

Human ECOLOGY

Outreach
and **Impact**



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Cornell's College of Human Ecology publishes this magazine to illustrate how its programs address complex societal issues to improve the human condition. This mission of human improvement is accomplished through faculty initiatives in research, outreach, and teaching—with an emphasis on an ecological perspective, collaborative projects, and multidisciplinary curricula within and across five academic units: the Department of Design and Environmental Analysis; the Department of Human Development; the Department of Policy Analysis and Management; the Department of Textiles and Apparel; and the Division of Nutritional Sciences, a unit shared with the College of Agriculture and Life Sciences. The college includes the Family Life Development Center, Bronfenbrenner Life Course Center, and the Cornell Institute for Policy Research.

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What's

Cover: A U.S. Army soldier says goodbye to his daughter before deploying to Iraq. Photo by Brad Loper/Dallas Morning News/Corbis

Above: A Tanzanian mother and her children are visited by a Cornell-trained health monitor. Photo by Rebecca Stoltzfus.



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The College's Science, Scholarship, and Outreach Meet Today's Challenges

On the Cornell University campus, the arrival of spring generally means an increase of sunlight and energy, and a time of renewal, growth, and new beginnings. It seems fitting then, that this spring issue of *Human Ecology* sheds light on the ways in which the research, scholarship, and outreach from the College of Human Ecology is applied every day to challenges and opportunities in today's world.

Programs in the College of Human Ecology have tremendous impact when the rigor of science and scholarship is combined with the power of relationships. Constant collaboration between the college, Cornell Cooperative Extension, government, and community partners is the foundation of efforts to improve the lives of individuals, families, and communities across New York and beyond. The pages of this magazine are filled with stories that illustrate the breadth and depth of impact these efforts can have.

This is not by chance. In 1900, Liberty Hyde Bailey, a professor of horticulture and later dean of Cornell's College of Agriculture, invited Martha Van Rensselaer to organize an extension program for New York State's rural women. Bailey and Van Rensselaer shared a belief that by adopting new scientific strategies and applying them to daily tasks, women could help ease the burdens of farm and rural life.

A partnership was born. Today, Cornell Cooperative Extension is a powerful connector of high-impact work to the people of New York, and the college's research, scholarship, and outreach extend beyond the boundaries of campus to benefit New York, the nation, and the world.



Helene R. Dillard

Helene R. Dillard
Associate Dean, Colleges of Human Ecology and Agriculture and Life Sciences
Director, Cornell Cooperative Extension

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For the 70 percent of older people who are not able to use the Medicare web site to compare the 59 Part D options, Kosali Simon has created easy-to-use printed materials to help Medicare participants choose among the myriad plans offered.

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Researchers, physicians, and students are mobilizing
to solve serious health problems in developing nations.



A Passport, a Problem-Solving Mind, and Making a Difference in Global Health

BY ROGER SEGELKEN

B

Born into a family of particular misfortune—one of her siblings and two cousins already had died of malaria, diarrhea, and pneumonia, respectively—baby Amina’s luck was about to change.

For Amina (not her real name) good fortune came on the back of a healthcare worker’s motorcycle.

Amina’s Lucky Day Moving as expeditiously as the rutted road through rural Zanzibar, Tanzania, allowed, the motorcycle carried a digital scale and other gear for a neonatal assessment of the newborn child: weight, respiratory rate, temperature, and possible infections.

Trained observers will interview Amina’s parents through another part of the Cornell-based program to gauge the effects of malnutrition on childhood disease in Tanzania. They also are trying to determine whether early intervention can turn around a dismal infant-mortality rate. Amina’s father, a subsistence farmer who sells fish to villagers from a borrowed bicycle, and her mother, who bakes street food for sale when flour and firewood can be found, struggle to feed their own children and extended family that shares their roof.

But the nutritional quality is far from adequate for a child in a country where iron-deficiency anemia is rampant and malnutrition underlies the diseases (and deaths) of poverty. Another worker will monitor the village’s well—actually more of a seasonal mud hole—that is both the principal source of water for scores of adults and children and a breeding ground for mosquitoes that carry malaria.

Because baby Amina will be “followed” through repeated home visits, she has a better chance of surviving than many of the 1.4 million born last year in the United Republic of Tanzania. Life expectancy (at birth) is 46 years, in part because more than 170,000 children die before reaching school age each year. Her parents will get help buying medicines that may be necessary, including rehydration if Amina develops diarrhea. She will receive an experimental fortified instant food for babies that is being evaluated for clinical trials there. In this neonatal home visit, Amina’s mother will be encouraged to breastfeed exclusively for about six months and she will learn why cleaner water and a more balanced diet, with vitamin supplementation and iodized salt, is critical for infant health—and for prenatal health as the family grows.

Later, Rebecca Stoltzfus, a Human Ecology professor of nutritional sciences specializing in the epidemiology of diseases of poverty, will report >>>

Participants in a study of infant feeding practices, this mother and child live in a coastal village called Tumbe in northern Pemba Island of Zanzibar, Tanzania.



PHOTO BY REBECCA STOLTZUS

to agencies that can implement change for more Tanzanian youth (including UNICEF, that nation's Ministry of Health, and USAID). Early intervention and proper nutrition, she will say, *can* make a difference.

The Zanzibar, Tanzania, project is one of several, based in the College of Human Ecology and Weill Cornell Medical College, that are part of Cornell University's new Global Health program.

B **Building on a Record of Service** Nutritional scientists from the College of Human Ecology and doctors from Weill Cornell Medical College have been working in developing countries for more than 40 years. But until recently, those two parts of the university rarely joined forces to address health needs of third-world countries.

They're doing just that and much more in the new Global Health program. Supported in part by a "framework program" grant from the National Institutes of Health (NIH) Fogarty Institute, the nutritional scientists and physicians are rallying faculty members from three other Cornell colleges (Agriculture and Life Sciences, Arts and Sciences, and Veterinary Medicine) to help communities, institutes, and hospitals in some of the neediest parts of the world fight malnutrition and disease. Kathleen Rasmussen, a professor in Nutritional Sciences, and Dan Fitzgerald, an assistant professor at Weill Cornell, helped to co-author the winning grant proposal.

Preparing Minds for Problem-Solving Without neglecting present-day, urgent needs of people, the program begins building the next generation of service-minded world citizens with a new undergraduate minor in global health.

Academically based in the College of Human Ecology, the Global Health minor speaks to undergraduates from just about any part of the university with two requirements: the students must have a fundamental education in the disciplines that underlie global health research, and they must have a passport to travel.

For graduate students, medical students, and postdoctoral fellows interested in the study and control of the so-called diseases of poverty, the Global Health program will provide new seminar courses and research experience at international field sites.

Human Ecology's Rebecca Stoltzfus, co-director of the Global Health program, says: "Our vision is to create a sustainable and innovative, university-wide Global Health training program that engages students and faculty from multiple disciplines to solve problems." The end result, she says, "will be that more of Cornell's outstanding students in human and veterinary medicine, nutrition, agriculture, and basic sciences will make lifelong contributions to global health, particularly problems of resource-poor countries." Sharing expectations with Stoltzfus is her co-director, Warren D. Johnson Jr., a Weill Cornell Medical College professor and chief of Weill Cornell's Division of International Medicine and Infectious Diseases.

Formalizing Commitments In Ithaca the 1970s saw the formation of the Program in International Nutrition in the Division of Nutritional Sciences and the College of Human Ecology. The program's emphasis on research, education, and training to address nutritional problems worldwide produces graduates who are highly prized by government ministries and action agencies, such as

UNICEF and the World Health Organization. From many sites of field work by the Program in International Nutrition, the newly formed Global Health program chose three: Bangladesh, where a NIH-funded training program in cooperation with Dhaka's International Centre for Diarrhoeal Research is directed by Kathleen Rasmussen; and Peru and Tanzania, where programs in collaboration with Lima's Instituto de Investigacion Nutricional and Zanzibar's Public Health laboratory, respectively, are directed by Stoltzfus.

Until Stoltzfus and other founders of the Global Health program asked for start-up support from Cornell's Mario Einaudi Center for International Studies, global health had not been an explicit focus for that center, which fosters study-abroad opportunities and advances international teaching, research, and outreach at Cornell. "But the Einaudi

Center has many of the resources we need to support work in global health, such as social and cultural studies in an extraordinary range of languages," Stoltzfus says. The Einaudi Center provided a critical seed grant to help prepare the NIH grant proposal. And so another partnership was born.

At Cornell's medical college, one of the first efforts to formalize the commitment to global health came in 1979 with the establishment of the Division of International Medicine within the Department of Medicine.

The medical school's AIDS program was incorporated when the division expanded, in 1995, to its current mission as International Medicine and Infectious Diseases. In 2004 the division added a new focus on research and training in Ghana and began collaborating with the Noguchi Memorial Medical Institute for Medical Research.

To address AIDS-related tuberculosis in Haiti, collaborative programs headed by Weill Cornell have reduced the prevalence of HIV infection from 6.2 percent in the 1990s to 2.9 percent today, Dr. Johnson says. By helping form and bring NIH support to a Haitian network for service, training, and research called GHESKIO (Groupe Haïtien d'Etude du Sarcome de Kaposi et des Infections Opportunistes), Cornell medical workers defined the optimal treatment and prophylaxis of tuberculosis in AIDS patients. As Drs. Johnson, Fitzgerald, and Stoltzfus learned about each others' research through writing the NIH grant proposal, they realized they had mutual interest in integrating nutrition research and services into the broad array of activities already ongoing at GHESKIO, which also include tuberculosis screening and treatment, family planning, and a pilot program in microcredit. And so Fitzgerald and Stoltzfus are already planning their next NIH grant, to fund research on nutrition and HIV in Haiti. Much more remains to be done in Haiti, according to Johnson, making that impoverished island nation a natural place to study global health—and to do something about it.





**UNITED NATIONS
UNIVERSITY**

**Patrick Stover Is Director of UNU's
Food and Nutrition Programme for
Human and Social Development**

Patrick Stover, Human Ecology professor and director of the Division of Nutritional Sciences (DNS), has begun a four-year term as director of the Food and Nutrition Programme of the United Nations University (UNU), with plans to engage more faculty from the college and across Cornell in the multidisciplinary work of UNU. Stover takes the place of Cutberto Garza, his predecessor in the DNS director's office and in the directorship (1996–2005) of the Food and Nutrition Programme, the only UNU program that is headquartered in the United States.

The 30-year-old, Tokyo-based UNU is the research and "think tank" for the United Nations System. It was born out of UNESCO (United Nations Educational, Scientific, and Cultural Organization) with the overarching mission "to contribute, through research and capacity building, to efforts to resolve the pressing global problems that are the concern of the United Nations, its peoples and member states." The Food and Nutrition Programme is among four science-society-technology programs administered by the UNU.

Later this year in Ithaca, Cornell and UNU officials will sign a memorandum of understanding after which Cornell will be an "Associated Institution" of UNU. In confirming Stover's appointment to the Food and Nutrition Programme and the continuation of the program's base at Cornell, the UNU referred to Cornell's Division of Nutritional Sciences as "one of the largest academic units in the U.S. devoted to research, training, and outreach in human nutrition."

The UNU rector (president), Hans van Ginkel, would like to engage American and European universities with developing nations to train and retrain scientists who will continue to work in their native countries, according to Stover. Many of Cornell's programs already focus on this and, in addition, share resources with academic libraries in developing countries. The new designation as an Associated Institution will give Cornell educators and researchers the opportunity to do even more, Stover notes.

Stover credited Garza with establishing a network of research and outreach sites in Africa, South Asia, the Middle East, Eastern Europe, and South America. While attending the November 2006 UNU Council meeting in Tokyo, Stover was informed by African members of the council "that Cornell University is one of the few, if not the only, outward-looking American universities that engages the developing world, including Africa, and provides much more than it takes away."

Work and Framework As a framework program, Global Health was never intended to do all the hands-on, country-by-country work itself—but rather to facilitate and nurture linkages, Stoltzfus and Johnson both agree. Collaborations among NIH-sponsored programs that emphasize aspects of international health are the most obvious and were necessary to win the initial grant from the NIH, according to Stoltzfus. But she wants the framework to become crossroads for all kinds of government-funded programs (the National Science Foundation, for example) and the U.S. Department of Agriculture (USDA) and the Agency for International Development (USAID). Partnerships with Cornell programs supported by private philanthropic organizations (such as the Gates Foundation, Rockefeller Foundation, and the Wellcome Trust) and individual donors will be needed to sustain the program and to engage Cornell's broad expertise in international development.

More than two dozen Cornell faculty participants—people such as medical entomologist Laura C. Harrington, an expert in insect-borne disease, and veterinary scientist Alfonso Torres, a specialist in public policy and in zoonotic diseases (transmitted among animals and humans)—are already involved and helping to build the program. "The framework program has already stimulated new conversations on global health issues among faculty who were previously unaware of each other," says Stoltzfus.

Thinking Globally Cornell is a truly great place to be a student at the beginning of a career. The university's long-time dedication to teaching sciences on the undergraduate level is an attraction for many students who plan for medical degrees. Some 300 to 400 Cornell graduates annually pursue advanced study in human medicine. These are the students Stoltzfus wants to reach.

The Global Health program is complete with an undergraduate minor that begins with a gateway course that was taught for the first time in the spring '07 semester, the three-credit Introduction to Global Health. Pioneering students in the new global health minor were attracted by the promise of multidisciplinary, problem-focused approach, taught by a team of faculty members from several colleges who can offer a variety of perspectives: epidemiological, biological, political-economic, social-ecological, and ethical.

Mentors at the in-field experiences for undergraduates will provide additional perspectives, no doubt, and career-counseling services will be available to the students. Stoltzfus hopes the undergraduates will become just as involved in global health concerns as one graduate student, a resident of the Netherlands, who got a Dutch Rotary Club to donate money to help renovate the maternity ward where many of the Zanzibar women participating in the research seek obstetric care.

In their quest for role models, the Cornell students will look to people like Rebecca Stoltzfus and Warren Johnson—global health pioneers who made careers for themselves far from their comfortable offices in Ithaca and Manhattan.

And Stoltzfus and Johnson will be looking to the new advocates for global health to step outside the classroom, pack a passport and a new world view, and go to work. ●●●

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Cornell is a land-grant partner to the U.S. Army in sustaining families of the active Army, National Guard, and the Army Reserve. In keeping with that mission, the college's Family Life Development Center is coordinating materials to help Army families cope with the stresses and problems created when a family member is deployed.

'Operation READY' Fulfills Mission to Sustain Families of Deployed Soldiers

BY METTA WINTER



During the Vietnam War—a conflict associated with combat fatigue and post-traumatic stress disorder—draftees were required to serve a total of six months in a combat zone. Today, soldiers of the all-volunteer Army are separated from their loved ones not just once but often several times, with extended tours of up to 18 months or even longer. TV news programs show ground troops in mortal danger every day, while their wives or husbands must keep putting food on the table and tucking their children into bed. Parents, grandparents, siblings, and fiancés of soldiers, along with extended family members, also must deal with stresses of having a loved one deployed.

No one could have imagined these multiple stresses on military families when, 15 years ago, Marney Thomas and Cynthia Enroth of Human Ecology's Family Life Development Center began to work with Delores Johnson, now the director of Family Programs with the Army's Family and Morale, Welfare and Recreation Command.

"Over the years it's just gotten better," says Johnson of Thomas's and Enroth's finesse in taking research-based knowledge and putting it in a form that Johnson says "military families can understand and commanders can appreciate."

Targeting the Trainers Today, Thomas and Enroth, along with other project staff, are addressing the unprecedented stress military family members face because of deployments to Iraq and Afghanistan. They are collaborating with colleagues at Texas A&M, who wrote the original version of the materials, and consultant Deborah Mancini to produce two targeted resource guides for the Army's program called Operation READY. These "train the trainer" materials were developed to ensure that Army families, commanders, and family support staff on the 95 active Army installations around the world and members of each state's National Guard and Army Reserve have the latest information about the support services available to them.

The guides are written to assist Rear Detachment Commanders and Family Readiness Group leaders who see to the welfare of Army families when their soldiers are away. The goal of the materials is to make certain these individuals know what their duties are and have all the information and materials they need to train others—be they military unit personnel and community service providers or volunteers, both civilian and military.

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“Individuals occupying these positions may never have done this before, or had to do it for so many repeated deployments” explains Thomas, principal investigator and project director for the Family Life Development Center’s Department of Defense military projects. “Rear Detachment Commanders assume their responsibilities when their own unit is deployed, and Family Readiness Group leaders are volunteers who step up when the need arises.”

The duties of these individuals are varied and vital to the health and welfare of families. Rear Detachment Commanders (RDCs) are the official conduits of information from the deployed unit to loved ones back home. They strive to give the soldier peace of mind by knowing his or her family is being looked after. Identifying needs and referring family members to appropriate agencies for assistance, especially when their soldier has been killed or wounded, is a key part of the job. So is working with the volunteers who run Family Readiness Groups.

Family Readiness Group (FRG) leaders—support family resilience by facilitating communication between families and the military command; providing information, referral assistance, and moral support; and promoting *esprit de corps* through social activities. They are a respectful, watchful presence that can initiate assistance on behalf of families who might find it difficult to reach out on their own.

“My soldier’s pay didn’t come in, and I have no money to buy food.”

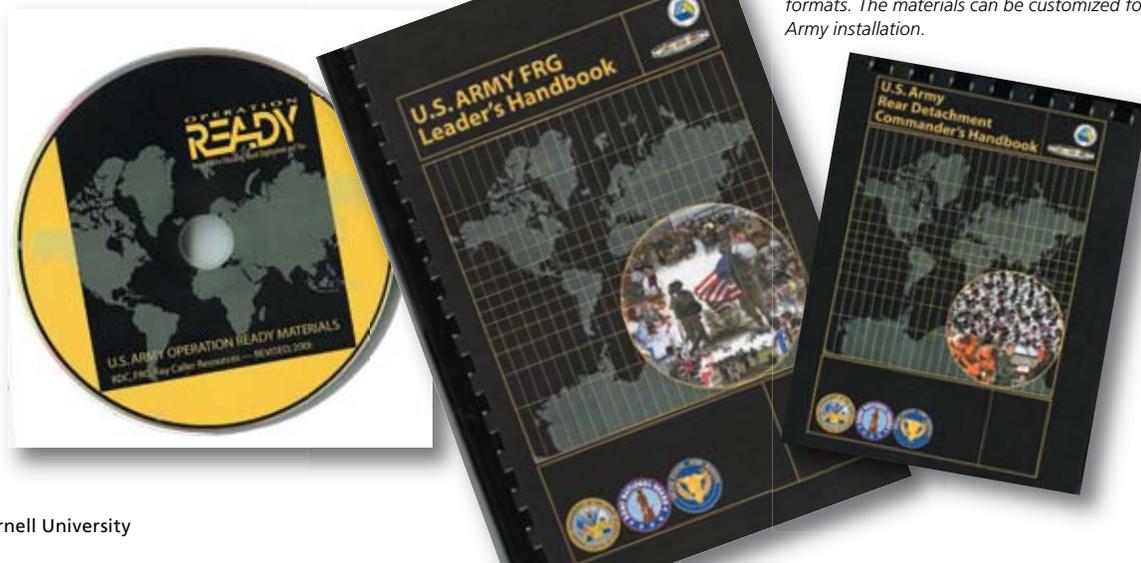
Both are involved through all phases of the deployment cycle. RDCs deliver “marching” orders, always know the whereabouts of family members who may have left post housing or the local area during their soldier’s deployment, and deliver tough news if need be. FRG leaders teach new spouses about “all aspects of the military,” dispel rumors (easily spread in an age of satellite news), and tell it like it is. In planning welcome-home events, for example, they help spouses and other extended family members align their expectations with what it’s really like to be reunited with a spouse or a son or daughter who is combat fatigued.

To see just how important this program is, consider Fort Drum, home of the most deployed Army division in the world, located in New York’s North Country. As often happens at other Army, National Guard, and Reserve installations, the command at Fort Drum has contracted with local Cornell Cooperative Extension offices to implement the Operation READY program. With deployments at an all-time high, Deborah Stellfox, the Operation READY coordinator at the Jefferson County Extension office, works many 80-hour weeks. Three new staff members have been hired. Last year, 100,000 contacts were made with Fort Drum families.

Back at Cornell University, from five to seven staff members are involved, at various times, in revising different parts of the Operation READY materials. At present, they have reviewed and redesigned the materials for RDCs and FRG leaders: print handbooks, facilitator’s guides, handouts, templates for quick reference guides, PDF files of brochures, and other informational and teaching materials that can be customized for each installation. The materials also include PowerPoint slides for training volunteers and other military personnel who work for the RDCs.

“Since people are now more Internet-savvy, we’ve designed materials for the web and deliver it by CD or directly to Army servers,” says project manager Enroth, a social worker and extension associate with the college’s

The Operation READY teaching materials include handbooks, facilitator’s guides, handouts, and templates for quick reference in print and CD formats. The materials can be customized for each Army installation.



Family Life Development Center, who was a family advocacy program manager at the now-closed Seneca Army Depot, in Waterloo, N.Y.

“It’s important to present information in a graphic context that makes it most accessible, most truly useful to people,” she says.

“How do I tell my kids their mom’s been wounded?”

Deciphering the Demographics Marney Thomas is the principal investigator on another Army project that involves conducting needs assessments on who uses the different family services that are available at each of the Army’s installations worldwide, a great advantage says the Army’s Delores Johnson because “we can draw on what Marney has gleaned from the various locations to make sure that Operation READY is realistic and in tune with what’s going on in the field.”

Johnson describes the ongoing partnership between the Army and the Family Life Development Center as bringing the whole university behind her.

“The military is not quite configured like the civilian community, so we have always appreciated the thoughtful support and application of lessons learned at Cornell,” Johnson says.

At the same time, what makes the partnership work is that those lessons learned were derived from “respecting the work of those staff at the local installations and using their input to present materials in a way that Army ears can hear them,” says Enroth, who provided the most current research-based information on children and trauma, which is a new handbook being rewritten by other partners in this collaboration. This included a review of the research literature on children’s responses and coping strategies to a parent’s deployment as well as research-keyed guidance materials (and a selected resource list) on children’s responses to a parent’s combat injury, serious illness, trauma, or grief.

The big concern now is that children are always fearful for the deployed mother or father, because constant danger is very real. To address this concern, Enroth has added a lot of to-the-point information to guide military personnel, family members, and others including schoolteachers and counselors on how to comfort and sustain children.

“The Operation READY materials emphasize the importance of providing extended support to children and their parents,” Enroth says. “Military families who have been successful for 16 years can start to have serious problems when deployments are extended or repeated.” ●●●



Fort Drum Families Get Help with Employment and Fitness

U.S. Army families at Fort Drum are clear: one of the biggest factors boosting the quality of military life is spousal employment.

“If a soldier’s spouse can become employed after relocating to a new base, that greatly improves the quality of life for the whole family,” says Catherine Moore, program leader for nutrition and Fort Drum programs with Cornell Cooperative Extension (CCE) of Jefferson County. “It’s the best way to become integrated into the community and provides added income.”

In response, CCE educators offer spouses skill training necessary for employment and puts on job fairs so they can find out about jobs in the area. CCE staff also work intensively with local employers to determine their employee needs and help match them with the right candidates.

“Our Employment Readiness Program allows us to be very active in community development as well as individual well-being,” Moore says. “We’re a resource not only to military families, but we can help support the local economy as well with skilled, dedicated employees.” It’s one program of 10 the Army at Fort Drum relies on from CCE of Jefferson County. Although the topics vary widely, the goal is the same: to make a positive, practical difference in the lives of soldiers and their families.

Of all the Fort Drum programs, Moore’s favorite is Climb to Fitness. The program originated nearly a decade ago in response to the concern that highly motivated, valued soldiers risked being discharged from the Army because they couldn’t maintain the required level of fitness and keep their weight and overall proportions within the military’s athletic requirements. Every soldier is tested twice a year against strict fitness and body composition standards. Like most Americans, many were struggling to keep in shape and more than a few were failing after two six-month probationary periods.

“The idea that the Army was spending significant training dollars to put someone through boot camp only to discharge them in a year because they weren’t meeting their body composition standards was an unnecessary waste of resources,” says Moore. She is a dietitian, who helped to design a three-day intensive workshop in basic nutritional concepts, meal planning, and healthy cooking that’s then followed by six weeks of reinforcement in the gym with a CCE educator specializing in physical fitness. It’s a real “soldiers program,” she says, with spouses invited to learn by their side. And it works: statistics show that participants lose weight and inches, while increasing in all fitness parameters.

“Between 10 and 20 soldiers go through Climb to Fitness each month,” Moore says. “The Army figures that the program more than pays for itself by saving soldiers’ careers.”

For more information:

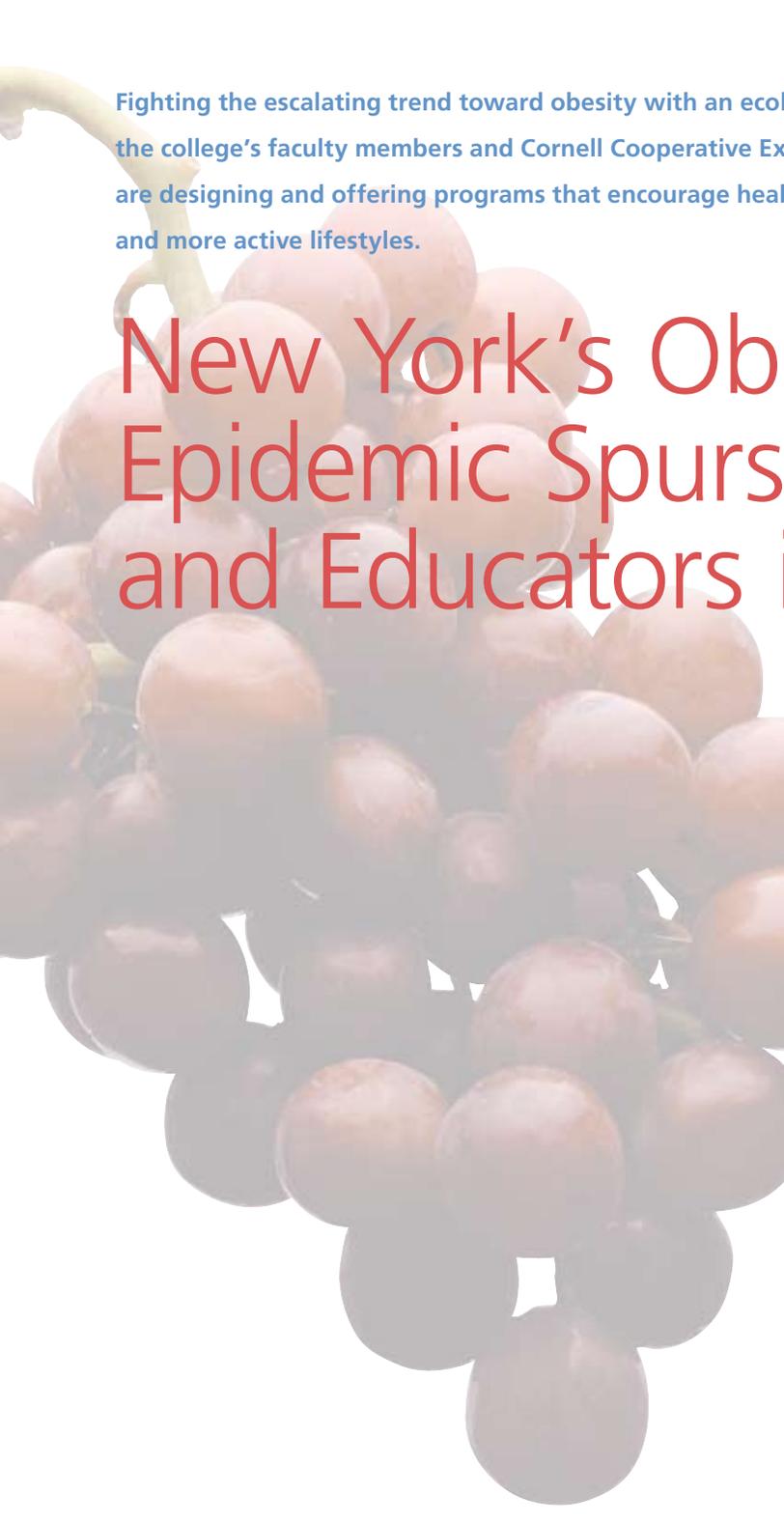
www.drum.army.mil/mwr/ACS/Family%20Support.htm

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Fighting the escalating trend toward obesity with an ecological approach, the college's faculty members and Cornell Cooperative Extension educators are designing and offering programs that encourage healthful eating and more active lifestyles.

New York's Obesity Epidemic Spurs Researchers and Educators into Action

BY CLARE ULRICH

Gone are the days when rolls of body fat were regarded as status symbols. Today, we know that being overweight or obese contributes to chronic health conditions such as heart disease, diabetes, cancer, arthritis, asthma, and depression. In New York State alone, where 58 percent of residents are overweight or obese, annual health care costs associated with adult obesity exceed \$6 billion, of which taxpayers absorb nearly \$5 billion. None of this signals quality of life by any standards.

While biological, psychological, social, and environmental factors figure complexly into the rise of obesity, the reality remains that it is a preventable condition. Researchers predict that by 2010 the root causes of obesity—poor nutrition and physical inactivity—will become the leading underlying causes of preventable deaths in the United States.

Recognizing the seriousness of the problem, New York State published in January 2005 its first-ever Strategic Plan for Overweight and Obesity Prevention. In her preface to the plan, former Commissioner of Health Antonia Novello wrote: “[The plan] will shape our thinking and our response not only as individuals and families, but also for settings we find ourselves in, such as our communities, workplaces, schools, and health care environment, so that all can work together to achieve healthy weights through healthy daily living.” In concert with this goal, the College of Human Ecology is playing a key role in integrating research and outreach throughout New York State.

“Our faculty help frame the state agenda for obesity prevention that determines state policy and provides state funding for projects that are based on best practices and show >>>



New Yorkers Weigh In on Childhood Obesity

"Little is known about the public's support for policies to reduce childhood obesity," says John Cawley, associate professor of policy analysis and management, "especially if the policies lead to higher taxes. To fill in this gap, we surveyed New York State residents on their support for specific policies and their willingness to pay higher taxes to reduce childhood obesity."

Cawley crafted a series of questions for the 2006 Empire State Poll, a survey of New York residents that is conducted annually by Cornell's Survey Research Institute. The policy questions related to three specific foods—candy, chips, and soda.

Respondents were asked how they felt about banning advertisements for candy, chips, and soda during children's television programming; raising taxes on candy, chips, and soda; and banning these foods from schools. They were also queried about their willingness to pay higher taxes to cut childhood obesity in half.

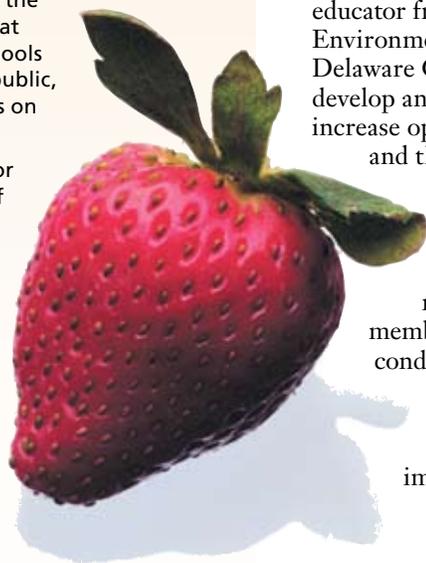
"Eighty-one percent of New York State residents say that they think childhood obesity is a major problem," Cawley says. "So, you might conclude from this that almost any policy proposal that could reduce childhood obesity is going to generate a lot of support from at least a majority of New Yorkers. But it turns out that's not true."

It turns out that 63.4 percent of the people polled think the government should ban candy, chips, and soda from schools. However, 56 percent were opposed to raising taxes on those same foods. And only 48.9 percent favor a government ban on TV advertisements.

Cawley also found that the average New Yorker is willing to pay \$47.25 in higher taxes every year to cut childhood obesity in half. However, more than a third refuse to pay even \$10 a year toward that end, and about 16 percent are willing to pay \$200 or more a year.

"This study provides some new, important information for policymakers and practitioners in New York," Cawley says. "Given that 81 percent of New Yorkers think childhood obesity is a problem, there is an opportunity to enact well-designed anti-obesity policies. But the risk is that the opportunity could be squandered if legislators choose policies that lack a lot of support. Overall, the survey results suggest that policies aimed at limiting the sale of calorie-rich food in schools could receive the most support from the public, while a clear majority oppose raising taxes on candy, chips, and soda."

There are many possible ways to prevent or treat obesity. Cost-effectiveness studies of various anti-obesity interventions are needed to ensure that the budget allocated to prevent childhood obesity is used to maximum effectiveness, Cawley adds.



impact," says Josephine Swanson, assistant dean and administrator of Human Ecology's Cornell Cooperative Extension (CCE). "Our research, in turn, is informed by practice, which guides where we will go in the future."

In June 2005, the college sponsored a conference at Cornell titled, "Ecology of Obesity: Linking Science and Action," for practitioners and researchers interested in applying an ecological approach to obesity prevention. The ecological approach holds that the individual does not exist in isolation but rather develops over the life course within a context that includes family, community, society, and global influences.

"We carry that model with us in our extension outreach, working with faculty to make the environments where people

Researchers predict that by 2010 the root causes of obesity—poor nutrition and physical inactivity—will become the leading underlying causes of preventable deaths in the United States.

live more conducive to healthy eating and active living," Swanson says. "The ecological approach is not a magic diet. It promises long-term impacts."

Since the conference, and a subsequent New York State-sponsored Childhood Obesity Prevention Invitational Summit, held in Albany in November 2006, in which several Human Ecology faculty members participated, the college has implemented a number of new research and outreach projects and collaborations to address both adult and childhood obesity. Several are highlighted here.

Small Steps Are Easier Together

Carol Devine, associate professor of nutritional sciences; Barbour Warren, research associate; and Mary Maley, health educator from Cornell's Program on Breast Cancer and Environmental Risk Factors (BCERF), have teamed with Delaware County CCE executive director Jeanne Darling to develop and test a community environmental program to increase opportunities for physical activity and healthy eating and thus prevent excess weight gain among women. The

program was motivated by Warren's review of breast cancer research, which shows that postmenopausal women who are obese have about twice the breast cancer risk of women of normal weight. A team that included community members and the Cornell researchers began by conducting assessments of the social and built environments that were contributing to obesity. They then developed interventions that were likely to generate community participation and have an impact.



Ten-week walking programs were organized in spring 2006. Participants on 12 walking teams were given pedometers and asked to add 2,000 extra walking steps at least three times a week. Twenty percent of the team members met the goal. In addition, community members added healthful food choices at 22 community events such as church coffees and school events that reached 542 people.

Local funding and enthusiastic support for Small Steps, the aptly named project, has made it possible to continue it for another three years. In addition, the Cornell researchers will test the Small Steps program in four new locations—a hospital and a school in Delhi, N.Y., as well as two new locations in Dunkirk, N. Y. The assessment tools and the community techniques that are being tested in the project are being used to design a model program that could be replicated anywhere. More information about the project is available on the BCERF web site at <http://envirocancer.cornell.edu/BCERResearch/obesity.cfm>.

“What we’re doing will set the stage for us to broaden our work and tailor the program for other groups, including children,” Darling says. “The research is such a critical component because that’s what drives us to make the bigger environmental changes that will help reduce obesity rates.”

Combating Childhood Obesity

Over the past 30 years, the obesity rate has nearly tripled for children ages 2 to 5 years and youth ages 12 to 19 years, and it has quadrupled for children ages 6 to 11 years. The New York State Department of Health has declared childhood obesity a major health problem. According to the Centers for Disease Control and Prevention, 28 percent of New York high school students are overweight or at risk of becoming overweight, and 33 percent of low-income children between 2 and 5 years of age in New York are overweight or at risk for overweight.

In economic terms, however, childhood obesity looks misleadingly benign. Health care costs average \$15 per obese child per year compared to \$4,289 per obese adult per year. “Where childhood obesity becomes really expensive is when obese children grow up to be obese adults,” says John Cawley, associate professor of policy analysis and management. “The real expenses of obesity arise from somebody living 40 years as a diabetic, having a heart attack, and going to the hospital and running up a \$50,000 bill. Most of those things aren’t as likely to happen to children.”

While this suggests that prevention strategies in childhood would be a cost-effective approach to reducing adult obesity, Cawley says that there aren’t enough studies on cost-effectiveness to know which interventions work best.

“But the good news,” he points out, “is evidence that even small daily decreases in calorie intake or small increases in physical activity can have a huge impact on weight over the long run.”

Even though little is known about effective intervention strategies for preventing excessive weight gain among children, it is likely that different settings and circumstances will require different strategies to achieve ecological change.



Eat Well/Play Hard

For example, in cooperation with Head Start and the Women, Infants, and Children (WIC) program in Herkimer County, CCE held a series of workshops in spring 2006 for nine Head Start families. Six weekly sessions provided hands-on exposure to simple and healthy meal preparation, food choice education, cost-effective food shopping, and active play. At the end of each session, parents and children participated in a family play activity. Through a WIC Healthy Lifestyle Grant, each parent received a “Fit WIC” kit of activities for promoting active play with their children at home, along with a \$25 gift card if they attended all six sessions. Seven parents graduated from the program, and evaluations were very positive.

“There’s no lecturing out there anymore,” says Linda Robbins, assistant director of the Herkimer County CCE and a nutrition educator. “People have to make choices and learn that they are in charge of their own health. They need to be involved in the process. And that’s what we do. We make things fun. We make things interesting. We provide >>>

accurate information. It's the age-old story of teaching people how to fish rather than just giving them the fish. You have to enable participants to make positive lifestyle changes so that when the workshops end, they are able to continue the behavior changes they have tried during the workshops and, in this case, do that as a family."

CHANCE

The preschool- and elementary-school years are ages when children develop lifelong habits, making these ideal times to introduce healthy practices. But, according to Jamie Dollahite, associate professor of nutritional sciences, targeting educational efforts directly to young children is unlikely to have a large benefit.

"Parents are the gatekeepers for young children," says Dollahite, who serves on a New York State task force for childhood obesity prevention. "Children go home to households with parents who may make poor choices. So we started thinking, 'How is it that we can help parents improve their parenting skills around food choice and active play?'"

In October 2005, Dollahite led the effort to develop and implement a pilot program called Collaboration for Health, Activity, and Nutrition in Children's Environments (CHANCE), funded through the New York State Expanded Food and Nutrition Education Program, which Dollahite directs, and based on guidelines from the state's Activ8Kids! childhood obesity prevention program. The CHANCE team includes Kate Dickin and Wendy Wolfe, research associates, and Tisa Hill, research support specialist, in nutritional sciences.

Rachel Dunifon, associate professor of policy analysis and management, and Laura Colosi, an extension associate in policy analysis and management, are collaborators along with nutrition and parenting educators in five Cornell Cooperative Extension associations. CHANCE targets key behaviors and environmental factors that could help low-income families in New York City and in Jefferson, Monroe, Suffolk, and Tompkins counties raise healthy-weight children.

Participants report cooking with less fat, cooking more often and ordering take-out less, cutting down on soda consumption, reducing TV time, and encouraging more physical activity.

Nine interactive, hands-on lessons were designed to build parenting skills, using what Dollahite calls a "dialogue approach." Rather than listen to lectures, participants are encouraged to bring stories of their own lives and experiences to group discussions and are given activities to take home and try with their children, such as preparing nutritious recipes and engaging in physical activity games together.

"Parents really tap into their own power and often take control of their lives in ways they haven't done before," says Dollahite.

Healthy Starts

A collaboration between Nancy Wells, assistant professor of design and environmental analysis, and Christine Olson, professor of nutritional sciences, aims to prevent excessive weight gain in pregnant women and to promote appropriate weight gain in their infants.

The germ of the idea arose from a study Olson presented at the New York State Obesity Invitational Summit that showed a significant, positive correlation between mothers who gained more than the recommended amount of weight during pregnancy and their children's risk of overweight. Children whose mothers were overweight at the beginning of their pregnancies and also gained more than the recommended amount of weight during pregnancy showed an even higher risk.

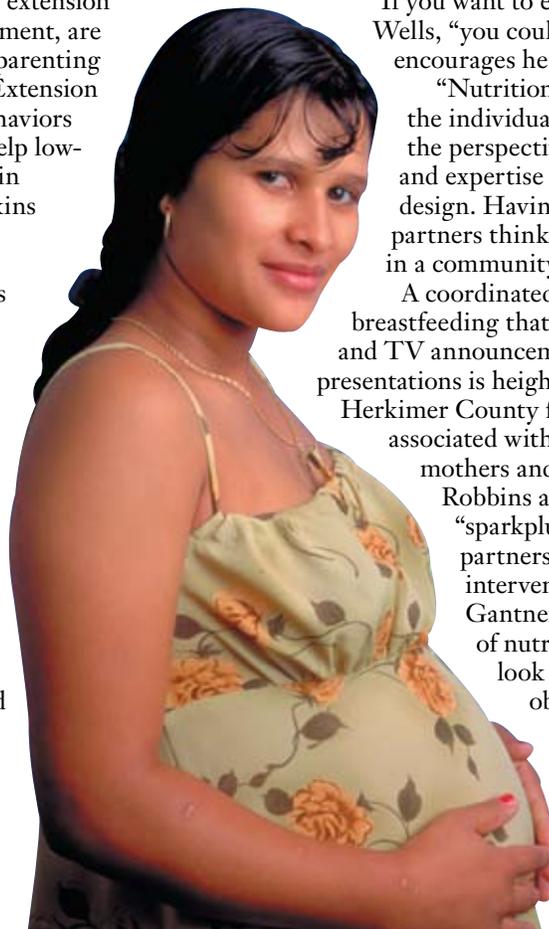
"We wondered what we could do to reduce the proportion of women who are gaining too much weight during pregnancy," explains Olson, who helped plan the state Obesity Summit and serves on a state task force for early recognition of childhood obesity.

Olson and Wells are enlisting health and nutrition professionals from the eight New York counties served by Bassett Healthcare (Chenango, Delaware, Fulton, Herkimer, Madison, Montgomery, Otsego, Schoharie) including CCE educators to help design environmental interventions, or alterations to the physical environment. The group is called the "Healthy Start Partnership."

"If you want to encourage physical activity," explains Wells, "you could build a community garden, which encourages healthy behavior."

"Nutritionists tend to think about nutrition at the individual level," Olson adds. "Nancy brings the perspective of an environmental psychologist and expertise in physical activity and neighborhood design. Having both perspectives really helps our partners think more broadly about what they can do in a community."

A coordinated marketing campaign promoting breastfeeding that includes billboard ads, posters, radio and TV announcements, mailings, and community presentations is heightening awareness and support in Herkimer County for breastfeeding—a health practice associated with decreased risk of obesity in both mothers and infants. Extension educator Linda Robbins and WIC director Judy Seoldo are "sparkplugs" for the work with community partners who will develop and implement the interventions. Graduate student Leigh Gantner is mapping the availability and price of nutritious food in the eight-county area to look for correlations to mothers' risk of obesity.



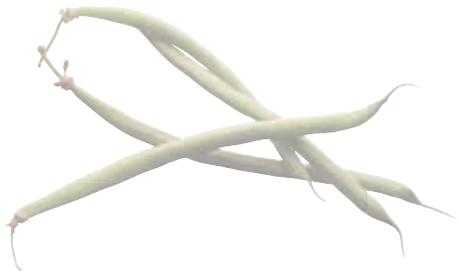
Looking Ahead

Following the Ecology of Obesity conference, the college's Bronfenbrenner Life Course Center provided funding to create a working group to foster cross-disciplinary and interdepartmental collaboration on obesity research. This has enabled faculty, students, and extension educators to stay in touch with each other's work and to receive feedback on new ideas.

There are also efforts to increase the capacity of professionals to address obesity using distance technology. In late 2006, Cornell NutritionWorks, the Division of Nutritional Sciences' online professional development program, offered for the first time a new six-week, online course called "Preventing Childhood Obesity: An Ecological Approach," which guides practitioners in applying concepts to their local communities and enables them to exchange ideas with a facilitator and other participants. The course continues to be offered on a regular basis.

The Cornell Farm to School Program is dedicated to increasing the amount of locally grown food served in New York's schools. Educators work with food-service professionals to improve the quality of school meals, strengthen markets for farmers, and teach students about agriculture and food.

"Collaboration is the way we need to do business," Robbins says. "Everybody has resources they can bring to the table, but we need to work together. That's what we've found to be successful in changing behavior." ●●●●



Cornell NutritionWorks is an interactive web site offering online professional development to nutrition and health practitioners, including Cornell Cooperative Extension educators throughout New York State. There are roughly 1,500 members from across New York, and an ongoing collaboration with the New York Departments of Health and Education called SPIN, "Schools Plus Professionals in Nutrition," which trains nutrition professionals who are then matched with public schools.

www.nutritionworks.cornell.edu

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Last spring's floods in upstate New York provided living laboratories to two Human Ecology experts to test mold and mildew remediation methods—and then they shared their findings.

After the Flood, Housing Experts Broke the Mold

BY ROGER SEGELKEN

Scouting some of the thousands of homes wrecked by flooding last June in New York's Southern Tier and Catskill foothills, Mark Pierce, extension associate in the Department of Design and Environmental Analysis, couldn't decide which was worse—the sight or the smell.

His trained nose was prepared to sense the telltale VOCs (volatile organic compounds) produced by fungal mold as it grows on damp building materials. Much worse—overwhelming, in fact—was the awful odor from rotting food.

Electrical power had been out for days, after a record 15 inches of rain on June 28, 2006, overflowed the Susquehanna, Delaware, and Chenango rivers. Even refrigerators that still worked, despite high water in the mechanicals, were abandoned when evacuated residents returned to face the stench.

A Buoyant Mystery And refrigerators also explained the mysterious holes that Pierce was seeing in kitchen ceilings. Above the mud and ruined household goods—above the high-water marks and the budding crops of mold on kitchen walls—plaster ceilings were punched through from the inside.

When he saw so many window panes broken outward, Pierce solved the ceiling-damage puzzle: “Air-tight refrigerators float,” Pierce says. “That’s how high the water was.”

Weeks later, when U.S. Geological Survey engineers got around to calculating the so-called recurrence interval for the 2006 flood, they said the Susquehanna had not been that high—at the sites of the present-day Unadilla and Conklin, N.Y.—in 450 years. The last time the Chenango River rose to 2006 levels—where Sherburne and Greene, N.Y., were nearly washed away—was an estimated five centuries ago. The riverfront communities had been through several floods in recent

years, but the late-June event was the worst. “I’ve never seen damage like that,” says Pierce.

Extension for the Unexpected Horrific sights, smells, and other insults to the senses did not matter when county Cornell Cooperative Extension educators called for help last year, and Extension experts in the College of Human Ecology responded with what they do best: provide science-based, understandable information on what to do about the unexpected.

For Pierce and for Joseph Laquatra, the Hazel E. Reed Human Ecology Extension Chair in Family Policy and a nationally recognized expert in residential environments, that information concerned mold. While damage from the 2006 flood was less extensive than the devastation in the Gulf Coast states after Hurricane Katrina, there was one similarity: warm, wet conditions of early summer in the Northeast favored the growth of mold. As unprecedented were the 2006 flood levels, so was the mold problem for Southern Tier residents. Pierce and Laquatra knew how to address the immediate crisis with clean-up and repair and how to avoid mold problems that can haunt residents for years to come.

Hundreds of packets of authoritative information on the health risks of mold, as well as its detection, remediation, and prevention, were prepared and distributed through county Cornell Cooperative Extension offices to home owners and renters, building contractors, municipal offices, FEMA personnel, and Red Cross workers. They also were given to volunteers who traveled to the area and offered to help the flood victims.

Pierce's scouting trip through flood-damaged areas told him what people needed to know. Later that year, Laquatra used a small grant to collaborate with another specialist at Louisiana State University (LSU) and prepare a guide to choosing qualified mold-remediation contractors. In addition



to Louisiana and New York, several other states are distributing the Cornell- and LSU-based information.

“Unlike Louisiana, which licenses mold-remediation contractors, New York State has no such certification process,” Laquatra notes. “Anyone can print a business card and call himself a mold-remediation professional. There are some good ones who know what they’re doing, but there are some who are happy to take your money and splash some chemicals around. But they don’t always solve the problem in the long run.”

Hidden Moisture For example, simply tearing off water-damaged drywall (Sheetrock® or other gypsum-based panels) and replacing old materials with new can lead to future problems if even a small amount of moisture remains in wood framing of a house, Laquatra warns. The best test is a hand-held, two-pronged moisture-sensing meter that measures electrical conductivity when the prongs are jabbed into building materials.

And mold doesn’t need much moisture to grow, Laquatra notes. Wood in structural framing should contain no more than 14 percent moisture, and 12 or less is better, he specifies. By comparison, firewood is considered to be dry enough to burn at a moisture content of 20 percent or less.

“Unlike Louisiana, which licenses mold-remediation contractors, New York State has no such certification process,”

Sealing wet wood behind freshly installed wallboard can foster mold growth inside wall cavities. Painting or caulking over moldy surfaces is not a final fix, either.

Lessons Learned The rebuilding of the Southern Tier continues nearly a year later, thanks in large part, to volunteer labor. The information on mold remediation— together with other kinds of assistance from Cornell Cooperative Extension to residents and farmers—is easing a painful recovery process.

Pierce and Laquatra have begun to reflect on lessons learned from the sights (and smells). With so-called hundred-year floods occurring every couple of years these days, people probably shouldn’t rebuild in flood plains, Laquatra advises. Indeed, many homeowners are not doing so because flood insurance covered only a small fraction of the cost of rebuilding. And many homeowners’ policies do not cover water damage from flooding.

But what about houses that were lost or damaged in sites far above the traditional flood plains? What should those homeowners do? “Read the fine print on your insurance policies,” Laquatra says. “You’d be surprised what isn’t covered.” ● ● ●



Mold 101

- Fungal colonies that produce fuzzy or wooly growth on wood, paper, and spoiled foods are called *mold*, whereas fungal growth on fabric is referred to as *mildew*.
- An estimated 25 percent of Earth’s biomass is fungus—much of it actively engaged in decaying plant debris and animals and returning nutrients to the soil. Airborne spores from soil-dwelling fungi are prepared to start growing in moist materials above 40 degrees F.
- Besides consuming wood and wood-based materials in homes, growing fungi produce carbon dioxide, water, and volatile organic compounds (VOCs)—the source of the musty smell—as well as mycotoxins. For fungi, mycotoxins protect their food supplies from competing microorganisms, including bacteria, and the mycotoxin penicillin has saved countless human lives.
- But some mycotoxins from fungal growth on food, such as aflatoxin, are carcinogenic. While *Stachybotrys chartarum* gets more news-media attention, the four most common mycotoxin-producing fungi in homes are species of *Cladosporium*, *Penicillium*, *Fusarium*, and *Aspergillus*.
- Physical symptoms of allergic responses to fungal spores are not caused directly by the spores themselves. Rather, symptoms are caused by chemicals released by the body—in an overreaction of the immune system—to the allergen.
- Rhinitis, one allergic response to fungal spores, is unpleasant but seldom life-threatening—except for individuals with asthma. Hypersensitivity pneumonitis, sometimes called farmer’s lung when high levels of spores from moldy hay and silage are inhaled, usually goes away after four to 12 hours. But if future exposures to the allergen are not prevented, chronic lung disease can result.
- Fungal infections (also called mycosis) can occur in the respiratory system and other internal organs. Four species of the *Aspergillus* genus that are commonly found in homes, offices, and even hospitals are responsible for the fungal infection called aspergillosis.
- Long gloves, goggles without ventilation holes, and an N-95 respirator (about \$3 in hardware stores) should be worn when cleaning moldy areas.
- Detergent-and-water or biocides, such as chlorine bleach, can clean nonporous surfaces. Ceiling tiles, carpeting, and wallboard may have to be replaced.
- Even dead mold can cause allergic reactions in some individuals. Clean up with a HEPA (high-efficiency particulate air) vacuum after material is thoroughly dry and dispose of the machine’s contents in well-sealed plastic bags.

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For more information, visit the web site <http://housing.cce.cornell.edu/HFS-home%20environment%20guide.php>.

For the 70 percent of older people who are not able to use the Medicare web site to compare the 59 Part D options, Kosali Simon has created easy-to-use printed materials to help Medicare participants choose among the myriad plans offered.

Professor's Analysis Unravels Mysteries of Medicare Drug Plans for Seniors

BY JANE BAKER SEGELKEN

Kosali Ilayperuma Simon has turned the results of a research project into a practical tool for New York's senior citizens bewildered by the puzzling Medicare Part D drug benefit program: she compared the differences among the federal government-subsidized stand-alone prescription drug plans that became available in January 2006 for people age 65 and over.* Simon is an assistant professor in Human Ecology's Department of Policy Analysis and Management.

Simon didn't intend to get into Medicare Part D in this way, she says. "I was looking to create a dataset that students in my undergraduate health economics class could use to look at how one variable affects another with regards to health insurance."

But what she found at the Centers for Medicare and Medicaid Services (CMS) web site (www.medicare.gov) was a daunting amount of data: 47 different plans in New York State alone in 2006 (59 in 2007 and 1,429 plans nationally) and a large variety of actuarial designs and drug formularies that made assessing how insurers set premiums and drug costs problematic. Suddenly, the social scientist, who was trained to evaluate alternatives, variables, and other complexities, knew how overwhelmed Medicare participants must feel.

The intent of Part D, as it is known, is to ease the financial burden of Medicare beneficiaries, who spend an average of \$1,450 each year on prescription drugs. Yet, the complexity of the plans and enrollment procedures does >>>



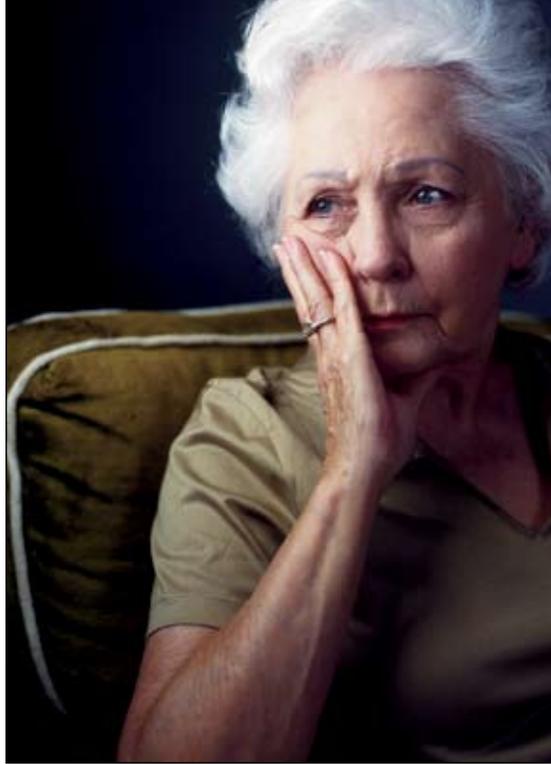
everything but relieve stress. Instead, New York State's three million eligible residents—mostly senior citizens—find themselves comparing drug prices, deductibles, premiums, pharmacy networks, and coverage options from the available plans. To make things even more confusing, a plan can vary from one person to the next depending on the specific set of drugs he or she takes. To adequately prepare for the process of choosing a plan, seniors must begin by making a list of the prescriptions they take, including dosage and cost.

Most daunting, however, is that the only way to accomplish the task of choosing a plan is by using the Internet, something currently done by fewer than 30 percent of seniors. While the CMS has a web-based tool that allows seniors to determine which plan is the most affordable for them, a recent study by the Kaiser Family Foundation found that only 6 percent of seniors used the tool.

Anecdotal evidence collected by Simon and others suggests that senior citizens ask their children to help them select a plan, talk with Health Insurance Counseling and Advocacy Program (HICAP) counselors from their local office for the aging, or both. And according to Simon, confusion reigned throughout New York State and across the country. Seniors were not only having trouble navigating the sign-up process. They were making decisions, she says, without fully understanding the details.

So while compiling the information for her students and writing a research paper, Simon realized she had the makings of an extension outreach project that could assist eligible individuals choose the most cost-effective plans and eliminate the confusion. In August 2006, with the urging of Dean Lisa F. Staiano-Coico and the help of students, she launched the project. Also assisting were Ali Sinan Ünür, a lecturer in the department, Robert D. Harris, a registered pharmacist who joined the program as project manager, and two students in Human Ecology, Katie Bang and Megan Tracz.

Three months later, just in time for the plan's open-enrollment period, the Cornell program, called Medicare Part D—Getting the Most Out of Medicare's New Drug Coverage: A Pilot Project to Help New York's Seniors Lower the Cost of Their Prescription Drugs, was unveiled in five upstate New York counties (Monroe, Schuyler, Seneca, Steuben, and Tompkins) to community educators who work with seniors. The program consists of three distinct components: profiles of individual drugs, plan coverage summaries of sample medication regimens, and comparisons of the different stand-alone prescription drug plans available in New York State.



The information is not meant to solve all the problems Medicare participants are having with Part D. But it is a valuable tool that seniors and those who help them select plans can use. “We only include 300 drugs and there are thousands,” project manager Harris explains, saying they tried to narrow the information down to the most important drugs. In addition, within each of the plans, there are drug coverage prices for the various expenditure periods, of which there are four.

“The CMS web site is still the best way to find the information and the most comprehensive tool, but

seniors don't use it,” Harris adds. “We're taking the information that is on the CMS site and giving it a different perspective. We're offering a different way of looking at it by putting it in print form.”

The information is presented in easy-to-use chart format. Piloting counties received the comprehensive information in three binders; it is also available by download at medicarepartd.human.cornell.edu. (Following the successful piloting phase, the program will be extended for another year.)

Jack Hoadley, a research professor at the Health Policy Institute at Georgetown University, credits the Human Ecology project with “providing additional tools and devices that can help people find the plan that is right for them.” Hoadley says that seniors had been relying on family members (40 percent), insurance agents (17 percent), and counseling services (6 percent) to help them choose the right plan.

For seniors who want clearer information to help them decide which plan is right for them, the program seems to be the answer.

The information makes it easier for seniors to “get” the Medicare Part D information, says Sarah Jane Blake, retirement services coordinator at Lifelong in Ithaca, N.Y. Blake, who in 2006 oversaw counseling services to more than 500 Medicare recipients, says, “Helping one senior select a drug coverage plan can take up to an hour, depending on the complexity of the person's need. Being able to show the information on paper (rather than on a computer screen) seems to make the process go smoother and it increases the likelihood that people who need to get into a plan will get a good fit.” ●●●

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Professor Wendy Williams is developing a curriculum for female and minority youth of low socioeconomic status that teaches kids how they can use scientific reasoning for the problems they confront in their daily lives.

Why 'Thinking Like a Scientist' Is Relevant to Kids

BY ROGER SEGELKEN

Remember the first time you saw the Periodic Table of Elements? It was probably hanging above the blackboard in high school chemistry class; the arrangement of its inscrutable rows of little boxes was supposed to reflect the properties of the elements—to help you “think like a scientist.”

But all you could think was: “I’ll never learn the difference between magnesium and manganese!” Or “Why can’t the symbol for lead be *Ld*?”

Middle-class students slog through, and with effective teaching, most come to see the wisdom of the Periodic Table. But poor kids in under-resourced schools lack the necessary scaffolding, and they opt out. For Wendy M. Williams, professor of human development, the Periodic Table of Elements and how it is traditionally taught have become a symbol for why disadvantaged youth have so much trouble turning on to science.

“In fact, the scientific method is a perfectly good way to do fact-finding, reasoning, and analysis about real-world problems of everyday life, and it is essential that we bring this message to underserved youth,” Williams says. “When and if kids get deeper into chemistry with the benefit of good teaching, they come to appreciate the Periodic Table as a thing of beauty and a useful tool. But if we tell them they have to learn the Periodic Table before they can think like a scientist, then most would rather not.”

And they will lose, perhaps forever, the chance to acquire skills they need to discover for themselves the truth and what it means, and to be liberated from the “thought police”—television advertisers, closed-minded parents, or prejudiced schoolmates. They also lose a valuable mechanism for escaping the cycle of poverty through education and careers in science.

Thinking Like a Scientist (TLAS) is sounding better and better to schoolchildren across the United States who are exposed to curricula by that name.

The TLAS curriculum has been under development, with funding support from the National Science Foundation, in the Cornell Institute for Research on Children since 2002, with Williams and former graduate students Matthew C. Makel and David M. Biek as the principal authors. The lessons were tested first at inner-city schools and Indian reservations, where many children drop out before graduating from high school and few consider careers in the

physical sciences and social sciences to be even a remote possibility.

The ultimate audience for TLAS, says Williams, co-director of the Cornell institute, are low-SES (socio-economic status) female and minority youth and young adults in high schools and community colleges. A secondary audience is the same population in community centers, religious organizations, and adult-education venues.



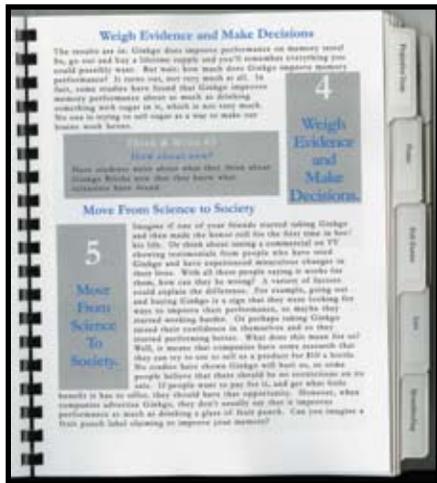
Plate Tectonics and Flying

Saucers Wendy Williams, herself, came from a disadvantaged background—she was a self-supporting high-school dropout at age 16, who earned a G.E.D. to enroll in college.

Fortunately for science, the young dropout’s potential was recognized; she got a second chance in the form of a scholarship from a school with ample resources, motivated students, and teachers with a passion for teaching. Williams wound up graduating *cum laude* with distinction from Columbia, earned two master’s degrees and a Ph.D. from Yale, garnered a slew of awards, authored dozens of articles and eight books, became a widely cited authority on the societal implications of intelligence, and co-founded the Cornell Institute for Research on Children.

Unfortunately—for millions of girls, minorities, and other at-risk kids—not every young person has the benefit of such an education. But virtually every school has some passionate teachers, even though resources are woefully inadequate, Williams insists. To prove the worth of TLAS, it was piloted in the toughest, neediest cases: in a five-week summer program for Chicago’s inner-city youth where 100 percent of the participants were kids on public assistance, and in 100 percent Native American Tribal Reservation high schools in North Dakota, among other locations.

After tests of the TLAS curricula in Arizona, North Dakota, Iowa, and Alabama, the project moves closer to home—for studies with black and Latino students in New York City and with poor white and Native American students in rural Saratoga County, N.Y. Pre-tests of scientific thinking ability are administered before the program, and post-tests are administered after the program, both to >>>



students in the program and to matched control students in neighboring classrooms. In every case, score improvements have been larger for students in TLAS classes.

The 4 Rs of the Scientific Method Students who have trouble making decisions seem to love the Four Rs of TLAS: Revisit, Reflect, Re-evaluate, and Review. For some, it is the first time they are encouraged to have “second thoughts” about anything.

When it came to choosing topics for the TLAS exercises, Williams tried to think like a curious kid. She and her graduate students built the lessons around questions such as “Effects of Violent Video Games: Do they *Doom* Kids to *Mortal Kombat*?” (playing on the titles of two games), “Cigarettes: Stress Relief or Just a Bunch of Smoke?” and “Telling Lies: Can You Read It in Their Eyes?”

Some lessons are particularly—even uncomfortably—relevant to sensitive teenagers, such as “Depression: What Do We Do to Treat It?” Pregnant teens, who are at particular risk of dropping out, learn to apply some science to a question that most adults can’t answer: “Does Breastfeeding Make Babies Smarter Later in Life?”

And some topics are just plain fun, including “Is ESP for Real? I Knew You Were Going to Ask That!” and “Smiles in Women Versus Men: Who Smiles More and What Does It Mean?”

Left Behind vs. Racing Ahead Who needs Thinking Like a Scientist?

“The TLAS curriculum *does* get the students involved in the biological and social sciences, and by training scientific thinking, it helps students do well on many parts of standardized tests,” Williams maintains, “and they really excel in tests that measure *underlying* thinking—not just what was taught, by rote, in class.” Examinations completed by students in schools using TLAS are shipped to the Cornell Institute for Research on Children, where the tests are scored using “blind” evaluations to eliminate possible bias from knowing which participants are “controls” and which are not.

Scores on tests of scientific thinking ability have shown greater improvements pre-test to post-test for students in TLAS classes compared to matched control students in neighboring classes, in various populations Williams has studied; among them, Native American Tribal reservation youth in North Dakota, African American and disadvantaged white youth in Alabama, Mexican-American and disadvantaged white youth in Arizona, and disadvantaged white youth in upstate New York. The tests are fair to all students because their questions tap scientific thinking and reasoning ability completely unrelated to the specific content of the educational modules.

If funding holds out, the Cornell institute hopes to track TLAS “alumni” as they go to college (or join the workforce) to see if they get more remunerative jobs as a result of their science training.

Pathways to Success Williams looks forward to comparing overall results from the TLAS project with results from another study she is doing, also focusing on helping disadvantaged youth. Her project called “Pathways to Success for Underrepresented Youth: A 50-Year Retrospective Longitudinal Study” is looking at “life course outcomes” for 600 mostly poor and minority individuals who attended the Telluride Association’s free summer enrichment program at Cornell at age 17, between 1954 and 2004.

“Fortunately for us, Telluride kept meticulous records on everything—high school transcripts, test scores, letters of recommendation, and reviews of each student’s work by Cornell faculty who supervised them,” Williams says. “We are now collecting current information about these people’s career trajectories, successes, and failures—and the factors they believe account for their escape from the limitations of their socioeconomic backgrounds.

“We are conducting extensive interviews with each of the Telluride enrichment program alumni—and we’re hearing some amazing stories,” Williams says. “This research will help answer a critical question: How we can help youth change the direction and eventual outcomes of their lives before it’s too late?”

Anecdotal Evidence Is Appreciated Staying in constant e-mail touch with the far-flung TLAS test sites, Williams hears that teachers are “enjoying” the process and that students are “excited” to discover that science can have some relevance to their lives.

For Williams, this is sure nice to hear while burning the midnight oil with a bunch of correlation coefficients, regressions toward the mean, and those darn confounding factors. No one ever said science was easy. It ought to be relevant, though.

Gratifying is not so bad either. ●●●

For more information:

Thinking Like a Scientist:
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Human Ecology faculty members share their expertise through their leadership and participation on councils, committees, and boards and as advisers and consultants.

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Family Life Development Center

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Design and Environmental Analysis/Human Development



New York State

- Pro-bono training for Tompkins County VISTA workers and pro-bono consultant to United Way of Tompkins County

National

- National Center for Environmental Health/Agency for Toxic Substances and Disease Registry
- U.S. Centers for Disease Control—Board of Scientific Counselors

Global

- European Union—International Commission on the Biological Effects of Noise

Research

Research Program on Pharmaceutical Policy Issues

The Program on Pharmaceutical Policy Issues promotes research, education, and the development of research capacity in select areas of pharmaceutical policy. The primary research focus is on the causes, consequences, and performance of public policies toward the pharmaceuticals industry, with particular emphasis on the interaction of public policies and private decisions for health and consumer well-being. Current research projects include:

State Regulation of Medicaid Pharmacy Benefits

Objectives: To investigate the extent to which Medicaid benefit restrictions reduce Medicaid expenditures as well as patient access to and use of needed medications; and the impact of Medicaid restrictions on patient outcomes and use of acute care services.

This research program is housed in the Department of Policy Analysis and Management and is funded by a grant from the Merck Company Foundation. It provides seed money for faculty research projects, graduate student fellowships and assistantships, a working paper series, seminars, and coursework on pharmaceutical policy issues. Conclusions and recommendations from the project will be shared in future editions of this magazine, and updates can be found online at: <http://author.human.cornell.edu/che/PAM/Research/Centers-Programs/Pharmaceutical/index.cfm>.

Medicare Part D

Objectives: To study the determinants of insurer pricing of Part D stand-alone prescription drug plans during the first year, 2006.

Private Profits and Public Health: Does the Advertising of Smoking Cessation Products Encourage Smokers to Quit?

Objectives: To estimate whether smokers exposed to more advertising for smoking cessation products are more likely to attempt to quit and more likely to successfully quit; and to examine whether exposure increases the probability of quitting without the use of any product.

The Impact of Direct-to-Consumer Advertising of Cholesterol-Reducing Drugs on Diagnosis and Treatment of Cholesterol

Objectives: To examine the role of pharmaceutical drug advertising on consumer awareness of their blood

cholesterol level and on the demand for drug therapy; and to examine whether advertising leads to higher levels of diet and exercise.

The Demand for Anti-Obesity Drugs

Objectives: This paper describes the market for anti-obesity drugs and estimates the correlates of use and expenditures on these drugs.

A Quality-Adjusted Price Index for Colon Cancer Drugs: 1993–2005

Objectives: To estimate a price index for colon cancer drugs that considers the quality (i.e., the efficacy and side effects) of each drug regimen on the market and the value that oncologists attach to drug quality.

Generic Scrip Share and the Price of Brand-Name Drugs: The Role of Consumer Choice

Objectives: To examine whether generic drug utilization leads to lower average prices paid for brand-name drugs that consumers continue to purchase.

Competitive Effects of Prescription Drug Withdrawals

Objectives: To provide empirical evidence on the competitive effects of prescription drug withdrawals.

The Movement of Drugs from Prescription to Over-the-Counter (OTC) and the Reach of Advertising

Objectives: To provide empirical evidence on whether the movement to OTC status results in different consumers being reached by advertising and whether consumers from lower socioeconomic backgrounds are exposed to more advertising when products are OTC.

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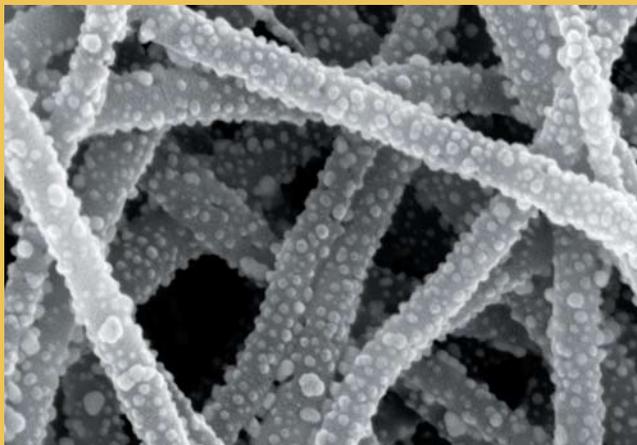
briefs

Fiber Science Microscopy Images Win Awards

This past winter, the Microscopy Facilities at the Cornell Center for Materials Research hosted its fourth annual competition for the best image produced using an electron microscope. Fiber Science and Apparel Design postdoctoral research associate Hong Dong received an honorable mention for “most artistic,” and graduate student Christina Diaz received an honorable mention for “most unusual.” Both images were captured in the course of conducting innovative fiber science research geared toward practical application in today’s world. Assistant Professor of Fiber Science Juan Hinestroza is faculty adviser to both winners, and he was recently

awarded a Faculty Early Career Development (CAREER) grant from the National Science Foundation (NSF). Hinestroza was awarded \$400,000 over five years to explore ways to control the position of particles, with nanoscale precision, to enhance manufacturing and polymer processing industries and to lower costs. Expansion of the efforts could lead to development of anticounterfeiting devices to protect intellectual property and curtailing counterfeit of high-value goods.

For more information, contact Juan Hinestroza at jh433@cornell.edu.



◀ This image by Hong Dong shows electrospun nylon 6 nanofibers decorated with surface bound Ag nanoparticles. Immersing nylon 6 nanofibers into Ag colloidal solution with pH 5, Ag nanoparticles were assembled onto nylon 6 nanofibers via interaction between nylon 6 and protection groups of Ag nanoparticles. Future applications of this research include antibacterial filtration, the development of smart textiles, wound dressing, and flexible sensor platforms.

▶ This image created by Christina Diaz depicts one micron diameter mushroom cap-shaped polystyrene particles deposited on poly(allylamine hydrochloride) (PAH)-coated cotton/nylon blend fabric via electrostatic self-assembly. Pictured is the end of a particle-coated nylon fiber protruding from the fabric surface. The fiber extends back into the plane of the image and bends to the right. The use of nonspherical colloids can reduce the reflectivity of textiles and fibers, making their user virtually invisible at night. Future military applications could include tunable camouflage for changing environments.



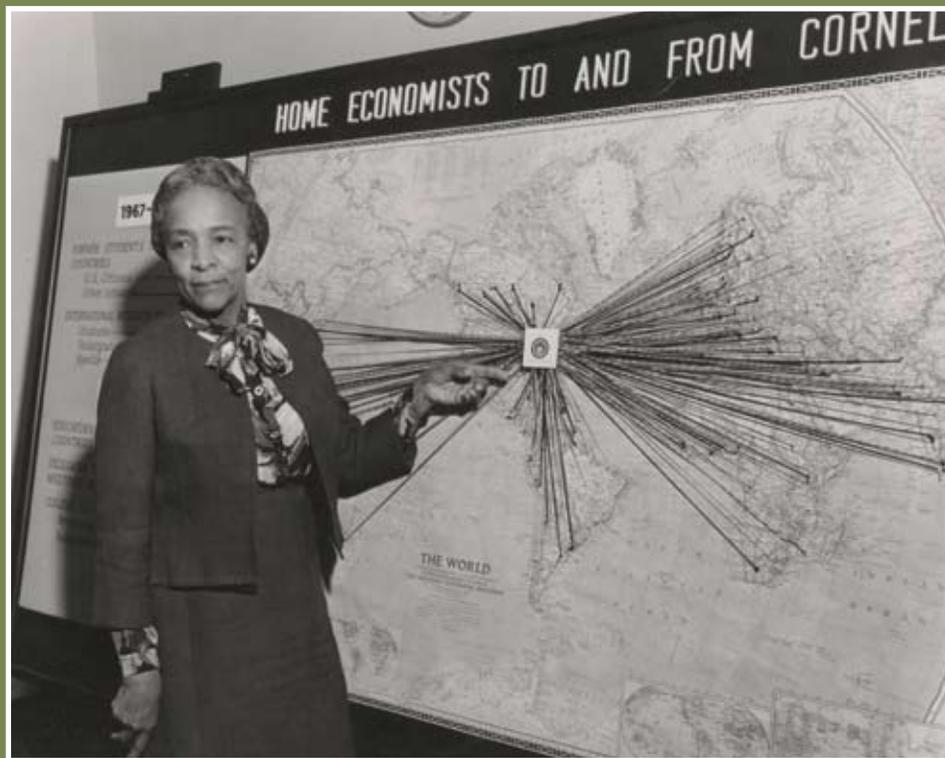
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Flemmie Kittrell (M.S. '30, Ph.D. '36), active in international affairs, displays the broad array of countries Cornell home economists visited and influenced. She was the first African American woman in the U.S. to receive a Ph.D. in nutrition.