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Questions?

Contact Susan Sperry, Sr. Director of Communications and Marketing, at ssperry@jhsph.edu.

This summer 1,000 American Indian kids will descend on Shiprock, New Mexico, for the annual NativeVision camp. NFL players and Johns Hopkins coaches will lead sports clinics. And Martin Sheen will teach acting. Read our “postcard from camp” in the Fall 2013 issue.

Photo: Ed Cunicelli
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Are you up for it? Visit rising.jhu.edu to learn how your gift can help.
A Different Future

Don’t give away the seed corn. It’s your future, as any good farmer will tell you.

Research is our 21st-century seed corn. Research delivers the new discoveries that propel our advances in science, technology and human health. It’s the engine of innovation and economic growth. One nonpartisan study found that government-funded research delivers an annual return of more than 25 percent.

There’s no free lunch, of course. This essential link to a prosperous and healthy future requires investment. Yet suddenly our leaders are not willing to invest in the future. The U.S. government’s budget sequestration (with its requisite 8.2 percent cut to biomedical research) is just the latest example of this perilous trend.

It’s time to ask: Is this the right thing for our country?

In low- and middle-income countries, there’s an incredible investment in research. Last year in China, for example, the research budget for schools of public health increased by more than 30 percent over the previous year. Countries all over the world are leaping into the knowledge-based economy. Whether it’s Singapore, the Gulf states or Brazil, everybody is investing in research. And they are increasing their investment while we are backing away from ours. This is not how we built the world’s largest economy. At a time when people are trying to be more like us, we’re trying to be less like us.

Sequestration, with its automatic, uniformly deployed spending cuts, manifests our government’s growing unwillingness to invest in the future. The problem with sequestration is it’s an across-the-board, dumb cut. It’s a haircut for everybody—even programs with proven effectiveness like Head Start. This kind of cut doesn’t allow you to trim the budget in ways that eliminate inefficiency or least hurt your mission. The result is predictable. Important programs suffer just as much as less important programs.

Here at the Bloomberg School, sequestration is already being felt. Let me rephrase that. “Felt” is not the right word. It’s more like a punch in the gut. The potential hit to our budget in the next federal fiscal year is $27 million.

The lab sciences already have been hit especially hard by the cuts at NIH. Even for our most senior faculty, grant renewals have become nearly impossible or have been delayed for a year. This means downsizing teams and infrastructure. Recovering from a blow like this is not easy. It takes years to build up groups with the knowledge and expertise that can accumulate the insights that result in breakthroughs and new knowledge.

Our Department of Biochemistry and Molecular Biology (BMB), for example, recently lost a basic research training grant that had been funded for 25 years. It was a small grant for reproductive biology but it allowed for training doctoral students and supported a network of researchers throughout Johns Hopkins. Now it’s likely gone permanently.

That department’s remarkable momentum, built up in the last few years under the energetic leadership of Pierre Coulombe, is being jeopardized. As Pierre told me the other day, “We have been progressively switching from a growth, to a maintenance, to now a survival mode. Some of our newly recruited faculty worry about the future—and who could blame them? Despite all this, we continue to put out stellar science.”

This is just one example from one department but it’s happening throughout our School and across the nation. What does this say to a generation of prospective doctoral students who have the knowledge and the drive to contribute to science? It tells them, you need not apply. It says, don’t bank on scientific research as a stable career choice.

I don’t want to think about the future discoveries lost, the new knowledge that will never see the light of day because of the sequestration.

Sadly, this is not just about sequestration in the short term. Here’s what concerns me the most: Is this a paradigm shift? Do we, as a nation, truly want to retreat from investing in research? Do we want to say no to innovation? Do we want to back away from investing in our future?

Such a course will unalterably change the future of the Bloomberg School and our nation. About two-thirds of the School’s funding comes from government research grants, with NIH being the top funder. Significant cuts in the government’s research budget will lead to stagnating knowledge about how to save lives and a diminished selection of future tools to make meaningful differences in the health of millions. Ultimately it means ceding scientific leadership—and thus the future—to other countries.

I am so proud of the vital work this School does, and at the core of what we do is research. It drives our advances in education and in the field. Our School is 98 years old, and during that long history, research has been the foundation of our contributions, whether in making discoveries, producing new leaders or advancing public health practice.

Our long track record of accomplishment is at risk, not so much now but in the years ahead as we lose the leaders of tomorrow. We need to let our elected officials know to be judicious in meeting their fiscal responsibilities. And we need, as never before, philanthropic support for our mission of saving lives, millions at a time.
The human papillomavirus infects almost every sexually active person at some point in their lives. All cervical cancers and some cancers in the head and neck are caused by the ubiquitous HPV. A gentle virologist and his legions of protégés aim to stop them.

By Maryalice Yakutchik

Page 22
Features

14 Operation Health
Surgery is public health? Researchers argue that the quintessential clinical intervention deserves an essential place on the global health agenda.
By Jackie Powder

20 Saving a Sacred River
Indians wash away their sins and much more in the holy waters of the Ganges. A new campaign seeks to change behaviors and spark a massive cleanup.
By Maryalice Yakutchik

28 The Science of Space
New labs allow young investigators to go where scientists have never gone before. Bacteria, beware.
By Rebecca Widiss

36 Looking for Trouble
A new trend in health IT: Using electronic medical records to find high-risk patients for follow-up care.
By Rebecca Widiss

Departments

1 Open Mike
Suddenly, our leaders are not willing to invest in the future.

4 Welch Wanderings
Syrian refugees; arsenic in chicken; dialing down gun violence; tropical medicine and fried chicken; malaria elimination data; radiation risks; weak eyes and guilty genes; and more.

34 Frontiers of Public Health
David Chin is optimistic about U.S. health care—if it follows the new prescription for affordable care.

40 Accolades
A research team led by L. Ebony Boulware wins a Telly Award for a video about kidney treatment. Plus honors for the dean and faculty.

43 AfterWords
This one’s for the team.

43 Letters
Readers respond to our special issue focused on death.

44 The Last Pixel
Investigating dowry violence in India.

Gypsyamber D’Souza, Keerti Shah and T.C. Wu (at the microscope) represent three generations of HPV researchers. D’Souza studies HPV-associated head and neck cancers; Shah’s interest lies in cervical cancer screening; and Wu is focused on a therapeutic vaccine.
(Photo: Chris Hartlove, May 2, 2013)
Health in Conflict: Syria's Refugees

As refugees flee across the borders of war-torn Syria, they leave behind a rapidly crumbling health system with too few physicians, too little medicine and too many hospitals that have been abandoned or destroyed.

But in the camps and cities they’re running to, basic health care and essentials can be equally elusive. Simple necessities—like running water or heating fuel—are scarce as well. Meanwhile, as the conflict intensifies, the number of refugees flocking into the surrounding countries rises, too. Currently estimated by the U.N. to be around 1 million, Syrian refugees are expected to triple by the year’s end.

Because of difficulties entering the country, addressing public health needs within Syrian borders has proved challenging if not impossible for foreign aid workers. Still, the Bloomberg School’s Center for Refugee and Disaster Response (CRDR) researchers are determined to try. With American University in Beirut and University College London, they’re launching injury surveillance at health facilities in Aleppo, in northwestern Syria, and working with NGOs providing humanitarian assistance in Syria to better understand the country’s greatest health needs. To answer that same question about Syria’s refugee community, Bloomberg School researchers and students are actively working in the camps and cities in the nearby countries. “The idea is to look at the current state of refugee populations in the region so that we can better inform donors and providers of humanitarian assistance about what is most needed,” says Shannon Doocy, PhD, an associate professor in International Health. Doocy is launching two studies—one in Syria and one in refugee host countries.

The Syria-based study is still in its infancy and is moving slowly, explains Tom Kirsch, MD, MPH, an associate professor in International Health and Emergency Medicine, and a co-investigator of Doocy’s studies. “The government is at active war with various groups,” he says, “and they don’t want outsiders within their boundaries.”

For now, that leaves researchers focused on refugees in the sur-
rounding countries, where they are witnessing firsthand refugee conditions, whether in tent settlements—where the nights are cold and toilets are sometimes nonexistent—or, as Alicia Hernandez witnessed, camping out in unfinished buildings.

“One place that particularly stayed with me was a construction site,” recalls Hernandez, an MPH student and a registered nurse, who recently returned from Lebanon. “It was extremely remote, a large concrete structure set back about a mile from the road. One lone family with children was staying there. Even in the daytime it felt like being in an ice cube. They had to walk at least 30 minutes to a water source and only had one large, flat mat for the five of them to sleep on.”

The actual camps, she continues, often lacked proper sanitation facilities. “Most camps used one central tap as the water source for camps of up to 150 people,” Hernandez says. “Almost no one was treating the water before consuming it for lack of money, resources or knowledge how. No one had proper latrines.”

Hernandez surveyed the displaced Syrian citizens about their health and medical needs. She is using the information gathered to devise a training manual for community health educators. A majority of those she encountered were children and women—many of them pregnant—who desperately needed basic necessities like blankets.

MPH student Jonathan Strong has a different focus: elderly refugees and their greater burden of chronic diseases such as diabetes or heart failure. Strong surveyed elderly Syrian refugees in Lebanon. Many lack access to affordable, basic health care, making their chronic diseases difficult to manage.

“The high cost of health care there poses a huge public health challenge,” Strong says. “Many of the Syrian refugees I spoke to in Lebanon are forgoing necessary medical care due to cost.”

Both Strong and Hernandez visited the region for work supported by Caritas Lebanon Migrant Center.

While their projects are nearing completion—Hernandez’s training manual has been drafted and Strong is analyzing the completed studies and compiling the results—Dooey’s work is just beginning.

Once her studies are complete, she hopes the information she gathered can guide aid groups assisting refugees and those remaining in Syria.

—Lauren Glenn Manfuso

Officially shut out of Syria, Shannon Doocy and colleagues are still determined to gauge the civil war’s impact on health. They are surveying refugees in neighboring countries and measuring injury within the embattled country.

Closing the Door on 10 Years in Afghanistan

"We were essentially the eyes and ears [of the government] to tell them how their health system was performing," says Engineer, DrPH ’08, MHS ’03, MHA, the project’s country director since November 2011.

Under contract with the Afghan Ministry of Health, International Health (IH) researchers hired about 500 local people, mainly as data collectors, and evaluated some 750 health facilities annually. They guided officials in shaping effective policies by assessing the performance of primary health care and hospitals.

Data from the project’s household surveys show dramatic gains in key health indicators over the past 10 years, as well as improvements in access to health care and quality of services, says David Peters, MD, DrPH ’93, MPH, who oversaw the Afghanistan work and is now IH chair.

Logistically, researchers on the ground faced daunting challenges. "I’m most proud of my field teams who put their lives at risk to get data," Engineer says, “because they were so passionate and keen to help the Afghan people.”

—Jackie Powder
“We can’t do away with antibiotics,” says Christian Coles, PhD, MPH. “But is there a better way to use them?”

It’s a common question, with antimicrobial resistance on the rise around the globe. But for Coles, an assistant professor of International Health, it is especially pressing.

Coles recently helped analyze data from a study of the ancillary benefits of distributing the antibiotic azithromycin on a mass basis in Tanzania in order to eliminate trachoma. Funded by the Bill & Melinda Gates Foundation and led by Sheila West, PhD, PharmD, the El-Maghraby Professor of Preventive Ophthalmology at the Johns Hopkins School of Medicine, the study was designed to shed light on the side benefits of treating entire communities with azithromycin in order to stamp out an infectious eye disease that is the leading cause of blindness worldwide.

If left untreated, infection by Chlamydia trachomatis causes scarring of the eyelid and rubbing of the eyelashes against the eyeball, scarring the cornea. The disease disproportionately affects women and children in the developing world.

WHO, which aims to eliminate trachoma globally by 2020, recommends that all individuals in a community be given repeated annual doses of oral azithromycin when prevalence among children exceeds 10 percent. When combined with other measures such as face washing, the drug can break the cycle of infection.

Since azithromycin is effective against a wide variety of pathogens, it seemed likely that mass distribution might have other positive effects. Coles did find that mass treatment of young children in rural Tanzania also lowered the risk of diarrhea and acute respiratory infection. But he discovered something else, too: Mass distribution of azithromycin (MDA) also caused a “huge jump” in antibiotic resistance—specifically, in Streptococcus pneumoniae, a leading cause of severe childhood infections such as pneumonia and meningitis and a major global public health problem in its own right.

In a paper published online in Clinical Infectious Diseases in March, Coles and his colleagues report that the prevalence of azithromycin resistance within treated communities continued to rise at one-, three-, and six-month intervals after mass distribution, peaking at 82 percent, more than double what it had been prior to treatment. At that point, the odds of carrying azithromycin-resistant S. pneumoniae were five times higher in treated communities than in untreated ones. While the clinical significance of such a spike has yet to be demonstrated, those numbers only heighten the need to establish whether or not such a rise in resistance reduces the efficacy of antibiotics in treating severe pediatric infections.

Coles suspects that repeated administration of azithromycin in MDA programs may increase the circulation of macrolide- and multidrug-resistant bacteria and therefore have the potential to reduce the efficacy of antibiotics against childhood infectious diseases over time. Moreover, resistance to azithromycin implies resistance to all antibiotics in the same class, known as macrolides; and Coles also found signs of resistance to the common sulfa drug trimethoprim/sulfamethoxazole, raising the troubling possibility that mass treatment with azithromycin might contribute to multidrug resistance as well.

In a commentary on the paper, researchers at the Vaccine & Infectious Disease Institute at the University of Antwerp say that the community-wide rise of resistant S. pneumoniae “highlights the need to monitor the long-term impact of MDA on treatment options for pediatric infections.”

Coles will soon participate in a new study to examine the impact of MDA programs on childhood mortality in Tanzania, Malawi and Niger that will investigate the clinical significance of associated antibiotic resistance. And he wants to examine the genetic, social, and environmental factors that influence azithromycin resistance to see if there might be ways of using the drug that will maintain its efficacy but limit its adverse effects.

“I’m not saying don’t use it,” Coles says. “I’m saying, let’s figure out if we can minimize the effects so that we can use it better.”

—Alexander Gelfand
Chicken à la Arsenic?

Nobody puts arsenic on the shopping list. Yet most of us have bought chickens purposely and legally fed it. According to new research, this arsenic lives on not only in chicken waste (a familiar concern) but also in chicken meat.

Keeve Nachman, PhD ’06, MHS ’01, lead author of the study, hopes it will lend scientific muscle to efforts aimed at banning arsenic from poultry production.

Until July 2011, arsenic was a popular additive to chicken diets—enhancing growth, promoting pinker meat and combating parasites.

Today, the chemical’s fate hangs in limbo, says Nachman, who heads the Farming for the Future program at the Johns Hopkins Center for a Livable Future (CLF). After an FDA-conducted study found heightened levels of arsenic in chicken livers, Pfizer voluntarily halted sales of roxarsone (an organic form of arsenic) in the U.S.—though not abroad, Nachman notes. But the FDA didn’t go the further step of banning future use of roxarsone or other arsenic-based drugs.

Hoping to “close this gap,” Nachman and his colleagues set out to answer a simple, yet technically challenging, question: Does using roxarsone heighten levels of inorganic arsenic (the form that’s a well-known carcinogen) in chicken meat? It’s a question with implications both for roxarsone and for nitarsone, a similar arsenical drug that Pfizer continues to sell here.

The team’s work began with a nationwide shopping spree when roxarsone was still on the market. Collaborators bought 142 chickens in 10 U.S. cities, shipped them overnight in coolers to Baltimore, carefully prepared samples (testing raw and cooked samples from each chicken), freeze-dried them, and sent them to Austria for analysis by Kevin Francesconi, PhD, of the University of Graz, “one of the top metals chemists in the world,” says Nachman.

The results confirmed the team’s hypothesis: if a chicken ingests roxarsone, you’ll wind up with more carcinogenic arsenic in breast meat. The big surprise came from the cooked samples. “We didn’t think the concentrations would change,” says Nachman. “But it turns out that cooking increases inorganic arsenic, likely by degrading the roxarsone. The mean inorganic arsenic content of cooked conventional chickens was 1.8 micrograms per kilogram—three times that of cooked samples from chickens raised organically, according to the study published in May in Environmental Health Perspectives.

By the team’s calculations, eating chickens raised with arsenic rather than organic ones would result in additional (and unnecessary) exposures to inorganic arsenic. If arsenical drug usage were still a universal practice in domestic poultry production, the researchers estimated that the increase in arsenic exposures from eating chicken would result in approximately 124 lung and/or bladder cases in the U.S. each year.

The key word is “unnecessary.” People are exposed to arsenic through a wide variety of environmental and dietary pathways. Yet “in every other context,” says Nachman, “any residual arsenic that’s found in foods is the result of natural processes, historic pesticide use or unintended contamination.” But in the case of chicken meat, “a very simple decision” to ban arsenic-based drugs would eliminate the risk, Nachman says.

“We have needed this type of data for several years,” says Amy Sapkota, PhD ’05, MPH, an associate professor at the University of Maryland School of Public Health, who has received funding from CLF.

Now that the evidence is in, she adds, banning arsenic in chicken feed “seems like a no-brainer.”

—Rebecca Widiss
It’s the kind of story you won’t see on *The Wire*.

A young gang member discovers he’s on another gang’s hit list and confides in a community worker. The worker arranges a meeting. It begins with a roomful of rivals, armed and angry. But it ends with two men, who might have been linked by a bullet, hugging each other with relief.

This mediation was among the first by Safe Streets, a Baltimore City program launched with guidance from Daniel Webster, ScD ’91, MPH, deputy director of the Johns Hopkins Center for the Prevention of Youth Violence (JHCPYV).

During 2007 and 2008, Safe Streets debuted in four of Baltimore’s most violent neighborhoods. Outreach workers, many of them former gang members, began developing relationships with high-risk youth and helping them get job training, build interview skills and—above all else—settle disputes without guns.

Through the first three and a half years of the program, Safe Streets achieved reductions in nonfatal shootings or homicides (or both) at every site. In Cherry Hill, homicides dropped 56 percent and shootings 34 percent.

Attitudes also changed dramatically. McElderry Park youth were four times more likely to express “little or no” support for using violence than those in a comparison neighborhood.

“People understand that violence begets violence,” Webster says. “In essence, these guys [are] looking for someone to come in and change the rules, to give them an excuse to walk away.”

Tard Carter, a veteran mediator who works the streets of East Baltimore, agrees, adding, “Poverty brings forth frustration. Frustration brings forth unwise decision making.”

He’s proud that four recent Safe Street graduates plan to apply to Baltimore’s Police Academy.

“Although I’ve studied gun violence and its prevention for 23 years,” Webster says, “it wasn’t until I started working with this program and … violence interrupters like Tard that I gained a deeper understanding of gun violence and the challenges faced by many urban youth.”

It’s an opportunity Webster tries to share by inviting Carter (among others) to lecture at Hopkins and join in public speaking engagements. The pairing works well, says Webster. His research can help show how Carter’s mediations are correlated with homicide reductions, while Carter’s stories validate Webster’s empirical findings.

Looking ahead, Webster is cautiously optimistic. New research projects include evaluating a similar program in New Orleans and launching a study of Baltimore’s underground gun market—both with Carter acting as a consultant. Safe Streets also recently opened a new site in the Park Heights neighborhood, with funding from a CDC grant. It represents JHCPYV’s first success garnering funds to bring Safe Streets’ skilled mediators into another high-need area.

And that may be the highest priority. The main thing Webster says he’s learned from this effort is “how important it is to get the right people and give all the credit to them.”

—Rebecca Widiss
Hurricanes like Katrina and Sandy can devastate not only communities but science. In addition to the human lives and property destroyed, the storms ruined thousands of irreplaceable frozen research specimens kept in basements that flooded.

Until recently, the Bloomberg School was just one natural disaster away from a similar fate. Established in 1984, the Johns Hopkins Biological Repository had for years consisted of 120 freezers in the School's basement; there, millions of samples were frozen in time.

The setup, however, was less than ideal. The electricity required to run the freezers drained financial and environmental resources. But the possibility of losing decades’ worth of specimens from high profile projects like the Multicenter AIDS Cohort Study made finding a better situation imperative.

The ideal facility could accommodate cryogenic technology, which preserves specimens in liquid nitrogen, says Homayoon Farzadegan (top left), PhD, director of the biorepository and a professor of Epidemiology. Ultimately, the search led to an industrial park three miles away from the East Baltimore campus, where the new biorepository opened in January. The old freezers have been replaced with 60 cryogenic storage units requiring a fraction of the electricity and space. One of only a few such academic facilities on the East Coast, the biorepository currently houses 2.5 million samples and is available to researchers at Johns Hopkins and outside organizations.

By allowing researchers to store a wide range of specimens—from hair to saliva to cord blood—cryogenics enables scientific research that would otherwise be impossible.

A good example, Farzadegan says, is the use of the viral load marker in studying and treating AIDS patients. By studying the preserved blood of patients from the mid-1980s, scientists learned that viral load could indicate the likelihood of an HIV patient developing AIDS. “The only way to assess this was to use frozen samples from the mid-1980s and follow those individuals whose blood we had collected,” he explains. “Now HIV viral load marker is used around the world to monitor HIV treatment.”

—Lauren Glenn Manfuso
Known for classy repasts at the august Johns Hopkins Club, the Tropical Medicine Dinner Club celebrates nonstandard—even off-putting—dinner conversation. Circumcision, diarrhea, projectile vomiting…

“Nobody seems to mind,” says Yale Kim, an MHS student in Mental Health, at April’s dinner. She sits at a table covered in white linen, a glass of rosé in her hand.

“It’s not that we don’t seem to mind, we don’t notice,” adds Remington Nevin, a DrPH student who’s also in Mental Health. “Everybody here certainly knows how to laugh about it despite how awful these topics actually are.”

Since 1970, relaxed conversations about public health have been the Club’s hallmark, and fried chicken has been a mainstay on the menu. Over the years, speakers at the monthly gathering have talked about malaria vaccines, pre-eclampsia, Alexander the Great’s lethal fever, rickettsial diseases and a host of other topics.

Membership, which is $30 annually plus the cost of dinner, is open to people from local institutions, such as the Uniformed Services University of the Health Sciences, the National Institutes of Health and the University of Maryland. Around 30 to 50 people attend.

“People are really just interested in talking and finding out what’s going on in public health,” says Clive Shiff, PhD, associate professor in Molecular Microbiology and Immunology (MMI), and a Club member since the mid-1980s.

He recalls some passionate discussions—such as one last year about the mental health effects of certain antimalarial medications and whether these side effects should limit their use among the military. More often though, faculty and students chat amiably about their work, as they do on this April evening.

Over cocktails, Shiff tells Nevin, MD, MPH ’04, about his latest discovery: Malaria transmission, which usually declines during hot and dry months, can actually still occur under these conditions in some areas of Africa. Using satellites and climate data in Zambia, Shiff and his teammates found that a source of moisture (most likely from the water table) affords enough humidity for mosquitoes to forage.

Later, while eating fried chicken, cole-slaw and biscuits, Douglas Norris, PhD, MS, also an MMI associate professor, and Sarah-Blythe Ballard, MD, MPH ’10, an Epidemiology PhD student, find that they share an interest in aviation. Having recently returned from a conference in Florida, Norris casually tells Ballard about one program’s methods for airborne spraying for mosquitoes.

After-dinner speaker Larry Kincaid, PhD, associate scientist at the School’s Center for Communication Programs, talks about the role of communication programs—animated commercials, television dramas—in preventing HIV in South Africa. The diners listen intently while passing around homemade pralines for dessert.

Afterward, Nevin remembers a dinner in which he sat with Shiff, Epidemiology Professor Kenrad Nelson, MD, and Dean Emeritus D.A. Henderson, MD, MPH ’60. “I just thought, ‘My goodness, the concentration of genius at this table,’” he says. “The Dinner Club is a wonderful opportunity for young students to meet with so many greats in tropical medicine.”

Shiff is happy to hear this. “I like students to feel at home in the tropical disease community,” he says. It’s one reason why the Club awards one or two $500 scholarships annually—named after the late Thomas Simpson, MD, former associate professor and a founding member of the Club—to student members doing field work in developing countries.

—Jennifer Walker
Eliminated… and Staying That Way

Once a country eliminates malaria, the parasitic disease often stays away indefinitely even if the interventions are not continued—a new finding that may hold powerful implications for nations assessing their approach to the disease.

Johns Hopkins Malaria Research Institute faculty recently conducted a review of malaria elimination data. Under the Global Eradication Effort beginning in the late 1940s, some 79 countries had approached or achieved elimination before the international funds supporting the effort dried up in 1969. Contrary to their expectation that the mosquito-borne disease would reappear in countries that discontinued the interventions, the researchers found that those nations that achieved elimination have remained malaria-free, while most of those that came close experienced a resurgence.

“If you think about it, it’s a bit shocking. Why should going all the way to zero be better than going most of the way to zero?” asks David L. Smith, PhD, MA, MS, an Epidemiology professor and one of the study’s authors.

The researchers don’t yet have an answer to that question, but there are several possibilities. During the same period, many economies were developing and health systems improving. So researchers tried to tease apart the role those factors may play, versus the role of elimination itself in causing changes that result in malaria staying away. “The most critical question is, does [elimination] cause its own stability, or is it caused by something else?” Smith asks.

It’s a complicated web, but it does seem likely that economic development has a hand in it, Smith says. People with more resources are more likely to get treatment and less likely to be a significant factor in malaria transmission. At the same time, elimination should lead to greater wealth, as children miss less school and adults are more productive.

Meanwhile, Smith says, if a nation’s health system is good enough to get rid of malaria, it’s probably also good enough to contain transmission: In the process of achieving elimination, health systems become so well developed that it’s difficult for transmission to occur. (When patients are treated with appropriate drug regimens within the first week after a malaria fever appears, they will not become infectious, Smith says.)

The WHO estimates that 149 million to 274 million cases of malaria occur annually in 99 countries, causing 537,000 to 907,000 deaths, with the majority occurring in young children in Africa. Elimination is both expensive and risky. Expensive because it requires an intensive combination of household insecticide spraying and the distribution of treated bed nets. Risky because if a resurgence occurs, the population—which has lost its immunity—is at greater risk. So while it may be tempting to think every country should jump on the elimination bandwagon, it’s essential for any country to assess feasibility carefully based on its specific conditions, Smith says. For example, Angola has achieved a relatively high level of malaria control, but frequent border crossings with its neighbor the Democratic Republic of Congo create opportunities for transmission that lower its potential for elimination.

The new research is a distinct departure from traditional malaria research, which Smith and his colleagues believe holds unnecessarily low expectations for the possibilities of elimination succeeding in countries that are ready. Clive Shiff, PhD, associate professor in Molecular Microbiology and Immunology, is not optimistic about prospects for elimination in central Africa, India and other parts of Asia. He points out, for example, that malaria is well controlled in much of Zambia, where he is principal investigator on research into malaria epidemiology and control, but in the northern areas, 50 percent of the population is still infected at any given time.

While many unknowns remain, the study does suggest that the value of elimination has been underestimated, indicating the potential for elimination strategies, under the right conditions, to be very successful in the long run. But elimination in any country will not happen without significant increases in international funding.

As economic development continues, some elimination will occur on its own, Smith says, but an infusion of funds could speed up the process and save children’s lives.

—Rachel Wallach

A TALE OF THREE CHAIRS

M. Daniele Fallin, PhD, an internationally known genetic epidemiologist with a focus on understanding the interplay between genes and environmental risk factors for neuropsychiatric disorders, has been appointed Sylvia and Harold Halpert Professor and chair of Mental Health. Her areas of expertise include autism spectrum disorders, Alzheimer’s disease, schizophrenia and bipolar disorder.

David Peters, MD, DrPH ’93, MPH, an expert in the development, monitoring and evaluation of health systems in low-income countries, has been named the Edgar Berman Professor and chair of International Health. As director of the Department’s Health Systems Program since 2009, he led projects aimed at solving policy issues and improving health systems performance worldwide.

Marsha Wills-Karp, PhD, a leader in the study of the molecular mechanisms of asthma, became chair of Environmental Health Sciences in March 2012. Previously, she was a professor and founding director of the Division of Immunobiology in the Department of Pediatrics at Cincinnati Children’s Hospital Medical Center.
For much of the past two decades, Paul Locke has been working at the crossroads of radiation and public health.

He’s chaired an expert panel on uranium mining, consulted on radioactive waste disposal and currently serves on a federal panel studying the catastrophic accident that happened three years ago at Japan’s Fukushima nuclear power plant.

The Environmental Health Sciences associate professor knows there’s no shortage of radiation-exposure issues that need attention, including aging nuclear power plants and the potential risks of medical imaging technologies.

What is in short supply, says Locke, DrPH, ’98, MPH, JD, are public health professionals dedicated to ensuring the safety of workers, communities and the environment from unhealthy radiation exposure.

“These are the people regulating things that we come into contact with every day, the people who make sure that radioactive metals from other countries aren’t in our products,” he says. “As educators we need to do a better job to show our students why this is a vibrant and important field for them.”

Dan Hudson, a risk and reliability engineer at the Nuclear Regulatory Commission (NRC), doesn’t need to be convinced.

“Over the past 20 years, risk assessment for nuclear power plants has focused primarily on engineering issues—what can we do to prevent nuclear power plant accidents?” says Hudson, a second-year PhD student in Health Policy and Management and a student in Locke’s course, Risk Communication During and After Nuclear Reactor and Radiation-Related Accidents and Emergencies. “That’s obviously important, but when I go back [to the NRC] I hope to have some expertise in how to do assessments of the public health consequences so we can better integrate this information into the risk assessments of nuclear power plants.”

The decline of a public health presence in state and federal agencies that regulate radiation exposure is a “national tragedy,” says Locke. “The public health perspective, which is a prevention perspective, brings more of a community-as-a-client approach.”

Locke has worked with the EPA on radiation risk associated with radon exposure in homes and on the cleanup of “legacy sites” in the U.S., many of which are more than 60 years old. At the Hanford Nuclear Reservation in Washington state, for example, new leaks from tanks were discovered in March.

Last year, he visited Japan’s earthquake- and tsunami-damaged Fukushima Daiichi Nuclear Power Plant, as part of a National Academy of Sciences (NAS) committee working on a “lessons learned” report to improve the safety of nuclear power plants in the U.S.

An NAS study that he led concluded “steep hurdles” needed to be overcome before a uranium mining moratorium in the Commonwealth of Virginia should be lifted.

Two significant sources of radiation that Locke says Americans typically don’t take seriously are radon/background radiation (which is responsible for 37 percent of the average American’s radiation exposure and the leading cause of lung cancer among nonsmokers) and computer tomography technology (which accounts for 24 percent of total exposure).

“Without a public health voice in radiation protection, we’re never going to be doing the job we should be doing in making sure the public has needed information to make good decisions and a regulatory system that protects communities,” Locke says, “and we’re not going to be thinking about developing radiation sources in ways that are best for society.”

—Jackie Powder
The genetic factors behind nearsightedness are finally coming into sharper focus, thanks to a recent study by a team of international researchers.

Scientists have long known that genes play a role in refractive errors such as nearsightedness and farsightedness, which occur when light is not properly focused on the retina. But relatively few of those genes had been discovered, according to team member Robert Wojciechowski, OD, PhD.

The most common refractive error, nearsightedness (aka myopia), occurs when irregularities in eye development cause the eye to become too long, and images are brought to a focus in front of the retina rather than on it. Worldwide prevalence has risen sharply over the past several decades—it is believed to affect more than 30 percent of Westerners and up to 80 percent of young Asian adults—and the condition can lead to severe complications like glaucoma and macular degeneration. Determining which genes are involved could lead to better intervention and maybe even prevention.

In a paper published online in *Nature Genetics* in February, Wojciechowski and his colleagues in the Consortium for Refraction and Myopia (CREAM) presented a meta-analysis of data culled from 32 different genome-wide association studies (GWAS) with people of either Western or Asian descent. “We tried to include every study we knew of on the planet,” says Wojciechowski, an assistant professor of Epidemiology.

GWAS look for genetic variations across the genomes of many individuals and correlate them with specific traits or conditions. With a complex condition like myopia that involves many genes, the more people involved, the better. By examining data from more than 46,000 individuals and sifting through approximately 2.5 million genetic markers, the CREAM team was able to zoom in on 24 new genes that play a role in refractive errors.

The study provides new targets for experimental research, and could yield better screening tools (individuals with the highest numbers of myopia risk genes were 10 times more likely to develop the condition). It might even lead to methods for preventing nearsightedness—for example, by interfering with the genes that cause it.

“Now, hopefully, the biologists will pick up the ball and try to figure out what exactly these genes do,” says Wojciechowski, who is now examining the complex interactions between genetic and environmental factors.

—Alexander Gelfand

In Memoriam

Henry Wagner Jr., MD, retired professor emeritus in the School’s former Division of Radiation Health Sciences, died September 25, 2012, at age 85. A nuclear medicine visionary, Wagner pioneered research in imaging brain receptors with positron emission tomography (PET) scanning. At Hopkins, he trained more than 500 radiologists, physicians and scientists.

Thomas W. Simpson, MD, a former associate professor in the School, died on December 29, 2012. He was 94. In 1971, with the Johns Hopkins International Center for Medical Research and Training in India, Simpson led oral rehydration therapy (ORT) treatment of cholera patients in refugee camps. His seminal work in ORT helped save millions of lives.

John L. Pitts Jr., MD, MPH ’59, a retired pediatrician and expert in maternal and child health, died on March 13, 2013, at age 85. A former director of the Baltimore City Health Department’s Bureau of Child Hygiene, he later became chief of Maternal and Child Health at the Maryland Department of Health and Mental Hygiene.
Dr. James Boima (left), a senior surgeon at Connaught Hospital, Freetown, is one of an estimated 10 surgeons providing surgical care for the 6 million people in Sierra Leone.
The 2-year-old girl arrived at Phebe Hospital in rural Liberia barely alive. Her abdomen had been ripped open, and her intestines spilled out of the gaping wound. She had been attacked while playing with her village’s pet monkey.

“Something happened to upset the monkey, and it literally tore the child’s abdomen open,” says Johns Hopkins surgeon Fizan Abdullah, MD, PhD. The girl likely had an umbilical hernia that the monkey grabbed, allowing the animal to easily tear open the abdomen, he says.

“The mother thought that the baby was dead and immediately abandoned the child,” Abdullah explains. Then a neighbor—who had seen a visitor in a pickup truck earlier that day—picked up the baby and ran a mile-and-a-half to find the truck’s owner. They drove the child over 30 miles of bad roads to reach the hospital.

“We helped the local surgeons put IV fluids in, put her intestines back in and close up the abdominal cavity,” says Abdullah, who was in Liberia leading a medical education program to train surgeons in a cost-effective and efficient hernia repair technique.
The toddler survived. She was lucky. Many in the developing world—especially its rural areas—are not. Women who need Cesa- rean sections die in childbirth. Surgically repairable conditions like clubfoot, hernias, cataracts and abdominal complications become disabling and even fatal. Injury victims needing emergency or orthopedic surgeries often don’t survive the trip to a distant hospital or receive subpar surgical care.

“You’re talking about a major burden of disease that is not being addressed by global health through funding or policies or development of new training procedures or supportive, innovative programs where effectiveness can be documented,” says Henry B. Perry, MD, PhD, MPH ’71, a senior associate in International Health.

For decades, the former surgeon and primary health care expert has maintained that closing the global surgical gap is a public health issue.

“If a kid in Sierra Leone, Liberia or Sudan falls out of a tree and breaks his arm, he’s potentially disabled for life,” adds surgeon Adam L. Kushner, MD, MPH ’99, an associate in International Health.

Worldwide, the surgical imbalance is staggering.

Of the 234 million major surgeries performed in 2008, only 3.5 percent took place in the poorest countries, whose people account for 35 percent of the world’s population. The World Bank estimates that 11 percent of the global disease burden is treatable by surgery. Two billion people have no access to surgical care.

The issue will only become more acute because of the growing number of injuries related to increased vehicle traffic in developing countries and unsafe roads.

“Obviously it’s not feasible to think about heart transplants or complicated cancer surgeries,” says Perry, “but where the global health agenda has missed the boat is in looking at low-cost ways to provide access to hospital care for lifesaving or life-changing surgical services… It’s bringing a public health vision to surgery.”

**SIGNS OF CHANGE**

Traditionally, public health and surgery have lived at opposite ends of the spectrum.

One deploys inexpensive, prevention programs for populations. The other is a one-to-one intensive clinical procedure. The separation becomes even more pronounced in the developing world. Surgeons are scarce, training is often limited, hospital capacity is insufficient and supplies and equipment are in short supply or unaffordable.

From a public health perspective, surgery has historically been viewed as expensive, time-consuming and generally not a good investment. It saves and changes individual lives, not populations. These assumptions, say global surgery advocates, are wrong and have contributed to surgery’s low ranking among public health priorities.

The past decade, however, has brought signs of change. “There’s an increasing recognition of the global burden of disease that can be addressed with surgery,” Perry says.

In 2006, *Disease Control Priorities in Developing Countries*, a World Bank publication, included for the first time a section on surgery in low-income countries. The chapter will be substantially expanded in the 2015 edition. In recent years, some U.S. medical schools and hospitals have established global health surgery programs, including the Johns Hopkins Global Surgical Initiative. And, the American College of Surgeons is offering more opportunities for international work.

“There is no doubt that expanding access to even routine surgical procedures holds the potential to prevent disability and save lives,” says Bloomberg School Dean Michael J. Klag, MD, MPH ’87. “Procedures that we take for granted, such as incision and drainage of an abscess or repair of a laceration, can be lifesaving.”

As surgery gains more attention, inter-
est in global health among younger surgeons and surgeons-in-training has clearly evolved. Julie Freischlag, MD, chair of the Department of Surgery and Surgeon-in-Chief at Johns Hopkins Hospital, remembers being surprised several years ago when a student told her that she wanted to work in global surgery. Things are different today. “In 10 years I think we’ll see more and more surgeons trained to perform more sophisticated interventions for both diagnosis of diseases and multimodality treatment of cancer in the global setting,” Freischlag says.

**Value Investing**

On the first day of the School’s fourth term, Adam Kushner stands before 15 students to debut his course, Surgical Care Needs in Low- and Middle-Income Countries.

At 5:30 in the evening, the students’ collective energy level is low. Kushner, however, is eager to get started, and congratulates the class for enrolling in the School’s first course on the global surgical imbalance.

“Just by being here, you guys are already at the forefront of global surgery,” he says. Early in the class, Kushner shows a large, close-up photo of a 3-year-old Malawi girl. It was taken two days after he had removed a blood clot from her brain at Kamuzu Central Hospital.

Eyes look up from smart phones and laptops.

Kushner, who worked at the hospital after completing his surgical residency in the U.S., first saw the little girl about an hour after she had fallen from a balcony. She was paralyzed on one side and seizing on the other.

“I looked at her, made the diagnosis and 20 minutes later drilled holes into her skull and evacuated the clot,” he said, adding that the country did not have a single neurosurgeon and that the hospital—which served 5 million people—did not have CT-scan capability. “I saw cases like this over and over again and said, why aren’t we doing more?”

Kushner has lived at the intersection of surgery and public health for 13 years. A faculty member with the School’s Center for Refugee and Disaster Response and founder of Surgeons OverSeas (SOS), he’s worked as a surgeon and teacher in 15 low-income countries.

Kushner shakes his head at the notion that traditional surgery is not a good public health investment.

“I’m a surgeon and I understand public health,” he says. “In Malawi I’ve seen patients come in with a perforated appendix or a hernia. I’d operate and they’d go be a productive member of society.”

In addition to his clinical work, Kushner is committed, as a researcher, to building the meager evidence base on surgical deficiencies in low-income countries. “It needs the legitimacy that it’s an important problem, and you need data to measure the magnitude,” he says.

To that end, last year Kushner and colleagues in Sierra Leone undertook a population-based survey to determine the prevalence of untreated surgical conditions in a country of 6 million, approximately 10 formally trained surgeons and 30 medical school graduates annually. Investigators deployed 16 local medical and nursing students to the country’s 14 districts.

The researchers found that 25 percent had a condition that needed surgical attention, and 25 percent of deaths in the previous year might have been averted by timely surgical care, primarily for pregnancy complications, injuries and abdominal conditions. The article on the study was published online in *The Lancet* in August 2012.

Based on the Sierra Leone results and findings from a similar study in Rwanda, SOS estimates that 56 million people in sub-Saharan Africa currently need surgery.

“That starts to put things in perspective—the volume of surgery that’s needed,” Kushner says.
The Father of Global Surgery

In the world of global health surgery, everybody who’s anybody knows Colin McCord, MD.

He developed a successful program in Mozambique in the early 1980s to train non-physicians in surgery, with a focus on obstetrical emergencies. Today, the curriculum remains essentially the same and its graduates perform more than 80 percent of the obstetrical surgeries in the country, as well as a number of other basic surgeries. They work mainly at hospitals in rural areas, called district hospitals, where the need for surgical services is most acute.

Equally important, McCord, 84, a School faculty member in the 1970s, has authored several studies to document the quality of care of such task-shifting programs that train clinicians without medical degrees to provide essential obstetric surgeries. (“I consider him to be the father of surgery in global health,” says Perry.)

McCord is also responsible for some of the first research on the cost-effectiveness of surgery at small district hospitals. In a 2003 study, he found that the cost-per-year of a life saved through surgical care at a Bangladesh district hospital was comparable to preventive measures such as a measles vaccine or oral rehydration therapy.

A heart surgeon in the U.S. in the early years of the specialty, McCord transitioned to the international health field in 1971. When he began working in Mozambique in 1981, government health officials made their expectations clear, telling him, “We’d like to have you, but you have to do surgery.”

“We were only doing 2 percent of the C-sections that needed to be done,” says McCord, retired and living in Oxford, England. “The only way that Mozambique was going to solve the problem was to train people that weren’t doctors.”

He patterned the program after a similar initiative in Tanzania, which began in 1962.

With only 15 to 20 medical school graduates annually in Mozambique, McCord says he sought to train providers ranked a level below doctors—assistant medical officers (AMOs)—to deliver surgical care.

Based at Central Hospital in Maputo, the students received three years of training on top of the three-year AMO program, completing approximately 100 C-sections. By comparison, says McCord, licensed doctors in district hospitals typically perform only a handful of the procedures in medical school and internships.

The AMOs usually practice at hospitals in rural areas that are less likely to have experienced surgeons. There’s another reason for training AMOs. Their qualifications are not recognized by wealthy nations so they’re less likely to become part of the “brain drain.” While doctors often seek better pay in the West or in urban areas in their own country, AMOs generally spend their careers in their home countries, says McCord.

In a 2009 analysis in Health Affairs, McCord and colleagues found no measureable differences between physicians and non-physicians in the quality of obstetrical surgical care in Mozambique, Tanzania and Malawi. They reported a case fatality rate between 1 and 2 percent, meeting or approaching the UN target of 1 percent.

According to the researchers, most African countries have not approved similar non-physician models to provide emergency obstetric surgeries because of concerns about the quality of care.

The study notes, “If women could reach hospitals where these providers operate, maternal mortality could fall by 75 percent or more.”

Plan B

Placing surgery in the hands of non-physicians isn’t the answer for certain surgical procedures.

That’s what Bloomberg School Dean Emeritus Alfred Sommer, MD, MHS ’73,
determined after leading a project to address the need for cataract surgery in sub-Saharan Africa, where half of blindness today is caused by cataract formation.

Sommer, whose groundbreaking research has saved millions of children’s lives and eyesight through vitamin A supplementation, initially thought that task shifting might be effective. However, after investigating similar programs, Sommer concluded that non-physicians required close supervision by an ophthalmologist to sustain high-quality work.

So he came up with a Plan B.

“I took a Wilmer resident and we spent a month roaming around Africa to understand the dynamic and discovered a startling statistic,” he says. In a region with a critical need for cataract surgery, most ophthalmologists only work 60 percent of the time.

One reason, according to Sommer, is patients’ dissatisfaction with the level of vision restored by their surgery, as well as cost, lack of transportation and supplies, and equipment shortages.

He approached the problem by locating ophthalmologists in Ethiopia, Kenya, Nigeria and Zambia who performed high-volume, high-quality cataract surgery. Under Sommer’s proposal for the Hilton Foundation, these doctors would train committed younger ophthalmologists. Every two years or so, the senior ophthalmologists would train another small group of young doctors and either add them to their own practices, or support them in establishing satellite surgical centers.

The Foundation, Sommer says, is looking into funding a pilot program to test his proposal.

“It has to be sustainable and indigenous and not a solution that’s dependent on outside cataract surgeons flying in and doing a couple hundred cases,” he says.

“It’s finding local people who have a proven track record and building on them.”

THE VIEW IN 10 YEARS

Although the magnitude of unmet surgical need is gaining some visibility on the global health agenda, experts say that real progress depends on donor support and commitments from local governments to expand surgical capacity as part of a comprehensive health system.

“On my first trip to Ghana in 2007, my intention was to help and teach surgeons, but I realized very quickly that the focus has to be on surgical strengthening as part of national health plans at the ministry of health level,” says Abdullah, an associate professor of Surgery at Johns Hopkins School of Medicine.

Still, in his recent experiences training surgeons in a low-cost procedure to repair inguinal hernias using a piece of plastic mesh, he’s found that education to improve their surgical skills is what they want, even more than supplies and equipment.

With an inguinal hernia, for example, in which abdominal tissue protrudes through an abdominal muscle, Abdullah says that a simple, one-hour outpatient surgery can repair the problem. But left untreated, the hernia can become disabling, and possibly fatal.

“Because patients don’t have access to surgeons who can do these simple operations … a lot of people are dying from this,” he says.

Experts in surgical care in developing countries hope that in the next decade the momentum continues toward a greater acceptance of basic surgery as a public health intervention.

Moving forward requires funding commitments to back robust research and the development of innovative and cost-effective training, education and surgery programs. On Kushner’s wish list: 20 endowed global surgery chairs at top U.S. universities, trauma centers in developing countries, residencies and international exchanges.

“I think in 10 years we’ll look back and be surprised that all this stuff wasn’t being done a lot earlier,” says Kushner.
THE HOLY WATERS of the River Ganges flow through the heart of northern India and hold a special place in the national psyche and the Hindu religion. Pollution, however, threatens the sacred river known as the Ganga. Even the use of soap for bathing or washing saris (as these women have done in a branch of the Ganges near Kolkata) contributes to the problem. These and other practices are being discouraged by National Mission for Clean Ganga. The Bloomberg School’s Center for Communication Programs (CCP) designed the messaging...
and materials for the campaign, which highlights the causes of pollution and encourages people to take practical steps, such as refraining from throwing trash in the river. These are vital first steps in a country where untreated human sewage, industrial effluents and improper solid waste management are by far the biggest polluters, says Sanjanthi Velu, PhD, CCP’s country director for India.

“While people revere the river Ganga and many who live in the river basin depend on the river for their livelihood, most people are not fully aware about the causes of the pollution of the river or what they could do to help prevent it,” Velu says.

The campaign’s launch earlier this year coincided with Maha Kumbh Mela in Allahabad, a Hindu festival believed to be the largest religious gathering on earth with 120 million flocking to the Ganga to wash away their sins. There, pilgrims were greeted by CCP-designed signs, billboards and other materials promoting the concept that human activities of all kinds are responsible for contaminating these holy waters.
Human papillomavirus
Keerti Shah’s got nothing against the human papillomavirus.

The virologist bears no grudge against the virus that causes half a million cervical cancers worldwide every year and now is blamed for a rise in head and neck cancers so surprisingly sharp that it may presage an imminent epidemic among U.S. baby boomers.

Revered for his Zen-like attitude as well as a body of research that has spanned six decades and spawned stunning discoveries about HPV’s cancer-causing ways, Shah simply is not the type to harbor ill will. Not against anyone or anything. Not even a bug that currently infects about 79 million Americans and will infect, at some point in their lives, almost every sexually active person. Especially not a bug that’s so successfully infectious.

In fact, Shah respects HPV. Not in the arched-eyebrow way you would an archrival, but with a fondness that belies kinship. A mere genetic snippet, and therefore in need of others’ cells to live, HPV just wants to communicate bits of itself. Survival requires transmission, replication.

“The viruses are not devious,” says Shah, his contagious smile conveying empathy. Papillomaviruses, he explains, have co-existed quite peacefully with humans throughout time and relatively rarely do harm.
"The viruses are not devious. They own this world as much as we do. Don’t you think?"
—Keerti Shah

“They own this world as much as we do. Don’t you think?”

If anyone understands HPV, it’s Shah, DrPH ’63, MPH ’57. In addition to having written the chapter on papillomaviruses in the definitive text Fields Virology, Shah gets HPV on an altogether different level, master practitioner that he is of human-to-human transmission of knowledge. During his tenure at Hopkins—57 years and counting—his scientific notions have spread over decades and across continents as his protégés instruct students, and now their students teach successive generations of HPV experts, all of whom embody and expand on Shah’s vision.

The 84-year-old Shah has mentored and collaborated with a who’s who of HPV, from upstart investigators to Harald zur Hausen—he won the Nobel Prize in 2008 for his role in the discovery of human papillomaviruses causing cervical cancer.

Their quarry, HPV, is a sprawling family with 150-plus different virus types identified, about 40 of which are sexually transmitted. HPV causes warts; the harmless kind that kids commonly get on their hands, as well as the genital warts that annually afflict about 360,000 sexually active people in the U.S. HPV contains two oncogenes, E6 and E7, which disrupt cell cycle control and produce cancers. Still, only a few high-risk members of this mostly benign family ever do cause trouble. One (HPV16) alone accounts for 50 percent of all cervical cancers and most head and neck cancers.

Identifying HPV11 as the cause of laryngeal papilloma in 1982 was one of Shah’s early successes. His career is linked from upstart investigators to Harald zur Hausen—he won the Nobel Prize in 2008 for his role in the discovery of human papillomaviruses causing cervical cancer.

This latest paper of Shah’s reveals an unrealized dream: “What would I still like to do?” he asks. “Implement an HPV-screening method in India (relying on leadership in that country) which shows this method is both reliable and possible.”

Shah’s great strength, Gravitt explains, is keeping his eye on the public health focus: “Everything he does is directed toward trying to make sure we don’t get distracted by some random detail. Everything comes back to: Does it matter? Does it save lives? A lot of the work we did together was to develop methods to better detect and screen for HPV; to build a better mousetrap.

Increasingly her studies reveal that latent but undetectable HPV is reactivating in the cohorts she’s studying: menopausal women who have been monogamous or sexually abstinent for decades, for instance. Menopause and aging may be vulnerable times, immunologically speaking, during which the probability of reactivation is increased, says Gravitt, “but we really need to do more research to confirm that.”

The issue is contentious. In addition to those in the clearance camp, there’s the dismissive camp: So what if one says controlled, and another says cleared? If one says reactivate, and another says reinfect? Isn’t this all just semantics, like one says po-tay-to, and another says po-tah-to?

“In the lab. Increasingly, clinicians are confronting middle-aged patients in long, monogamous

“Gravitt’s own push has been to prove the virus behaves differently than everybody has always assumed.

According to all the published literature, HPV clears completely in the overwhelming majority of individuals who never even know they were infected. After a year or two, the virus DNA is undetectable. The implication: It’s gone. Any subsequent HPV infections detected during a person’s lifetime are assumed to be newly acquired, and not reactivations of past infections.

Gravitt’s data tell a different story. She’s deconstructing what was a nice, clean, linear narrative, and mucking it up with a messy truth: HPV is controlled, not cleared. Though it may be completely undetectable, it’s not cleared.

If anyone can buck the scientific status quo, it’s Gravitt. Renowned for having developed the gold standard method for detecting and genotyping HPV, she learned firsthand from Shah that hard-won scientific truth trumps all.

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Keerti’s push now is to get people to use the mousetrap.”
marriages who, oddly enough, have acquired “new” HPV infections, she says. They’re asking her, How could that happen? What’s going on?

Plausible answers come from molecular epidemiology, a hybrid science involving population-based research at a molecular level. In the tradition of Shah, Gravitt and Rositch are bench scientists whose expertise is analyzing biological samples in the context of big and diverse cohorts of people.

If the accepted HPV story is accurate—that it’s acquired during sexual debut and clears within two years then the prevalence of HPV infection in populations should not be associated with individuals’ cumulative lifetime sexual behavior, Gravitt explains. Rather, only with their recent sexual behavior. But that’s not what she is finding.

Gravitt published dogma-defying findings in the Journal of Infectious Diseases in December 2012, under the title, “A Cohort Effect of the Sexual Revolution May Be Masking an Increase in Papillomavirus Detection at Menopause in the United States.” The study indicates a greater prevalence of HPV infection in the population of menopausal women whose sexual debut was post–sexual revolution than those whose debut was pre–sexual revolution. When her team looked at newly detected HPV in this cohort, only 13 percent of infection was attributed to new sex partners, whereas 72 percent was attributed to having a higher number of lifetime partners. The takeaway: These infections probably weren’t new.

“As long as you are controlling these infections, your immediate risk of [cancer] is going to be low,” Gravitt explains. “But if menopause, or just getting old, increases HPV reactivation, then we need to look at what this means for screening these older women who came of age during the sexual revolution and are much more likely to reach menopause with latent HPV than the postmenopausal women we have screened in the past.”

It will be important to determine if the historical low risk of cancer in postmenopausal women will continue to hold steady as the baby boomers age, she adds, and to reexamine questions like when and under what conditions is it safe to stop routine screening.

Helping Gravitt stay on track as she dogs the undetectable is decades-old advice from Shah: “One of the frustrating things about being a scientist is you work very hard and it seems no one is paying attention. [As a young investigator] I had been complaining to Keerti—kind of like, ‘Woe is me. How is it that no one sees what I do? Do I have it wrong?’ And Keerti just looked at me, with the sweetest face, and said, ‘Patti. You talk too much and write too little.’

“To this day, whenever I get into that anxious state, which can be paralyzing, I just shut up and sit down and write out what I’m thinking. Because nobody will pay attention until it’s down on paper.”

These days, most of the attention-grabbing headlines associated with HPV have to do with the fact that head and neck cancer is rising dramatically, especially among men, and is now as common in the U.S. as cervical cancer is among women. Each accounts for about 10,000 new cases annually.

Shah taught her about science—and life, says Gillison, now at The Ohio State University. Shah taught her about science—and life, says Gillison, now at The Ohio State University. She recalls Shah’s attempts to temper her exacting nature by reminding her that “sometimes the perfect is the enemy of the excellent.” He chided her for not taking time to celebrate successes—like when their team in 2000 published the first strong evidence that HPV causes head and neck cancer in humans.

At the time, Gillison shared a lab with Gravitt. Both shared their mentor’s passion for making public health impacts with scientific findings. On Gillison’s list to complete in the summer of 2003 was a case-control study designed to definitively prove that the same human papillomavirus that causes cervical cancer also causes tonsillar cancer. Enter Gypsyamber D’Souza, a grad student who, under Gillison’s tutelage, promptly published key research in the New England Journal of Medicine.

It served D’Souza well, training with successive generations of HPV heavyweights. (So too did growing up in a household where the discussion of sex was not taboo, she says.) D’Souza, PhD ’06, MPH, is focusing on HPV in high-risk groups, namely young adults, HIV-infected individuals, and men having sex with men. By studying patients with the disease and exploring infection in high-risk populations, the associate professor in Epidemiology aims to find out why infection leads to disease in some people but not others.

Her research necessitates a candor and nonchalance about conditions and behaviors (Continued on page 42)
Just over 50 years old, the Bloomberg School’s North Wing is young again.

Construction workers are making final tweaks to a sweeping renovation that encompasses a quarter of the School’s research labs—where investigation topics range from malaria and influenza, to sex differences and reproductive disorders, to basic research on how the human genome responds to its environment.

From the start, the renovation team’s goal wasn’t simply to update the North Wing’s labs but to build on decades of research—much of it from the School itself—on healthy and productive workspaces. Large windows and reflective surfaces spread light throughout most rooms. Open and flexible layouts promote collaboration. And state-of-the-art support systems minimize energy use.

The chance for the ambitious renovation arose when President Obama called for “shovel-ready” projects for the 2009 American Recovery and Reinvestment Act. The School proposed a complete overhaul to seven of the North Wing’s nine floors. (Some of the labs were not being used because they did not meet present-day lab standards.) Associate Dean Janet DiPietro, PhD, led the proposal’s drafting while Senior Associate Dean Jane Schlegel, MBA, directed Facilities’ planning and design work. The proposal received the maximum award of $15 million. A team from Facilities, including Dave Kempner, Mike Schoeffield, Kim Perreault and George Sparkes, managed the design and renovation phases.

In the following pages, see how space can shape science.
Despite our age-old fascination with sex differences, one topic rarely comes up in such discussions: immune responses to infection. Dionne P. Robinson’s research may soon change this.

Robinson is investigating how estradiol, a hormone primarily secreted by the ovaries, can help female mice fend off the influenza virus. She spends hours poring over lung samples from her mice—gauging how the presence of inflammation-related proteins and cells correlates with estradiol levels.

The new space has given Robinson a new neighbor: a molecular virology lab. It’s a great resource for relevant findings and ideas, as well as equipment. “Anytime we need to borrow something, they’re right there,” says Robinson. She often borrows automatic pipettes, while the neighbors stop by to use a plate-washer, which helps researchers avoid erroneous results caused by hand washing.

But best of all, says Robinson, are the windows. As she sits at her desk writing one final paper before completing her doctoral degree, she says, “It’s really nice to have some natural light coming in.”

DIONNE P. ROBINSON
6th-year PhD candidate, Molecular Microbiology and Immunology (MMI)
PI: Sabra L. Klein, PhD

Seeing the Light
A Mass Improvement

There’s been a welcome new “addition” to Dingyin Tao’s life—a mass spectrometer. “In many ways, a mass spectrometer is like a ‘newborn baby’ who needs to be taken care of very carefully,” says Tao. “We need enough space, no dust, a consistent temperature and no direct sunshine.”

It’s worth the effort. With Bill & Melinda Gates Foundation support, Tao is working with principal investigators Rhoel Dinglasan and Sungano Mharakurwa to develop a malaria test using saliva rather than blood samples (which are unpopular in areas where blood taboos exist). Success is by no means guaranteed, but step one is to identify a protein that could signal the presence of *Plasmodium falciparum*—the deadliest malaria parasite—in saliva samples from asymptomatic carriers. Tao relies on the new spectrometer to characterize the proteins in his samples.

Before the renovation, Tao shuttled samples to the medical school for analysis, risking that they degrade en route. Now Tao not only conducts his own mass spec research in-house but assists collaborators from as far away as Australia.
In the Hood

The bacterium that causes Lyme disease, *Borrelia burgdorferi*, has a rare talent: It thrives without using iron for any cellular processes, such as metabolism or DNA replication. Hillary Clark is studying this unique aspect of *B. burgdorferi*’s success—seeking insights that might one day be used against it.

“I used to have to go to rooms on opposite sides of the building to gather my materials,” says Clark, “and go back and forth all day.”

Now, she adds, “everything I need to do one experiment is in one place.”

Clark has similar praise for the new Tissue Culture Room. “The hood is huge, the lighting is great, and everything is organized. It’s a lot more efficient to get things set up and start my experiments.”

Not that Clark’s in a rush. After spending a day in the new lab, she says her first thought was, “[I’m] happy that I’m only a second year, and I get to spend a lot more time here.”
A Killer Fungus

Though the HIV virus has many partners in shortening life, few are as brutally efficient as *Candida albicans*, a yeast fungus. In people with weakened immune systems, *C. albicans* proves deadly 35–40 percent of the time.

Cissy Li is studying an unusual antioxidant enzyme that’s found in *C. albicans* and seems to be involved in its deadly impacts. She hopes to tease out the enzyme’s role and, in turn, highlight a potential vulnerability that would be unique to the fungi.

For Li, the new lab’s spacious, open layout means faster trouble-shooting. Often when bench neighbors are chatting about a problem, she says, someone all the way across the room will pipe up with a solution. On the flip side, Li appreciates having all the team’s back-up equipment—freezers, refrigerators, temperature-controlled shakers—tucked in nearby rooms where they can’t be heard.

CISSY LI
3rd-year PhD student
Environmental Health Sciences
PI: Valeria Culotta, PhD (BMB)
The Bacteria Stops Here

For over a decade, Karen Griffin has been working in the Glassware Lab, helping to ensure that every test tube, pipette and beaker in MMI gets cleaned and sterilized properly.

Griffin's work begins when a researcher drops off a cart of dirty equipment, usually containing about 20 pieces of glassware. "Sometimes we have 20 carts," she says. "Now we can do all 20 in eight hours." With roughly 800–1,000 pieces coming in every week, Griffin and her coworkers need to clean approximately 47,000 pieces every year.

Thanks to the renovation, Griffin's workspace is literally twice as efficient as before. She and her coworkers now have two glass washers, two autoclaves to sterilize equipment, two dry ovens and (thankfully) twice as much space.

Griffin has been around long enough—13 years—to fully appreciate such equipment. "In the old days," she says with a laugh, "we had to use our hands."

Karen Griffin
Laboratory Assistant, MMI
Glassware Lab

The Outside View

You are what you eat. We all know this is true, but why it's true is another matter—especially when it comes to links between obesity and cancer.

Enter Kate Laws (left) and Alissa Armstrong.

"Basically," says Laws, "we study the ways that what you ingest changes [how] your body functions—in a really tiny snapshot."

That "snapshot" is the Drosophila fly. Both women are tracing nutrient-sensing pathways that lead through fat tissue to ovarian stem cells, ultimately impacting how many eggs the flies produce. The pair hopes to shed light on how diet affects stem cells in general, across a wide range of organisms and—since normal stem cells and cancer cells share many of the same pathways—on the cancer-fat connection in particular.

When work on their lab is complete, Armstrong and Laws look forward to sharing space with another reproductive biology lab. Having peers with an "outside view" nearby will be great, says Armstrong. "They'll [bring] in new ideas about what you might be looking at and what your data might be telling you."

Kate Laws
4th-year PhD student, BMB
Alissa Armstrong, PhD
Postdoc, BMB
PI: Daniela Drummond-Barbosa, PhD

A Special SPACE
Transformer Man

David Chin is optimistic about U.S. health care—
if it follows the new prescription for affordable care.
There’s no Richter scale for measuring tectonic shifts in American health care, but that’s okay: Seismic changes will soon be apparent to all. When the dust settles, the fee-for-service model (which pays physicians more for doing more) will be a much smaller part of the landscape, says David Chin, MD, MBA, a former senior national partner with PricewaterhouseCoopers. Soaring health care costs and estimates that 20 to 50 percent of expenditures are wasted have made change essential, says Chin. One new model that is challenging fee for service is called the accountable care organization (ACO). Part of President Obama’s Affordable Care Act, ACOs are basically networks of hospitals and doctors that are rewarded for keeping patients healthy rather than for racking up office visits, angioplasties and tests.

Chin, now a Bloomberg School Distinguished Scholar, is leading an executive education program for transforming health systems to the accountable care model. The first cohort of doctors, nurses, managers and pharmacists is from the Johns Hopkins Health System and is learning from a similarly diverse group of educators from the schools of Public Health, Medicine, Nursing and Business. Their goal: lead ACO transformation. In a March interview with Johns Hopkins Public Health editor Brian W. Simpson, Chin explained how U.S. health care is changing and why he’s optimistic about its future.

Should we, as some argue, let the U.S. health care system collapse and rebuild it from scratch?

That’s the Alcoholics Anonymous model, right? You’ve got to crash and burn first. And then you’ll be willing to change. I think the system is too big to ever want that to happen. Too many people would get hurt. Until this point, the pain hasn’t been great enough in terms of cost to really drive change. But I think we’re getting there at 18 percent of GDP. Since the states cannot run deficits and they are on the hook for ever-increasing retiree health and benefits costs, they must come up with creative solutions. Otherwise, they go bankrupt. They have the most motivation to find a solution. That’s why I think the states will lead with innovation. I can imagine that … different states will come up with some model that will work, and then we’ll say, OK, if it works there, then we’re willing to adopt it nationally.

Is fee for service really going away?

It’s funny. I think fee for service will be always with us, but maybe moderated some. You could make the argument that you might pay primary care physicians fee for service so you incentivize them to bring in patients at the primary care level, but then you might put specialists on some kind of global payment so there is an incentive for them to be more cost-effective.

How are ACOs incentivized to keep their population healthy?

[As a physician] in the current fee-for-service system, I only get paid if the patient comes in to see me. I do not get paid to keep a patient healthy or to keep a patient out of the system. The more I do, the more I make. Under an ACO model, I’m given almost a lump sum, a set amount of budget to take care of a population. And I know that a certain proportion of patients who are very, very sick and could use a lot of expensive therapy and in-patient days the next year aren’t necessarily the patients coming in to see me. It incentivizes me to go looking for patients [with] whom I can intervene earlier and reduce their costs. It also incentivizes me to use services more cost-effectively for those patients who do come and see me.

How does this affect physicians?

Not only is it a different reimbursement model, it’s a different mindset. Physicians aren’t classically equipped to deal with thinking about population health, number one. But also, number two, [there is] the notion of practicing in teams, like a patient-centered medical home. Many medical schools don’t have a curriculum around what’s the role of a physician inside a system of care. Classically, that’s a public health kind of discipline. I think that’s another potential source of discomfort for the docs. Not only is the money, the reimbursement thing, different, but now you’re moving into an area where you’re no longer the expert.

Are ACOs something that physicians welcome or dread?

I suspect you probably know the answer to that question. Most doctors grew up under fee for service, and that’s worked very well. Whenever you start changing the rules, particularly about money, people get kind of upset. But people do know that the current trajectory is not sustainable. Physicians are rapidly offering themselves up for employment with hospitals and health systems trying to get shelter. They can see the handwriting on the wall that the fee-for-service model is broken and that the inexorable rise in fees is no longer inexorable.

What’s the most important thing you teach in the executive program?

We actually spend a big chunk of the curriculum focusing on change management, how you work on teams, how you negotiate. Because we recognize that if you’re going to transform your system for accountable care—you can have a great idea, but if you can’t get the people, the docs, the managers and the nurses to buy it, it’s not going to happen.

Are you optimistic about U.S. health care?

Yeah. I tend to be inherently optimistic. I do think, given our pluralistic model and our penchant for experimentation, that we’ve got some potential to fundamentally change the system. But I don’t think it’s going to happen right away. I think a 10-year horizon is probably the right horizon.

Training health care executives sounds like business school. Why is this public health?

“Accountable care” really means a structure and a set of incentives to care for a population of people. To do that, there needs to be a set of measurements, incentives, structures and processes. That’s the public health focus. Accountable care starts by saying, I’ve got a whole population of people I am responsible for. Not only the people I see face to face in the office, but also the people who are out there as part of my population, that I’m going to be responsible for next year, and if I don’t get a handle on them, I’m going to be in trouble. That’s the public health twist to this thing.
Every year, Regina Richardson spends a lot of time looking for trouble.

Richardson directs Care Management for Johns Hopkins HealthCare (JHHC), which serves more than a quarter-million members across Maryland.

Her team’s goal is simple: Find women at high risk for premature births and other costly complications, yet who probably don’t know free help is available. Then give them the extra care they need—saving lives and money.

Their task is not so simple: Every year, JHHC cares for more than 8,000 pregnant women insured by Medicaid across the state. Often doctors know to refer special cases to Richardson’s team. Often they don’t. So Richardson and her team comb through patient claims and electronic medical records (EMRs), where signs of potential trouble come in many forms. Maybe a note buried somewhere reads “husband smokes,” “lost apartment” or “history of substance abuse.” Reviewing a single patient’s records can easily take an hour, says Richardson. “We’ve always known there’s gotta be a better way.”

But what is it?

That’s not an easy question to answer. Even with the arrival of ever-more sophisticated technology, many products are focused on perfecting a traditional paradigm: visit doctor, feel better. It’s familiar, and it’s essential. But, as Jonathan Weiner, DrPH ’81, MS, points out, it’s not public health.

The problem, he explains, is that the patients at highest risk—the ones JHHC’s nurse case managers are searching for—aren’t the ones coming in or accessing follow-up care.

Fortunately, there are glimmers of a new trend in health IT: Tapping EMRs to find these “missing patients” before trouble arises and to target resources efficiently across entire communities. It’s a trend Weiner, a professor of Health Policy and Management, hopes to accelerate through his newly founded Center for Population Health IT (CPHIT, pronounced “see-fit”).

Mapping Community Health

If you’ve ever sat watching your doctor tap away on a laptop, you’ve witnessed the rise of EMRs firsthand. According to the CDC, the percentage of office-based physicians using some form of electronic record–keeping system has rocketed from roughly 17 to 70 percent over the past decade.

Joshua Sharfstein, Maryland’s Secretary of Health and Mental Hygiene, is one of many public health leaders hoping to use this wealth of data to look across populations. His ideas offer a glimpse of the ways EMRs might be used to reach beyond the doctor’s office.

“One of the things that we’re really interested in is mapping community health,” says Sharfstein, MD. “If you have a map, you might say, ‘All these different doctors are seeing what looks to them like a one-on-one phenomenon.’ But you can see actually it’s a certain community where there are very high rates of asthma. And maybe there’s something going on here.”

Sharfstein’s ultimate goal is to put granular health data in the hands of local organizations. “If there’s an anti-smoking effort,” says Sharfstein, “maybe the goal today is to hit the whole county. But if you knew that there was a very high concentration of smokers in a particular area and they were having very poor health outcomes, you might target particular buildings.”

In 2009, Maryland took an important, and increasingly common, step toward making such scenarios feasible. It created a health information exchange to expedite the sharing of records from doctors and hospitals across the state—ensuring those records are available anytime and anywhere. That’s useful for individual patients, and it also can be useful for broader trendspotting efforts with obvious public health benefit.

Still, data can’t speak for itself. In essence, Sharfstein faces the same basic challenge as JHHC—figuring out how to extract data efficiently and, ideally, learning what it can tell you about the future.

That’s where Weiner and CPHIT can help.
From Claims to Crystal Balls

Twenty-five years ago, Weiner and the late Barbara Starfield, MD, MPH ’63, began dreaming up a tool that would act as the next best thing to a crystal ball. It would squeeze health data from computerized insurance claims to categorize patients by risk. This would help highlight patients likeliest to require expensive care in the future. The result of their efforts is the Johns Hopkins Adjusted Clinical Groups (ACG) Case-Mix System.

The flow of information into the ACG system is simple, at least in concept. Each time a patient receives a diagnosis—and there are over 75,000 of them—it’s coded by five criteria: duration, severity, diagnostic certainty, treatment type, and specialty care needed. Each patient’s diagnoses are viewed in combination to slot them into an overarching risk group, or an “adjusted clinical group.” Predictive algorithms then kick in to gauge the likelihood of future expenses or events such as unanticipated hospitalizations.

At first, Weiner, Starfield, and their collaborators simply gave the ACG software away. Yet it’s proven so useful that the School has partnered with six IT corporations around the globe to distribute the system.

ACG now touches more than 80 million people in 17 countries. In terms of revenues paid to Hopkins, this represents the largest tech transfer in the history of the university.

Now, EMRs, along with other “e-health” data sources such as websites and smartphone apps, are poised to take such predictive modeling to an entirely new level, says Weiner. But the strength of these new digital data—that they contain a staggering wealth and diversity of health information—is also what makes this a challenge.

One major problem, says Weiner, is prose. Even in the best EMR systems, key information is usually embedded in free-text notes, which can take staff precious hours to read. Like it or not, Weiner says, “many doctors just use EMR systems as fancy typewriters” to jot down their thoughts.

Rather than fight human nature by requiring doctors to use drop-downs and radio buttons, Weiner recruited colleagues in “natural language processing,” a field of computer science that involves culling useful information from prose.

One of Weiner’s new collaborators is Mark Dredze, who spent time at Google and is now an assistant research professor of Computer Science at Johns Hopkins. You know how Google finds exactly what you want, no matter how complex the search, asks Dredze. That’s what ought to be possible when programs peruse health care records. Weiner, Dredze, and other interested faculty have taken on finding JHHC’s “missing patients” as a pilot project.

The team began with a field trip to JHHC’s East Baltimore campus, where a nurse walked them through sample health records, pointing out warning signs and, equally important, linguistic permutations.

“We might see in the text that this patient is a tobacco user,” explains Dredze. “We also might see ‘former tobacco user’ or ‘this patient lives with a tobacco user.’” Distinguishing between such phrases requires a program that can “do what you can think of as diagramming sentences,” says Dredze, not
to mention “learning” that smoking is an important trait in the first place.

The project is still in its early stages. (Some of its initial triumphs involved clearing bureaucratic hurdles, such as obtaining permission to access and link three types of electronic records—OB and primary care charts, and insurance files—a first for Weiner.) Looking ahead, both he and Dredze are confident; it’s a small project with a concrete objective, but one that has implications for every major health system in America, including Johns Hopkins, which is in the process of investing hundreds of millions of dollars in a new state-of-the-art EMR system.

Tinkering Together

Hoping to tackle more real-world challenges in the future, Weiner launched CPHIT last year. He envisions CPHIT as a place where academics from across the University, private and public health care organizations and e-health companies can work together to do R&D and tinker on innovative projects for the common good—a public health version of MIT’s famed Media Lab.

As potential collaborations emerge, Weiner builds a team and gets rolling. CPHIT has begun working with Maryland’s health information exchange to flag patients who are at high risk for re-hospitalization. (Not a bad idea, now that many payers have begun penalizing hospitals for high rates of readmission.) CPHIT is also working with several HMOs, among other organizations, to find better ways to treat chronic diseases. For example, using height and weight, patterns of care seeking, and behavioral risk factors to prioritize outreach or interventions for diabetes patients. And CPHIT is in the early stages of discussions with Sharfstein about developing geographic health measures applicable not just to a single provider but across an entire community.

Of course, even as organizations make and execute plans to cull and analyze data, our understanding of what risk factors matter and what treatments work—or don’t—is always evolving. Here, too, looking at EMRs across populations opens up new opportunities.

Remember the Vioxx debacle? Weiner asks. One of the first indications that Merck’s blockbuster arthritis medication might be linked to heart problems came from EMRs.

Kaiser-Permanente and the FDA were working on a joint study of 1.39 million Kaiser enrollees when they discovered that the risk of serious heart disease for patients taking high doses of Vioxx was more than triple that of patients taking a rival drug. Kaiser has since joined forces with dozens of other health care organizations to create a “virtual data warehouse” for multi-institutional research projects.

It’s this kind of success story that Weiner loves to share. It highlights the inherent overlaps between the aims of public and private health providers, and it suggests why, among all the data sources that he holds dear, EMRs rest closest to his heart.

“[They] will one day capture everything that’s known to the medical world,” he says. And pulling out key data to analyze and act on—which can take years today—will happen nearly instantaneously, at almost no extra cost. “Making sure that all this helps to improve the public’s health,” Weiner adds, “That’s our vision.”
Lawrence J. Appel, MD, MPH ’89, professor, Medicine, Epidemiology and International Health (IH), and director of the Welch Center for Prevention, Epidemiology and Clinical Research, was elected to the Institute of Medicine.

Abdullah Baqui, MBBS, DrPH ’90, MPH ’85, professor, IH, received the 2012 CORE Group Dory Storms Child Survival Recognition Award, and was honored by the Bangladesh Medical Association of North America.

Dan Barnett, MD, MPH ’01, assistant professor, Environmental Health Sciences (EHS), received the International Critical Incident Stress Foundation’s Cofounders Award.

Colleen Barry, PhD, MPP, associate professor, Health Policy and Management (HPM), was elected to the Policy Council of the Association for Public Policy Analysis and Management.

Robert Black, MD, MPH, Edgar Berman Professor and chair, IH, was appointed to Vitamin Angels’ Board of Directors.

Sara Bleich, PhD, associate professor, HPM, was recognized recently by the Obesity Society for best research manuscript in the journal Obesity.


Two projects co-produced by Johns Hopkins Health and Education in South Africa with USAID/PEPFAR funding—the Brothers For Life campaign and Interseions, the HIV drama series—won Best Intervention awards at the AfricomNet Awards for Excellence in Health Communication.

Joanna Cohen, PhD, MHS, Bloomberg Associate Professor of Disease Prevention in Health, Behavior and Society (HBS) and director of the Institute for Global Tobacco Control, was appointed to the Tobacco Products Scientific Advisory Committee, U.S. Food and Drug Administration.

Karen Davis, PhD, the Eugene and Mildred Lipitz Professor and Chair, W. Harry Feinstone Department of Molecular Microbiology and Immunology (MMI), was elected vice president of the National Academy of Sciences.

Ruth Karron, MD, professor, IH, and director of the Center for Immunization Research, was appointed to the CDC Advisory Committee on Immunization Practices.

Alain Labrique, PhD ’07, MHS ’99, MS, assistant professor, IH, was elected chair of the mHealth Technical Advisory Group at WHO.

Thomas LaVeist, PhD, William C. and Nancy F. Richardson Professor in Health Policy, HPM, was honored by the American Journal of Public Health with the 2012 Article of the Year award.

When the 73-year-old woman learned she had just one functioning kidney, she decided to try a home treatment called peritoneal dialysis (PD) she manages herself. “At first I was very insecure and thought, you know, I’ll never master this. And then gradually it just became like a natural thing to do,” Ella says in a video titled Preparing for Kidney Treatment: You Have a Choice.

Ella is one of four kidney patients featured in the video, which, along with a companion handbook, was created by the PREPARED (Providing Resources to Enhance Patients’ Readiness to make Decisions about Kidney Disease) study research team, led by L. Ebony Boulware, MD, MPH ’00, FACP, associate director of the Welch Center for Prevention, Epidemiology and Clinical Research.

Robert H. Gilman, MD, professor, IH, was made an honorary professor at the Universidad Catolica in Santa Cruz, Bolivia.

Holly Grason, MA, associate professor, Population, Family and Reproductive Health (PFRH), received the Maternal and Child Health Section Award for Distinguished Service to the Profession from the American Public Health Association.

Diane Griffin, MD, PhD, Alfred and Jill Sommer Professor and Chair, W. Harry Feinstone Department of Molecular Microbiology and Immunology (MMI), was elected vice president of the National Academy of Sciences.

Karen Fox, PhD ’01, MPH, assistant professor, HPM, was appointed to the WHO and UNFAO Joint Expert Committee on Food Additives.

School Accolades
The video recently won a prestigious bronze Telly Award, which honors outstanding film and video productions in the U.S. Some 20 million Americans have damaged kidneys, placing them at risk of kidney failure, which affects 600,000. But many lack information about the pros and cons of the treatment options, which include transplantation, traditional hemodialysis in a center, and hemodialysis or PD at home, says Boulware, an associate professor of Medicine with a joint appointment in Epidemiology at the Bloomberg School. Minorities are four times more likely to develop kidney failure, and are also more likely to feel unprepared.

The four patients’ stories bring to life answers to the questions that researchers learned patients and their families have about the treatment options. Ella says she sometimes experiences an upset stomach but appreciates the convenience of the at-home treatment.

The materials, which Boulware hopes to distribute to physicians’ offices and patients across the nation, are meant to encourage patients to talk with their physicians and families and make a choice in line with their specific situation and values. Without advance preparation, Boulware says patients may experience unnecessary complications, or receive care they don’t want.

“It seems so innocuous just to provide education, [but] it’s probably quite powerful, especially when you think about what life is going to be like when you start treatment,” Boulware says. —Rachel Wallach

Thomas A. Louis, PhD, professor, Biostatistics, was named associate director for research and methodology, and chief scientist with the U.S. Census Bureau.

Vicente Navarro, MD, DrPH ’68, PhD, DMSA, professor, HPM, received a Doctor Honoris Causa from Lleida University of Catalonia in Spain.

Ana Navas-Acien, MD, MPH, PhD ’05, associate professor, EHS, was appointed to the National Academy of Sciences Committee on Inorganic Arsenic.

Sandra Newman, PhD, MUP, professor, HPM, Institute for Policy Studies, was appointed to the U.S. Census Bureau National Advisory Committee on Racial, Ethnic, and Other Populations.

Douglas Norris, PhD, MS, associate professor, MMI, is president-elect of the Society for Vector Ecology.

Kate O’Brien, MD, MPH ’94, professor, IH, was appointed to the WHO Strategic Advisory Group of Experts (SAGE) on Immunizations.

Felix E. Rivera-Mariani, PhD, postdoctoral student, EHS, received a 2012 LUSH Young Researcher Award for alternative research in toxicology.

Debra Roter, DrPH ’77, MPH ’75, MS, professor, HBS, was named a University Distinguished Service Professor.

Dean Honored with Bruce Award

Michael J. Klag, MD, MPH ’87, dean of the Bloomberg School, received the 2013 James D. Bruce Memorial Award for Distinguished Contributions in Preventive Medicine from the American College of Physicians. The award is named in honor of the national medical organization’s late former leader. Dean Klag was selected for his work and research in the prevention of cardiovascular and kidney disease.

Lester Salamon, PhD, professor, HPM, and Political Science, received the Aaron Wildavsky Enduring Contribution Award from the American Political Science Association for his book, Partners in Public Service: Government-Nonprofit Relations in the Modern Welfare State.

Steven L. Salzberg, PhD, professor, Biostatistics, Medicine, and Computer Science, won the 2013 Benjamin Franklin Award for Promoting Open Access in the Life Sciences.

Ellen Silbergeld, PhD ’72, professor, EHS, was named to the advisory board of the Zorig Foundation in Mongolia.

Alfred Sommer, MD, MHS ’73, University Distinguished Service Professor, Ophthalmology, Epidemiology, IH, and dean emeritus of the Bloomberg School, was named a Dan David Laureate.

Martin Stephens, PhD, senior research associate, EHS, Center for Alternatives to Animal Testing, received the Society of Toxicology Enhancement of Animal Welfare Award.

Stephen Teret, JD, MPH ’79, professor, HPM, and director, Center for Law and the Public’s Health, received the U.S. Consumer Product Safety Commission Chairman’s Commendation Circle Award; and presented the Dean’s Distinguished Lecture at the University of Colorado School of Medicine.

Michael Trush, PhD, MS, professor, EHS, was appointed to the CDC Safety and Occupational Health Study Section.

Cheri Wilson, MHS ’10, MA, research associate, HPM, was appointed co-chair of the Public Policy and Advocacy Committee of the National Association of Health Services Executives and elected an at-large member of the Steering Committee of the American Medical Association Commission to End Health Care Disparities.
Although more and more doctors are insisting that adolescent girls and boys should be immunized with the HPV vaccine prior to sexual debut, parents in the U.S. aren’t listening. An April 2013 Pediatrics article reveals that the number of parents who worry about the safety of the HPV vaccine and don’t intend to get their teens vaccinated rose dramatically (from 4.5 percent to 16.4 percent) from 2008 to 2010. In fact, only about 30 percent of teens have been immunized with the HPV vaccine, according to the American Cancer Society.

“It’s a tragedy the rates in the U.S. are so low,” D’Souza says, citing countries such as Australia and England where school-based vaccination programs have resulted in compliance rates as high as 90 percent. “It’s going to protect the younger generation [from cancer] if we can improve our uptake of the vaccine.”

The situation is even worse in developing countries. Worldwide, the numbers of women developing cervical cancer and dying from it annually remain unnecessarily high. Cervical cancer death rates are not dropping in places where screening is limited and the cost of preventive vaccines, prohibitive; in Shah’s native India, for instance, as well as in Taiwan.

T.C. Wu set out from Taiwan in 1984 and has been a Shah protégé ever since. “The whole story of me has 100 percent to do with Keerti,” Wu says.

With a new medical degree and new wife, Wu was 27 when he left home on an extended honeymoon trip that involved his bagging a master’s degree in public health from Johns Hopkins. That’s where his life plan of becoming a surgeon bumped up against Shah, and promptly derailed.

“I attended a lecture given by Keerti who was talking about a new virus that was found to be associated with cervical cancer,” Wu recalls, “All the textbooks said it was herpes, but here he was talking about the human papillomavirus. Because of that lecture, I spent the next five years [at Johns Hopkins] studying molecular biology related to a tiny virus.”

Wu, MD, PhD ’89, MPH ’85, is a professor of Pathology, Oncology, Obstetrics and Gynecology, and Molecular Microbiology and Immunology who now directs a long-term Hopkins-based project to develop vaccine strategies for the prevention and treatment of diseases caused by HPV.

During his graduate studies here, Wu became intrigued by the idea of using immunotherapy to target HPV-associated cancers. At the time, Shah had in place an HPV program that allowed Wu to accomplish an ambitious first step toward that goal: He created a mouse model of cervical cancer on which therapeutic vaccines could be developed and tested.

“We called it TCI,” Wu says, adding that the mouse name refers to “Tissue Culture 1” and not himself.

For the past nine years, he has headed up research efforts for a program that relies on extensive teamwork among the Hopkins community and receives the largest translational research funding for cervical cancer vaccine research provided by the National Cancer Institute, amounting to $14.4 million per five-year cycle.

The program, called the Cervical Cancer SPORE, is associated with several ongoing clinical trials of a new generation of relatively inexpensive vaccines that could protect women against more than 90 percent of all cervical cancers.

Everybody, including Shah, thought a therapeutic vaccine would be the quick and easy bow on top of the nearly tied-up HPV success story. Unlike the prophylactic HPV vaccines that produce antibodies to prevent viruses from growing, a therapeutic vaccine would work by looking for antigens in cancer tissue and attacking them. In the case of HPV, a viral antigen is present in every single tumor cell, so success seemed clear-cut, Shah says.

Therapeutic vaccines in development have cured thousands of mice seeded with cancer cells. None has yet cured humans. However, with continued efforts, the therapeutic HPV vaccine may soon become available.

When surveying the whole of HPV research—its past and future—Shah alludes to a paragraph in Lewis Thomas’s Lives of a Cell that describes scientific activity. For a long time, nothing makes sense. There are many false leads as people buzz about; bits of information fly here and there, as if somebody had disturbed a beehive.

And then, Shah recites this passage:

“There suddenly emerges, with the purity of a slow phrase of music, a single new piece of truth about nature.”
The Right People

Keerti Shah has built up the science on human papillomaviruses by attracting generations of researchers to the cause, as Maryalice Yakutchik explains in her story on HPV research (page 22). The legendary virologist’s essential message: Great challenges must be met by great teams.

Documenting the remarkable efforts of 1,300 faculty working in 120 countries and 2,200 students from 87 nations with a riveting publication is our great challenge. It’s time you met our great team (listed by their length of time with us):

Consulting editor Sue De Pasquale has been with the magazine longer than I have. (I arrived in 2001.) A gracious collaborator with a keen sense of story, Sue has helped us make great articles great and constantly improve the magazine’s quality.

Robert Ollinger, our senior art director, is our creative force. When people say the magazine is beautiful, I credit Robert who wrangles the illustrators and photographers. Robert has directed photo shoots in almost every corner of the School (including behind the walls and on the roof), on the streets of Baltimore, on a tributary of the Potomac and in an autopsy room. Robert also helps shape stories with his ideas and oft-brilliant headlines.

Konrad Crispino, our graphic designer, does the hard, much-appreciated work of integrating all the great photos and illustrations and patiently correcting the text in our articles until they’re perfect.

Jackie Powder, our staff writer, has written stories with insight and verve on everything from obesity and water, to Niger and global health surgery (her cover story in this issue, page 14).

Associate editor Maryalice Yakutchik is our go-to basic science writer who loves the thrill of diving deep to the cellular level and surfacing with stories of how our bodies work (and don’t work) and how researchers are figuring it all out.

In addition, our superb digital and Web team including David Croft, Ranjan Vadlamani, Carlos Ballena and ace videographer Spencer Greer make our stories come alive for the world to see online.

Managing editor Susan Sperry, who also leads our Marketing and Communications at the School, provides essential leadership and the big-picture view of where we’re all headed.

The main thing, as gun violence expert Daniel Webster says on page 8, is to “get the right people and give all the credit to them.”

Brian W. Simpson
Editor, Johns Hopkins Public Health
bsimpson@jhsph.edu
STARING AT AN UNCERTAIN FUTURE

Tragedy, not joy, follows some weddings in India. Though the practice of a bride’s family paying a dowry to the groom has been outlawed, the tradition persists. And, if dowry demands are not met, the bride is sometimes attacked or even immolated by the husband or in-laws. Varsha Ramakrishnan, MD, MPH ’13 (left), will examine the issue of dowry violence firsthand as recipient of the 2013 Johns Hopkins-Pulitzer Center Global Health Reporting Fellowship.

More information: jhsp.h.edu/pulitzerfellowship

Photos: Shehzad Noorani
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SURVEY OF THE CENTURY
How do you celebrate 100 years of lifesaving achievements? What are the priorities for the next 100? Send us your ideas for the Bloomberg School’s Centennial in 2016.

Complete our survey: jhph.edu/centennial-survey

Questions?
Contact Susan Sperry, Sr. Director of Communications and Marketing, at ssperry@jhph.edu.

NEXT ISSUE NATIVEVISION
This summer, 1,000 American Indian kids will descend on Shiprock, New Mexico, for the annual NativeVision camp. NFL players and Johns Hopkins coaches will lead sports clinics. And Martin Sheen will teach acting. Read our “postcard from camp” in the Fall 2013 issue.

Photo: Ed Cunicelli