their bodies makes them more prone to earlier onset of diseases that claim the elderly. “The question is not so much whether you will live as long as your (uninfected) brother but whether you will have more medical problems as an older person than your brother,” says Joel Gallant, MD, MPH, associate director of the Johns Hopkins AIDS Service.

To answer this means delving into a multifaceted puzzle that, on one end, teases apart the lifestyle risk factors particular to certain HIV-infected subgroups. For example, smokers may develop lung cancer or IV drug users may become infected with hepatitis C. HIV and its treatments may negatively affect both. On the puzzle’s other end is investigating HIV’s impact on the aging process itself, and whether the infection, even in a medically suppressed state, promotes premature aging of the immune system. And in between is the ever-moving target of how the timing of the beginning of antiretroviral treatment affects long-term outcomes.

The insights already gleaned have been both surprising and controversial, setting off a vociferous debate among public health researchers as to what recommendations, if any, the data currently support vis-à-vis changing the standards of care for aging HIV patients … patients who fervently hope their best years are still ahead of them.

From nearly the beginning of the AIDS epidemic in 1981, Hopkins epidemiologists have relied on unique cohorts of patients to help them define, control and treat HIV infection. What sets the researchers’ approach apart is that instead of comparing people with HIV to those in the general population—a study practice that, in many epidemiologists’ opinions, leads to misleading results—the epidemiologists have intensely studied HIV-positive and HIV-negative people from the same backgrounds for decades.

In the MACS study, that’s been almost entirely men who have sex with men. The ALIVE study (AIDS-Linked to the Intravenous Experience) has looked at some 4,000 injection drug users in East Baltimore since 1988, while WIHS (the Women’s Interagency HIV Study) has enrolled more than 3,700 women since it began in 1993. In each case, the participants have given greatly of their time and bodies. In the MACS cohort, for example, some people travel several hours to keep their semi-annual commitment.

“I can’t say enough positive things about the participants,” says Jacobson, who helps create statistical models to make sense of the mass of MACS data coming in from sites in Baltimore, Chicago, Los Angeles and Pittsburgh. “In addition to extensive medical questionnaires and the physical, we have exams to observe things like frailty, so we have them do timed walking and hand gripping. For kidney function we had a subgroup that went through infusions (they had an intravenous solution of Iohexol, which the kidneys normally quickly excrete), and had blood taken five times over four hours. We have another sub-study on cardiovascular disease where a group goes for IV contrast (injection) and cardiovascular scanning.

“It’s incredible,” she continues. “We’re learning so much. We just pulled stored blood [from] 12,000 person visits over 25 years, to look at markers of inflammation and co-infections. In the MACS, we have over 600 men who became infected while under observation, who contributed specimens before and after infection, as well as before and after initiation of treatment. So we can see how biomarkers (such as those that can measure presence of heart disease, inflammation and cancer) are affected from both HIV and treatment. They also go through neuropsychological testing so we can see the effects of infection on cognition and memory.”

Given this level of scrutiny, the cohorts have yielded a treasure trove of findings; some 1,100 published papers from MACS, and 365 from ALIVE, according to its PI, epidemiologist Gregory Kirk, MD, PhD ’03, MPH ’95. Historically, those MACS papers helped confirm the mechanism for how HIV replicates and destroys key CD4 immune cells in the process; the relationship between high HIV viral load, low CD4 cell counts and the progression of illness; and the point at which so-called HAART (highly active antiretroviral therapy) should be started to maximize its effectiveness.

Now those data are being used to deter-
mine long-term consequences of HIV infection and treatments on aging. When an April 2011 *Journal of the National Cancer Institute* paper highlighted the U.S. cancer burden among HIV-infected individuals, it set off alarm bells among many older patients and clinicians, especially when its authors noted, “HIV-infected people are at an increased risk of many non-AIDS defining cancers. … In a meta-analysis, these risks were estimated to be increased threefold for lung cancer, 29-fold for anal cancer, fivefold for liver cancer and 11-fold for Hodgkin’s lymphoma.”

Bloomberg School researcher Joseph Margolick, MD, PhD, suggests taking these concerning numbers with a grain of salt. Margolick, who is the PI of the MACS Baltimore site, says many studies attempt to draw conclusions without having cohorts that contain large numbers of HIV-negative and HIV-positive persons from the same at-risk populations. He notes that people at risk for HIV are different from the general public in terms of exposure to many infectious agents. For example, injection drug users have a much higher rate of hepatitis C infection than the general population. So in that case, to assess the effects of HIV infection, it’s important to compare HIV-positive injection drug users to HIV-negative injection drug users rather than the general public, he says.

In the case of MACS, Margolick says the study has yet to confirm which cancers (or other diseases) are caused by sheer aging versus some combination of long-term HIV infection, HAART treatment, co-infections (such as HPV or hepatitis B and C), and lifestyle choices.

Margolick is also a bit dubious of the connection between HIV and so-called “premature aging.” It has been observed that, in people with HIV infection, immune cells appear to break down sooner than in HIV-negative individuals, perhaps because of constant immune system activation. The result is an increase in the type of poorly functioning immune cells that are also seen in HIV-negative people as they age.

“But just because it resembles the way an older immune system looks doesn’t mean the reasons for the changes are the same as in an [uninfected] older person,” says Margolick. “We need to know the mechanism of how you got there. What is the mechanism of age-related changes? And is the mechanism the same for people with HIV? Until we know that, I’m cautious on the whole subject. I just wrote a newsletter to the people in our study where I said, ‘It’s premature to say there’s premature aging.’”

Not long after being diagnosed as HIV-positive in 1994, Mike Willis nearly died. But since then, he has stabilized on a modest two-drug HAART regimen. “I don’t have a lot to complain about,” he says. “I’ve done really well, and I’m grateful.”
A few months ago, Marilyn Burnett’s pharmacist called to remind her to refill her medications. “I had forgotten so often that I had so many pills left. It didn’t occur to me to call in my renewal,” she says. “That made my blood turn cold.”

Although the potential differences in the mechanisms of age-related changes in HIV-infected and HIV-uninfected individuals are unclear, age-related diseases are becoming a reality for people with HIV. “We see more and more HIV-infected individuals confronting health challenges related to diabetes, bone disease, cardiovascular disease, cancers and other age-related co-morbidities,” says Keri Althoff, PhD ’08, MPH ’05, a Bloomberg School epidemiologist who has worked on the MACS and WIHS studies and specializes in aging with HIV. “Prospective studies are under way to determine if the incidence of these age-related diseases are different than what we observe in individuals who are aging without HIV infection.”

Althoff, an assistant professor in Epidemiology and in the Statistics in Epidemiology (STATEPI) group, has an interesting take on the study cohorts and how to perhaps best predict the risks they face for specific conditions given their current median ages. She notes that while the overall numbers in the cohorts are large, the median age of study participants—54 in MACS, 46 in WIHS—means they aren’t quite old enough to see large numbers of definitive conditions such as heart attacks and diabetes.

“These folks are not as old as [HIV-uninfected] baby boomers, those over 65. So it is likely that the wave of age-related co-morbidities [found in those over 65] is still on the horizon for our cohort participants,” notes Althoff. She suggests that a more robust assessment of risk in the cohorts might come from looking for the subclinical markers of illness and seeing whether they play out equally in the HIV-positive and HIV-negative participants. “Instead of studying diabetes, we can study markers of insulin resistance, which are on the pathway of progression to type 2 diabetes,” she says. “Instead of studying heart attack, which happens more frequently in the aging general population but is a very rare outcome among our cohorts, we can study precursors for cardiovascular disease such as the thickness of arterial walls, statin use, blood pressure and CRP levels.”

Their findings may change treatment of HIV yet again.

Ask anyone aging with HIV what they’ve been through, and it’s rare to find someone who has come through the infection physiologically unscathed. Some, like Chris Camp, face a non-stop battle: Between serious complications that were part of the often-extreme toxicities inherent in early AZT and HAART treatment, and an ongoing daily regime of dozens of pills to control both his infection and numerous health issues, “there’s not a moment that goes by, living with it as long as I have, that I don’t know that I’m HIV infected, that I have this disease. It’s in my head all the time like a noisy alarm clock,” says Camp, his index finger tapping the center of his forehead for emphasis.

Others, such as 50-year-old Mike Willis, diagnosed in 1994, had extreme early struggles with HIV—various degrees of drug resistance had him, at one point, on a combination of seven different antiretroviral medications that knocked down his viral load, but “my liver, kidneys and pancreas almost shut down,” recalls Willis.

He nearly died as a result, but has long since stabilized on a modest two-drug HAART regimen. A diet and fitness devotee, Willis looks fit as the proverbial fiddle. Once on long-term disability due to his infection, he’s gone back to work and often bikes to the gym for long, energizing workouts. He cheerfully admits, “I don’t have a lot to complain about. I’ve done really well, and I’m grateful,” though he also notes that he’s had to exercise hard to stave off the effects of osteoporosis (he was diagnosed with the bone-loss condition at 43, and it’s since improved), and he takes medication for high cholesterol, both conditions perhaps relating to his HIV status and treatment.

Then there are those for whom HIV has proved more burdensome as the years have gone by.

Marilyn Burnett, 68, contracted HIV in 1991. She has successfully avoided the opportunistic infections associated with her AIDS diagnosis. Her generally good overall health allowed her to become a well-known
Baltimore advocate for HIV education, notably with Older Women Embracing Life, an HIV support group run in partnership with Hopkins Medicine’s AIDS Education Center.

Still, certain conditions related to the infection are beginning to concern Burnett. The neuropathy long in her feet, a common drug side effect, is now affecting her legs as well. But most worrying is her memory, which was always razor sharp. Cognitive impairment has long been observed in some HIV-positive patients; Burnett, a self-admitted fanatic about taking her medication on schedule, says, “After 20 years of being very adherent, I’m now forgetting to take my medication. And they’re right beside my bed. [But] some days it’s not even on the radar screen,” she says, “A few months ago my pharmacist called me to say, ‘Ms. Burnett, isn’t it time to refill your medication?’ And it hit me, because I had forgotten so often that I had so many pills left in all the bottles that it didn’t occur to me that it was time to call in my renewal. That made my blood turn cold.”

With so many potential co-morbidities to observe and quantify, public health officials are being conservative when it comes to making hard and fast clinical recommendations specifically related to aging HIV patients (though it should be noted that numerous Hopkins clinicians who treat HIV-infected patients say they’re relatively aggressive when it comes to screening for suspected linked conditions, including bone loss, metabolic syndromes, liver disease and kidney function).

Still, researchers have some strong opinions regarding areas of potential therapeutic value to HIV patients. “Smoking has such a high prevalence among populations living with HIV. Depending upon which cohort we look at here, prevalence runs between 60 and 80 percent,” says David Holgrave, PhD, chair of Health, Behavior and Society. “We’re trying to convince funders to support work that examines the best way to do smoking cessation interventions among persons living with HIV.”

Lisa Jacobson says she’d like to see more clinical emphasis on anal cancer screening. “A lot of literature coming out, including our own, is showing the incidence of anal cancer is much higher in HIV-infected gay men than uninfected men.” Jacobson especially points to screening for co-infections common to certain HIV-positive populations. In addition to doing anal pap smears looking for HPV that can lead to anal cancer, she notes the high vulnerability of HIV-infected IV drug users to HCV (hepatitis C virus) that can lead to liver cancer and other serious hepatic issues.

“It’s clear that HIV fuels the fire of hepatitis C,” agrees Gregory Lucas, MD, PhD, an associate professor in Infectious Diseases at Johns Hopkins School of Public Health. “A lot of literature coming out, including our own, is showing the incidence of anal cancer screening.

The focus now is on making the surgery quicker, safer and less expensive. Epidemiology professor Maria Wawer, MD, MHSc, says they’ve received an NIH grant for testing a ring-type surgical device in Uganda that “would cut surgical time down from 25 to five minutes.”

Ronald Gray, MD, MSc, admits, “It’s a pretty radical change in strategy for public health to be promoting surgery for the prevention of an infectious disease.” Still, Gray, a professor in Epidemiology, adds that the Ugandan, Kenyan and South African governments now endorse circumcision, and that, short of an HIV vaccine, circumcision offers something unique with regards to the prevention of HIV and a number of other sexually transmitted infections.

“Frankly,” he says, “there’s nothing else I know of [in which] a one-time procedure can substantially reduce your risk of acquiring an infectious disease for a lifetime.”

—ME
It was the easy oil—that’s what fueled our prosperity.

Economists associate the availability of abundant inexpensive energy with economic growth, suggesting that the modern era’s rising tide of global wealth—and health—was borne up largely on a sea of cheap oil. “We’ve been living for 150 years on a fossil fuel bubble,” is how Stuart Chaitkin, MA, a retired energy policy analyst and senior associate in Environmental Health Sciences (EHS), describes the current situation. “You can’t just simply replace oil for many of its uses. Oil is the world’s master resource.”

But what happens when the supply of that master resource can no longer keep pace with demand? Despite tremendous increases in demand for oil during the economic boom from 2005 to 2009, world production during that period was generally flat, leading to the record-breaking $147 per barrel cost of oil reached in July 2008. This experience exemplifies the concept of “peak oil,” the idea that because petroleum is a finite nonrenewable resource, at some point maximum possible production will be reached—and thereafter the number of barrels of oil pumped worldwide each year will decline steadily, with a resulting significant rise in prices.

Oil was cheap only so long as it was plentiful and easy to extract, but in tandem with growing demand from emerging economies like those in China and India, more and more of remaining “non-conventional oils” are locked in tar sands or buried deep under the ocean’s bed. This tough oil will be costly oil, presenting enormous challenges to everything from transportation to food production—and ultimately, to global public health.

“There are no solutions, only responses,” says EHS professor Brian Schwartz, co-director of the Program on Global Sustainability and Health and a nationally recognized expert on the health consequences of peak oil. “You can deny climate change forever, but you can’t deny the rising price of oil. The limitations to ever-increasing production are a geologic reality.”

The coming era of petroleum scarcity is “probably the most underreported issue of our time,” says Schwartz, MD, MS. He and Bloomberg School colleagues have spent much of the past decade looking at how ever-more-costly petroleum will affect some of the key drivers of public health, and what strategies we should adopt now to minimize future health consequences. (Schwartz and Cindy Parker, MD, MPH ’00, an EHS assistant professor, were guest editors for a special issue on peak oil’s far-reaching impacts on health in September’s American Journal of Public Health.) Schwartz says the immediate challenge is simply making people aware of what’s headed our way: “Until we acknowledge the problem, there will be no will to develop responses.”

The five key areas that follow illustrate the potential health fallout of petroleum scarcity.

1. **Economic Instability**

The Japanese coined a word—*oirushokku* or “oil shock”—for the wrenching consequences of the 1973 OPEC oil embargo that caused the price of oil to quadruple to $12 a barrel. Sudden large increases in the price of oil present an enormous economic challenge; as the Japanese understood, they shock the system. Some economists claim spiking oil prices caused four of the last five global economic recessions. And, says Parker, co-director of the Program on Global Sustainability and Health, economic decline is bad for public health: “Health outcomes decline when the economy declines. People make ends meet at the expense of their health, and societies reduce health benefits when budgets are tight.”

At the extreme of this correlation is the former Soviet Union which, since the fall of communism and the collapse of its economy more than two decades ago, has experienced an increase in mortality and some kinds of morbidity unprecedented for an industrialized nation at peace. At the peak of the economic crisis in the mid-1990s, the country was experiencing its highest peacetime death rate in the 20th century; the incidence of tuberculosis, brucellosis, diphtheria and syphilis had increased dramatically and in the case of the last two diseases more than doubled. The country also witnessed the return
of epidemic diseases such as cholera and typhoid fever. Ironically, it was the wealth generated by Russia's vast oil and natural gas reserves that eventually enabled the country to reverse its economic decline—though health indices for Russians continue to lag far behind those of their European neighbors.

Budget shortfalls brought about by recession and declining government revenues will inevitably have a strong effect on research funding as well, threatening the next generation of advances in medicines, vaccines, preparedness and knowledge that could most effectively advance the global public health agenda.

2. Food Scarcity

From fossil fuel-derived fertilizers and pesticides, to diesel-powered tractors and water pumps, to an elaborate long-distance transport system, oil is something that—in a very real sense—we eat. Because modern agriculture has become so dependent upon oil, petroleum scarcity leads to significantly higher food prices and outright shortages, and was at least partially responsible for the global rice shortage of 2008, when oil reached record high prices. “The poor are exquisitely sensitive to food prices,” notes Peter Winch, MD, MPH, International Health professor. The United Nations Food and Agricultural Organization estimates that more than 900 million people worldwide are undernourished, a number more than 100 million greater than before the oil-fueled food price increases that began around 1997. Increased food insecurity—and even outright famine—would likely result from any additional large increases in the price of oil.

“I think food is the biggest issue of all,” says Melissa Poulsen, a PhD student in International Health, whose research is focused on identifying populations most vulnerable to global petroleum scarcity and how best to help them. “Any disease is irrelevant if you are without a secure food source. Good nutrition is critical to health; you have to eat.”

In yet another ironic twist, those same forces in developed nations might tend to favor improved nutrition. As rising oil prices make it prohibitive to transport highly processed (read: unhealthy) foodstuffs over long distances, and consumption declines, people may be forced to turn to more locally based, sustainable agriculture.

3. Clean Water Decline

In some areas, petroleum is an ingredient necessary to the availability of clean water. A European Union report from earlier this year called attention to looming water shortages in the Middle East, which until now has used its access to abundant cheap petroleum to produce plentiful water for its citizens. Libya has spent $20 billion pumping water from deep beneath the desert in so-called “fossil water” reservoirs that cannot be replenished; no one knows how much longer they will last. Saudi Arabia has seen water use surge by 500 percent since 1985. Increasingly, all countries in the region are turning to desalination; more than 1,500 plants now line the Gulf and the Mediterranean and provide much of the drinking water for North Africa and the Middle East—and two-thirds of the world’s desalinated water.

Meanwhile, the world’s regions most desperately short of clean water—Asia and Africa—are making plans to greatly increase their use of desalination. But the energy to power these plants typically comes from oil, and for those countries that have to import petroleum—such as Egypt, which will soon turn from a net exporter to importer as its oil fields play out—the cost of water could begin to reflect the cost of oil. In Saudi Arabia, 28 desalination plants provide 50 to 70 percent of the current drinking water supply, using 1.5 million barrels of oil per day, notes Cindy Parker. “Oil exporting nations may soon decide to reduce their exports to importing countries in order to use their oil for vital national purposes such as water desalination,” she says. “Importing nations, such as the U.S., will be especially vulnerable because we rely so heavily on oil exports to run our entire economy.”

4. Transportation Challenges

“The transport system is the first to feel the effects of petroleum scarcity and increasing price,” says Schwartz. This includes the complex supply chain for drugs and medical equipment that often spans countries and even continents. In developing countries, the World Bank has found that high cost and limited availability for patient transport is a major impediment to reaching the Millennium Development Goals for maternal and child mortality. Energy insecurity and costs could also hinder or even prevent international relief organizations from responding rapidly and effectively to humanitarian emergencies. Fundamentally, all efforts in disaster relief are giant challenges in logistics and transportation; every additional dollar spent on fuel is that much not spent on the food and clean water, shelter and medicines that must be delivered to the scene of a disaster.

In developed nations, routine medical delivery could be affected. Most petroleum used in the U.S. for instance, is for transportation, accounting for 70 percent of all oil use in 2008. Moreover, the U.S. transportation system would be at a standstill without oil; more than 90 percent of all transportation sector energy is derived from oil. America’s centralized medical centers require both patients and workers to transport themselves to the site, often over considerable distances. It goes without saying that ambulances, emergency airlifts and public health outreach all depend on petroleum.

Many researchers have argued that it is only cheap energy that has allowed the incredible specialization we see in our health care system. According to Schwartz, in an era of tough oil, “communities are going to have to reorganize and if they do not, we will see the same difficulties in providing care to persons in suburbs in the future that we see today in providing care to those in rural areas—a very well-known problem. Most patients get to the doctor by using petroleum; if that petroleum is very expensive, something will have to change or else there will be no doctor visit.”

5. Environmental Effects

Extracting and processing the “tough oil”—oil from beneath the sea, or tar sands, or shale deposits or the vast supplies of heavy oil known to exist in Saudi Arabia—involves using even more energy-intensive technology to produce each additional barrel of oil. Increasingly, remaining oil reserves will be in the form of this “nonconventional oil”
that is both expensive and dirty. “It takes a huge amount of energy and effort to produce and process this oil, and environmentally it can be tremendously damaging,” says Stuart Chaitkin. U.S. oil production illustrates the law of diminishing energy returns as oil resources play out. In 1930, the energy return on energy invested (EROEI) in U.S. oil fields was 100:1; that dropped steadily to 40:1 by the time U.S. domestic oil production peaked in 1970. Today that figure is down to 14:1 and it’s expected to continue to decline. “Nonconventional oil sources are dirty,” says Cindy Parker simply, “and if we make the choice to exploit them heavily we can actually accelerate carbon emissions and global warming, along with the many negative health consequences that will bring.”
In 1961, the School’s Division of International Health debuted as the world’s first academic program to address public health at the international level. The occasion marks the birth of international health as a distinct discipline of public health.

Founded by Professor Timothy Baker and then Dean Ernest Stebbins, the division became a department in 1967 with public health visionary Carl Taylor as its chair. "Try to define a new field, I guess, is what we really were trying to do," Taylor recalled in an interview for the Bloomberg School’s oral history project.

Taylor, who died in 2010, rejected the idea of merely importing the best Western medicine to impoverished countries. He wanted to train leaders to view international health as a complex mix of health problems, politics, economics, culture and environment. His vision expanded international health beyond its roots in tropical medicine, a disease-specific field typically spread among different departments, says Robert Black, MD, MPH, Department chair since 1985 and one of the world’s leading experts on child health.

"I think what was important about the start of the Department was looking much more broadly not just at particular diseases that occur in different places but at health systems and how services could be delivered in very resource-constrained environments—how social conventions interacted with environmental risk and medical problems, how infectious disease was related to nutrition," Black says. "It was really looking at the health problems in low-income countries in a much more holistic way."

The following pages highlight the Department’s contributions in its first half century.

—Jackie Powder

COMMUNITY–BASED RESEARCH AND HEALTH CARE

The Department’s approach to community-based public health centers on collaboration with local populations. Together, they first identify health problems and then test intervention strategies under realistic conditions. The goal is developing inexpensive, evidence-based health programs. This strategy began with Carl Taylor’s signature field study—the Narangwal Rural Health Research Project—which lasted from 1965 to 1974. The project demonstrated that community health workers (CHWs) could deliver quality health care. Among its seminal findings: CHWs can cheaply and effectively treat pneumonia cases by administering antibiotics themselves.

NUTRITION

The Department’s revolutionary research in public health nutrition continues a tradition of pioneering work in the field. Department nutrition researchers have made lifesaving discoveries demonstrating the importance of vitamin A, zinc and other nutrients in child and maternal health, disease prevention and survival. The findings, in many cases, have served as the impetus for national and international policy changes that have saved and improved the lives of millions.
MATERNAL AND CHILD HEALTH
Well past the 20th century’s midpoint, the worldwide health agenda had yet to focus on the needs of mothers, infants and children, resulting in millions of needless deaths, illness and suffering. For more than three decades, the Department has made the well-being of these vulnerable populations a top priority and documented the costs of neglecting them. In recent years, faculty have developed simple interventions that can improve a child’s chances for survival in the critical first weeks after birth.

IMMUNIZATION
To strengthen the Department’s work in vaccines and infectious diseases, chair Robert Black and Mary Lou Clements-Mann established the Center for Immunization Research (CIR) in 1985. The Department now houses three other centers with work focused on vaccine research, and is a recognized leader in the evaluation of new vaccine candidates, early phase clinical trials and licensure trials, training in vaccine trials, and vaccine safety and policy, as well as accelerating vaccine access in developing countries.

HEALTH SYSTEMS
Without well-functioning health systems with efficient care delivery mechanisms and trained staff, the most transformative public health discoveries may never reach their intended populations. The Department has a history of leadership in health systems, including Timothy Baker, Carl Taylor and William Reinke’s early health manpower planning work and the Narangwal project’s innovative research that supported the integration of health care services—like primary care and family planning—at the community level.

“The challenges are still there, and the solutions are getting better every day.”
—Robert Black

Health at 50
“We keep thinking that we as professionals are giving people health. And we’re not. It’s the people themselves who have to take ownership of their own health care.”

—Carl Taylor

1960–1970s: William Reinke directs a certificate training program in health planning for public health officials from developing countries. Over two decades, several hundred senior planners take part in the program.

1961: Major health manpower assessments are carried out in Turkey, Taiwan, Peru and Chile. They reveal vast country-specific differences in the roles of the various health services personnel.

1968: Carl Taylor coauthors the now-iconic WHO monograph, “Interactions of Nutrition and Infection” and subsequently demonstrates, in the Narangwal project, the cost-effectiveness of integrating nutrition services with maternal and child health care.

1968–76: George G. Graham’s Peru research establishes effective dietary approaches to treat and prevent infant malnutrition, as well as the link between copper deficiency and malnutrition. Graham founds the Division of Human Nutrition (now an academic program area within the Department).

1978: Carl Taylor is the top consultant to WHO in drafting the historic Alma Ata Declaration, which advocates an integrated primary care approach to public health over the traditional disease-control model. Signed by representatives from 134 countries, the document states that primary care brings “health care as close as possible to where people live and work and constitutes the first elements of a continuing health care process.”

1980: To curb a childhood diarrhea epidemic that was killing infants at seven times the national average on the Fort Apache Indian Reservation in Arizona, Mathuram Santosham partners with tribal leadership to train parents in oral rehydration therapy (ORT). Further studies help make ORT the first-line therapy for diarrhea treatment.

1982–86: In the world’s first large field trial on vitamin A and child survival, Alfred Sommer and Keith West lead research in Aceh, Indonesia, showing that vitamin A reduces child mortality by 34 percent. The work spurs subsequent vitamin A trials that confirm the vitamin’s global impact on child survival.

1985: The Institute for International Programs (IIP), currently directed by Robert Black, becomes a leader in generating sound evidence used by governments and donor agencies worldwide to assess maternal and child health programs.

1988–92: The Nepal Nutrition Intervention Project—Sarlahi (NNIPS) is established by Keith West, Joanne Katz, Steven LeClerq and colleagues in the Terai of Nepal. In the first trial of more than two decades of field research at this site, they show that vitamin A can reduce child mortality by 30 percent, stimulating a nationwide program and affirming the magnitude of its impact on child survival.

1990: In a landmark trial of a vaccine for Haemophilus influenzae type b (Hib)—the bacterium that causes meningitis—Santosham demonstrates that giving two shots to children before age 2 nearly eradicates the disease in the Navajo Nation in Arizona. Today, almost every developed country uses the Hib vaccine.

1996–present: Jean Humphrey’s research in Zimbabwe demonstrates the overriding importance of exclusive breastfeeding in minimizing mother-to-child transmission of HIV and in increasing the likelihood of infant survival.

1997: At CIR, Clayton Harro begins the first human trials of a human papillomavirus (HPV) virus-like particle (VLP) vaccine, the progenitor of the Gardasil and Cervarix vaccines.

2000: At the Navajo and White Mountain Apache reservations, Mathuram Santosham and Katherine O’Brien show that a new vaccine against pneumococcus (PCV) is effective against pneumococcal disease not only among vaccinated infants but also in adults and the elderly in the community not vaccinated with PCV. WHO recommends PCV as a routine vaccine.
“If you’re interested in disadvantaged or vulnerable populations, you need to get them engaged in ways that are meaningful. Community empowerment approaches have long been a part of our work.”

—David Peters

2000–present: West, Alain Labrique, Parul Chisti and Rolf Klemm set up the JIVitA nutrition and health research site in Bangladesh. A study among 16,000 infants finds that a single dose of vitamin A at birth reduces neonatal mortality by 15 percent.

2001–2011: Joel Gittelson and colleagues begin a series of trials—mainly in the U.S.—to improve the food environment and reduce risk for chronic disease by working with food stores and local institutions to offer healthier foods.

2002: James Tielsch and Luke Mullany lead a community-based intervention in Nepal that shows using the antiseptic chlorhexidine to cleanse the umbilical cord reduces neonatal deaths by a third. Nepal adds the practice to its national health policy.

2003–present: Hired by the Afghanistan government, David Peters, Gilbert Burnham and colleagues lead the largest annual survey of health facilities and patient care, resulting in policy and program changes that address quality and access, hospital reform, HIV prevention and water protection.

2003: Orin Levine, Kate O’Brien and colleagues launch the PneumoADIP project to accelerate the introduction of PCV vaccines for children in the world’s poorest countries. With support from the GAVI Alliance, and based on PneumoADIP’s work, PCV vaccines are expected to prevent more than 5 million child deaths by 2030.

2005: A PEPFAR initiative in Ethiopia led by Andrea Ruff provides technical assistance and capacity building in HIV/AIDS and TB treatment, care and research. Accomplishments include a new regional testing lab, the training of hundreds of researchers and lab technicians, and a telemedicine program.


2008: Abdullah Baqui and researchers in Bangladesh develop a package of maternal and newborn care services. Relying on local women to provide care, the initiative reduces neonatal mortality by 34 percent in 30 months. The research—recognized by The Lancet as a 2008 paper of the year—encourages WHO-UNICEF to recommend postnatal home visits to improve newborn survival.

2008: In Bangladesh, Mark Steinhoff documents a 63 percent reduction in influenza illness in newborns whose mothers received the flu vaccine, as well as a 36 percent drop in serious respiratory illnesses in both mothers and infants.

2009: Abdullah Baqui and colleagues lead a large U.S. trial to determine the safety and immunogenicity of an H1N1 pandemic influenza vaccine.

2009: The Department of Maternal and Child Health Services. Relying on local women to provide care, the initiative reduces neonatal mortality by 34 percent in 30 months. The research—recognized by The Lancet as a 2008 paper of the year—encourages WHO-UNICEF to recommend postnatal home visits to improve newborn survival.

2009: Ruth Karron, Kawsar Talaat and colleagues lead a large U.S. trial to determine the safety and immunogenicity of an H1N1 pandemic influenza vaccine.

2010: The International Injury Research Unit (IIRU), led by Adnan Hyder, is named a collaborating center by the World Health Organization, joining centers in 80 countries. The IIRU leads the Road Safety in 10 Countries Project, the largest international research collaboration on traffic injury prevention.

2010: Anna Durbin begins work with colleagues in Brazil to test the safety and efficacy of a tetravalent vaccine—the product of 10 years of clinical development at the CIR—against dengue.

2010: The International Injury Research Unit (IIRU), led by Adnan Hyder, is named a collaborating center by the World Health Organization, joining centers in 80 countries. The IIRU leads the Road Safety in 10 Countries Project, the largest international research collaboration on traffic injury prevention.

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“A tragic autumn morning in 2001 and a decade’s worth of repercussions for public health

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Health Practice and Training at the School.

Alfred Sommer, MD, MHS ’73, then dean of the School, had been literally out to sea during the attacks, aboard the Queen Elizabeth II. He returned to find his faculty stunned but eager to marshal resources.

“[Tom Burke] was with me when it hit me,” he recalls. “The School has to organize itself as an institution critical to the acute problems requiring public health.”

“[But] by the time of anthrax,” says Burke, “we had a network in the School…. For the first time, first responders and police were working with public health practice [professionals].”

Meanwhile, in New York City, Geyh, Breysse and a team of students had brought equipment to ground zero. Arriving in late September, Geyh managed to get permission for her team to work on the site, a herculean task at the time. The challenges seemed insurmountable—jurisdictions changed constantly, bureaucracy was steep, and there was no coordination among the countless people,
agencies, universities and medical services that converged to help. “No one was really willing to step up,” says D’Ann Williams, a student at the time, “and Alison did.”

Geyh secured entree by collaborating with an industrial hygienist with the International Brotherhood of Teamsters’ Safety and Health Department; the Teamsters represented the truck drivers who drove away the debris. Her team expanded their efforts to include ironworkers (who cut the enormous debris), crane operators, carpenters, laborers and dock builders, each with their own unions that, unlike the firefighters and police unions, did not have built-in health services. Says Julie Herbstman, who was on Geyh’s team and is now an assistant professor at the Columbia Mailman School of Public Health, “The trade unions were major players at the site but didn’t have anyone looking out for them.”

“We were some of the first people on the site doing air sampling,” says Breysse, PhD ’85, MHS.

Their team performed respiratory health and exposure assessments for the truck drivers and others. Herbstman, PhD, ScM, and Williams, DrPH ’10, MS, now an EHS research associate, helped characterize the airborne particulate matter, asbestos and volatile organic compounds at the perimeter and in the middle of the site. Their findings helped to justify medical monitoring that continues today.

Geyh’s team returned in December 2001, and again in April 2002, and they’ve published several studies addressing health effects of the plume that hung over Manhattan. One finding identifies short-term health effects, which include respiratory and musculoskeletal problems, eye injuries and elevated rates of post-traumatic stress disorder, anxiety and depression among rescue and recovery workers and volunteers. Some firefighters at the site developed the “World Trade Center cough,” and exposure was associated with a substantial and “probably permanent” loss of lung function, according to Geyh and her co-authors.

While the short-term effects have been documented, both Breysse and Burke note that people working at the site were exposed to inhaled carcinogens—and they acknowledge that any associated increased risk for types of cancer may not become apparent for decades.

“The problem with emergency response situations is that you often don’t recognize there’s a health problem until time has passed,” says Breysse. “The big mistake with the 9/11 response was what happened to the workers on the site. We’ve learned from what happened after 9/11 to pay more attention to health and safety of responders.”
This Is Now

In February of this year, at the age of 52, Geyh died of cancer. It’s impossible to connect her cancer to her work at the site; as Burke points out, “One-fourth of us will die of cancer.” At her memorial, two Teamsters sang her praises; her research may assist with the diagnoses of future work-related respiratory illnesses. “It’s the saddest thing that you can’t talk to Alison,” says Herbstman. “She provided a huge service to the labor unions and to research.”

So what has been learned since 2001? Is public health better prepared now to cope with emergencies and disasters in the wake of 9/11? Some public health advocates say great strides have been made in some areas—but they note there is still much to be done.

Nationwide and locally, over several years, Jonathan Links, PhD ’83, an EHS professor, conducted surveys that explored the willingness of public health officials to respond in emergencies, such as natural disasters or outbreaks.

“[In] those first studies in Maryland [in 2005], about half of the workers were not willing to respond…. However, one of the main factors driving that unwillingness is a perception that their role in their health department’s response isn’t important, and they are wrong about that! The person who answers the telephone is profoundly important in an emergency.” Subsequent training by Links and colleagues has helped to get public health workers to think of themselves as first responders.

Burke, who is director of the Johns Hopkins Risk Sciences and Public Policy Institute, has gone on to create a preparedness curriculum. And there is now a doctoral track in risk assessment. Links developed the School’s pandemic flu plan and subsequently worked with the Johns Hopkins Office of Critical Event Preparedness and Response (CEPAR), of which he is now deputy director. He also directs the School’s CDC-funded Public Health Preparedness Programs, which are doing a combination of research (including work on first-responder attitudes about willingness to report for duty, and how to enhance willingness), training and technical assistance to local health departments.

Ten years later, the health impact of 9/11 is still being measured. A paper co-authored by Geyh in 2007 argues, “Still, there are some things we will never know for certain; indeed, we do not even know with any certainty the size of the exposed population.” A further wrinkle is the problem of association. Adds Herbstman: “We can measure biomarkers to see who had highest exposures to what, but we can’t say with confidence the exposures are due to WTC.”

With Hurricane Katrina, H5N1,
H1N1 and the Gulf oil spill, the need for strong public health preparedness has been confirmed and reconfirmed. Perhaps because of lessons learned in the wake of 9/11, faculty at the School were faster and better at responding to some of these events.

“In the Gulf oil spill,” says Breysse, “BP paid attention to worker protection. They collected air samples, they did a lot more environmental sampling—that’s a result of 9/11. Now we’re thinking ahead of the game.”

Of the funding that followed 9/11, Sommer says, “It took years for funds to be distributed into the vaccine industry, and we still have no capacity.”

Overall, he is skeptical about how much progress has been made. “We’re a disorganized society,” he says. “I don’t think we’ve gone anywhere, really. Look at how we responded to Katrina. Perhaps we’re better at identifying a threat, such as SARS or flu. But do we have new drugs for anthrax? No. Do we have new vaccines for anthrax? No. Do we have new ways to deliver vaccines in an organized manner? No.”

“We haven’t gone far. … I bet very few faculty have adequate emergency drinking water. I bet very few people have adequate food supplies. … The country may have let its guard down.”

—Thomas Burke

Says Links, “[As a country] our risk communication is still terrible…. We do an absolutely terrible job of getting the public prepared. I think we’ll finally achieve what we need to achieve when preparedness and response are viewed as a natural part of public health activities.”

Burke is encouraged by the increase in students taking courses in preparedness: “I think we have made progress and our students are more dedicated than ever to making a difference and making sure we can be ready to respond to the threats of the future.”
Firefighters brave a lot of risks in their jobs. But the biggest danger they face at work isn’t from smoke inhalation or a collapsing roof. It’s suffering a heart attack—the leading cause of death for on-duty firefighters.

It’s the sort of problem that interests Keshia Pollack, PhD ’06, MPH, assistant professor of Health Policy and Management. With funding from the Department of Homeland Security, she partnered with the National Volunteer Fire Council to study cause of death for on-duty firefighters.

Pollack, who is director of the Bloomberg School’s Occupational Injury Epidemiology and Prevention Training Program, is interested in changing human environments to improve health. That can include preventing injuries by changing the “built environment”—the human constructed part of the environment. It also includes changes that help people engage in healthier behavior.

In related efforts, Pollack is trying to institute “walking school buses” in Baltimore, which give groups of kids a safe way to walk to and from school. She’s studied motor vehicle crashes for the Army, playground safety and food policy councils. She also helped create a new injury monitoring system for Major League Baseball. Her analysis contributed to its decision this season to institute a seven-day disabled list for any player who had suffered a concussion.

While meeting with the firefighters, Pollack showed them some dietary changes, such as using whole wheat pasta in spaghetti. She also suggested stocking vending machines with juice and water instead of soda. “We are trying to reduce risk factors for heart attacks by educating firefighters, providing them with support, and making changes to the fire stations,” she says, noting they typically have limited cooking facilities.

Her team has finished the monthly education sessions and will take follow-up measurements in December to see if the changes were sustained, says Pollack, who was named one of Baltimore’s Very Important Professionals Under 40 by Maryland’s Daily Record earlier this year.

“I would say I create safe and healthy environments,” she says.

—Kurt Kleiner

**Steven S. An**, PhD, assistant professor, Environmental Health Sciences (EHS), was appointed to the Nominating Committee of the Respiratory Structure and Function Assembly of the American Thoracic Society.

**Cheryl Anderson**, PhD, MPH, MS, assistant professor, Epidemiology, was appointed to the Institute of Medicine’s Food and Nutrition Board.

**Robert Black**, MD, MPH, the chair and Edgar Berman Professor of International Health, is to receive the Raulin Award from the International Society for Trace Element Research in Humans (ISTERH). The award recognizes lifetime achievement in research on trace elements.

**Chuma**, a Kiswahili film by the COM- MIT project, led by the Center for Communication Programs (CCP), won best director and best actress honors at the 2011 Zanzibar International Film Festival. The film was also an official selection of the Durban International Film Festival and the Pan African Film Festival. Tchova Tchova Historias de Vida, a CCP-designed methodology to promote gender equity, HIV/AIDS prevention and treatment adherence in Mozambique under a three-year PEPFAR-funded project, was selected as a finalist for the AfriComNet 2011 Annual Award for Excellence in HIV and AIDS Communication in Africa in the Interpersonal/Community category.

**Josef Coresh**, MD, PhD ’92, MHS ’92, professor, Epidemiology, and director, George W. Comstock Center for Public Health Research and Prevention, was named chair of the Steering Committee of the Chronic Kidney Disease Prognosis Consortium. He was also the plenary speaker at the 2011 Annual Meeting of the American Association for Clinical Chemistry.

**Ciprian Crainiceanu**, PhD, associate professor, Biostatistics, was elected program chair of the American Statistical Association’s Section on Nonparametric Statistics. He begins his term on January 1, 2012.
“Prospective Study of Obstructive Sleep Apnea and Incident Coronary Heart Disease and Heart Failure: The Sleep Heart Health Study” was chosen as Best Paper in the Population Science category by the journal Circulation. Its authors include Marie Diener-West, PhD ’84, Helen Abbey and Margaret Merrell Professor of Biostatistical Education, and chair of the MPH Program, and Gayane Yenokyan, MD, PhD ’09, MPH, MHS ’09, assistant scientist, Biostatistics.

Anna Durbin, MD, associate professor, International Health, recently received the 2011 National Institutes of Health Director’s Award.

Janice Evans, PhD, associate professor, and Paul S. Miller, PhD, professor, both Biochemistry and Molecular Biology faculty, were awarded an NIH Exploratory/Developmental Research Grant under the Research Enhancement Awards Program.

Andrea Gielen, ScD ’89, ScM ’79, professor, Health, Behavior and Society (HBS), and director, Center for Injury Research and Policy, received the Researcher or Public Health Program Health Impact Award at the 2011 joint annual meeting of the Safe States Alliance and the CDC Core I and II State Injury Grantees.

Senior Faculty Named Gilman Scholars

Peter Agre, Diane Griffin and Alfred Sommer are among Johns Hopkins University’s first Gilman Scholars. The distinction honors faculty who exemplify the University’s highest ideals. Agre, MD, is director of the Johns Hopkins Malaria Research Institute. Griffin, MD, PhD, is the Alfred and Jill Sommer Chair of Molecular Microbiology and Immunology.

Adnan Hyder, MD, PhD ’98, MPH ’93, associate professor, International Health, received the Aron Sobel Guardian Award from the Association for Safe International Road Travel.

A joint WHO/PLoS panel selected “A Field Training Guide for Human Subjects Research Ethics,” from the October 5, 2010, issue of PLoS Medicine, for inclusion in a special collection to support the key messages in the World Health Report 2012. Its authors include Maria Merritt, PhD, assistant professor; Alain Labrique, PhD ’07, MHS ’99, MS, assistant professor; Joanne Katz, ScD ’07, MS, professor; and Keith West, DrPH ’87, MPH, ’79, RD, George G. Graham Professor of Infant and Child Nutrition. All are International Health faculty.

Mathuram Santosham, MD, MPH ’75, professor, International Health, director, Center for American Indian Health (CAIH), received the Director’s Special Recognition Award for University/Educational Partnership from the Indian Health Service. The award honors Santosham’s leadership in helping to found CAIH and his more than three decades of childhood immunization research. “As a result of his work hundreds of American Indian and Alaska Native children’s lives are saved each year from life-threatening diseases such as meningitis and childhood pneumonia,” said Indian Health Service director Yvette Roubideaux.

Ellen Silbergeld, PhD, professor, EHS, received the Lifetime Achievement Award, Metals Specialty Section, from the Society of Toxicology.

Frances Stillman, EdD, EdM, associate professor, HBS, received a Merit Award from Vietnam’s Ministry of Health for her contributions to the Reduce Smoking in Vietnam Partnership (RSVP).

Quinn Wins Thomas Parran Award

Thomas Quinn, MD, MS, professor, Medicine, International Health, Epidemiology, MMI, and director, Johns Hopkins Center for Global Health, received the 2011 Thomas Parran Award from the American Sexually Transmitted Diseases Association for his distinguished and continued contributions to the field of sexually transmitted disease (STD) research. He received the award at the International Society for STD Researchers Conference in Quebec City, Canada, on July 13.

Quinn has investigated the epidemiology, pathogenesis and clinical features of HIV/AIDS in more than 26 countries. His initial investigations documented the importance of STDs in facilitating the sexual transmission of HIV/AIDS globally. He has worked to establish clinical care programs for HIV and STDs in developing countries and co-founded the Academic Alliance for AIDS Care and Prevention in Africa.

At the National Institute of Allergy and Infectious Diseases (NIAID), he serves as a senior investigator and head of the section on International HIV/STD Research, and as associate director for International Research.
Staying Positive (continued from page 31)

Medicine. “Having HIV and hepatitis C causes liver disease progression that’s on the order of sevenfold faster than in HIV-uninfected people with hepatitis C.”

Lucas adds that keeping a close eye on kidney disease, his prime area of study, is equally important. “There’s no question chronic kidney disease is increased with HIV infection, and potentially its treatments. The order of magnitude in what I’d call well-characterized HIV-positive and HIV-negative populations is threefold to fivefold higher risk, what I’d call unequivocal. In African-Americans in particular, the risk of end-stage kidney disease is increased at least 10-fold with HIV infection.”

But perhaps the strongest recommendations for screening have to do with finding those estimated 21 percent of infected Americans who don’t know they are already HIV-positive, as well as people who don’t perceive themselves to be at risk, notably sexually active elders. The over-50 population is the fastest growing group of those newly infected with HIV. And while drug toxicities have greatly dropped, there’s evidence that the infection is harder to combat in older populations, perhaps because their immune systems have been compromised by age. While the CDC recommends HIV testing up to age 64, John Bartlett, MD, professor of Infectious Diseases at Hopkins Medicine, notes the American College of Physicians suggests upping the age of testing to 75.

One thing is clear: Many sexually active elders are surprised that HIV could possibly affect their lives. Bloomberg School epidemiologist and physician Kelly Gebo says, “I’ve been to several senior centers and [asked], ‘How many people here have had a high-risk HIV behavior?’ and they’ve had no idea. Then I ask, ‘How many people here have had unprotected sex?’ and many of them raise their hand. I then say, ‘Well, all of you have been at risk.’ And they look at me like ‘what, are you crazy? Only reckless young people or drug users get that. Not people who go to my church!’”

Gebo, MD, MPH, an associate professor in Medicine and in Epidemiology, adds that “getting people diagnosed at an older age is often hard because providers and geriatricians may feel less comfortable asking about high-risk behaviors. There’s often a ‘don’t ask, don’t tell’ principle. I ask everyone between 12 and 112, ‘Are you having sex? Anal, vaginal, or oral? With protection? With men, women, or both?’ When you ask [older] patients this, without judgment, they answer you.”

While the risks for premature aging and certain diseases are still being assessed and debated, graying patients, meanwhile, are doing their best to make life with the infection both long and vital.

“I’m extremely vigilant, and unless an asteroid drops on my head, I think I’ll be around here a long time,” laughs Chris Camp.

“And if I live to be 85, would they say I died of AIDS?”
The Unwanted Guest

I spent the evening of August 11—my birthday—with Chris Camp at his north Baltimore home. With his shock of white hair and a hefty paunch, Chris could be mistaken for a grandfatherly septuagenarian. Yet he’s only 55, as writer Mat Edelson notes in our cover story, “Staying Positive” (page 24). For more than 25 years, Chris and a rotating cast of antiretroviral medications have battled the human immunodeficiency virus that invaded his body and refused to leave. He calls the virus his “Unwanted Guest.”

Art director Robert Ollinger, photographer Chris Hartlove and I had driven to Camp’s home to take photos and shoot some video. After we’d been there a while, Chris brought out an ornate, leather-bound album. “Chris & Jack” painted in gold letters topped the front cover. He leafed through the photos and documents from the 1996 commitment ceremony with his partner. “I was blonde then,” Chris said. In the photos, he appeared trimmer, fitter and much, much younger. Many more years than 15 seemed to separate the two versions of Chris. The Unwanted Guest and the powerful daily meds had written great changes across his features.

As a society, we have a finite capacity for concern. And a powerful propensity to affix a “solved” banner to knotty problems. We want had written great changes across his features. As a society, we have a finite capacity for concern. And a powerful propensity to affix a “solved” banner to knotty problems. We want to think antiretrovirals are the solution to HIV, that the drugs mean the problem is over. In developed countries, HIV is referred to as a chronic disease, a term that somehow saps the disease of power and menace. Indeed, many on antiretrovirals can lead more or less normal lives. Yet others like Chris Camp will remind you it is still very much a disease that exacts its toll every day.

On the drive home, I thought about Chris’s fight, how the disease has diminished his life and killed so many others, how we are more fragile than we like to admit. It being my birthday, I couldn’t help but ponder my own mortality as I rolled down Cold Spring Lane.

A chorus of Happy Birthdays greeted me when I arrived home. My wife and kids had made a lopsided chocolate cake for me and pinned it with several tilded candles. (I noted, a tad morosely, that I’m way past the age of having an individual candle for each year.) Pausing a moment from devouring their own slices, the kids watched me expectantly. They wanted to see what I thought of their creation. I took a forkful.

The moment, like the chocolate in the cake, was bittersweet.

Brian W. Simpson
Editor, Johns Hopkins Public Health
bsimpson@jhsph.edu

PS – Chris Camp is the latest fascinating individual I’ve met in the past 10 years as the magazine’s editor. In future columns, I plan to reflect on stories like Chris’s and add the personal to public health.

Letters to the Editor

Saving on Vaccines, Dosing for Sex
“Science of the Sexes” [Spring 2011] reminds me of my own experience conducting clinical trials in the 1980s on the safety and efficacy of a rabies vaccine in Lahore, Pakistan. I found that females had twice the titres of immune globulins after vaccination as compared to males. I shared this information with the dean of the Institute of Public Health and a faculty member in Immunology at a local medical school. The latter gave me a copy of a published paper originating from Johns Hopkins University, explaining the link of the immune system with X chromosome.

By adjusting dosage for sex, the costs of expensive vaccines can perhaps be brought down—an important lifesaving measure in developing countries.

Dr. Ali Raza Chughtai
Lahore Cantonment, Pakistan

Bullying Revisited
I sent this article (“Darkness Visible,” Spring 2011) to my middle schooler’s principal, and she shared it with her school counseling team. The school is going to discuss starting a student club similar to the one at Central Middle School. So I think it’s an inspiring article as well!

Teresa Wonnell
via Magazine Comments

What an inspiring article. I have a child ready to enter high school. I am thankful bullying is no longer looked at as a rite of passage.

Cathy Readmond
via Magazine Comments

This Magazine Stinks
Thank you for continuing to send me the magazine. However, I must bring to your attention an aspect of the magazine that is not desirable—its smell. I don’t know what printing process and materials that you use, but it smells like a freshly opened can of paint and continues to smell like that for weeks afterward. The smell is so undesirable that I throw it away as soon as possible, rather than keep it around and then recycle it.

Suzanne Marks, MPH ’94, MA
Atlanta, Georgia

Editor’s Note: We print with soy ink and 50 percent recycled fiber. This is our first odor complaint.

What Next, Tofu Tuesdays?
More government control? Meatless Monday? Then they will tell us what to eat on Tuesday. Maybe Tofu Tuesday, White Meat Wednesday, etc. We have been able to figure out what to eat for years. Let’s get back to being America. People making their own choices and taking responsibility for our actions and suffering the consequences if we don’t. That is our right. Some people are just too stupid to get out of our way.

Cheryl
via Magazine Comments

Intrigued? Irate? Impressed? Send us your comments: editor@jhsph.edu.
For this Ugandan girl and millions of others in developing countries who are HIV-positive, lifesaving highly active antiretroviral (HAART) drugs arrived relatively recently. By contrast, many in wealthy countries have been taking HAART as far back as 1996 and now are growing old with HIV. (See page 24.)

Photo: Shehzad Noorani
In celebration of the 10th anniversary of the founding of the Johns Hopkins Malaria Research Institute, the Bloomberg School is hosting a half-day symposium that examines the enormous burden imposed by this devilishly resistant disease and the groundbreaking research of scientists aligned in the battle against malaria.

To join us, please visit www.nyas.org/Malaria2011
SAVE THE DATE
The Bill and Melinda Gates Institute for Population and Reproductive Health is co-hosting with the Ministry of Health, Government of Senegal:

International Conference on Family Planning: Research and Best Practices
Dakar, Senegal
November 29 – December 2, 2011
www.fpconference2011.org/

NEXT ISSUE TECHNOLOGY AND PUBLIC HEALTH
Text messages. Smart phones. Electronic health records. mHealth. GIS. High-performance computing cores... Technology is revolutionizing our world—and public health—at an ever-accelerating pace. Our upcoming special issue will document how high-tech (and low-tech) strategies are preventing disease and saving lives. Look for it in January 2012.