

Yale Public Health

SPRING 2012



A **growing** problem—
obesity and nutrition in the 21st century

The weight of disease | An expanding state | New Haven intervention |
Blue lasers | Rinderpest no more

Yale SCHOOL OF PUBLIC HEALTH





Yale

Public Health

SPRING 2012

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A diet high in saturated fat and sugar is among the factors contributing to alarming rates of obesity in the United States and many other countries.

Getty Images

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Dean's Message

The health challenges of obesity

When one assesses the changing nature of the threats to our health over the past several decades and anticipates emerging threats, issues related to obesity are inevitably emphasized.

Although inadequate nutrition and a lack of food remain a pervasive crisis throughout much of the world, we now are seeing evidence of the consequences of the intake of excessive calories and of certain types of fats and sugars, combined with insufficient levels of physical activity.

The trends are alarming and the public health implications are profound. According to the National Center for Health Statistics, the proportion of children in the United States who are obese has almost doubled over the past 20 years, and today approximately 20 percent of U.S. children are overweight. In 2010, there was not a single state that had an obesity level less than 20 percent. Thirty-six states, meanwhile, had an obesity prevalence of 25 percent or more, and 12 had a prevalence of 30 percent or more.

And this problem is not limited to our country. Similar trends are evident around the world, including in developing nations where infectious diseases have historically posed the greatest health threat. According to the World Health Organization, in 1995 there were an estimated 200 million obese adults worldwide and another 18 million overweight children. By 2008 the number of obese adults had increased to about 500 million. This health crisis, along with its consequences, is detailed in a new exhibition at the Yale Peabody Museum of Natural History. Obesity dramatically increases the risk of heart disease, diabetes and even

diseases that we previously did not associate with obesity, such as certain cancers. Ongoing research by our faculty is shedding light on the complex interplay of diet, weight, exercise and disease.

Although clinicians can counsel obese patients and, in extreme cases, use surgical procedures to treat severe conditions, obesity inevitably must be addressed by prevention, at both the individual and population levels. The challenge is similar in many respects to that of smoking, an area where public health interventions continue to have a meaningful impact. Although there is no dispute about the link between obesity and many types of disease (as there once was with the link between smoking and cancer), more education, new policies and changes in individual and cultural habits will most likely be needed to reverse current trends.

In many ways, reducing obesity will be even more challenging than curtailing tobacco use. Unlike smoking, we all need to eat. Also, unlike smoking, where no amount is safe, we depend on food for survival, and indeed, in many parts of the world we are facing severe food insecurity.

In this issue of *Yale Public Health* we explore behavioral, technological, economic and policy strategies used to examine some of the reasons for the dramatic increase in obesity; the implications for our nation's and the world's health; and ways in which scientists from many disciplines are addressing this growing threat to our health and well-being.

Paul D. Cleary, Ph.D.
Dean, Yale School of Public Health

“In many ways, reducing obesity will be even more challenging than curtailing tobacco use.”

Editor's Note

Tick finding

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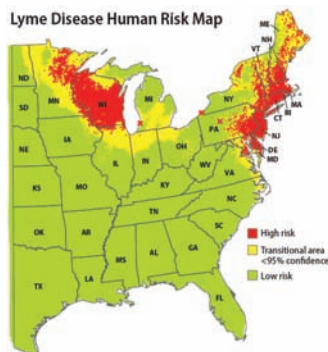


A digital archive of *Yale Public Health* is available at publichealth.yale.edu/news/magazine/index.aspx.

The researchers fanned out in 37 states stretching from Maine to Texas, surveyed hundreds of sites and, in the end, collected thousands upon thousands of ticks.

Each of the tiny specimens was catalogued and tested for the presence of Lyme disease. The painstaking effort lasted more than three years and involved dozens of researchers from the Yale School of Public Health and other institutions.

The survey, perhaps the largest field study ever conducted to assess disease risk, resulted in a new and highly detailed map of where infected ticks are – and are not – concentrated. The goal is for the easy-to-read chart to improve public health by helping health officials and the public better understand where Lyme disease is a pronounced threat.



Not surprisingly, the researchers found the greatest density of infected ticks in the Northeast (from Maine down through Delaware and into Maryland, including a large swath of eastern Pennsylvania). Another pocket of high risk was charted in the upper Midwest (particularly in Wisconsin and parts of neighboring Minnesota).

But what the survey didn't find was also of interest.



Large swaths of the country – from Virginia down to Florida and westward to Texas and up to the Dakotas – revealed areas where the threat of Lyme disease is considered to be low.

“There has been a lot of discussion of the risk of Lyme disease outside of the Northeast and the upper Midwest. Our sampling of tick populations at hundreds of sites suggests that the risk is low and that alternatives to any diagnosis of Lyme disease should be considered,” said Maria Diuk-Wasser, Ph.D., assistant professor in the division of Epidemiology of Microbial Diseases at the Yale School of Public Health and lead author of the study, which was released in February. “We can’t completely rule out a diagnosis of Lyme disease in the South, but it should be considered unlikely.”

Data from the same collection effort were also used in a Lyme disease “app” that the school developed recently for the iPhone and other Apple products.

Understanding where Lyme disease is endemic is an important factor in improving prevention, diagnosis and treatment, Diuk-Wasser noted. A correct diagnosis of Lyme disease allows the proper antibiotics to be prescribed and prevents complications. Conversely, the map can also help avoid misdiagnoses, which often result in people being treated with drugs that can do more harm than good.

Michael Greenwood
Managing Editor



Michael Woloschinov (3)

Dangers posed by indoor tanning identified

People who use indoor tanning beds are at a significantly higher risk of developing basal cell carcinoma (BCC) before the age of 40 than people who never use indoor tanning beds.

Led by researchers from the Yale School of Public Health, the study team determined that young people who had tanned indoors had a 69 percent increased risk of early-onset BCC. The association was strongest among women and the risk increased with years of indoor tanning use.

Recent data indicate that BCC incidence is on the rise. Approximately a quarter of the overall cases of early-onset BCC—including 43 percent of cases in women—could be prevented if individuals never used indoor tanning beds, the research found.

“Indoor tanning was strikingly common in our study of young skin cancer patients, especially in the women, which may partially explain why 70 percent of early-onset BCCs occur in females,” said Susan T. Mayne, Ph.D., head of the division of Chronic Disease Epidemiology and senior author of the study, which was

published in the *Journal of the American Academy of Dermatology*. “We were also surprised to find that one-third of our study participants with BCC had already had at least one additional BCC before age 40, which is very alarming, as skin cancers increase in frequency with age.”

BCC is an extremely common type of skin cancer, more frequent than all other cancers combined. The results expand upon findings linking indoor tanning to melanoma, a less common but more lethal form of skin cancer.

Michael Greenwood

Statins may help reduce flu mortality

The two most common weapons for fighting influenza are an annual immunization and the use of antiviral drugs. But a team of investigators has found that statins—a class of drugs widely used to lower cholesterol—may offer additional benefits that complement these approaches and reduce mortality among patients with influenza.

Researchers used data for hospitalized adults during the 2007 to 2008 influenza season to evaluate the association between statin use and influenza-related deaths. The data were drawn from the Centers for Disease Control and Prevention’s Emerging Infections Program, which conducts active surveillance for patients hospitalized with laboratory-confirmed influenza in 59 counties in 10 states, including New Haven County in Connecticut.

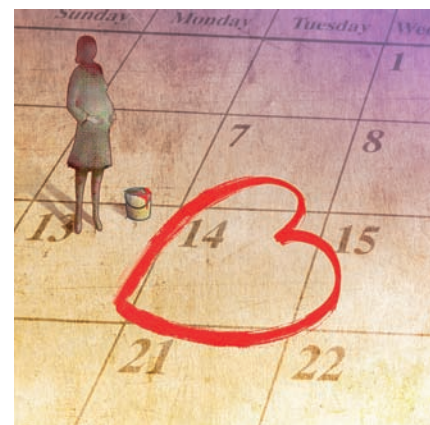
Among 3,043 hospitalized patients with laboratory-confirmed influenza,

33 percent were given statin medications prior to or during hospitalization. After adjusting for various factors, patients not receiving statins were almost twice as likely to die from influenza as those who did receive the medication.

The findings come from the first published observational study that evaluates the relationship between statin use and mortality in hospitalized patients with laboratory-confirmed influenza virus infection.

James I. Meek, M.P.H., associate director of the Connecticut Emerging Infections Program at the Yale School of Public Health, contributed to the study. The findings were published in *The Journal of Infectious Diseases*.

M.G.



Birth timing influenced by scary, romantic holidays

Halloween and Valentine’s Day appear to influence when expecting mothers give birth.

Halloween, with its symbolism of witches and death, was found to be an unfavorable day for childbirth. In contrast, Valentine’s Day, with its symbolism of flowers and love, is treated

as a favorable day for childbirth. The new Yale-led study found a decrease in births on Halloween and an increase on Valentine's Day. The association of the two holidays with birth patterns was shown for the first time.

On Halloween there was a 5.3 percent decrease in spontaneous births and a 16.9 percent decrease in cesarean births, compared to other births occurring within one week before and one week after the October holiday, whereas on Valentine's Day there was a 3.6 percent increase in spontaneous births and a 12.1 percent increase in cesarean births.

"The study suggests that beliefs arising from our culture can have a greater impact on physical functioning than we might suspect," said Becca Levy, Ph.D., lead author and associate professor in the division of Chronic Disease Epidemiology.

The findings, published in *Social Science & Medicine*, suggest that pregnant women may have some control over the timing of spontaneous births – traditionally believed to be beyond their control – and that scheduled births are also affected by the symbolism of the two holidays.

M.G.

Health care leadership modeled in Ethiopia

Despite extensive poverty and limited resources, Ethiopia has made impressive strides in improving its health care system and can serve as a model for other countries seeking to make similar gains.

The East African nation – which is more than twice the size of California and has one of the largest populations

in Africa – has successfully applied concepts of grand strategy to implement achievable priorities, work with diverse partners and external funders and develop middle-level management to promote new health policies.

Taken together, the country's wide-ranging approach has resulted in tangible changes on the ground and in improved health for more than 80 million Ethiopians, Yale researchers concluded. Ethiopia has, for example, constructed numerous new health centers and clinics and trained personnel to staff them, expanded access to clean water and nutritious food and sharply cut the number of deaths from malaria.

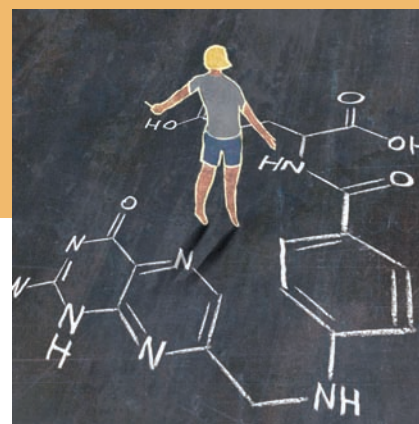
"Ethiopia's health reform strategy has been guided by an extraordinary clarity of purpose, reflecting the priorities of the country rather than the priorities of donors," said Leslie A. Curry, Ph.D., a research scientist and lecturer in the division of Health Policy and Administration and one of the study's authors.

Ethiopia demonstrates that a country, even an economically disadvantaged one, can surmount internal and external obstacles and make measurable improvements in health within a time span of several years, the authors said. The paper was published in *Global Health Governance*.

M.G.

Folate not associated with risk of childhood asthma

It has been known for 20 years that folic acid (folate) supplements taken during pregnancy reduce the risk of neural tube defects and possibly other congenital malformations.



However, it has also been suggested that folate, an important regulator of a complex set of pathways necessary for fetal development, may increase the risk of other diseases in exposed children, particularly allergies and asthma.

In a recent study by the Yale School of Public Health, 1,499 women were followed from the first trimester of their pregnancy, and their children were followed to age 6. No association was found between childhood asthma and the mother's use of folic acid in pregnancy, the stage in pregnancy when folate was used or the dose administered.

"Public health interventions affecting the diet of entire populations must be carefully assessed for possible harms," said Michael B. Bracken, M.P.H. '70, Ph.D. '74, Susan Dwight Bliss Professor of Epidemiology and the study's senior author. "While the current analysis is reassuring, more work studying the safety of higher doses of folate than were measured in this study is needed."

Just over half of the mothers in the study used folate in the month before conception and 88 percent used folate in the third month of pregnancy. By age 6, 15 percent of the children had been diagnosed with asthma. This is a higher rate than normally expected because the study focused on mothers at particular risk for having asthma. The study appears in the *American Journal of Obstetrics & Gynecology*.

M.G.

Roma face heightened health risks in Serbia

Serbia's Roma are significantly more likely than their peers to be at risk for poor health, with Roma women being particularly vulnerable.

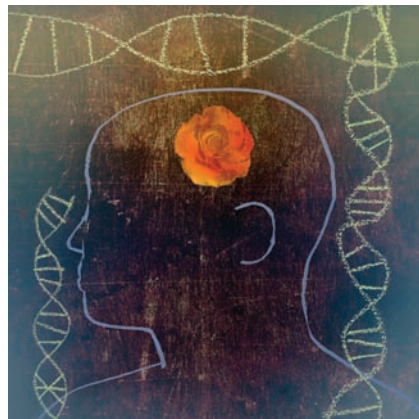
A recent study found health disparities across all age groups between the Roma and non-Roma population in the small European country. Roma in general were more than twice as likely as non-Roma to report health issues, and Roma women were more than three times as likely to report poor health as Roma men.

Roma, once known as Gypsies, are the largest minority group in Europe, but they have not been widely studied. Group members are extremely vulnerable and face widespread discrimination and social exclusion in many countries where they live. The Yale study on self-rated health of Roma is believed to be the first in Serbia and documents substantial health disparities between Roma and non-Roma.

"The findings are not unexpected—that women in such a war-torn and disrupted country would face the most extreme discrimination. Sadly, these trends can take decades to reverse, but scholars can help by drawing attention to the issues with data—as this paper does," said Elizabeth H. Bradley, Ph.D. '96, professor in the division of Health Policy and Administration, director of the Yale Global Health Initiative and the paper's senior author.

The study was done in conjunction with Yale's Jackson Institute for Global Affairs.

Michael Greenwood



Genetic link identified in brain tumor

Researchers have found a significant link between the most common type of brain tumor in the United States—meningioma—and a patient's family history, suggesting that genes play an important role in the development of the potentially debilitating lesions.

The Yale School of Public Health-led study compared 1,124 patients with the intracranial tumors with a nearly equal number of control subjects from different regions of the United States and concluded that an inherited gene (or genes) for meningiomas appears to be involved in the tumor's onset.

Meningioma patients were 4.4 times more likely than their peers in the control group to report a first-degree family history (e.g., parents, offspring and siblings) of the tumor. Patients with a second-degree family history (e.g., grandparents, uncles and aunts and grandchildren), meanwhile, had an elevated but not statistically significant risk compared to their control peers.

During the five-year study, the researchers also examined a range of environmental, pathological and clinical factors that might be associated with the tumors. They found that the meningioma patients had greater exposure to ionizing radiation (which is suspected to cause tumors) through previous radiotherapy for illnesses such as leukemia and thyroid cancer. Meningioma patients were also more likely to have suffered from breast cancer, endometriosis and uterine fibroid tumors, suggesting a link between hormonal factors and the tumor.

"Identifying families who may share a genetic susceptibility to meningioma is one important way to try and discover genes for this tumor," said Elizabeth B. Claus, Ph.D. '88, M.D. '94, professor in the division of Biostatistics, the study's lead author and a neurosurgeon at Brigham and Women's Hospital in Boston. "In our next research phase we plan to examine DNA obtained from such patients in an effort to locate such genes."

The paper was published recently in the *Journal of Neurosurgery*.

M.G.

How, and why, has America grown so heavy? The reasons are many and nuanced and say something about the direction of modern culture.

Child-targeted ads

The obesity epidemic cannot be reversed without substantial improvements to the food-marketing environment that surrounds today's young people.

The industry spends almost \$2 billion annually to market foods and beverages high in calories, sugar and fat directly to children and teens. The majority of child-targeted marketing budgets are spent on television advertising; however, other forms (e.g., product placements, advergames, banner ads on third-party websites, social media and even iPhone apps) are also widely used.

Scientific evidence increasingly reveals potentially profound effects of food marketing on eating behaviors and health. Marketing to children takes advantage of their inability to critically process persuasive messages, and many newer forms of marketing are designed to persuade “under the radar” and influence all consumers outside of their conscious awareness.

Resisting these sophisticated marketing messages for poor-quality, but highly desirable, foods requires well-developed self-regulatory skills, which youth do not possess. In response to pressure from the public health community to improve the food-marketing environment surrounding young people, the food industry has established self-regulatory pledges regarding child-directed food advertising. Yet numerous evaluations demonstrate negligible changes in children's exposure to unhealthy food marketing.

Research that reveals the full extent of marketing of unhealthy food and its harmful effects on young people's diets plays an important role by educating the public and placing pressure on food manufacturers to improve their food-marketing practices and protect young people's health.

Jennifer L. Harris, Ph.D. '08, M.B.A., is the director of marketing initiatives for the Yale Rudd Center for Food Policy & Obesity.



Michael Sloan

A downside to free-market success

Obesity rates have tripled for adults and children since 1980. Considering those both overweight and obese, the epidemic now encompasses one in three children and two in three adults. Why has this happened?

The glib answer is that people are consuming more calories than they are expending. And the glib solution is for people to eat less and exercise more. But that raises the question of why we're consuming too many calories. The underlying cause of obesity is that we (and millions elsewhere) live in a very wealthy free-market country.

That wealth enabled people to leave farms and allowed companies to invent automobiles, elevators, computers, telephones, tractors and other things that have reduced physical activity and caloric expenditures. Meanwhile, other companies developed countless processed foods that turned out to be unhealthy, including soft drinks, white flour and salty snacks.

The same wealth has made food relatively cheap — on average, Americans spend only 9.4 percent of their disposable income on food. That means we can spend almost limitless amounts on food, including restaurant meals that provide a whole day's worth of calories in one sitting.

To reverse the obesity epidemic, we need more than willpower. We need massive healthy-eating multimedia campaigns, better food labeling, taxes on unhealthy foods, an end to junk-food marketing to kids, more biking trails and basketball courts and numerous other measures.

Michael F. Jacobson, Ph.D., is co-founder and executive director of the Center for Science in the Public Interest in Washington, D.C.

Profits over health

America's obesity “bubble” is a toxic asset on the scale of the Silicon Valley, real estate and banking bubbles that have devastated our country.

Perspective

A weighty problem

Our fundamental instinct to eat is being manipulated by corporate marketers who promote profits over public health. We have been snookered (or Snickered!) at the youngest of ages – even with soda logos on baby bottles – into eating foods that are more obesigenic than healthy.

We're fed a greased bill of goods by companies that sweeten the pot by preying on our instinct to sock away endless calories, and they use sugar, salt and fat as the bait. Inadequate regulation of megaindustrial food corporations has let them fatten us up until the consequences of obesity feed us into the medical and pharmaceutical industries.

We have a Congress that puts profits from pizza and fried potatoes ahead of protecting children from diseases that are effectively foodborne. We're politically and financially infected via the vectors of an unbridled industry and advertising motivated by sales – not health or sustainability. In government, money talks louder than science or parents.

A “food for people” approach would regain control of the four Ps – processing, packaging, preservation and promotion – and emphasize plant-based foods as renewable energy over animal-based ones.

Eric Triffin, M.P.H. '86, teaches public health at Southern Connecticut State University.

A culture of inactivity

Today's obesity epidemic is driven by decreasing levels of physical activity and increasing energy consumption, perhaps entangled with a genetic susceptibility to weight gain.

What feeds this trend? Systemic barriers such as lack of access to inexpensive, healthful food enable the obesity epidemic. However, even if these barriers were eliminated, sufficient incentives to encourage a healthy body weight are lacking. Some individuals want to maintain a normal weight but have trouble resisting tempting, energy-dense foods and lack the motivation or ability to exercise. Other individuals simply are not concerned with body weight. These groups require different explanations for the obesity epidemic and would require different interventions. Still, both face the health consequences of obesity, and both

could benefit from greater individual accountability for health maintenance.

Individuals look to medical professionals to prevent or treat acquired diseases rather than adopting different lifestyle habits that would require continued attention and effort. How would this perspective change if individuals had medical savings accounts and could choose how to spend the funds therein, or if there were rewards from schools, employers or health insurance companies for maintaining a healthy weight in an attempt to reduce costly, obesity-related diseases?

Ultimately, incentives and consequences for maintaining a healthy weight must be strong enough for individuals to overcome barriers to healthful eating and exercise, in tandem with improved policies to overcome economic barriers to healthier foods.

Hannah Arem is a doctoral student in public health at Yale.



Michael Sloan (2)

Disproportionate portions

The reasons for obesity are complex, and multiple trends are contributing to the root problem – rapidly growing waistlines here in America and beyond.

One factor, often overlooked, is simultaneous shifts in our cultural and food environments that have unfolded over the past 40 years. More specifically, Americans are increasingly sedentary while our portion sizes have grown disproportionately. This is easy to miss, especially for members of generation Y, who have come of age accustomed to all-night drive-throughs (e.g., fast food outlets, ATMs and drug stores), grocery home delivery and online shopping.

Ironically, our fast-paced, busy lifestyles have somehow made us less physically active. There is very little pressure or need to get up and move. What's more, the food industry has subtly increased portion sizes, and this has happened ounce by ounce, over a period of many years. Today, for many, a 20-ounce bottle of Coke, a triple burger with layers of cheese and all the fixings or a heaping plate of pasta is the new normal.

Consider the original 8-ounce Coke bottle and its 100 calories. It was a modest drink. Today, it is routine for

“A recalibration has occurred and it has happened almost imperceptibly and with dire health consequences.” — Sarah Aspinwall

people to consume double or even triple that amount of soda in a single sitting. Eight ounces no longer suffices. Are people thirstier today than 40 years ago? Probably not. But many people have come to expect these larger portions.

A recalibration has occurred and it has happened almost imperceptibly and with dire health consequences. Portion control by itself will not solve the obesity epidemic, but a return to more modest servings would be a good start.

Sarah Aspinwall is a second-year M.P.H. student at Yale.

A mountain of choices

Today’s global food system has succeeded at producing and selling more varieties and larger quantities of foods than ever before.

Chain supermarkets now offer upward of 40,000 different foods, as compared with a mere 8,000 in 1976. Research has identified unexpected consequences of too many choices – decision fatigue and increased consumption.

Decision fatigue has been studied primarily in the context of consumer choices. After people make a number of decisions (such as purchasing choices), they exhibit less self-control, as manifested in a reduced ability to perform an unpleasant task. Translating this research into the food/nutrition domain would suggest that after walking through a supermarket, ordering from a restaurant menu or selecting food from a buffet, individuals may have less self-control when it comes to making decisions about snacks or desserts.

In addition, given more food choices, such as three flavors of yogurt versus one, people eat more. The sheer number of choices and decisions we are faced with daily in non-food settings may similarly decrease our self-control when it comes to food consumption habits. Successful approaches to reducing weight at the individual level often include limiting food choices, thus decreasing the decisions we must make.

While being overweight may be related to too many food choices, undernutrition is often related to too little variety and too few food choices. As more questions arise about how to increase the ability of the global food system

to support health, it will be important to work to identify the optimum range of food variety for health, balancing the global problems of over- and undernutrition.

Debbie Humphries, M.P.H., Ph.D., is a clinical instructor in the division of Epidemiology of Microbial Diseases.

The economics of eating

The obesity epidemic is a multifaceted issue, yet economic forces are at the heart of the problem. At the individual level, weight gain is the result of time- and money-constrained choices we make about food consumption and physical activity. Economic theory suggests that the rise in obesity rates is a direct result of changes in relative prices that promote excess energy intake and encourage inactivity.

Over the past several decades, food prices – especially for high-calorie, low-nutrient-dense options – have dropped relative to prices of other goods and services, promoting a shift in consumption toward cheaper, more-fattening food.

At the same time, technological innovations in the household and manufacturing sector have decreased the time and energy costs of food preparation and acquisition.

Changes in the occupational structure have also made employees more sedentary in the workplace. At home, computer use and television watching compete against active leisure time.

Finally, the tremendous advances in medical treatments for the risk factors and diseases associated with obesity suggest that the health costs of this condition are not as great as they once were.

It is likely that many rational, utility-maximizing individuals will engage in behaviors that are obesity-promoting simply because the financial and opportunity costs of weighing less are just too high. Successful prevention efforts will need to address the market forces and technologic advances that raise the costs of maintaining a healthy lifestyle.

Kiersten Strombotne is a YSPH doctoral student.



BIG FOOD

“When was the last time that a museum exhibition changed your life? We hope this one will.”

—Jeannette Ickovics, lead curator of Big Food and director of CARE

The food consumed by an average American in a year includes 170 pounds of meat, 36 pounds of French fries and 33 pounds of cheese. Visitors to the *Big Food* exhibition first walk through a corridor of food that shows modern eating habits in all of its healthy—and unhealthy—detail.



The dimensions of a growing public health problem are outlined in a Peabody Museum exhibition that organizers hope provides healthier food for thought.

By Michael Greenwood

When it comes to food, Americans are serious consumers.

In a given year, the “average” citizen ingests quantities of food and beverage – often heavily laced with fat, sugar and salt – that were unimaginable just a generation or two ago.

An exhibition that opened in February at the Yale Peabody Museum of Natural History details this diet and all of its gory details – including 66 pounds of corn sweeteners, 170 pounds of red meat (but only 16 pounds of fish), 64 pounds of sugar and 79 pounds of added fats.

These levels of consumption have contributed to all-time high rates of obesity, including an alarming number of children. Food companies, meanwhile, spend over a billion

is also receiving increased attention from policymakers, and a recent study found that U.S. obesity levels have hit a plateau. While the overall numbers are still much too high, at least they are not increasing, suggesting that public health messages may be starting to have the desired effect.

“This is a big issue, fundamentally impacting health and the human condition. It is going to take social, political and economic shifts,” Ickovics says. “Public health must work in strong partnership with others from all sectors of the community – residents, civic leaders and policymakers – to nurture and sustain healthy communities. There are many things that we can change and we need to change the things we can.”

Big Food also explores, sometimes graphically, factors that contribute to skyrocketing rates of diabetes, heart problems, high blood pressure and other chronic illnesses. Visitors, for instance, can pick up a blobby mass that is the equivalent of five pounds of human fat; examine internal organs that have been damaged by a poor diet and obesity; and use a computer-generated program that smashes a virtual food item (complete with sound effects) and then tallies the stunningly high quantities of sugar, salt and fat found within.

The exhibition tackles a range of other issues associated with obesity as well, such as human origins as hunter-gatherers and the evolution of diet through the lens of industrialization, urbanization and globalization; societal bias against people who are overweight; taxation as a public policy response to unhealthy foods; and the battle to establish healthy school lunches. Lectures, films and community events are scheduled throughout the year to further raise awareness and explore topics in greater depth.

But first, visitors walk through a corridor that shows how much, and what type of, food is consumed by a single person in a year. It is impossible to ignore. The quantity is astonishing.

“When was the last time that a museum exhibition changed your life?” Ickovics asks. “We hope this one will.”

YPH



5,475

Approximate number of food commercials seen by children annually.

\$1.6 billion

Amount of money spent by food companies each year on marketing.

1.5 billion

Estimated number of people worldwide who are overweight (out of a total of about 7 billion people).

“First we eat, then we do everything else.”

—M.F.K. Fisher, American food writer, in a quote from the exhibition



Pablo Cruz (with his mother, Sarah Miller) responds to a display that shows the power of food marketing. Some companies place their logos on baby bottles.



16

Number of spoonfuls of sugar in a 20-ounce can of Red Bull. A 23-ounce can of Arizona Iced Tea contains 18 spoonfuls.

Liquid candy

“Surprisingly, most of the sugar we consume does not come from what we eat, but from what we drink.”

“Drink water.”



zero

“Amount of sugar in a glass of water, regardless of the size.”

Water Works

Not only is it **free**, but it's also **great** for your body—So stop at the fountain, fill up a bottle and take a gulp. **Cheers!**

Many popular beverages pack a sugary punch, with some having as many as 18 spoonfuls in a single container. Americans, meanwhile, consume some 64 pounds of sugar annually. The display notes that water is sugar-free.



55/275

Number of calories in a typical chocolate chip cookie 20 years ago and today.

243/611

Number of calories in a chili recipe in 1936 and 2006, due to an increase in portion size, most notably a tripling in the amount of meat.



Second thoughts? Ihsan Abdussabur studies an exhibit showing that a medium-sized container of movie popcorn has the same number of calories as four hamburgers and 12 pats of butter. *Bottom:* Food portions, meanwhile, have increased dramatically and, as a result, so has the number of calories consumed. Today, more than one in three Americans is considered obese.

Two things anyone can do to stop weight gain: Eat 100 fewer calories a day. Walk 30 minutes a day.

45/22

Number of gallons of soda and milk consumed by the average American each year.

79

Number of pounds of added fat eaten by the average American each year.



Being overweight or obese often results in serious health consequences, including hypertension, heart disease and diabetes, which can reduce productivity and lead to an early death. Above, Sarah Conley handles the equivalent of five pounds of human fat while her sister, Gloria, looks on.

“If you can lose just 5 percent to 10 percent of your current weight, it will lower your risk for diabetes, heart disease and other conditions.”

“Obesity is preventable.”

3

Percentage of Americans currently living on farms. In the early 1800s the number was about 90 percent.

“If we are what we eat, then Americans are cheap, fast and easy.”
—Alice Waters, American chef, activist and author, in a quote from the exhibition

“Families that eat together are more likely to eat healthy foods.”



Naszir Johnson ponders the damage that unhealthy eating and excessive weight can do to internal organs. Since seeing the exhibition, his mother says that Naszir has been “watching what he eats” and has a “new appreciation” for his aunt’s garden.

33.9

Percentage of Americans who are obese. An additional 34 percent of Americans are overweight.

“Weight bias isn’t just common – it is socially acceptable.”

“Eat food. Not too much. Mostly plants.”

—Michael Pollan, author, journalist, professor and food activist, in a quote from the exhibition

“Why do food companies work so hard to reach children? Because kids influence their parents through ‘pester power.’ Children recognize logos before they can read.”

“Health is not valued until sickness comes.”

—Thomas Fuller, British physician (1654 1734), in a quote from the exhibition

Food desert

A place where at least 20 percent of the people live at or below the poverty line ... without a supermarket in a one-mile radius.

Food swamp

A neighborhood filled with fast-food restaurants and convenience stores. There are five fast food restaurants for every one grocery store in the United States.

“There are foods that we should be promoting and foods that we should be discouraging.”

—Marlene Schwartz, deputy director of the Yale Rudd Center for Food Policy & Obesity and a curator of the exhibition

800 to 1,100

Average number of calories consumed by a teenager at a fast-food restaurant.

“Restaurants often serve huge portions so you feel that you are getting a lot of food for your money.”



A can of Red Bull, a bag of chips and a remote control are among the items in this model of a typical teenager's bedroom. Diet and a sedentary lifestyle are increasingly taking a toll on the health of children and adolescents. These problems often worsen in adulthood.



If you can't visit *Big Food* in person, go to its “take a stand” website at takeastand.research.yale.edu/poll and make a commitment to a healthier lifestyle.



“We want *Big Food* to be a catalyst for change.”

—Jeannette Ickovics, lead curator of *Big Food* and director of CARE



Big Food, on display at the Peabody Museum through December 2, encourages visitors to make a pledge to develop a healthier lifestyle. (Left to right) Marlene Schwartz, deputy director of the Yale Rudd Center for Food Policy & Obesity; Jane Pickering, deputy director of the Yale Peabody Museum of Natural History; and Jeannette Ickovics, professor at the Yale School of Public Health and director of CARE, are among the exhibition's curators. Also on the curatorial team are Richard Bribiescas, chair of the Department of Anthropology, M.P.H. student Jacqueline Bruleigh and Megan Orciari of the Rudd Center. The exhibition's presenting sponsor is the Anthem Blue Cross and Blue Shield Foundation. Support also came from the Donaghue Foundation, Yale Schools of Public Health and Medicine, Yale-New Haven Hospital, Community Foundation for Greater New Haven, General Electric, Blue State Coffee, IKEA and Ardenghi Trust.



Ongoing research on the links between cancer, excessive weight, diet and exercise may offer hope for people with terminal illnesses.

The weight of disease



“It seems that environmental factors, especially lifestyle, contribute significantly to the disease. But that could be good, because lifestyle can be modified by diet and exercise.” —Herbert Yu



Cetty Images

Despite widespread knowledge that a diet high in fat and processed foods is a major contributor to poor health, obesity rates have climbed steadily over the past decades, contributing to more than 60 chronic diseases, including cancer.

By Steve Kemper

Tobacco will soon be displaced as the main cause of cancer deaths in the United States. This might be reason for celebration, if smoking was not being supplanted by yet another preventable cause of cancer: obesity and its side-kicks – unhealthy food and lack of exercise.

The American Cancer Society says that in 2011, about a third of the estimated 1.6 million new cases of cancer stemmed from tobacco use. But another third were linked to obesity, inactivity and poor diet. Similarly, a third of the estimated 572,000 deaths from cancer were tobacco-related, but another third were caused by the obesity trio.

“So we know how to prevent about two-thirds of the current cancer burden in the United States,” says Susan T. Mayne, Ph.D., head of the division of Chronic Disease Epidemiology and associate director for population sciences at the Yale Cancer Center, whose research has traced the role of diet in several forms of cancers. “Exercise, fruits, vegetables, whole grains: that’s the same message we’ve been giving for a long time. But it’s not changing behavior – the prevalence of obesity keeps going up.”

Indeed, the nation’s collective waistline has been steadily expanding for several decades, though recent research has found that the rate may be leveling off. At the moment, one in every three U.S. adults is obese, and another third are overweight. If projections hold, 78 percent of Americans will be overweight by 2020.

For public health officials this is a nightmare, since obesity is linked to more than 60 chronic diseases, including cancer. “We feel obesity is an incredibly important issue that has tremendous potential to impact cancer rates,” says Susan M. Gapstur, M.P.H., Ph.D., vice president of the Epidemiology Research Program at the American Cancer Society. “And the list of cancers that obesity is linked

to is growing. It is clearly linked to the risk of endometrial, esophageal, colorectal, renal, kidney, pancreatic and postmenopausal breast cancers. Evidence is also growing for cancers of the liver and gallbladder and non-Hodgkin’s lymphoma, to name a few.”

Equally alarming, YSPH researchers are finding that the mechanisms connecting obesity to cancer begin to operate at much younger ages than previously suspected. Since many of the nation’s children are heavy and becoming heavier, this is especially bad news. In November, a study of the cardiovascular health of U.S. adolescents reported that more than a third of today’s teens are overweight and inactive and, hence, are likely to die of heart disease at a younger age than today’s adults – a shocking trend. Given the ties between obesity, inactivity and cancer, today’s teens are likewise at greater risk of developing malignancies.

Yet Yale researchers are also demonstrating that the links between cancer and obesity can be broken, or at least weakened, through interventions and individual willpower. Cancer risk can be drastically cut by reducing one’s waistline. A growing number of publications have also reported associations between exercise, healthy eating and a reduced risk of breast and colorectal cancer recurrence.

A disturbing link

This year about 42,000 U.S. women will be diagnosed with endometrial cancer, the most common form of uterine cancer. Nearly 8,000 will die from it, and that number has been rising. One possible reason is demographics: endometrial cancer typically occurs after menopause, and female baby boomers are entering that phase in large numbers.

But there’s another reason: excess body fat. Scientists have long suspected a link between excess weight and endometrial cancer. Recent research by scientists at the School of Public Health has not only documented that link but also



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weight, and successfully keeping it
the chances of developing serious
forms of cancer.

found troubling proof that the foundations of endometrial cancer may form as early as a woman's 20s.

Until this research, this form of cancer was assumed to be caused by postmenopausal changes in a woman's body. At that point, the ovaries stop producing the progesterone that helps protect the endometrium, or uterine lining, from estrogen. These "unopposed" estrogens are known factors in the development of endometrial cancer. Fatty tissue was a suspect as well, since it produces hormones and other chemical compounds that cause excessive cell growth, often the precursor of tumors.

Now Herbert Yu, M.D., M.Sc., Ph.D., adjunct professor in the division of Chronic Disease Epidemiology, and several collaborators have found compelling evidence that correlates the risk of developing endometrial cancer with weight long before menopause begins.

"We found a cumulative effect from the age of 20 or 30," says Yu. "If young women become obese and maintain obesity, they have a much higher risk of developing the cancer than do women who become overweight in their 40s or 50s. And the longer you are obese, the higher your risk."

The increased risk is not trivial. Overweight women are twice as likely to develop endometrial cancer as women of normal weight. For obese women, the risk is four times greater. The study also found that overweight women tend to develop the disease at a younger age. Those who increased their weight by 35 percent in their 20s and didn't lose it were likely to be diagnosed with endometrial cancer around age 50, 10 years earlier than women whose weight increased 5 percent or less during the same period.

These findings, funded by the National Cancer Institute (NCI) at the National Institutes of Health, held true across all racial and demographic categories among the 1,333 women studied. The genetic analysis of the data is still under way. "But unfortunately," says Yu, "based on preliminary data, there

are no strong linkages to genetic factors for endometrial cancer." Unfortunate because that makes a genetically engineered remedy unlikely.

"It seems that environmental factors, especially lifestyle, contribute significantly to the disease," says Yu. "But that could be good, because lifestyle can be modified by diet and exercise."

Yu also reported another troubling finding: "The sample size is very small for those who went from being obese to being normal weight," he says. "But those who went from normal weight to overweight or obese are a huge number. It seems that once you're obese or overweight, it's very hard to reverse it."

The study makes clear that the effort is worth it: exercise and weight loss were associated with a lower risk of developing the cancer. In 2010 Yu found that women who sat for more than eight hours per day were 52 percent more likely to develop endometrial cancer than women who sat for fewer than four hours per day.

The link between obesity and cancer is also the focus of Yu's current research. He has just started recruiting patients for a large study, funded by a nearly \$7 million NCI grant, on the connections of lifestyle factors such as obesity and inactivity to liver cancer. "Overweight people tend to develop fatty liver disease," he says, "and eventually some of them will develop liver cancer. We want to look at the interaction of lifestyle and genetics in this disease."

Yu first studied liver cancer in his native China, where it's more common, probably because of factors such as viral infections and food and environmental pollutants. After emigrating here in 1986 to further his training in cancer research, he became fascinated by the role that lifestyle plays in the disease, first studying tobacco and now obesity. "Lifestyles are modifiable," he says, "which means you can educate people and persuade them to change."



Rudd Center (2)

The connections between diet, weight, exercise and disease are only partially understood, but increasing evidence suggests that adults who commit to a healthier lifestyle can reduce their risk of serious disease such as cancer and also improve their chances of survival if disease strikes.

But getting people to eat less and exercise more, he adds, will be much tougher than convincing them to stop smoking, because food is much harder to resist, abundantly available and cleverly marketed.

Exercise remedies

Melinda L. Irwin, Ph.D., M.P.H., associate professor in the division of Chronic Disease Epidemiology and co-director of the Cancer Prevention and Control Research Program at the Yale Cancer Center, has shown that exercise and weight loss not only help to lower the risk of cancer, they also can greatly improve a patient's recovery and survival chances.

Indeed, the numbers are startling. In a 2008 study of 933 women with breast cancer, Irwin found that women who began exercising moderately after diagnosis lowered their risk of death from cancer by 45 percent compared to their inactive peers. Breast cancer patients who reduced their physical activity were four times more likely to die of the disease. Irwin also learned that obese women tend to have high levels of insulin and insulin-like growth factors, which encourage cells to proliferate, leading to breast cancer. Exercise lowers these levels and curtails the growth of tumors.

How much exercise is necessary to lower the risk of recurrence and death? Observational studies during which women were asked how much they exercised after diagnosis showed that 30 minutes, five days a week, of "moderately intensive" activity such as brisk walking, was associated


with about a 50 percent lower risk of death, says Irwin. An equivalent lowering of risk is also observed with shorter durations of vigorous exercise, totaling 75 minutes a week, such as jogging or gym workouts.

"To put in perspective how important this lifestyle behavior is," notes a 2011 report from the American Society of Preventive Oncology, co-authored by Irwin, "physical activity is associated with a reduction in risk of recurrence by 30 percent to 50 percent, an effect comparable to chemotherapy and hormonal therapy; however, many patients and clinicians may not appreciate its benefit for survival."

The report recommends making exercise and weight loss part of cancer therapy but adds that such programs are rare, "despite the fact that obesity, weight gain and physical inactivity are common in cancer patients before and after a cancer diagnosis."

These discrepancies puzzle Irwin, whose research on breast cancer survivors is rooted in personal experience — when she was a teenager, her mother died of the disease. She points out that the observational links between obesity and many forms of cancer have been clear for a decade. Irwin notes that perhaps it is the lack of large-scale randomized trials investigating the effect of exercise and weight loss on recurrence and other cancer outcomes that has hindered clinicians from recommending these lifestyle behaviors to their patients. But the lack of more definitive data from randomized trials has not kept the national media from

"They say they feel better than they ever did in their lives, more independent, stronger emotionally and physically." —Melinda Irwin



Research at Yale has found that women who began a regimen of moderate exercise several times a week after being diagnosed with breast cancer lowered their risk of death by 45 percent compared to their inactive peers.



Rudd Center



suggesting that the links between weight, diet, exercise and cancer are strong.

Yet the message doesn't seem to have penetrated the cancer treatment establishment, the insurance companies (which usually don't pay for exercise and nutritional counseling) or the American public. "Is it that people don't want to hear the message?" she asks.

People do know that overeating is unhealthy, adds Irwin, especially foods full of sugar and fat. People also understand the links between obesity and diseases such as diabetes, heart disease and high blood pressure. "Now we need to get there with cancer, too," she says. "The associations and mechanisms are very similar."

Irwin suspects that most people still believe, or prefer to believe, that cancer is caused by things beyond their control, such as family history or genetics. "But we know that a majority of cancers – at least 30 percent, maybe more – are related to our health behaviors: our diet, our weight and our level of physical activity," she says.

Echoing Yu, she adds that this is potentially good news, because it means that people have more control over their risk of getting cancer or, if they are diagnosed with the disease, of avoiding a recurrence. Irwin calls a cancer diagnosis a "teachable moment," because the disease may motivate people to change unhealthy habits.

But she also acknowledges that this moment arrives when the patient is under tremendous psychological stress and probably feels weak and lethargic because of chemotherapy or radiation treatments. Few of these patients exercise regularly, if at all, she says, and most have difficulty starting on their own. When she tries to recruit them into studies involving exercise and nutritional counseling that might alleviate side effects of the treatment and also lessen the risk of recurrence, only two out of 10 are interested and eligible.

Individualized programs

Part of the solution, Irwin believes, is to provide free, individualized attention that eases a cancer patient into healthier habits while building confidence that exercising and weight loss are not impossible goals.

"We have cardiac rehab programs after heart attacks or heart surgery," she says, "and they are covered by insurance, because we know that if people just go home and rest, they're putting themselves at higher risk for another heart attack. We need similar programs for cancer patients, after or even during treatment."

Such a program already exists at Yale: the Connecticut Challenge Survivorship Clinic at the Yale Cancer Center, where Irwin does some of her research. Patients meet with a nutritionist and a physical therapist who customize diet and exercise programs.

The program is wonderful, says Irwin, but also rare. Yale is among the roughly 40 comprehensive cancer centers funded by NCI. "Those centers should be up to date with the latest research and have programs related to it," she says, "but I would say that no more than five offer something similar to the Survivorship Clinic." One reason: cost. Most insurance companies don't yet cover such programs.

Irwin is now working on an exercise study of ovarian cancer patients. About 75 percent of the women with this stubborn cancer suffer a recurrence within three years. Irwin wants to know if exercise can improve that and whether healthy changes in lifestyle also affect patients' mental outlook. The clinical results are not in yet, but some psychological results are. "They say they feel better than they ever did in their lives," says Irwin, "more independent, stronger emotionally and physically. This is likely to lessen side effects of chemotherapy and help them maintain many activities of daily living."

“We need to teach people how to make good food choices, how to incorporate physical activity into their daily lives – how to be healthier.” – Susan Mayne

Maura Harrigan, M.S., R.D., C.S.O., is a research associate at YSPH and a certified specialist in oncology nutrition. She is the project director on another of Irwin’s new exercise/nutrition studies of breast cancer patients, named LEAN (Lifestyle, Exercise and Nutrition). All of the patients enrolled in the study were overweight even before their diagnosis, and they often gain more weight during the treatment period, putting them at greater risk for a recurrence. They often feel shattered by the diagnosis, the treatment and the threat of another bout with the disease. They feel defeated by the need to lose a lot of weight.

Harrigan gives them a modest and therefore achievable goal of shedding 10 percent of their weight and guides them toward the food choices that will make it happen. A healthy diet, she tells them, incorporates two servings of fruit and three servings of vegetables per day; two-thirds of a plate should come from plant foods – whole grains, fruits and vegetables – and one-third from animal sources. “It’s the exact opposite of the typical American way of eating,” she says.

All of the data over the last 20 years support the idea that healthy eating reduces the risk of many chronic diseases, including cancer, adds Mayne. Conversely, a diet deficient in essential vitamins and minerals can lead to disease.

That was the finding of Todd Gibson, Ph.D. ’10, who is a Cancer Prevention Fellow at NCI. He was the lead researcher on a recent paper that showed a strong connection between colorectal cancer and inadequacy of folate, an essential B vitamin found primarily in fruit and vegetables. Folate inadequacy has also been provisionally linked to cancers of the breast, lung, stomach, pancreas and esophagus.

At the NCI, Gibson has begun researching the risk factors for second cancers in cancer survivors, including the links to obesity. “The best minds in the field are trying to figure that out right now,” he says.

One of the most promising avenues, says Mayne, is molecular research on the mechanisms whereby exercise and healthy diets protect against cancer, and excess calories and inactivity lead to carcinogenesis. “If we can understand those pathways, that may give us some additional strategies, even pharmacological strategies, to help reduce the risk.”

She adds that relying on an approach such as a weight loss pill would not be her preference, because exercise and good food confer many other benefits as well. In Irwin’s

studies, for instance, overweight cancer survivors who begin exercising and eating healthy food reported that they also had more energy, slept better and gained a feeling of control.

The key is to maintain those healthy habits for the rest of their lives. No easy task, notes Irwin, in our technological, fast food culture. “Everybody wants to lose weight and exercise,” she says, “but so many things get in the way, and it’s so much easier to be sedentary. Facebook and Twitter are fun, but that can easily take up 30 minutes of your day. People will say they don’t have 30 minutes to exercise, but they probably do. We’re all guilty of it.”

Irwin was a competitive gymnast from age 5 to 21, training five hours a day, six days a week. Now a busy researcher and the mother of two young boys, she takes a 40-minute jog four days a week and feels underexercised.

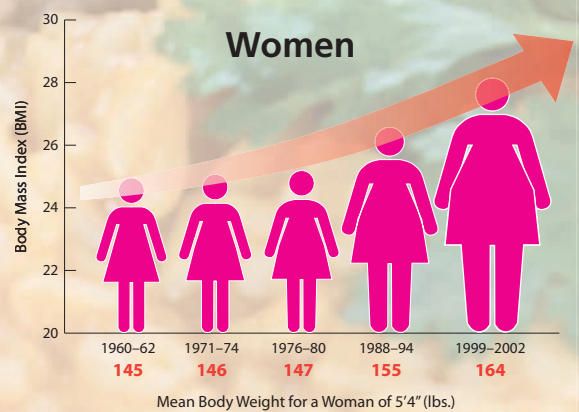
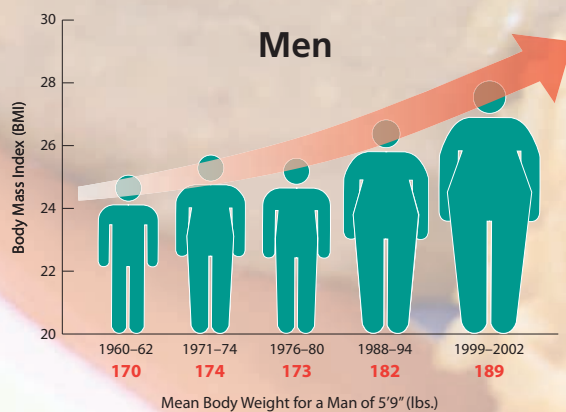
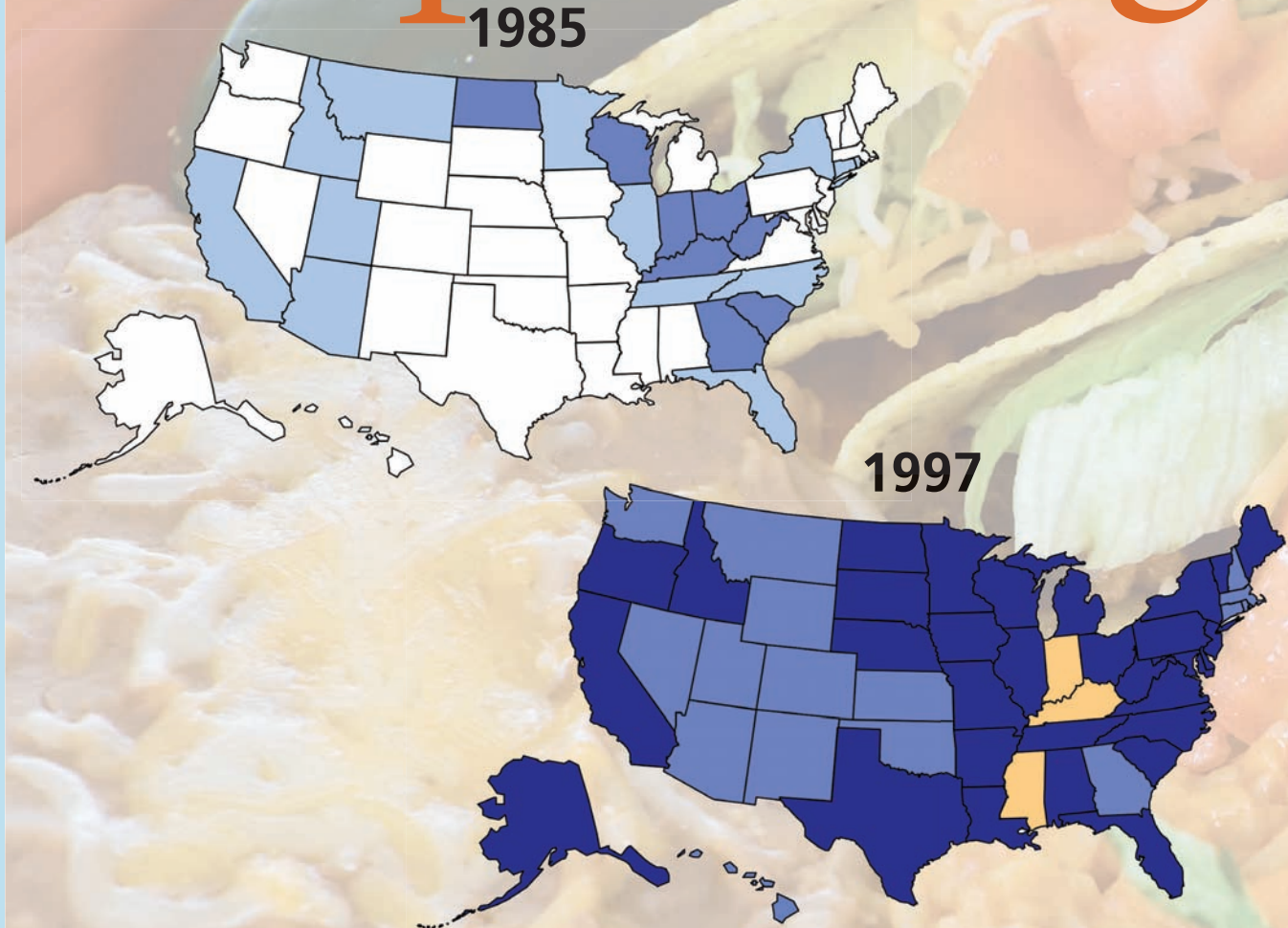
She and Mayne both think that the links between obesity and disease eventually will lead to legislative or public policy action. The costs to the nation’s health and economy will demand it. Irwin points out that the medical bill for U.S. obesity already runs about \$150 billion a year, almost half of which is underwritten by taxpayers. As the nation’s waistline continues to swell, so will these health care costs. The public may decide that obesity, like smoking, is a harmful, expensive lifestyle choice that puts an unfair burden on healthier people. Legislators may decide to heavily tax fatty, sugary foods. Public health officials may persuade the government to prohibit the marketing of unhealthy foods to children, just as tobacco companies were prohibited from targeting them.

“We need a new approach rather than just giving people information about exercise and diet,” says Mayne. “The strategies that are important for reducing the risk of cancer are equally important for reducing the risk of many other chronic diseases. We need to teach people how to make good food choices, how to incorporate physical activity into their daily lives – how to be healthier.” YPH

Steve Kemper is a freelance writer in West Hartford, Conn.

Americans over the past few decades have grown increasingly heavy as a result of diet, lifestyle changes and other factors.

An expanding

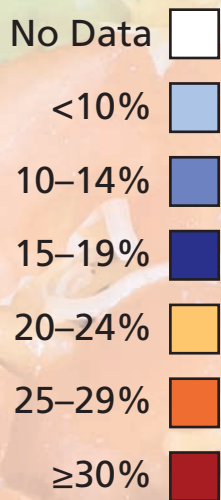


Mean BMI of both men and women in the United States has continued to increase from 1960 to 2002.

state

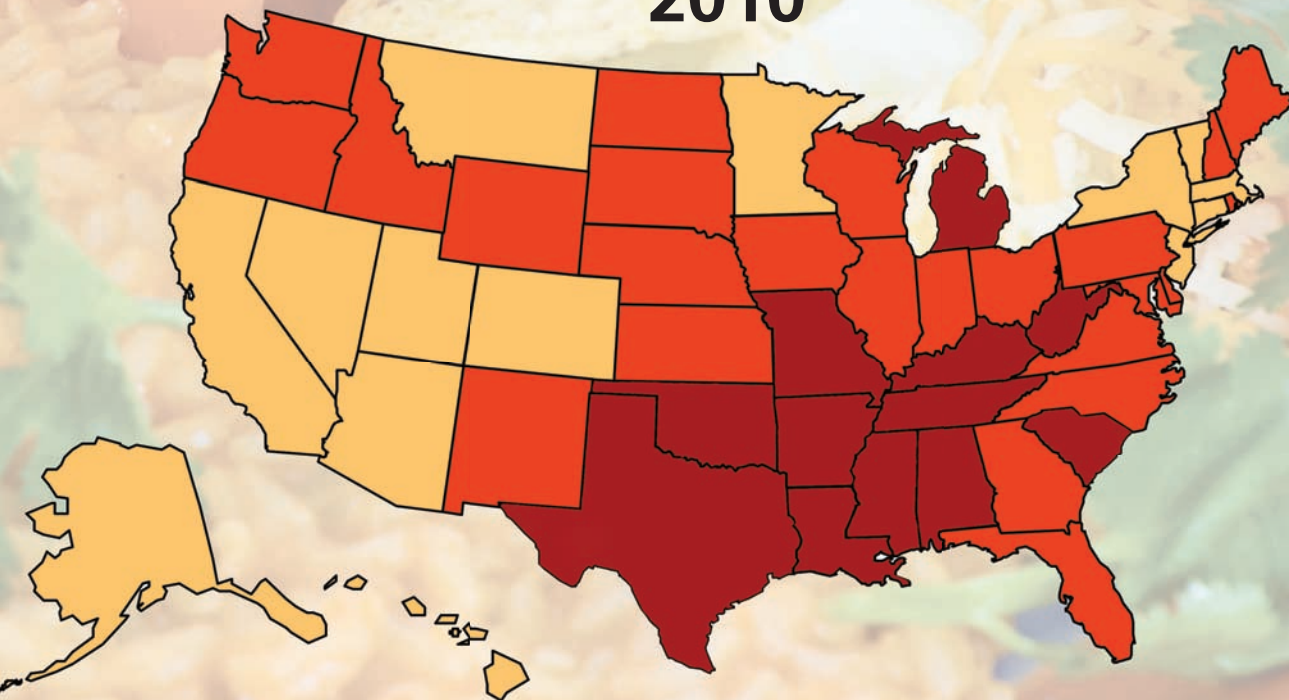


Body Mass Index (BMI) ≥ 30



The number of Americans who are overweight or obese has risen sharply over a period of 25 years, as shown in a series of maps based on data for 1985, 1997 and 2010. States in red have the highest percentage of overweight citizens, as measured by body mass index (BMI), while states in light blue have the lowest percentage.

2010



Source: Centers for Disease Control and Prevention

Mark Saba



Kelly Brownell

Food fighter

An outspoken researcher believes that what is good for the modern food industry is not necessarily good for America.

The Yale Rudd Center for Food Policy & Obesity regularly makes national headlines with its research on nutrition and obesity and its policy positions that challenge the status quo. Directed by Kelly D. Brownell, Ph.D., the food think tank seeks to use public policy to change America's diet and, ultimately, improve health. Brownell, professor in the Department of Psychology and at the School of Public Health, believes that even massive and well-funded efforts to educate people about the health consequences of heavy soda consumption, for instance, would likely have only a marginal effect in the end. What is needed instead, Brownell argues, is greater government involvement to counter the "toxic environment" that promotes overeating and physical inactivity. He cites government action against the tobacco industry in the form of increased taxes and other measures as a model that might be used effectively as the nation addresses high rates of obesity. Toward this, Brownell and the Rudd Center advocate a tax of 1 cent per ounce on soft drinks. Such a tax would, he says, curtail soda consumption, reduce health care costs and raise substantial amounts of revenue, some of which could be used to fund nutrition programs. Brownell sees the approach as a "public health home run."

Broadly speaking, what is happening with America's diet?

KB: The U.S. diet has been deteriorating for years. The country overconsumes foods poor in nutrition and high in calories. Foods high in fat and sugar contribute to obesity and diabetes, and nutrients such as saturated fat and salt contribute to other important health problems. The foods marketed most aggressively by industry, particularly to children, are those highest in calories and with the worst nutritional profiles.

Do you see these trends continuing indefinitely?

KB: There are some signs of improvement, so trends will not likely continue indefinitely. However, the improvement is scant and diet is still contributing to high levels of disease. Today's children are expected to be the first generation in the nation's history to lead shorter lives than their parents did. What they eat is one major reason.

Why is this happening?

KB: Many features of the food environment have changed. Portion sizes have multiplied, fast food restaurants are open 24 hours, vending machines are ubiquitous, pricing strategies and aggressive marketing by the food industry encourage overeating, people have become accustomed to eating outside meal times, foods are engineered to thwart whatever natural checks the body might have and children are the prey of the industry. These are just a few examples.

Is America an exception? Is this happening elsewhere?

KB: America has set the trend, but every country in the world has increasing obesity. Overnutrition is now a major issue in countries like India and China. The number of undernourished and hungry people in the world has been matched by the number of people who are overnourished and overweight; there are about 1 billion people in each category.

What do you see as government's role in addressing obesity and related health problems?

KB: One objection to government involvement is the claim that government should not be a nanny and should not be involved in personal choices like eating. But government is heavily involved already, through agriculture policy, trade policy and nutrition policy. This role may as well be constructive and should address the rapidly changing food landscape and nutritional needs of the country. There is no excuse for government to have programs that make problems worse.

“America has set the trend, but every country in the world has increasing obesity.” – Kelly Brownell

You have said that what is good for the food industry is not good for America. What do you mean by this?

KB: The goal of the food industry is to sell more food. If it succeeds, people will be consuming more calories and the obesity problem will grow even worse. Publicly the industry says that it is just as happy to sell healthier versions of products and just responds to demand, but I wonder whether this is true. People do not overdo it with healthy foods such as fruits, vegetables and whole grains, while they do overconsume items that are high in sugar, fat and salt. It is in the food industry’s interest to drive demand for things that people eat in large quantities.

On the one hand, large segments of the population are overweight and becoming more so. On the other hand, much of the population is fitness-obsessed and healthy foods have never been more popular. How do you explain this divide within one country?

KB: There is the appearance of this, but overall levels of physical activity and healthy eating have not improved. For instance, people must go out of their way to be physically active, because activity has been subtracted from work, school and normal movement. What little exercise there is seems visible because individuals must squeeze it into a busy life.

Do educational initiatives (e.g., commercials and public health campaigns) work in terms of persuading people to change their behavior?

KB: The food industry and its political allies call for education as the solution to obesity. While some education is important, research shows that knowledge alone is unlikely to help much. Nearly everyone realizes that they should limit their intake of junk food, eat things like fruits and vegetables and be physically active. In addition, what the food industry spends to promote unhealthy products dwarfs what is spent on healthy-eating campaigns.

What is the Rudd Center’s greatest success to date?

KB: The Rudd Center has worked hard to help change the national debate on obesity. We and others have pushed to have obesity considered a public health problem and for the country to think about policy solutions. These goals have been accomplished and discussion has turned to which particular policies will be helpful. Local, state and federal governments are thinking seriously about how to address obesity, to the point where what was once considered an outlandish proposal, namely a tax on sugar-sweetened beverages, is now being actively considered in the United States and around the world. Sweeping changes have been made in school nutrition, calorie labeling in restaurants and other areas.

What is your long-term goal for the center?

KB: To further connect science with public policy in order to create social change. This will necessarily involve changes from the top down, namely government action, as well as from the grassroots up.

Is Michelle Obama making a difference?

KB: Definitely. She has helped bring needed attention to the childhood obesity issue and has helped spur unprecedented coordination among government agencies in Washington. Government is finally confronting what it can do better and how it can change policies, such as those supporting agricultural subsidies, that may be contributing to ill health.

What do you think of cartoon characters such as SpongeBob? Does he influence what children want to eat?

KB: Licensed characters like SpongeBob do affect what children eat, as indicated by our research and by the simple fact that food companies are willing to spend so much to use these characters on their food packages. Sadly, the characters are used almost exclusively to promote foods that children should eat less of, not more. [YPH](#)

Michael Greenwood



Rolling back obesity

“When changes of this magnitude take hold in the population, it is clear that there can’t be just one cause, so there can’t be just one solution.”

—Jeannette Ickovics

A School of Public Health program seeks to stem troubling rates of obesity and other diseases in New Haven’s schools and to build a generation of healthier, better-performing students.

By Denise Meyer

When CARE: Community Alliance for Research and Engagement was launched several years ago, one of its first tasks was to collect data on the health of New Haven’s residents, including the city’s children.

CARE knew that problems existed, but still, the results were sobering.

Many students in the public schools, even those in early grades, already had pronounced weight problems that, left unchecked, would likely carry over into adulthood and result in a lifetime of chronic disease. Specifically, half of the local fifth- and sixth-grade students in the public schools were either overweight or obese. The rate for their peers nationwide is about one in three.

And the troubling statistics didn’t end there. The 2009 survey also revealed higher-than-average rates of hypertension, diabetes and asthma.

Local education officials note that children who are struggling with poor health generally don’t perform as well in school. They are tired more often and can’t sustain their attention for long periods of time. This health disparity, in turn, results in an educational disparity and, eventually, in an economic divide that some contend is growing ever wider.

“These issues of childhood obesity are really so profound,” says Jeannette R. Ickovics, Ph.D., professor at the School of Public Health and CARE’s director. “When changes of this magnitude take hold in the population, it is clear that there can’t be just one cause, so there can’t be just one solution.”

A growing partnership

To address something as complex as childhood obesity, CARE has developed a range of in-school programs while it also conducts original research on health and academic performance. This partnership, in turn, is blurring the

traditional town-gown boundaries and building the foundation for CARE’s long-term goal: a healthier New Haven.

Part of the solution is to make healthier food available and accessible in the schools and in the communities where the children live, and such changes are being made. But other measures are just as crucial, including programs that promote physical activity and other healthy lifestyle habits. CARE, meanwhile, is working to strengthen existing and emerging programs already initiated by New Haven’s District Wellness Committee.

“We’re pushing schoolwide campaigns,” explains Susan M. Peters, M.P.H. ’97, M.S.N. ’97, CARE’s senior program director for school initiatives and co-chair of the committee. “There have always been a lot of isolated and fragmented interventions. They have less impact without the synergy and coordination of the entire school and teaching staff.”

A cornerstone of this outreach is the Health Heroes program, which has already been implemented in several schools, with more expected to follow. The program can be tailored to address a health issue that is unique to a school, and it can also be used to reinforce other social needs. One school, for example, has used a Health Heroes challenge to improve behaviors as part of its anti-bullying campaign, while other schools have used it to stress increasing physical activity and reducing the amount of time children spend immobile in front of televisions and computers. Adults in the schools took notice. By popular demand, the program was expanded to include staff and families.

To date, more than 500 students, some 200 families and 60 staff members have completed at least one of the challenges posed by Health Heroes. For students who complete more than one, the possibility of a significant award, such as an iPod or bicycle, is offered.

While there is flexibility in the challenges offered by Health Heroes, they all share a common theme: developing healthier habits at a young age. Among the specific challenges students and others can accept are eating more fruits and vegetables, getting eight to 10 hours of sleep nightly, eating meals with family, drinking water instead of sugary beverages and engaging in at least 30 minutes of daily exercise.

Will Clark, chief operating officer for the New Haven Public Schools, says that CARE’s involvement in the schools has made measurable progress and that he looks forward to continued successes.



The Health Heroes program in New Haven's public schools encourages, and rewards, students who complete challenges that promote healthier behaviors.

"CARE has become a valuable partner," he says. "It offers that larger view and it brings additional expertise into the process of vetting, managing, monitoring and judging what everyone is doing, not just its own interventions."

Indeed, CARE's programs seek to build upon health-related efforts that were already part of the city's school system. Such policies are required by federal law, and a 2008 ranking by the Yale Rudd Center for Food Policy & Obesity found that New Haven's policies were the best in all of Connecticut's 166 public school districts.

"New Haven deserves a lot of credit. The district made the commitment to change its food environment," says Marlene B. Schwartz, Ph.D. '96, the Rudd Center's deputy director. "Most importantly, New Haven removed all competitive foods, including à la carte items and vending machines. The only options are the school lunches, which meet nutritional standards. But despite these huge changes, students in New Haven are still at extremely high risk for weight-related health problems."

Healthier schools, better students

Why does all of this matter? Beyond the future health of students as they grow into adulthood, a pilot study by CARE researchers indicates that health and academic performance are closely linked.

CARE and its partners have found that students with healthier personal practices (the top three being no television in their bedroom, less fast food in their diet and maintaining a healthy weight) are more likely to perform better on the Connecticut Mastery Test, a key indicator of whether students are achieving the academic benchmarks for their age and grade. The jump in test scores is most pronounced among children in the top one-third of students, that is, those who have nine or more healthy practices among the 14 measured. These students are 2.2 times more likely to achieve goals in reading, writing and mathematics than those in the lowest one-third of students.

To better understand the relationship between health and school performance, researchers are beginning to look closely at the implementation and effectiveness of the District Wellness Plan across the city's public schools. With a \$3 million grant from the National Institutes of Health, body mass index and behaviors associated with being overweight will be measured over five years in a cohort of fifth-grade students across 12 schools.

In addition, the research team will collect behavioral information and school-related outcomes, such as test scores, grades and absenteeism and truancy rates. Schools were randomized to receive an array of interventions: three schools will implement focused physical activity interventions; three will implement focused nutritional interventions; three will implement both nutrition and physical activity interventions; and three will be delayed-intervention schools but will have the opportunity to implement district-level changes that naturally occur. The study is structured to differentiate between the classroom environment and the school and to highlight variations between the focused interventions.

The findings will likely inform future decisions about how to promote health among schoolchildren and have implications for how New Haven spends its education dollars.

"Ultimately it comes down to limited resources and what you can spend your money on – better computers, specialty teachers or better food in the cafeteria," says Schwartz. "You have to have evidence that spending money in the cafeteria is going to pay off."

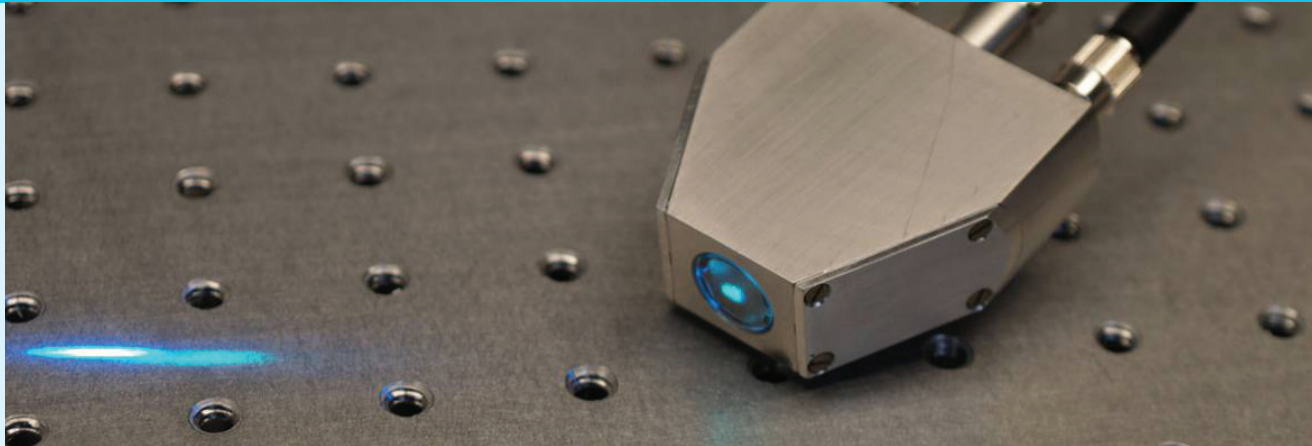
Curtailing obesity, promoting better health and improving academic performance are ambitious – and inter-related – goals, Ickovics notes. And it will take years of sustained effort to change the status quo, but the investment is worthwhile if it stems the tide of poor health in the city and better positions young people to succeed in the classroom and to compete in college and beyond.

"The strong cumulative effect of factors may explain why we have failed up to now in public health," says Ickovics. "It is changes in the classroom, the gym, the cafeteria, the playground, at home *and* in the community that suggest that more is better." YPH



A revealing hand

Scientists are testing a laser technique that could allow for improved and quicker results in the field of dietary research.



Scientists are working with blue laser light and resonance Raman spectroscopy to measure carotenoid levels. The technology has implications for dietary and nutrition research.

By Jenny Blair

What did you have for lunch yesterday? How many times a month do you eat nuts? How about your kids – how many servings of vegetables did they consume today?

It's no secret that it is hard to recall the details of our meals, and that frustrating fact lies at the heart of nutrition research, complicating the task of linking foods to health outcomes like diabetes and heart disease. Some researchers look instead for telltale substances, or biomarkers, in the body that give information about how much of a certain type of food a person has eaten recently. But that solution isn't ideal, as measuring biomarkers often requires blood, urine or even skin samples. The process can be costly, painful and cumbersome.

But for researchers who study fruits and vegetables in the diet, there may soon be an easier way. Yale School of Public Health scientists are testing a new technology that measures a biomarker by simply bouncing blue laser light off the skin. It is painless and fast and gives results in about a minute. Susan T. Mayne, Ph.D., head of the division of Chronic Disease Epidemiology, and her longtime collaborator, Brenda Cartmel, Ph.D., a research scientist in the same division, have worked with a group of physicists at the University of Utah to create and test a prototype device that measures skin carotenoids, which are biomarkers for fruit and vegetable intake.

"It derived from an observation that people have known about for decades," says Mayne, "and that is that when people have high-vegetable diets they develop a yellow skin coloration that is particularly noticeable in the palm of the

hand because of the accumulation of carotenoids in the skin. And we thought, 'Can we use that as a new approach to measure carotenoids in the body noninvasively?'"

The device is a modern twist on a decades-old technology known as resonance Raman spectroscopy (RRS), which measures changes in energy levels of electrons in molecules after they have been excited by laser light. It consists of a flexible fiberoptic probe connected to a boxlike central machine; the probe is held against a study volunteer's palm for about 30 seconds while the light interacts with carotenoids in the skin. Then software on an attached laptop processes the results, which takes another 30 seconds. Initial studies have shown that this RRS machine provides highly accurate results, attracting the attention of many nutrition researchers.

A long flight, collaboration

As a nutritional epidemiologist, Mayne had hardly expected to work with lasers. But several years ago, while on a flight to Australia for an international carotenoid conference, she found herself seated beside a man who was flipping through a program for the same conference. After exchanging a few pleasantries, Mayne learned he was a University of Utah laser physicist.

"I thought, 'This is going to be a really long flight. I don't think we have anything in common,'" she recalls. "But it was because we were stuck on an airplane for 16 hours [that] I tried to understand what he did, how he was using it [and] what the applications were. That's actually where this whole project started."

The physicist and his team, she learned, had been experimenting with RRS to measure carotenoids in the retina, since high retinal levels are thought to protect against macular degeneration. Carotenoids, Mayne notes, are perfectly suited to measurement by RRS. “If we use a specific wavelength of light, that’s where these particular compounds resonate very strongly and uniquely,” she says. “There aren’t other compounds in skin or other matrices that have the same resonance profile.”

By the time the plane had landed, Mayne and her seatmate had hashed out an idea for a grant proposal to collaborate. The grant was funded, the Utah group built two prototypes and Yale tested them.

In their study of the first prototype RRS device, published in 2010 in *The American Journal of Clinical Nutrition*, Mayne, Cartmel and their Utah colleagues compared skin carotenoid RRS measurements with serum and skin biopsy measurement methods, the current gold standard. (They also examined the device’s ability to measure lycopene, a carotenoid that the U.S. population gets primarily from tomatoes and tomato products.)

“I’m particularly interested in using this technology with kids, because there’s so much interest in diet-related obesity in children.”

—Susan Mayne

The team found that among study subjects, carotenoid levels as measured by RRS fell along a bell-shaped curve, as one would expect. Within a single individual, high measurements in one area of the body, such as the palm, matched high levels elsewhere. The RRS results also correlated reasonably well with gold standard methods as well as with dietary self-report data, confirming the device’s validity.

The Utah physicists are continuing to refine the early prototypes. “The original [argon-laser] device that we had was not portable,” says Cartmel, citing its 19- by 16- by 13-inch size and its sensitivity to movement and water vapor. “They then developed an instrument that uses a solid-state laser, so that is much more robust. Now we’re able to take that into the field.” In a study currently under review for publication, Stephanie Scarmo, M.P.H. ’06, Ph.D. ’09, used the solid-state RRS device to obtain carotenoid measurements from a large group of 3- and 4-year-olds.

“She went into a preschool setting, trying to work around naptime,” says Mayne, and “was able to scan 60 kids in one afternoon.” (By contrast, the serum test

method, as one might imagine, would have involved lots of blood, sweat and tears.) “I’m particularly interested in using this technology with kids, because there’s so much interest in diet-related obesity in children.”

New applications

In the wake of the study’s publication, Mayne says that she’s been contacted by researchers wanting to use RRS as an objective measure in studies that encourage people to eat more fruits and vegetables. She understands their eagerness.

“It’s a very difficult thing to use self-report in the setting of dietary change when you’ve been working with people telling them they need to change,” she explains. Study subjects are inclined to try to please researchers by telling them that they’ve changed their ways for the better, introducing so-called social desirability bias into the studies.

But the Raman technique isn’t ready for prime time. For one thing, no one knows the half-life of carotenoids in skin, so just how many days’ or weeks’ intake a measurement reflects is unknown. For another, it’s not clear how well the device will pick up on changes in skin carotenoid levels after a change in fruit and vegetable intake.

What’s needed next, Mayne says, are “so-called metabolic studies, where they carefully control the dietary intake of carotenoids and track people over time to see how their skin responds, how quickly it responds, how much it changes and whether everybody changes similarly.” That kind of research is costly, involving many weeks of feeding people carotenoid-depleted and -enriched diets while repeating the measurements. To accomplish this, Mayne has partnered with a North Dakota U.S. Department of Agriculture lab that has the necessary testing facilities.

It’s important, too, to know how to factor in variations among individuals. “We still need to evaluate whether melanin, a skin pigment, has any effect on the readings,” notes Cartmel.

What does the future hold for the RRS approach in dietary research? Once the kinks are worked out, and after researchers verify associations between skin carotenoids and health outcomes, the RRS device could provide objective feedback about a person’s nutritional status.

The device could even find its way into urban policy work. If an inner city introduces neighborhood farmers’ markets offering fresh produce, for example, researchers could measure residents’ skin carotenoids before and after the markets appear. Measurements with RRS, says Mayne, “might provide some tools for assessing whether the intervention is improving vegetable intake in a particular area.” That’s really the ultimate goal, she says. “We want to improve nutritional status.” YPH

Jenny Blair, M.D. ’04, is a writer and editor in Vermont.



The STIs of BMI

A group of overweight, young females were found to be more prone to sexually transmitted diseases than their slimmer peers. The reasons why are not as clear.



Michael Woloschinow

By Michael Greenwood

Being a young, overweight female is challenging enough. There is the not-so-subtle societal message that thin is beautiful, as well as potential health problems, issues of social exclusion and stigmatization.

New research by the Yale School of Public Health finds that young women who are struggling with their weight may have another serious issue to contend with: they could be more likely than their normal-weight peers to contract a sexually transmitted infection (STI).

A study led by Trace S. Kershaw, Ph.D., associate professor in the division of Chronic Disease Epidemiology, compared body mass index (BMI) of young mothers with their likelihood of engaging in sexually risky behavior (e.g., having unprotected intercourse or multiple partners) and of contracting an STI.

The group of overweight mothers, who were between the ages of 14 and 25, were nearly 80 percent more likely to have an STI and 64 percent more likely to engage in risky sexual behavior than their normal-weight peers. However, obese females were the least likely to get an STI, suggesting that the relationship between weight and sexual risk is complex. The study included 704 females living in the New Haven and Atlanta areas.

The results were far more pronounced than anticipated, says Kershaw, who is also the principal investigator of PARTNRS, a research group at Yale that focuses on building healthier relationships between young couples.

“We tend to think about health problems as silos and often ignore how aspects of one health behavior may influence aspects of a seemingly unrelated behavior,” Kershaw says. “It makes perfect sense that weight would influence things that influence sex, such as self-esteem, how others perceive you, the number and type of partners you have and how much sexual activity you engage in. Our research suggests that when we develop weight loss programs we need to consider how gaining or losing weight may influence sexuality and sexual risk.”

Young people are struggling with weight issues today more than ever before — nearly one-third of the U.S. population is considered obese and another third is classified as overweight. The incidence of STIs, meanwhile, is particularly pronounced in people in their late teens and early 20s.

Even though the issues of excessive body weight and sexual risk are pressing health issues in their own right among young people, there has been relatively little research on how or why the two issues are entwined. And, indeed, further study is needed to better understand the complex social and emotional factors that appear to play a role. **YPH**

Costly consequences

Beyond its medical complications, diabetes is found to exact a heavy economic and educational toll on younger patients.

By Michael Greenwood

The medical consequences of diabetes are as well-known as they are severe.

But the toll of the lifelong disease does not end there for a growing number of young patients. New research finds that the disease also exacts significant nonmedical costs in the form of lower educational achievement and lower future earnings potential.

With the national rate of diabetes growing rapidly, researchers recently found that young adults with the chronic illness are less likely to earn a high school diploma than their nondiabetic peers and that their lifetime earning potential will be significantly curtailed.

The findings underscore the need to take additional steps to prevent diabetes, which is often associated with poor diet and excessive weight.

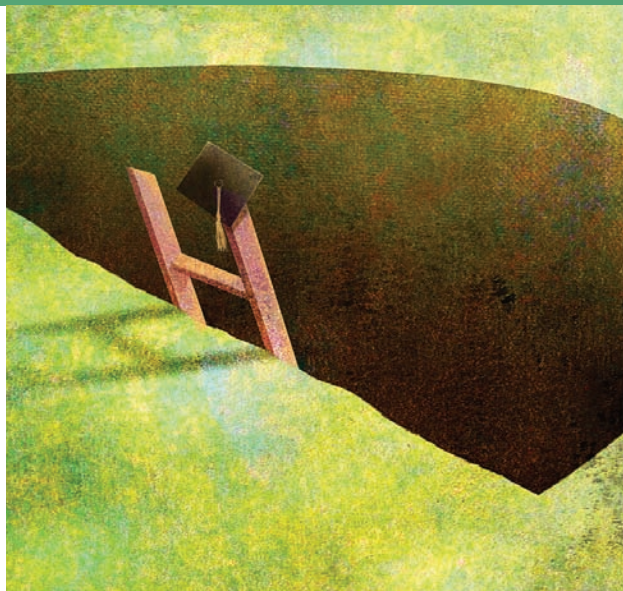
“Our results highlight two relatively understudied aspects of diabetes – we find important education consequences and we find that these consequences of diabetes accumulate as early as adolescence and young adulthood,” says Jason M. Fletcher, Ph.D., associate professor in the division of Health Policy and Administration and the study’s lead author. “Prevention, especially for children, might take on a renewed urgency for parents and other stakeholders once they become aware of how soon diabetes’ effects engage and how profound the impact is later in life.”

High school students with the illness were found to be 6 percentage points less likely than their healthy peers to complete high school, and they can also conservatively expect to lose more than \$160,000 in earnings over a lifetime, the research found. A young adult with diabetes is also 10 percent less likely than others to find employment.

The results reveal the serious and understudied non-medical consequences of the disease and the need for measures such as in-school screening that could better inform policy decisions aimed at curbing both the educational and economic costs of the disease.

“Our findings suggest that researchers, clinicians and policymakers may need to consider the early, nonmedical consequences of diabetes in constructing new policies and clinical practice,” says co-author Michael Richards, M.D., a doctoral student at the School of Public Health.

The researchers cite several reasons for the education and earnings outcomes: having diabetes might alter a



Michael Wloschinow

person’s desire for and success in investing in a career; it might dilute an employer’s willingness to invest in an employee because of concerns about work absences or low productivity; and it might contribute to job lock, in which workers fear losing health insurance if they seek better-paying jobs.

Diabetes has reached epidemic proportions in the United States, spurred by obesity and diet. Some 23 million Americans have the disease – about 8 percent of the population – and the number is continuing to grow.

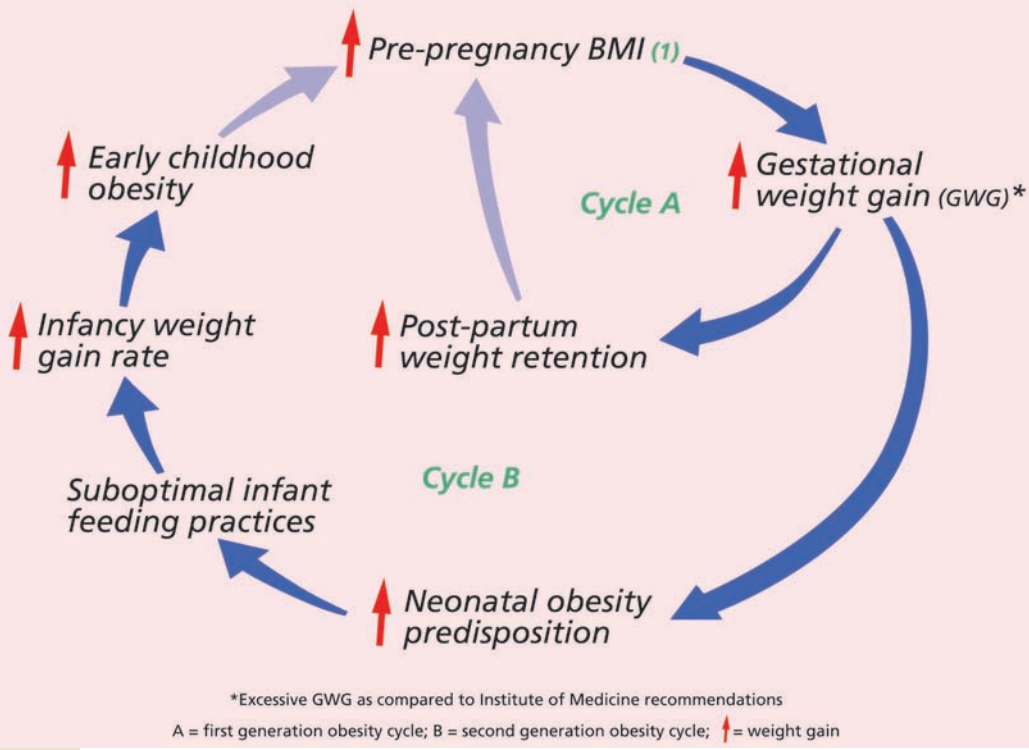
The study tracked 15,000 young people over a period of 14 years, from the time they were in high school through to their early 30s.

The research also found that young diabetes patients face another education hurdle if they have a parent suffering from the same disease. These young people were up to 6 percentage points less likely to attend college than their nondiabetic peers with healthy parents, even after the child’s health status was controlled for.

While previous studies explored the nonmedical consequences of diabetes, the Yale researchers focused on a younger population and controlled a number of variables, including family and environmental factors that may have contributed to educational attainment and to the type of diabetes that the person suffered from. They also traced diabetes’ effects from adolescence through to the transition to adulthood. The study was published in the January issue of *Health Affairs*. **YPH**

Targeting obesity at birth

Yale researcher advocates revamping U.S. dietary guidelines to include infants.



Women who become pregnant when they are overweight or obese (1) are more likely to gain excessive weight during pregnancy and to retain that weight postpartum (Cycle A). Minority women tend to have more children, and thus they are exposed more times to this cycle. Women who are overweight or obese and/or gain excessive weight during pregnancy are more likely to deliver newborns predisposed to obesity early in life, especially if optimal infant feeding practices are not followed (Cycle B). This may set the female child on a track that can result in a young woman remaining overweight or obese by the time she becomes pregnant for the first time, starting her exposure to cycle A and the transfer of the obesity risk to the next generation (Cycle B).

Mark Saba

By law, the U.S. Dietary Guidelines apply to individuals 2 years old and older. In the view of a nutritional specialist at the Yale School of Public Health, that is two years too late.

If the nation is to adequately address a growing obesity epidemic, says Rafael Pérez-Escamilla, Ph.D., professor in the division of Chronic Disease Epidemiology and director of the Office of Community Health, obesity prevention has to start before birth.

“[Obesity] is a life cycle problem that requires life cycle solutions,” he says. “We have enough reports for different stages of the life cycle, but no one is integrating them.”

Pérez-Escamilla was one of 13 scientists who served on the scientific advisory committee for the 2010 Dietary Guidelines. The guidelines, reviewed for revision every five years by the U.S. departments of agriculture and health & human services, are the backbone of the nation’s dietary policy. Pérez-Escamilla is genuinely pleased with the outcome of what he describes as a mammoth undertaking. The process was marked by scientific rigor and took advantage of sophisticated mathematical modeling. Committee members were free from interference by political and industry groups, and the publicly transparent process was marked by frequent input as committee members addressed more

than 130 scientific questions that form the basis for the guidelines.

The final recommendations, however, acknowledge but do not address as guidelines the crucial prenatal and infant periods of life, he says. Two-thirds of adult women in the United States are now overweight or obese, with minority women more likely than others to be obese before they become pregnant. Those women, he says, are more likely to gain excessive weight, deliver babies with a high obesity risk and retain excessive weight postpartum. They then carry that excess weight into their next pregnancy. Minority women also have more children, exacerbating the disparity.

The babies of obese women, in turn, have a greater predisposition for obesity. They also tend to have lower breastfeeding rates – another risk factor for childhood obesity – and a higher-than-average rate of weight gain. The cycle of obese children growing into obese adults creates a multigenerational epidemic that will take at least a generation to turn around.

“I have nothing against school-based nutrition programs,” says Pérez-Escamilla, “but it is too late as a starting point. Children are already epigenetically programmed.”

continued on page 60

Student Spotlight

Defining moments in public health



Four students discuss how and when public health “came alive” for them at Yale.

Guest speaker becomes a mentor



I came to Yale after working with a small health partnership in Senegal, with a clear vision of what I wanted from my education: to integrate public health research and practice with international fieldwork.

During my second semester, I attended a lecture in the

Global Health Seminar—a weekly speaker series covering a variety of international health topics—featuring a guest speaker who would become a supervisor and mentor. I became captivated by the topic of international commitment to and policy affecting maternal health. After the lecture, I introduced myself to the speaker, Dr. Luc de Bernis, a senior maternal health adviser at the United Nations Population Fund (UNFPA). I followed up with an e-mail and my resume.

Months later, I was looking forward to spending my summer in Haiti to work on the implementation of a community-based nutrition program. In the midst of finals, I received an e-mail that would redefine what I had envisioned for myself in public health; it was from Dr. de Bernis, inquiring whether I would be interested in working on a project at UNFPA starting the very next week. Unwilling to miss this opportunity, I reorganized my internship, rebooked my flight and adjusted my schedule; I spent half the summer in New York City and half in Haiti.

The internship at UNFPA opened my eyes to a different side of international public health work. I worked on a project to strengthen commitment to maternal health at the country level through promoting partnerships between U.N. agencies and country offices. Engaging with governments and international organizations was a new experience, and I gained valuable insight into the intricate workings of country and world politics and their direct and measurable impact on maternal health.

Emily Dally is a second-year M.P.H. student at Yale.

Uncertainty, curiosity, an epiphany



“I realized that I was *most* interested in developing and implementing strategies for change in health care, especially ones aimed at eliminating the health disparities that exist today.”

I was excited when I arrived at Yale because I knew that I was officially beginning my career as a public health professional. But I was also a little worried because I didn’t know exactly what I wanted to do after graduating. I took many of the required courses for the Health Management Program, but I still wasn’t sure what my passion was.

I decided to explore areas of public health in which I had little or no experience. During my internship, I worked in the Office of the National Coordinator for Health Information Technology at the U.S. Department of Health & Human Services, where I assisted states with the implementation of their strategic and organizational plans for the federally mandated health information exchanges. By the end of the summer, I had learned about how information technology could positively change health care.

I returned to Yale in September 2011 and enrolled in courses on strategy, health disparities and global health. As I sat in my health disparities class one day and reflected on both my internship and my past and current courses at Yale, something finally clicked: I realized that I was *most* interested in developing and implementing strategies for change in health care, especially ones aimed at eliminating the health disparities that exist today.

With this, I began searching for careers where I could use tools from strategy and public health to change health care. I recently accepted a consulting position and look forward to further developing my passion for improving health care.

Uchenna K. Okoji is a second-year M.P.H. student at Yale.



Student Spotlight

Raw data, SAS and the art of a valid survey



“Prior to learning the intricacies of building valid, reliable and nonbiased surveys, I thought, ‘What could be so difficult about putting together a few true-or-false questions?’”

In hindsight, I attribute much of the success of my 2011 internship in Ecuador and my thesis to the practical and skill-building nature of a course I took early in my program at Yale – “Questionnaire Development,” taught by Dr. Marney A. White.

Prior to learning the intricacies of building valid, reliable and nonbiased surveys, I thought, “What could be so difficult about putting together a few true-or-false questions?” As it turns out, questionnaire development is an art form. From layout to question ordering, succinct wording and the use of Likert scales, even tiny details can profoundly impact the way a participant interprets a question, thus affecting his or her responses.

Throughout the course, Michael Araas, a fellow student, and I developed our own HIV education survey. However, before creating the questionnaire, we reached out to professionals in the field for insight – two HIV experts at Yale and a high school principal and educator. With their feedback, we drafted an initial survey and vetted it with our classmates. We administered our final survey to friends and family using social networking sites. After entering the raw data into SAS (a statistical analysis software), we analyzed our results using skills learned from data management coursework.

Later, for our final project, we wrote the equivalent of a journal manuscript and received expert feedback from Dr. White. Ultimately, this course provided nearly all of the practical skills I would later need for developing and administering my own survey to determine barriers to HIV testing in rural Ecuador.

Stewart J. Dandorf is a second-year M.P.H. student at Yale.

The streets of Philadelphia



“This internship was crucial in allowing me to see how my environmental public health skills could be used practically.”

Public health came alive for me somewhere between my summer internship and a class in mental health that I took last semester. These experiences helped me figure out how to combine my passions for environmental justice and public health.

I spent the summer as an environmental justice intern at the Public Interest Law Center of Philadelphia, where I helped a local community monitor its air quality. The community had requested help to remedy a claim it had against a demolition plant in its neighborhood. Part of that claim involved investigating the possible health effects of the plant’s emissions on the community.

I spent lots of time taking air samples and talking to people about the plant and how it made them feel physically and psychologically. Anecdotally, I found that the presence of the demolition plant was as much a psychological health burden to these people as it was a physical burden. This internship was crucial in allowing me to see how my environmental public health skills could be used practically, in an environmental justice setting, and it also spurred my interest in making mental health issues a part of the environmental justice conversation.

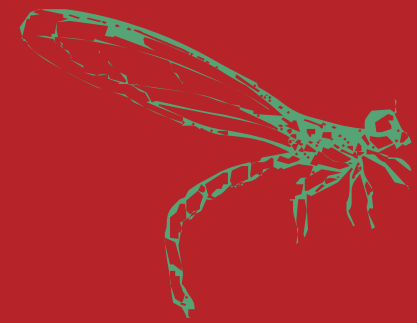
Last fall, I took Megan V. Smith’s “Social and Cultural Factors in Mental Health and Illness” class, which helped me solidify how I would use my passions for environmental justice and public health with a mental health twist. With her class I was able to hone in on the ways in which environmental justice concerns are connected with public health concerns and, specifically, how mental health is greatly affected by environmental health factors.

As a result, I plan to pursue work as an environmental justice advocate and lobby for the inclusion of mental health considerations in the government’s environmental plans that have an effect on human health.

Ashley Hopkins is a second-year M.P.H. student at Yale.

Student Spotlight

A dengue diversion



Michael Woloschirnow

“We hope that the children playing the game will then go and teach their siblings and parents about ways to curb dengue transmission at home.”

—Sophia Colantonio

YSPH students help develop an educational tool to combat a pervasive tropical disease.

By Michael Greenwood

Dengue fever is no laughing matter. But several Yale students and others are hoping that the potentially lethal tropical disease makes for an entertaining children’s game.

A group of students from the School of Public Health and the School of Forestry & Environmental Studies are working with colleagues at Parsons The New School for Design in New York City and officials from the Red Cross/Red Crescent’s Climate Centre to promote an educational program that teaches children about the dangers posed by dengue and what to do to keep themselves and their communities healthy.

The mosquito-borne disease is found in more than 100 countries and it takes a heavy toll on human health and economic development. There is no vaccine, cure or specific treatment for dengue, and in severe cases it can result in death.

So how do you educate children about complex and abstract health and environmental concepts in a way that is appealing and fun and that will make a lasting impression? The students think the answer is a new game known as Humans Versus Mosquitoes.

The game can be played almost anywhere—in an open field or on a tabletop. It requires no special or expensive equipment or uniforms and has no complex rules. And its objective is simple—either the humans or the mosquitoes are left standing (or flying) in the end.

“This game is an innovative public health tool that empowers children to learn about the dangers of dengue fever, how it spreads and, more importantly, how they as children can become leaders in reducing dengue in their communities,” says Sophia Colantonio, a second-year M.P.H. student at the School of Public Health who helped design the game as part of a class project. “We hope that the children playing the game will then go and teach their siblings and parents about ways to curb dengue transmission at home.”

The Yale students provided the content for the game and the Parsons students came up with the design. The game was presented in December at the United Nations

Student Spotlight

climate change conference in Durban, South Africa. The Red Cross/Red Crescent is looking to develop it further by incorporating it into health curricula in developing countries such as Argentina and Uganda.

Humans Versus Mosquitoes emphasizes the importance of dengue prevention, especially through clearing breeding grounds, and incorporates the element of climate change and its effect on patterns of the disease.

Players form two teams – mosquitoes and humans – that face off against one another. Each mosquito gets three eggs (using everyday materials such as stones) to create a breeding ground. When the breeding grounds have been set up, the mosquitoes receive two extra eggs to lay. Each human, meanwhile, gets four health tokens. The game is played in rounds, and each player decides whether to play offense or defense. Humans seek to clean up the eggs from a breeding ground (offense) and protect themselves against infection (defense). Mosquitoes, meanwhile, try to bite humans (offense) and lay additional eggs in their breeding grounds (defense).

If humans remove all the eggs from all the breeding grounds first, they win. If the mosquitoes kill all the humans first, they win. The game requires a minimum of six players and takes between 15 and 30 minutes to play. The game can also be easily modified so that other tropical diseases – such as malaria – become the focus.

“I think a game is the best way to reach a younger audience and pique interest in important health and environmental matters,” says Maria Diuk-Wasser, Ph.D., assistant professor in the division of Epidemiology of Microbial Diseases and an adviser on the game project.

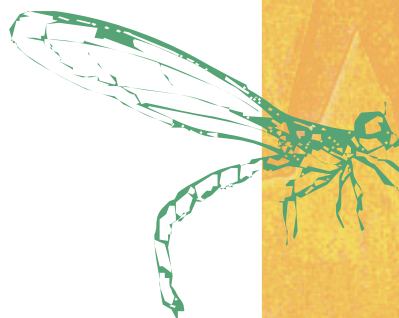
Worldwide, some 2.5 billion people are at risk of dengue, and it is estimated that 50 million to 100 million cases of dengue fever and 250,000 to 500,000 cases of dengue hemorrhagic fever occur annually. The virus is transmitted through infected female mosquitoes (*Aedes aegypti*), and the only effective way to check its spread is to control mosquito populations with biological, chemical and environmental methods. YPH



Justin Benn

Humans Versus Mosquitoes was developed to teach young people in developing countries about the risks associated with dengue fever.

Humans Versus Mosquitoes emphasizes the importance of dengue prevention, especially through clearing breeding grounds, and incorporates the element of climate change and its effect on patterns of the disease.



Alumni Spotlight

Rinderpest **no more**

An alumnus plays a pivotal role in eradicating a disease that has plagued both developed and developing nations for centuries.



A Maasai livestock owner whose cattle had suffered from rinderpest grazes his now-vaccinated cattle in a village southwest of Nairobi, Kenya.

Alumni Spotlight



FAO/Alessandra Benedetti

Juan Lubroth speaks at a meeting on global rinderpest eradication during the 36th Session of the Committee on World Food Security at FAO headquarters in Rome.

By Denise Meyer

Eliminating disease is a lofty goal, though one rarely attained by humankind.

In fact, modern science has achieved it only twice: first with smallpox in humans several decades ago and then again last year with a disease known as rinderpest or “cattle plague.”

Last June, the U.N. Food and Agriculture Organization (FAO) declared that rinderpest was officially eradicated following decades of work in numerous countries. Rinderpest, once a major scourge of cattle and similar wild and domesticated species, such as yaks and buffalo, cut a wide swath across Asia, Europe, the Middle East and Africa. Over the millennia, famine and economic devastation were left in its wake.

Juan Lubroth, D.V.M., Ph.D. '95, the FAO's Chief Veterinary Officer based in Rome, worked for years to defeat the disease. Yet he recognizes that this tremendous accomplishment was possible only through the combined efforts of generations of veterinarians and scientists, governments, nongovernmental organizations and farmers across the globe. The eradication of the first animal disease is a feat that will save millions of cattle and, in turn, will improve the lives and livelihoods of the millions of people who depend on livestock as a food source and for income.

“When herds die, people die,” explains Lubroth. “For humans, the effects on nutrition, whether through availability of milk, meat or blood, are enormous.”

A passion for animals and science

A native of Spain, Lubroth dreamt of being a veterinarian as a boy. By the age of 11, he began working in an animal clinic near his home in Madrid. His vision has always been to improve the lives of both animals and people. “We share environments, we share pathogens,” he says.

After working as a wildlife veterinarian in the Caribbean for the University of Georgia, Lubroth worked for the U.S. Department of Agriculture at Plum Island Animal Disease Center in Long Island Sound off the Connecticut coast. He next worked in Mexico as part of a bilateral commission for

FAO/Tony Karumba



“When herds die, people die.” —Juan Lubroth



FAO/JF. Paladini

Rinderpest was suspected whenever trade cattle started dying in large numbers, usually following fever and characteristic lesions in the animal's mouth. This picture was taken in the Sudan in 1987.

the prevention of exotic diseases, before coming to Yale in 1990 to initiate his doctoral studies. Once here, he trained with Robert E. Shope and Robert B. Tesh at the Yale Arbovirus Research Unit. “I couldn't have asked for a better advanced education,” he says. “Yale provided a lot of flexibility and opportunity to hone my scientific skills.”

Upon leaving Yale, Lubroth continued his service with the Department of Agriculture as an epidemiologist in Brazil in South America's efforts to eliminate foot-and-mouth disease and to ensure capabilities in emergency preparedness and rapid response. Before joining the United Nations' Rome office in 2002, he headed the Diagnostic Services Section and the Reagents and Vaccine Section at Plum Island.

Origins of a scourge

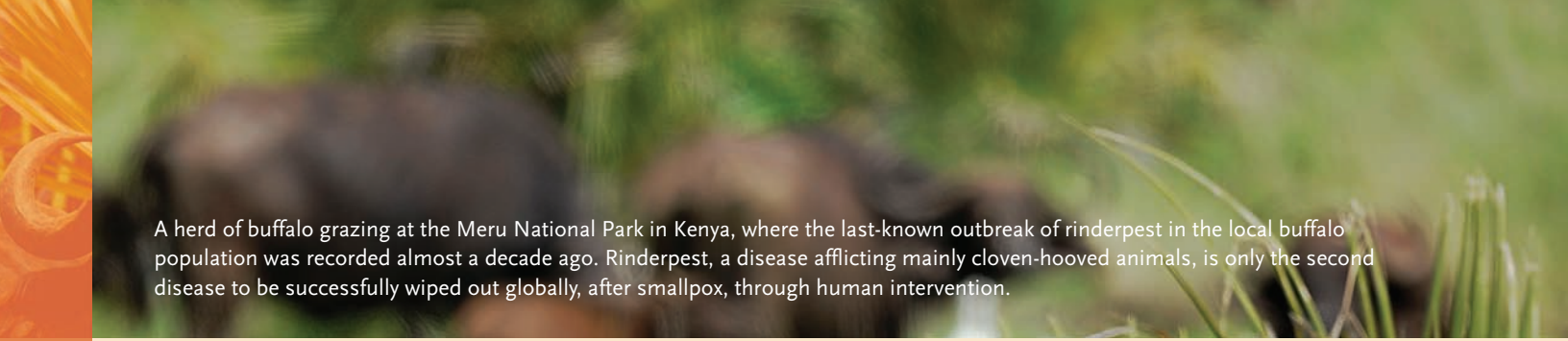
Rinderpest's origins can be traced to domesticated cattle in the steppes of Central Asia thousands of years ago. It spread to Europe and Asia through military campaigns and livestock imports, and in the 19th century it was introduced into Africa by the Italian incursion into what is now Eritrea. It reached all the way to Brazil and Australia in the 1920s but was quickly eradicated through the mass elimination of infected animals and, indeed, of any animals remotely suspected of having contact with sick animals.

The disease has played a role, though often unacknowledged, in seminal events throughout world history. Outbreaks preceded the collapse of the Roman Empire, Charlemagne's conquest of Europe, the French Revolution and the impoverishment of Russia. Upon reaching sub-Saharan Africa at the end of the 19th century, rinderpest triggered a famine that was followed by colonization.

It was only in the mid-1950s that a less-virulent rinderpest virus was cultured in bovine tissues—essentially a vaccine that was safer and inexpensive to produce and that could be standardized for quality and efficacy. This tool alone turned the tide, since the vaccine granted lifelong immunity. However, the vaccine had to be kept cool, and in Africa, the Middle East and parts of Asia, high temperatures usually resulted in failed vaccination campaigns.

A highly contagious disease caused by a morbillivirus, rinderpest is closely related to human measles and canine distemper. Afflicted animals suffer a horrific death: cattle and buffalo usually experience high fever, discharges, lesions in the mouth, internal hemorrhaging and diarrhea. Within days, they die dehydrated and emaciated.

In the late 20th century, targeted vaccination accompanied by advances in vaccine development began to tip the odds in favor of winning the battle. But it was the purely



A herd of buffalo grazing at the Meru National Park in Kenya, where the last-known outbreak of rinderpest in the local buffalo population was recorded almost a decade ago. Rinderpest, a disease afflicting mainly cloven-hooved animals, is only the second disease to be successfully wiped out globally, after smallpox, through human intervention.

human element of old-school teamwork that, in the end, provided science with a decisive victory.

“It was tackled by countries working together, building trust and friendships regardless of nationality, religion or color,” says Lubroth.

Enter the FAO

Though the United Nations’ efforts to control rinderpest date back to its creation, its Global Rinderpest Eradication Programme (GREP) was established in 1994 with the ambitious goal of coordinating efforts worldwide. GREP brought together not only scientific resources and talent but also international cooperation and the financial will – approximately \$5 billion – that would be needed to defeat rinderpest.

While there had been many attempts of varying success to control the disease in the hundreds of years prior, GREP was able to mobilize efforts and resources on a scale not seen before and guide use of key scientific advances that made eradication possible. Specifically, in partnership with the International Atomic Energy Agency, the FAO mobilized

resources to develop a rapid diagnostic field test that is as simple to use as a home pregnancy test. Additionally, the FAO and partners working in the field evaluated the efficacy and safety of a heat-resistant vaccine developed in the United States that is able to survive for a month without refrigeration. In some of the world’s hottest climates, this vaccine remained effective, allowing hundreds of thousands of animals to be inoculated.

In conjunction with restricting the movement of susceptible animals, quarantines and, in some instances, elimination of infected animals (and the animals they had come into contact with), countries were able to devise strategies that were culturally and geographically appropriate to rein in rinderpest. Year by year, and at an accelerated pace after 1998, the range of rinderpest continued to shrink.

The last-known outbreak was in 2001 among wild buffalo in Kenya’s Meru National Park. The last use of vaccine is believed to have been in 2006 in Central Asia. After nearly 10 years of widespread disease monitoring in remote areas of Asia and Africa, says Lubroth, it was determined that the disease was no longer circulating.



“By applying the principles of what is known as “one health,” the scientific community can minimize factors that propagate new disease threats in the first place.” —*Juan Lubroth*

Remaining vigilant

Though rinderpest has been declared eradicated in the wild, the virus continues to exist in laboratories in some 30 countries.

The FAO and its international and regional partners continue to assist countries in safely disposing of the virus samples or transferring them to a few biologically secure storage facilities, as has been done with smallpox samples. However, virus samples and virus stocks or vaccines could prove necessary should rinderpest reappear from either an unknown source, such as a reservoir species, or the deliberate or accidental release from a holding laboratory. Thus, the FAO continues to monitor for rinderpest in wildlife and livestock.

In addition, the long experience of battling and defeating rinderpest needs to be conserved in veterinary and medical health curricula as a model for combating the growing number of diseases that pose threats not only to animal health but also to humans.

“We have to be sure that veterinarians of the future do not forget about rinderpest,” says Lubroth. “The lessons learned can be applied to other devastating diseases, such as foot-and-mouth disease, which in the U.K. alone caused more than \$25 billion in economic losses during an outbreak 10 years ago.”

Lubroth directs the FAO’s global responses to other major livestock diseases, such as foot-and-mouth disease, swine fever, Rift Valley fever and avian influenza. In the age of globalization, he notes, “We can circumnavigate the globe in less than an incubation period. We saw that with SARS in China, Singapore and Canada. The only thing faster is information. In theory, we can share information faster than an incubation period, but we need to do better in practice.”

Monitoring tools and having people on the ground to track diseases are costly, he notes, but in the grand scheme of things, \$5 billion to eliminate a disease is a relative bargain when the billions of dollars in economic gains that trickle down to so many people are taken into consideration. It is better to tackle problems early on rather than waiting for a disease to affect three continents and then mounting a global response. “It’s like trying to fix something once it’s already broken,” he says. “We should instead be investing in the routine care and maintenance that avert total disaster in the end.”

Looking forward

Future disease initiatives are focusing on peste des petits ruminants (PPR) and foot-and-mouth disease, Lubroth says. PPR belongs to the same genus as rinderpest, occurs in the same regions of the world and requires similar diagnostic tools, and a PPR vaccine already exists.

Yet it afflicts mainly goats and sheep, raised by poorer segments of society and of less economic value to global trade, so the political will to target PPR for elimination is currently lacking. However, the FAO is gathering information to convince international donors that PPR and other existing disease threats are beatable if a long-term commitment is made.

But Lubroth also signals a word of caution: rather than target the next disease to be eradicated, the international community should address the underlying factors that drive the emergence of new and re-emerging disease threats. And the number of new threats is skyrocketing, far outpacing vaccine development for any particular disease.

By applying the principles of what is known as “one health,” Lubroth says, the scientific community can minimize factors that propagate new disease threats in the first place. The idea of one health is that the health of animals and that of both humans and the ecosystems that support them are all inextricably linked. The knowledge of the scientific experts in each of these traditionally distinct disciplines converges into a united force to maintain health.

Avian influenza, for example, is being tackled in just this way: by studying and analyzing the socioeconomic factors that contribute to the disease’s lasting foothold in a number of countries, looking at the risks to and from wildlife, as well as factors such as hygiene, livestock production practices, expanding animal and human populations and environmental encroachment.

Taken together, these modern pressures create a tinderbox for diseases that can be a risk to everyone’s health. Avian influenza, in particular, poses the constant threat that it will make the leap to humans, where it could become much more lethal. So combating disease at its source is the key to preventing a global human pandemic.

The health of one, Lubroth notes, is the health of all. YPH

Alumni Spotlight



The art of advocacy

Two recent graduates turn to film to document public health threats and raise awareness.

By Valerie Finholm

Washington's Puget Sound is an elaborate system of waterways teeming with life and closely linked to many people's livelihoods.

And while all may appear well on the water's surface, the health of the Sound is under increasing pressures from nearby cities and towns, and a disaster on the scale of the Exxon Valdez spill could ravage a natural jewel and the lives of thousands of people along with it.

A new documentary on Puget Sound by a Yale School of Public Health alumnus, *Sound and Vision*, explores the area's delicate ecology through the lives of people who work and live in and around the 100-mile watercourse.

Without his public health education, Eric Becker, M.P.H. '06, says he may never have gotten involved.

"I left Yale thinking, 'public health, the way it's traditionally done, is not for me,'" he says. "But Yale gave me a language to think about global health and development issues. I think the best films are ones that bring science and art together, and my M.P.H. helped me build that empirical framework. I'm a better filmmaker because of it."

While most research findings are typically published in academic journals, a new generation of public health professionals is turning to media such as film to bring social, health, medical and environmental issues to life. Becker used film to document issues facing Puget Sound—through the stories of people working to clean up, protect and restore habitat along its shores. The film also advocates for social change by suggesting practical ways that viewers can get involved to improve marine environments.

"At the end of the day I want to tell stories about inspiring people who are having an impact," says Becker. "It's a really effective way to drive social change."

Before putting his Yale education to use on *Sound and Vision*, however, Becker honed his skills as a videographer.

After graduating, a friend hired him as a researcher at HBO in Los Angeles, where he learned how to produce a television show. He gained further experience working on a documentary in Sierra Leone, Africa. Back in Los Angeles

After graduating from YSPH, Eric Becker gained film experience in Los Angeles and Sierra Leone. He put his knowledge to use in a new documentary he directed on the ecology of Puget Sound.

he worked on several Hollywood projects, and then he headed up to Washington state, where he landed the job directing *Sound and Vision*. The 63-minute documentary was funded by the nonprofit People for Puget Sound to mark its 20th anniversary.

The documentary opens with the 2010 BP Deepwater Horizon disaster, which Becker describes as the "wake-up call that spurred a national conversation about the vulnerability of our oceans and shoreline." He began production just eight weeks after the BP spill, with scenes of oil on the Gulf shoreline and an interview with a fisherman worried that pollution will put an end to cherished Gulf fishing trips with his grandson. The film transitions to the health threats facing Puget Sound, ranging from a potential oil spill such as the BP disaster to everyday pollution that flows into the Sound from Seattle's antiquated drainage system. When it rains, household toxins and trash are washed into the Sound from drains throughout the city.

"We need to realize that when we respect the ecosystem we're also respecting our own health." —Eric Becker

Becker decided to tell the story of Puget Sound through a series of eight vignettes, because in today's media landscape it is hard to expect anyone to view an entire feature about a social or public health cause.

"I broke the film into discrete but interwoven sections so that each piece could be watched online or on a mobile device but also experienced together as a cinematic whole at screenings," he says.

One vignette features Neal Chism, a middle-aged "trash enthusiast" who spends three to four hours a day picking up trash in Puget Sound from his pontoon boat and on





Dreamstime

Puget Sound in Washington state abounds with a variety of marine life and is an important economic and recreational resource for the area's many residents.

walks along the shoreline. “Styrofoam, softballs, needles, plastic bags, packing peanuts, more Styrofoam,” Chism says, pointing out his findings as he collects trash. He notes that the toxins in trash are absorbed by marine life and continue up the food chain to fish caught and eaten by humans. Chism, who says he is a semiretired engineer, also notes, wryly, “Everybody that throws trash down is [seen as] normal, everybody that picks trash up is [seen as] crazy.”

The vignettes allow people to watch parts of the film and still get the message, Becker says.

“If I can get one person to watch four minutes of it, then there’s some impact around that,” he says. “They’re going to think about how they live in Puget Sound. We tie the action we want to the piece of media. The media becomes a source of collaboration for people; you’re drawing them in with the story and then you’re giving them ways that they can have an impact.”

To get people to rethink the way they inhabit Puget Sound, Becker says he will launch a campaign this year using an interactive site, social media and an iPad application that shows the vignettes.

On the other hand, he says, “We love it when we get a theater full of people like we’ve had a few times. People get into watching the film and have a conversation about it.”

Becker is not the only Yale School of Public Health student to turn to the medium of film to call attention to health, medical, social and environmental ills.

Jonathan P. Smith, M.P.H. ’11, produced the documentary *They Go to Die* about the exploitation of migrant laborers in the gold mining industry in South Africa. The film was recently recognized by the Tuberculosis Survival Project, an organization dedicated to global health.

Smith’s film documented the plight of four migrant gold miners who contracted drug-resistant tuberculosis and

HIV while working in the mines. After leaving their jobs and with little access to health care, the ailing men returned home and died.

Smith—who was recently appointed as a lecturer at the Yale School of Public Health—says filmmaking is an effective way to convey public health research findings to the general public. “You can’t do that in dense academic journals,” he says.

Smith is currently developing a visual epidemiology project with several public health professors at Yale. “It will be kind of like a filmmaking class at the School of Public Health,” he says of the project, which is still in the early planning stages. “Filmmaking is the next step in the natural progression of disseminating public health findings.”

Smith sees filmmaking as a “two-way bridge”—to convey academic findings to the public and to bring “lived experience” from the public to the academic realm.

Meanwhile, Becker says he will continue to use filmmaking to spread awareness about public health issues.

“To me, the issues facing the environment are the same issues that are facing human health,” he says. “Too often we separate the two things: we think about public health and global health and environmental health when they’re really one and the same.”

Becker says he was especially influenced by a course he took at Yale on health and human rights.

“To me that class was very cutting-edge,” he says. “Environmental issues are actually human rights issues, too. People have the right not to be poisoned by toxic chemicals in their food and their ecosystem. We need to realize that when we respect the ecosystem we’re also respecting our own health.” [YPH](#)

Valerie Finholm is a freelance writer in Denver, Colo.

A CARING HAND

A graduate who grew up in South Vietnam and England is inspired to help those suffering from severe mental illnesses.

By Theresa Sullivan Barger

For people grappling with a serious mental illness, it is sometimes all they can do to get through the day. Many are not in a place where they can think about the long-term health effects associated with smoking, drugs, drinking or an unhealthy diet and a lack of exercise.

While their families may urge them to embrace healthier choices, many with mental illness often have to pick their battles. As a result, their physical health is sometimes neglected while they try to get their mental illness under control.

A study published in the influential *BMJ* shows just how serious the problem is: patients with severe mental illnesses such as schizophrenia and bipolar disorder have a much higher risk of premature death from natural causes than the general population, and the gap between the two groups is widening.

Uy Hoang, M.B.B.S., M.P.H. '06, the study's principal investigator, sees the trend as a call to action. Further research needs to be conducted to better understand why patients with mental illness have a higher mortality rate and also to find ways to help prevent it.

Hoang tracked patients discharged from English hospitals with a diagnosis of schizophrenia or bipolar disorder. Comparing their mortality rates within a year of discharge with the mortality rates for their same-age peers in the general population, the study concluded that those with serious mental illness have double the mortality rate.

"I feel that mental health is one of those subjects that are often neglected," Hoang says. "The best students would go somewhere else or the money would go somewhere else."

Providing better care

While it has been known for a long time that people with mental illness experienced higher mortality risks, the analysis by Hoang and his co-authors showed that their mortality rates increased over a 10-year study period compared to those in the general population.

In the United Kingdom, some 250,000 people suffer from schizophrenia and 810,000 from bipolar disorder.



Michael Woloschinow

By way of comparison, there are an estimated 2.2 million people in the United States with schizophrenia and 8.1 million with bipolar disorder.

Now a medical doctor working in the University of Oxford Department of Public Health and studying for his Ph.D. in psychiatric epidemiology at the Institute of Psychiatry at King's College London, Hoang says he hopes the recent findings will prompt changes in the way the mentally ill are cared for on three levels—clinical, policy and research.

Since the higher mortality risk has been linked to side effects of some of the antipsychotic medications and to



Courtesy of Uy Hoang



Uy Hoang’s research in England found that people with severe mental illnesses such as bipolar disorder have a much higher risk of premature death than those in the general population without such conditions.

lifestyle factors such as smoking, substance abuse and poor diet, Hoang hopes that clinicians will take into consideration the adverse physical side effects of the medications they prescribe for patients with severe mental illness and will work to help them make healthier lifestyle choices whenever possible.

In addition, Hoang would like to see policymakers institute changes that encourage primary and secondary care providers to work together and communicate about a patient’s overall care. For example, before a psychiatrist prescribes an antipsychotic medication known to increase the risk of heart disease, Hoang believes that the psychiatrist should be required to consult with the patient’s primary care physician about the patient’s family history, lifestyle and other risk factors and to inform the primary care physician about the drug’s potential side effects.

“While you have patients with severe mental illness [in the hospital for treatment], those should be opportunities for physical health screening and for prompt referral to medical care if appropriate,” he says.

Hoang, meanwhile, has been exploring ways of collaborating with Mayur M. Desai, his former professor at Yale, on a similar study using data from the United States.

“Uy’s paper was very interesting. The findings were troubling,” says Desai, M.P.H. ’94, Ph.D. ’97, associate professor in the division of Chronic Disease Epidemiology. “As in the U.K., higher mortality rates have been well-documented among persons with serious mental illness in the U.S. However, it’s unknown whether the mortality gap between psychiatric patients and the general population has been increasing or decreasing over time in this country.”

Because of the methodological rigor of Hoang’s analysis and the importance of the findings, Desai says, *BMJ* ran a separate editorial drawing attention to the paper and called for further study of the issue.

While he was at Yale, Hoang was an outstanding student and made an impression, Desai says. “He stood out in the way that he was very dedicated, very passionate about the integration of mental health into public health.”

An early interest in health

Hoang’s father was a doctor in the South Vietnamese military who worked on the front lines during the Vietnam War treating wounded American and South Vietnamese

soldiers. His father eventually became interested in public health, studying malaria for the Centers for Disease Control and Prevention.

His father’s experience studying public health at Tulane University in New Orleans prompted him to encourage Hoang to study overseas because he felt the experience would enrich him. Having lived in England since the age of 5, Hoang wanted to broaden his knowledge and experience of public health and chose to study outside of the United Kingdom.

He chose Yale because its two-year program included the opportunity to participate in an internship that gave him the chance to apply the knowledge that he had gained and to learn key public health skills. In addition, coming to New Haven gave him the flexibility to experience a little bit more of life in the United States.

His Yale internship was divided between the Department of Psychiatry at the University of California, San Francisco (UCSF), and the Connecticut Department of Mental Health and Addiction Services. Working at UCSF gave him a taste of community mental health services on the West Coast and the opportunity to talk to the people organizing community mental health programs. This experience taught him how mental health advocates can improve the lives of ethnic minorities suffering with mental illness, a valuable lesson now that he is the chair of a community mental health charity in London that works with minority ethnic populations from Southeast Asia.

The second half of his internship was more local to Yale. “Working at the state level in Hartford, I started to understand – at a more abstract level – the difference between public health in the States and in the United Kingdom, a subject that is of continuing interest to me.”

On a personal note, one thing that surprised him about the U.S. public health system is the fact that motorcyclists are not required to wear helmets in all states. An avid motorcyclist who dreams of circumnavigating the world on two wheels, Hoang says he would never consider riding without a helmet.

“I was shocked,” he says. “They do take enormous risk in Connecticut.” [YPH](#)

Theresa Sullivan Barger is a freelance writer in Canton, Conn.

Alumni News



Bruce Barron



Gerard Foley



Ilene Wachs



Sharon Inouye



Nathan Wong

1960s

Bruce A. Barron, M.P.H. '60, Ph.D. '65, M.D., is writing for *The Huffington Post*. His commentaries, which address current issues of medical care, can be accessed at www.huffingtonpost.com/bruce-a-barron and doctorbrucebarron.blogspot.com. Bruce is adjunct professor at the University of North Carolina School of Medicine and professor at the New York University School of Medicine. His research has been supported by the National Cancer Institute, the American Cancer Society and the Population Council.

1970s

Paul Etkind, M.P.H. '76, Dr.P.H. '98, was named senior director of infectious diseases for the National Association of County and City Health Officials (NACCHO), an organization that serves health departments in the United States. Paul is responsible for assuring that NACCHO's programs, demonstration projects, policy work and educational efforts are helping the infectious disease prevention and control programs of local health departments.

Gerard Foley, M.P.H. '77, is the president and chief executive officer of Mary Immaculate Health/Care Services in Lawrence, Mass. Mary Immaculate provides a range of services, including nursing, rehabilitation, independent and supportive housing and assisted living. Gerard is the former executive vice president and chief operating officer of Lawrence General Hospital, which built a \$20 million emergency center under his leadership.

Ilene Wachs, M.P.H. '79, joined the Women's Forum of New York, a group of leaders with diverse interests and achievements in the arts, business and professions. Ilene is president of Horizon Casualty Services, a wholly owned, for-profit subsidiary of Horizon Blue Cross Blue Shield of New Jersey. Horizon Casualty Services provides a range of services, including workers' compensation managed care and personal injury protection.

1980s

Stephen B. Gruber, M.D., M.P.H. '86, Ph.D. '88, has been named director of the USC Norris Comprehensive Cancer Center at the Keck School of Medicine of the University of Southern California. He has also been named the H. Leslie Hoffman and Elaine S. Hoffman Chair in Cancer Research and is a visiting professor of medicine at Keck. Stephen was previously at the University of Michigan Comprehensive Cancer Center, where he served as associate director for cancer prevention and control.

Sharon K. Inouye, M.D., M.P.H. '88, has been elected to the Institute of Medicine. Sharon is a faculty member in the division of gerontology at Beth Israel Deaconess Medical Center, director of the Aging Brain Center at the Institute for Aging Research at Hebrew SeniorLife and professor of medicine at Harvard Medical School. She also spent 20 years as a faculty member at Yale, most recently as a tenured professor of medicine.

William B. Shatz, M.P.H. '89, has been named director of the IMG Lacrosse Academy. Bill has been involved in lacrosse programs and activities for more than 30 years as a player, coach and business executive. He is one of the founders of the Tampa Bay Fire Lacrosse Club and co-founder of the American Indoor Lacrosse Association, where he served as the executive vice president/chief operating officer. The IMG campus annually attracts 20,000 athletes from nearly 100 countries.

Nathan D. Wong, M.P.H. '85, Ph.D. '87, has co-authored a new book, *Preventive Cardiology: A Companion to Braunwald's Heart Disease*. The textbook has been endorsed by the American Society for Preventive Cardiology and addresses the prevention and risk stratification of cardiovascular disease in order to delay the onset of disease and moderate its effects and complications. It also addresses a full range of relevant considerations, including the epidemiology of heart disease; risk assessment; risk factors; and developments in genetics and personalized medicine. Nathan is director of the Heart Disease Prevention Program at the University of California, Irvine.

1990s

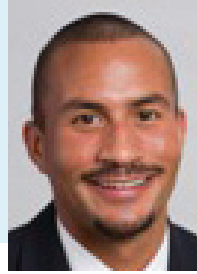
Ryan Saadi, M.D., M.P.H. '95, was one of the featured "change agents" in a special issue of *PharmaVOICE*, a magazine for pharmaceutical executives. Ryan is worldwide vice president for health economics and reimbursement and strategic pricing for Cordis Corp., a Johnson & Johnson Company.



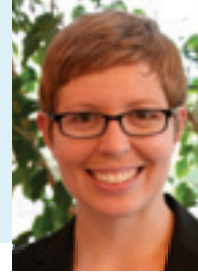
Javier Cepeda



Heather Crockett-
Washington



Otis Pitts



Kalina Duncan



Giovanni Filardo

2000S

John S. Brownstein, Ph.D. '04, assistant professor of pediatrics at Harvard Medical School, was one of 94 researchers awarded a Presidential Early Career Award for Scientists and Engineers (PECASE) by President Barack Obama in October in Washington, D.C. The PECASE award is the highest honor bestowed by the U.S. government on science and engineering professionals in the early stages of their careers. John's work on social media as a tool for disease surveillance has also been featured recently in *The New York Times* and on CNN.

Javier Cepeda, M.P.H. '10, and **Lesley Park**, M.P.H. '10, are predoctoral fellows with the Center for Interdisciplinary Research on AIDS at the Yale School of Public Health. Lesley's research focuses on the long-term outcomes for the aging HIV population, especially the development of cancer among persons living with HIV. Javier is interested in the integration of substance abuse treatment and HIV care, especially in resource-poor settings.

Heather Crockett-Washington, D.D.S., M.P.H. '11, and **Otis Pitts**, J.D., M.P.H. '10, were named 2012 Connecticut Health Foundation Leadership Fellows. This fellowship brings together individuals from across disciplines who are dedicated to health equity. Participants hone leadership skills and learn how to address the complex problem of racial and ethnic health disparities.

Kalina Duncan, M.P.H. '11, joined the National Cancer Institute at the National Institutes of Health as a Presidential Management Fellow. Kalina begins her NCI career with the Division of Cancer Control and Population Sciences in the office of the associate director and the Tobacco Control Research Branch.

Giovanni Filardo, M.P.H., Ph.D. '04, director of epidemiology at the Baylor Health Care System's Institute for Health Care Research and Improvement, has been awarded a \$2.3 million grant by the National Heart, Lung, and Blood Institute to study new-onset atrial fibrillation following isolated coronary artery bypass graft surgery. Atrial fibrillation is a common complication of cardiac surgery, occurring in 10 percent to 40 percent of patients.

Gabriel Forrey, M.P.H. '09, has entered the Navy Medical Service Corps, where he will be doing humanitarian relief work and hospital management.

Catherine Nichols, M.P.H. '10, is an Allan Rosenfield Global Health Fellow with the Centers for Disease Control and Prevention. Catherine works in the division of Global HIV/AIDS and was in Namibia in 2011 to work on prevention studies. Also at the CDC, **John Pitman**, M.P.H. '04, is technical adviser for health communications and blood safety in Namibia. John and Catherine's work is featured in the latest edition of *Pamwe*, a publication of the CDC's Namibia office.

Sharon Taylor, M.P.H. '11, accepted a position with the Connecticut Association for Human Services as the Supplemental Nutrition Assistance Program outreach advocate for the greater New Haven area.

Have an update?

Your classmates want to hear about you! Help us share your news of a new job, promotion, recognition, marriage, birth of a child, etc. Send items (and photos) to ysph.alumni@yale.edu.

YSPH Alumni Day 2012 From Capitol Hill to Corner Store: The Public Health Impact of U.S. Food Policy

When

June 1, 2012, 8 a.m. to 3 p.m.

Where

New Haven Lawn Club,
193 Whitney Avenue

Keynote

William H. Dietz, M.D., Ph.D.,
director of the Division of
Nutrition, Physical Activity,
and Obesity at the CDC

Guided Tour

Big Food exhibit at the Peabody
Museum

For more details and to register, visit
ysphalumniday2012.eventbrite.com

For additional information, contact
Dawn Carroll at 203-785-6245 or
dawn.carroll@yale.edu

Renewed effort needed against neglected tropical diseases, former Yale researcher says.

The toll on lives in the developing world is enormous.

Neglected tropical diseases exact a staggering toll on the world's poorest people, taking years off their lives – and, for those who survive, leading to decreased productivity, stunted physical growth, stigmatization and even reduced mental ability.

Former Yale student and scientist at the university, Peter Hotez, M.D., Ph.D., outlined the grim health realities that the world's poorest people, sometimes referred to as “the bottom billion,” endure daily. Diseases that Westerners are largely unaware of – ascariasis, trichuriasis and trachoma among them – continue to devastate populations and exacerbate existing poverty in dozens of countries. Children, he noted, pay a particularly high price.

“We can do something about neglected tropical diseases,” Hotez, Yale College Class of '80, said during a Dean's Lecture in Winslow Auditorium in October. Success, however, will require a long-range and concerted effort.

Hotez told the near-capacity audience that even 10 years ago a lecture on global health and tropical diseases would not have been much of a draw. A number of factors have changed that, including the Millennium Development Goals by the United Nations, ambitious programs by the United States to fight HIV/AIDS in developing countries and the social activism of entrepreneurs like Bill Gates and



Peter Hotez told an audience at the School of Public Health that neglected tropical diseases remain a scourge in the developing world.

his program to eradicate malaria. Cultural figures such as Bono, Brad Pitt and Angelina Jolie, meanwhile, have further focused attention on pressing international health issues.

While there are existing treatments for some of the tropical diseases that plague poorer countries in Africa, Asia and Latin America, a major problem is getting large quantities of drugs to the people who need them the most, Hotez said.

Mass drug administration has been used successfully in the past to combat disease in places including China, Zanzibar and Morocco, he said. Such an approach could work on an international scale, but it would require sustained drug donations by the giant pharmaceutical companies and the development of new drugs, an expensive proposition that would not likely result in profits for the companies or their shareholders. There would also have to be enhanced funding from the international community.

“We really need a new generation of products. We need to scale this

up,” said Hotez, who is president of the Sabin Vaccine Institute, a Washington, D.C.-based nonprofit agency dedicated to reducing human suffering from vaccine-preventable and neglected tropical diseases.

He noted that Sabin is actively collaborating with countries such as Brazil in the fight against endemic diseases. New techniques and methods, made possible with nanotechnology, are aiding scientists in the development of new vaccines and methods to administer them.

Hotez added that the United States could use “vaccine diplomacy” around the world to help thaw relationships with governments in the developing world that are not traditional allies. The United States did this with the former Soviet Union at the height of the Cold War in the fight against polio (an effort aided by Yale's Dorothy M. Horstmann).

“Why can't we do that with Iran?” he asked.

Michael Greenwood

Public health training center created with \$2.6 million grant

A \$2.6 million federal grant will allow for a vastly expanded training program for the public health workforce in Connecticut and Rhode Island, with a special emphasis on addressing health disparities such as HIV/AIDS in underserved communities.

The grant creates a Public Health Training Center (PHTC) that will be housed at the Yale School of Public Health; a satellite center will be located at the Brown University Public Health Program in Providence, R.I.

The two-state program will significantly augment existing public health workforce training and is expected to reach hundreds of practicing public health professionals in a variety of local and state government agencies and community health organizations. Students and faculty from Yale, Southern Connecticut State University, the University of Connecticut, Brown and other academic institutions will be engaged in a broad-based effort to improve community health outcomes. Training will cover areas as diverse as technological skills, environmental health, public health leadership, HIV/AIDS and cultural competency.

The four-year grant was awarded in late August by the Health Resources and Services Administration, a division of the U.S. Department of Health & Human Services.

"This award will greatly advance public health workforce goals in both Connecticut and Rhode Island," said Elaine O'Keefe, the center's principal investigator and executive director of YSPH's Office of Community Health (OCH), where the center will be



Elaine O'Keefe

based. "There is an enormous need to offer people who are working in public health practical training that will strengthen critical competencies and help them to be more effective at the vital work they perform daily."

Dean Paul D. Cleary noted that OCH's mission is to advance public health practice, education, research and community-university partnerships. The training center will be able to draw on varied resources available at the School of Public Health, including faculty expertise in many areas of public health.

"Building a strong public health workforce is a vital national priority," Cleary said. "We are extremely confident that the new training center will substantially improve the public health workforces in Connecticut and Rhode Island."

This round of federal grants supported 10 new PHTCs at accredited schools of public health and other public and nonprofit institutions, bringing the total number of centers to 37 nationwide. The program seeks to provide the public health workforce with education and training in diverse

and emerging areas. By utilizing distance learning and online tutorials, the expanded national educational network is expected to provide training to approximately 500,000 public health practitioners.

"Building a strong public health workforce is a vital national priority."

—Dean Paul Cleary

Prior to receiving the grant, Yale participated in a PHTC based at Boston University and collaborated with the University of Connecticut, Southern Connecticut State University and numerous other academic and practice-based partners to offer a basic public health training program through the Connecticut Partnership for Public Health Workforce Development. Rhode Island had a similar alliance of partners.

The new training center will sustain and further enhance these relationships by increasing the resources available to support continuing education as well as practice-based learning experiences for public health students, said Kathi Traugh, M.P.H., the program's assistant director.

Michael Greenwood



The iQuit program encourages smokers to kick the habit through a variety of smoking cessation techniques and small financial incentives. The program was developed by YSPH researchers and will target Medicaid recipients in Connecticut.

Paying people to kick the habit—novel anti-smoking effort designed for Connecticut

An unorthodox anti-smoking effort that offers at-risk people financial incentives to successfully quit tobacco—and smaller rewards for progress toward doing so—has been designed by researchers at the Yale School of Public Health and will be implemented statewide in 2012.

The iQuit program will encourage both smokers and medical providers to participate in counseling and training sessions, peer coaching and other smoking cessation techniques. Financial incentives—up to a maximum of \$350 per year—will be used to encourage smokers to attend these sessions and to achieve objective, verifiable goals in reducing and eliminating tobacco use.

The program will target the state's Medicaid recipients—particularly pregnant women, mothers of newborn babies and individuals with mental illnesses—who continue to smoke. While approximately

17 percent of the state's population currently smokes, between 25 percent and 30 percent of the state's Medicaid recipients, nearly 125,000 people, are smokers. Other anti-smoking efforts, including tax increases, restricted smoking areas and public health campaigns, have had limited success with the Medicaid population.

“This vulnerable population continues to smoke. We think a new approach is needed,” said Jody L. Sindelar, Ph.D., professor in the division of Health Policy and Administration and one of the architects of the iQuit program. “There is solid evidence that such incentive payments can work. Small payments can be effective in providing effective, immediate and clear-cut gains.”

A five-year federal grant of up to \$10 million funds the state program and seeks to improve health and lower taxpayers' long-term costs by helping Medicaid patients to quit smoking. Smoking-related illnesses cost the national Medicaid program some \$22 billion annually.

The program represents a new way to encourage people to quit smoking, said Susan Busch, Ph.D., associate professor in the division of Health Policy and Administration, who helped design the program. If successful, it is likely to save money for the state's Medicaid program over the long term by reducing smoking-related health care costs.

In October 2010, Connecticut began providing smoking cessation coverage for pregnant women on Medicaid, as required under federal health care reform, but smoking cessation services did not extend to other Medicaid recipients. Gov. Dannel P. Malloy's February 2011 budget expanded smoking cessation coverage beyond the Affordable Care Act requirement to include other Medicaid beneficiaries, and the measure was approved by the General Assembly.

“This innovative program is encouraging Connecticut and other states to try new approaches to fight chronic diseases that destroy people's health and cost taxpayers millions of dollars,” said Lt. Gov. Nancy S. Wyman. “By using new methods to encourage Medicaid participants to quit smoking, we can make real improvements in their health and help the state's fiscal bottom line.”

The state Department of Public Health and the Hartford-based Hispanic Health Council are partners in the program. The state Department of Public Health is the primary recipient of the grant, with a subcontract to Yale.

M.G.



Louis Fazen (right) and a colleague in Kenya discuss the use of smartphone technology to reduce the incidence of infant mortality.

Smartphone solution to infant mortality awarded Gates grant

A doctoral candidate at the School of Public Health is part of an international team of researchers that has been awarded a \$250,000 grant from the Bill & Melinda Gates Foundation for a project that uses smartphones to reduce infant and maternal mortality in Kenya.

Louis E. Fazen, who is currently in his sixth year of the M.D./Ph.D. Program at Yale and is a student in the division of Epidemiology of Microbial Diseases, is part of a research group based in the East African nation that

was recently awarded a Grand Challenges in Global Health grant for their “Saving Lives at Birth” project.

“Addressing these health needs requires a rapid and efficient information management system.”

—Louis Fazen

Fazen and colleagues will work with the Academic Model Providing Access to Healthcare, a U.S. government program to combat HIV, and the Kenya Ministry of Health to train and support Community Health Workers (CHWs) to address the rising level of maternal and infant mortality. The grant funds the development of an information technology system that utilizes cutting-edge technology to foster rapid communications and feedback between mothers, their communities and their health care providers.

This Mother-Baby Health Network will use the phones to facilitate home- and group-based care through CHWs and to improve collective advocacy. It will rely on an electronic medical record system that can be sent directly to CHWs using smartphones, allowing women and their newborns to be correctly triaged for care.

“Addressing these health needs requires a rapid and efficient information management system that extends from health facilities to individual households, crossing over geographic and socioeconomic divisions,” said Fazen, who lives in Eldoret, Kenya. It will, he

said, provide communities with the information and communication tools they need to ensure that every mother and newborn have access to essential care at time of delivery and within the first 48 hours after birth.

Integrated with text messaging, the Mother-Baby Health Network will also be capable of notifying health care providers, alerting nearby GPS-tracked Mother-Baby Taxis in an emergency transport system and activating a personalized community of Mother-Baby Advocates to mobilize local resources.

“Louis has designed a great project with both a randomized controlled trial and a qualitative component,” said Elizabeth H. Bradley, Ph.D. ’96, a professor in the division of Health Policy and Administration, director of Yale’s Global Health Leadership Institute and Fazen’s adviser. “If the mobile phone intervention works, he will find out a lot about implementation too – hopefully contributing to the development of best practices in this emerging field.”

Infant and maternal mortality remain serious public health issues in Kenya, Fazen said. The World Health Organization estimates that 77 percent of all maternal deaths occur within the first 48 hours of delivery, and the most recent Kenya Demographic and Health Survey indicates that half of the mortality for children under 5 years of age now occurs in the first week of life.

Michael Greenwood



Susan Mayne



Heping Zhang



Hongyu Zhao



Tongzhang Zheng

YSPH professors appointed to endowed chairs

In recognition of their distinguished scholarship and contributions to public health, four professors at the Yale School of Public Health – Susan T. Mayne, Heping Zhang, Hongyu Zhao and Tongzhang Zheng – have been appointed to endowed chairs by the Yale Corporation.

They were selected on the basis of their vibrant research and exceptional accomplishments, and have made significant advances in their fields and contributions to the school’s mission, said Dean Paul Cleary. “I am honored to support them in advancing science, educating our students and improving the public’s health.”

Susan T. Mayne, Ph.D., the newly designated C.-E.A. Winslow Professor of Epidemiology (Chronic Diseases), studies lifestyle determinants of human cancer risk, with an emphasis on nutritional factors.

She is head of the division of Chronic Disease Epidemiology and is also associate director for population sciences at the Yale Cancer Center. She earned her doctorate from Cornell University.

Mayne’s research has emphasized the role of dietary factors in the etiology of several major cancers. She also studies other lifestyle factors (e.g., tobacco, alcohol and tanning)

and their interaction with genetics in cancer risk.

Heping Zhang, Ph.D., Susan Dwight Bliss Professor of Public Health (Biostatistics), specializes in research on substance use, statistical methods in genetic studies of substance use and research training in mental health epidemiology.

Zhang has developed statistical methods and software to analyze data related to a broad range of health outcomes, including pregnancy, mental health and substance use. He has published over 180 research articles.

In 2005, Zhang founded the Yale Collaborative Center for Statistics in Science (C2S2) to foster collaboration on statistical methods and technologies, particularly for understanding the etiology of pregnancy outcomes and to evaluate treatment effectiveness for infertility.

Hongyu Zhao, Ph.D., the Ira V. Hiscock Professor of Public Health (Biostatistics), develops mathematical, statistical, computational and visualization tools that are needed to address scientific problems in molecular biology and genetics.

Zhao is also a professor of genetics and of statistics. He is a leader in statistical genetics, computational biology, genetic epidemiology and human genetics and has developed

novel statistical methods and shown how they can be applied to the study of diseases such as cancer, obesity, hypertension, HIV, substance dependence and immunological disorders.

He has also contributed to genomics and proteomics analysis through the development of statistical methods for pathway reconstructions.

Tongzhang Zheng, D.Sc., the newly appointed Susan Dwight Bliss Professor of Epidemiology (Environmental Health Sciences), studies environmental pollution and human health, particularly in cancer epidemiology and etiology related to environmental hormone disruptors, genetic susceptibility and the interaction of genes and the environment.

Zheng, head of the division of Environmental Health Sciences, has shown that immunosuppression due to increasing exposure to ultraviolet radiation and hair dye use is partly responsible for the worldwide increase in non-Hodgkin’s lymphoma.

He has also investigated the relationship between female breast cancer and environmental exposures to certain pesticides and PCBs. In addition, Zheng has examined the relationship between circadian rhythm disruption and the risk of female breast cancer.

M.G.

Promoting health through improved relationships

The daily pressures faced by young parents can result in a troubled relationship, inattention to children and, potentially, sexually risky behaviors outside the relationship, putting both partners at increased risk of HIV and other serious diseases.

But if relationships among at-risk couples could be strengthened early on, a host of public health problems – including sexually transmitted diseases, stress and child neglect – could possibly be avoided.

A new program funded by the National Institute of Mental Health will address these issues and others with the creation of a 15-part intervention program for couples that will seek to strengthen their bonds and curb behaviors associated with HIV risk.

“There are few HIV prevention interventions that incorporate emotional and relationship factors into risk reduction,” said Trace S. Kershaw, Ph.D., associate professor in the division of Chronic Disease Epidemiology and the principal investigator of PARTNRS, a Yale research group that focuses on the health of young couples.

“We will directly address issues of emotion, intimacy and relationship functioning to create an intervention that strengthens romantic relationships, improves parenting skills and reduces HIV risk behavior,” Kershaw said. “There is a need for prevention programs that help young couples traverse the road to parenthood by providing relationship skills as well as HIV prevention skills.”

M.G.

Speaking of health



Stephen Lewis

An uncompromising stance in the fight against AIDS

“We’re pretty uncompromising in our views,” Stephen Lewis, co-founder and co-director of AIDS-Free World, told a gathering in November. “We don’t fool around. This is not an exercise in ambiguity.”

Lewis said that government-sponsored rape in some African countries not only devastates large numbers of women but also contributes to the spread of HIV/AIDS. His group is working to end the culture of impunity and to bring perpetrators to justice. His talk was sponsored by the Yale Global Health Leadership Institute, the Yale Center for Interdisciplinary Research on AIDS, the Yale World Fellows Program and the Yale AIDS Program.



Mark Schoofs

The end of AIDS is within reach, journalist asserts

The tools to control the HIV/AIDS epidemic are at hand and new infections could be reduced to a “trickle,” Pulitzer Prize-winning journalist Mark Schoofs told a gathering at YSPH in October.

But, he added, the tools are not being deployed. Male circumcision, a microbicide gel for women and expanded use of a three-drug cocktail, used in concert, could result in a “radical” drop in new infections. However, cultural issues, budgetary concerns and political opposition stand in the way.





Sonali Kochhar

Staggering loss of life, appalling suffering

India's HIV/AIDS epidemic has reached critical proportions and is resulting in a "staggering loss of life and appalling suffering," and victims of the disease "are the new untouchables in our country," Sonali Kochhar, medical director of OneWorld Health in India and a 2011 Yale World Fellow, told students during a lecture at YSPH in October.

She said that India has the third-highest incidence of AIDS in the world (after South Africa and Nigeria) and that the epidemic has spread to all segments of Indian society.



Nimmi Gowrinathan

Logistics sometimes stymie passion of aid workers

Nongovernmental organizations (NGOs) work in areas hardest hit by disaster and conflict, and their efforts bring relief and resources to people whose needs might otherwise be unaddressed.

But NGOs face a host of challenges that hamper their effectiveness and ability to help those most in need, said Nimmi Gowrinathan, director of South Asia Programs at Operation USA, during a presentation at YSPH in October. Recent flooding in Pakistan, for instance, which displaced millions, drew little support from the public. "We were very passionate, but weren't able to do much," she said.

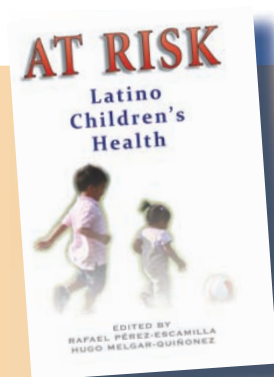


Lisa Berkman

U.S. population rapidly aging, more elderly

By the year 2040, the largest population group in many developed countries will be people in their eighties, creating a very different society than we live in today, Lisa Berkman, director of the Harvard Center for Population and Development Studies, told a gathering at YSPH in December.

Failure to restructure society and develop appropriate policies for the expanding elderly population will lead to, among other problems, social exclusivity and "dis-integration" of demographic groups, such as senior citizens and young children. Berkman is a former member of the YSPH faculty.



A recently published book co-edited by YSPH Professor Rafael Pérez-Escamilla explores the health and well-being of Latino children in the United States. *At Risk: Latino Children's Health* explains how social, economic and environmental factors are contributing to a growing public health crisis among the fastest-growing segment of the U.S. population.

Article cited in health care reform challenges

Since it was signed into law in early 2010, the Patient Protection and Affordable Care Act (PPACA) has faced legal challenges from several states, individuals and the National Federation of Independent Business on the constitutionality of a federal insurance mandate.

To date, three federal judges have upheld the constitutionality of the health care reform legislation, while two judges have overturned all or part of it. In March 2012, the U.S. Supreme Court heard arguments about the constitutionality of the law over several days. A decision is expected this summer.

An article on the ethics of health care reform by Jennifer Prah Ruger, M.Sc., Ph.D., associate professor in the division of Health Policy and Administration, is playing a role in the ongoing national debate.

Ruger's article has been cited in support of the PPACA during legal proceedings in California, Michigan, Florida and Virginia and in briefs to the U.S. Supreme Court. More recently, in a petitioner's brief in the court, the Department of Health & Human Services cited the paper to support its argument that health insurance can be regulated under the Commerce Clause.

The article was cited in appellee briefs to the 9th Circuit and 6th Circuit Court of Appeals, respectively, in support of the argument that interstate health care markets are unique and therefore minimum coverage provisions are a necessary and proper means of government regulation



Jennifer Prah Ruger

under the Commerce Clause. In federal district courts in Virginia and Florida, the government relied on the article to support its use of an individual mandate under the Commerce Clause at the summary judgment stage.

The article, "The Moral Foundations of Health Insurance," was originally published in *QJM: An International Journal of Medicine* in 2007.

Michael Greenwood

Targeting Obesity at Birth

continued from page 36

Solutions will not be easy, admits Pérez-Escamilla. Pregnancy, he notes, is probably the worst possible time to ask a woman to control her weight.

Part of the solution may lie in breast milk. Many studies have shown that feeding a baby only breast milk for his or her first six months, and continuing the practice until the child is a year old, makes a significant difference. Those babies better regulate their intake and don't eat when a caregiver misreads their crying as cues for

feeding rather than for other forms of comfort.

The 2010 Dietary Guidelines were innovative, in that they integrated socioeconomic considerations into their framework. While individuals have a responsibility for the food choices they make, there are also societal barriers to healthy eating such as urban food deserts, where neither healthy fruits nor vegetables are readily available or, if they are, affordable. People in many places also lack access to safe recreational areas for physical activity, while meals that are served as part of federally funded school breakfasts and lunches are not within a parent's control.

"It's not as simple as telling people what to eat," says Pérez-Escamilla.

While some language about the life cycle approach to childhood obesity prevention did make it into the 2010 scientific report, Pérez-Escamilla hopes that the 2015 committee will take up the difficult task of integrating this knowledge for policymakers.

For instance, the Women, Infants, and Children program is the largest distributor of infant formula in the world. "WIC sees a lot of these moms," says Pérez-Escamilla. "They must be on board." **YPH**

Denise Meyer



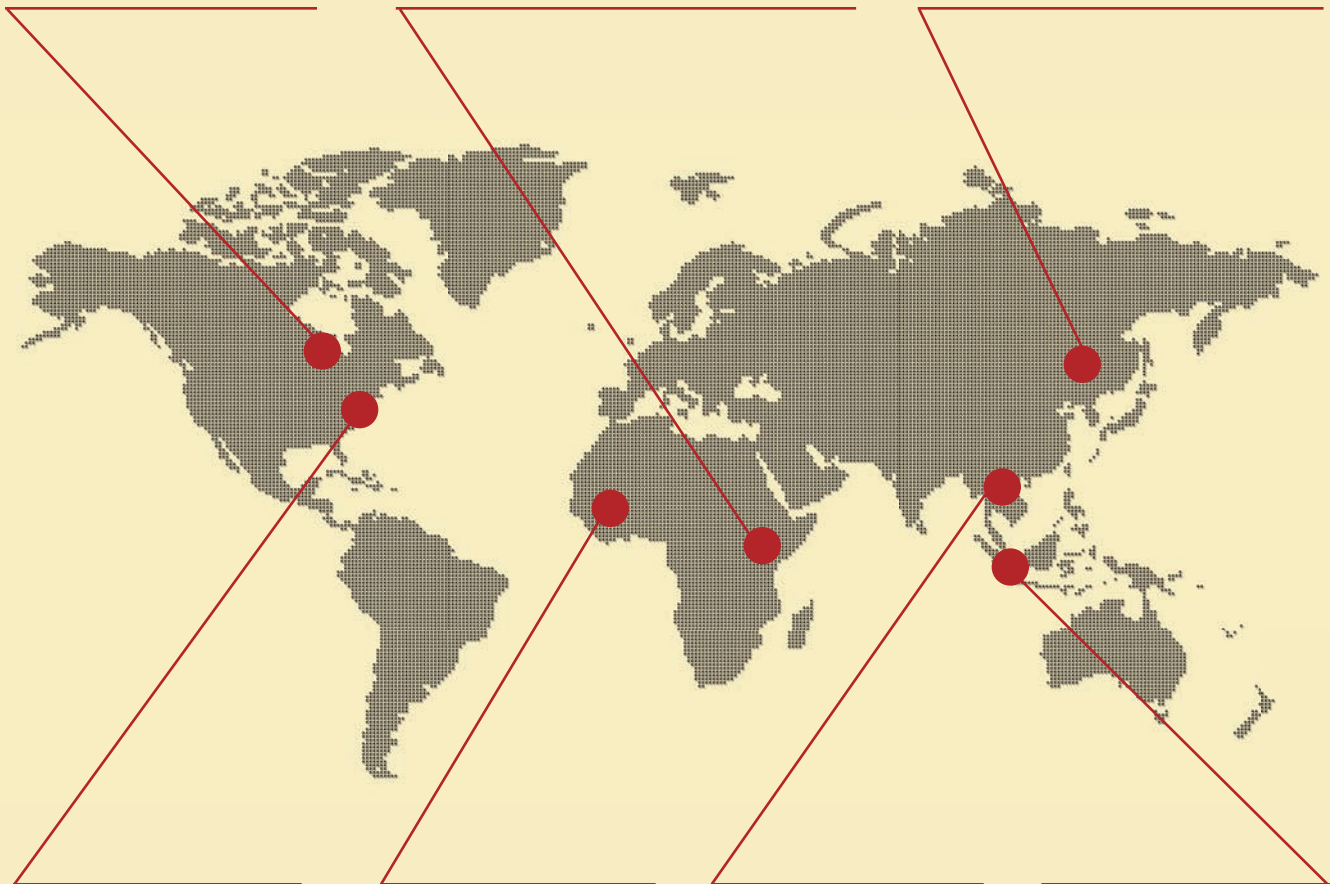


YSPH around the world

United States A new, enhanced map created by YSPH researchers shows precisely where Lyme disease occurs in the United States.

Tanzania Yale's Global Health Leadership Institute teamed with supply chain experts at Coca-Cola and the Tanzania Medical Stores Department to improve access to critical medicines in over 5,000 locations.

China Nearly 100 researchers gathered in Chengdu City last May for an advanced epidemiology and biostatistics workshop led by the Yale School of Public Health.



Washington, D.C. An investigative report by a U.S. Congressional committee cites Yale research in a report on the inaccurate health information provided to teenagers by the indoor tanning industry.

Western Africa YSPH researchers contribute to a study on current practices and beliefs concerning female genital cutting.

Vietnam A YSPH study finds that people in Vietnam who are insured have longer hospital stays but fewer days of missed work or school compared to their uninsured peers.

Indonesia YSPH researchers conduct an independent analysis of a multimillion-dollar program funded by the World Bank to improve maternal and child health in rural Indonesia.

Awards and honors

Howard Cohen, Ph.D., M.P.H., lecturer in the division of Environmental Health Sciences, received the Henry F. Smyth, Jr. Award from the American Industrial Hygiene Association in November.

Shelley Geballe, J.D. '76, M.P.H. '95, lecturer in the division of Health Policy and Administration, was the 2011 recipient of the Connecticut Public Health Association's C.-E.A. Winslow Award. Geballe was cited for filling a need for effective policy development and advocacy for children. Her work focuses on state and federal tax and budget issues, child and family health and mental health, child welfare, education and juvenile justice.

Susan T. Mayne, Ph.D., head of the division of Chronic Disease Epidemiology, has been named a National Associate of the National Academies for her work with both the National Research Council and the Institute of Medicine.

Megan McInnis, a second-year M.P.H. student, had an internship photo from India selected as Photo-of-the-Month by the Association of Schools of Public Health.

Kathi Traugh, M.P.H., public health professional development coordinator at YSPH's Office of Community Health, is the new president of the Connecticut Public Health Association.

Herbert Yu, M.D., M.Sc., Ph.D., has been named leader of the population sciences program at the University of Hawaii Cancer Center. Yu has been a faculty member at the School of Public Health for the past 10 years and will continue to collaborate with colleagues here as an adjunct professor in the division of Chronic Disease Epidemiology.

Anna Zonderman, a second-year M.P.H. student, had an internship photo from London selected as Photo-of-the-Month by the Association of Schools of Public Health.



Jonathan Smith's recent documentary film, *They Go to Die*, won the Tuberculosis Survival Prize at the International Union Against Tuberculosis and Lung Disease conference in Lille, France, in October. The film traces four former migrant gold miners in South Africa and Swaziland who contracted drug-resistant tuberculosis and HIV while working in the mines. Smith graduated from Yale in 2011 with an M.P.H.



Professor Robert Heimer (left) and Dean Paul Cleary model pink locks to publicize an event at the School of Public Health that raised funds for breast cancer research. During the school's Pink Hair for Hope event in October, dozens of people had similar pink tresses attached and raised nearly \$900 in the process.

In Memoriam

Richard O. Gritzmacher, M.D., M.P.H. '69, died on October 10 at the age of 74 from multiple organ complications and metastatic malignant melanoma. Richard was born in Milwaukee, Wis., and graduated from the University of Wisconsin School of Medicine in 1963. After four years with the U.S. Public Health Service in California and Arizona as a director for the Indian Health Service, he moved to Connecticut, earning his M.P.H. from Yale in 1969. He settled in Essex and joined a private family medical practice in Old Saybrook with the late Dr. Donald E. Cook. His medical practice served the shoreline community for nearly 30 years before it was sold in 1998. His wife of 34 years, LaDonna Brandt Gritzmacher, died in 1996. He married Carolyn Hayes and relocated to Castle Rock, Colo. Richard toured the West as a locum tenens physician, working in various medical practices. He held medical licenses in seven states as a result of his medical travels and desired to deliver quality medical treatment to the underserved.

Col. Robert O. Iott, M.P.H. '73, died on October 20 in Yakima, Wash., at the age of 73. Robert graduated from the University of Kansas with a degree in pharmacy and then joined the U.S. Air Force Medical Service Corps, the military branch that provides health care and medical services to the armed forces. During his stay in West Germany, Bob met his wife, Joan, a Canadian nurse. In Germany, he managed the health care services for all the American forces in Europe. The family moved to New Haven in 1971 while he attended the Yale School of Public

Health. Upon graduation, he began a new phase of his career, designing and managing health centers for the Air Force. His last duty station was the Air Force Academy in Colorado Springs, Colo. He was recognized with a Commander in Chief's Special Recognition for Installation Excellence for his work to renovate the Academy Hospital and turn it into a model of efficiency and service. He is survived by his wife, two children and their spouses, a sister-in-law, a niece and his devoted dog.

Herbert S. Sacks, M.D., a clinical professor of child and adolescent psychiatry at Yale School of Medicine and past president of the American Psychiatric Association, died on August 30 in New Haven at the age of 84. Among his many accomplishments, Herbert remained active as a founding member of Yale School of Medicine's Committee on International Health for more than 40 years. He was also enthusiastic about his service on the Downs Fellowship Committee, which awards international student travel grants to Yale public health, medical, nursing and physician associate students pursuing scientific research and cultural exchange in developing countries.

Martha Field Steel, M.P.H. '68, died on December 6 in Hockessin, Del., at the age of 91. Originally from Rhode Island, Martha attended the Lincoln School in Providence and Radcliffe College. After earning a master's degree in public health from Yale, she went to work for the Population Council in New York City as an epidemiologist, traveling the world to

evaluate the council's family planning programs. Martha believed strongly in women's rights, particularly health, joining the boards of Planned Parenthood, the Delaware Pro-Choice Medical Fund and Christiana Hospital. Her interests extended to the Delaware Symphony and the garden club. She is survived by her three sons and their spouses, her granddaughter and a brother.

George R. Walker, M.D., M.P.H. '56, died on June 9 at the age of 87. George grew up in Hempstead, N.Y., and as a young man was a bicycle mail courier in New York City. He was pursuing a career in chemistry at Yale College when he decided to enlist in the U.S. Army Air Forces in 1942. After training, he was stationed in England as a meteorologist. At the war's end, he returned to Yale University, receiving his bachelor's degree in 1949, and then attended New York Medical College. In 1954, he returned to instruct at the Yale School of Medicine while he completed a master's degree in public health. He is survived by his son, four stepchildren, 13 grandchildren, 11 great-grandchildren and two great-great grandchildren.

Send obituary notices to
ysph.alumni@yale.edu

Yesterday



Cancer pioneer creates an enduring legacy

As commissioner of the New Haven Board of Health and a public health professor at Yale, Ira V. Hiscock was an instigator for early cancer research.

In the early 1930s, the New Haven Cancer Committee, which he chaired, found that New Haven had one of the highest cancer mortality rates in New England. The finding drew statewide attention, and the committee's work became a model for collection of uniform data and follow-up of cancer patients. It also led to the establishment of the Connecticut Tumor Registry in 1935.

Under the auspices of the state Board of Health, the registry established a reporting system and tumor clinic secretaries in each of Connecticut's hospitals. Through the years the tumor registry and Yale researchers were closely aligned with the National Cancer Institute's End Results Group and, later, the Surveillance, Epidemiology, and End Results Program. By the early 1970s, the need to combine the registry's capabilities with a strong research base led to the establishment of the Cancer Control Epidemiology Unit at Yale.

Hiscock (fourth from left, pictured with the first class in Public Health Administration in 1928) joined the faculty in 1920 and eventually succeeded founder C.-E.A. Winslow (second from right) as head of what was then the Department of Public Health at Yale. Hiscock served as chair of the department and was the Anna M.R. Lauder Professor of Public Health from 1945 to 1960.

Denise Meyer



Senator briefed on health advances, challenges

U.S. Sen. Richard Blumenthal, D-Conn. (left), visited the School of Public Health to learn more about the array of research and training programs that are currently under way and to hear from the dean and faculty about the importance of federal funding to continued advances in public health.

The senator's January visit included an overview of the school's cancer research done in conjunction with the Yale Cancer Center, with a focus on preventing and controlling the many types of the disease.

Researchers, for instance, are involved in population-based studies of lifestyle, environmental and molecular/genetic factors to better understand the origins of various cancers. Faculty also conduct behavioral interventions that seek to prevent or control cancer, including measures such as exercise, diet and restricting tobacco use, in addition to research trials. The meeting also touched upon recent Yale research that has gained the attention of lawmakers in Connecticut and beyond: indoor tanning and its role in the onset of basal cell carcinoma.

Blumenthal met with Dean Paul D. Cleary, Susan T. Mayne, Ph.D., head of the division of Chronic Disease Epidemiology, and Melinda L. Irwin, Ph.D., M.P.H., associate professor in the same division (not pictured).

"It was great to have an opportunity to thank the senator for the cases he has championed and to explain to him how critical robust federal funding is for maintaining our position as a leading research center," said Cleary.

Michael Greenwood

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