

# nih record



**ABOVE** • This month is NIH's last chance to beat its Feds Feed Families food donation total from last year. See p. 12.

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### U.S. Not Spared

## Worm Infections Plague World's Poorest Populations

By Rich McManus

**I**n front of a standing-room-only audience in Natcher Bldg. on July 28, Dr. Peter Hotez admitted that he planned to go outside his comfort zone. While he frequently addresses groups on neglected tropical diseases (NTDs) in the world's low- and middle-income countries, he has not spoken extensively about similar neglected infections of poverty in the United States.



Dr. Peter Hotez speaks at Natcher on July 28.

### The World's Neglected Tropical Diseases

The NTDs are chronic parasitic and related infections that plague the world's poorest populations. The 17 members of the class, many of which are associated with parasites (usually worms), are not in themselves killers but instead make life so miserable that the human cost is calculated in DALYs—disability-adjusted life years. And there are many millions of them.

Unlike AIDS and malaria, which can kill

SEE HOTEZ, PAGE 4

### A Summer Menace

## Ample Water, Avoiding Dehydration Can Prevent Renal Calculi

By Jan Ehrman

Talk about a summer bummer. They could attack you, fully unprovoked—like bees pouring out of a hornet's nest—during your daughter's graduation ceremony, in the middle of your family picnic or during the 7<sup>th</sup> inning stretch. Their pain can bring you to your knees. In fact, just the thought of them is enough to make a person wince—kidney stones.

There's never a good time for these unwelcome intruders, but evidence shows they inflict their pain most often during the humid, oppressive summer months, when dehydration can most frequently occur and there is increased outdoor activity. They also crop up more often in southern parts of the country and, internationally, in regions close to the equator.

Often described as comparable to, and perhaps even more painful than, natural childbirth,

SEE STONES, PAGE 8



U.S. Air Force Col. Rick Searfoss

### The Power of Teamwork

## Lessons on Leadership from NIH's Mission into Space

By Trisha Comsti

"While I'm not a doctor, I played one in space," quipped U.S. Air Force Col. Rick Searfoss, a pilot and engineer who has a unique distinction shared by only a handful of people on Earth—he has flown in space. Searfoss presented "Apogee! Take Your Team to the Top"

SEE LEADERSHIP, PAGE 6



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## briefs

### Join 'Power IT Down Day,' Aug. 26

The fourth annual Power IT Down Day will take place Friday, Aug. 26. Last year approximately 10 percent of the HHS population participated in Power IT Down Day, which was more than any other federal agency and accounted for 46 percent of the total participants nationwide.

Participation is easy. First, register at [www.powerITdown.org/](http://www.powerITdown.org/). Second, simply turn off your workstations before going home on Aug. 26. Registration is simple and will let HHS know how many kilowatt hours the department saved. In the Organization box, include "NIH" as the operating division followed by a forward-slash and "HHS."

Last year, HHS participation resulted in reduction in energy consumption by 230,000 kWh of electricity in a single night. According to the EPA, this is equivalent to the energy used in 240 U.S. homes in 1 month.

Since this year's Power IT Down Day falls on a Friday, powered-off workstations will save three times more energy than usual. Keep in mind that powering down your workstation will not interfere with any IT updates.

If you have questions or comments, contact [GoGreen@hhs.gov](mailto:GoGreen@hhs.gov) and include "Power IT Down Day" in the subject line.

### First Annual NIH Safety Day, Aug. 31

The first annual NIH Safety Day will be held Wednesday, Aug. 31 at Natcher Conference Center from 10 a.m. to 2 p.m. The opening ceremony will begin at 10:30 and be videocast live and archived at <http://videocast.nih.gov>.

NIH deputy director for intramural research Dr. Michael Gottesman will serve as master of ceremonies. Dr. Lawrence Tabak, NIH principal deputy director, and James Welch, executive director of the Elizabeth R. Griffin Foundation, will offer insights on the day's theme, "Safe Science and Good Science Go Hand-in-Hand." Fun summer safety will be emphasized, too.

Everyone is welcome to come and enjoy activities that will help NIH personnel prevent accidents and respond in emergency situations. There will be demonstrations on work, home and recreational safety. Exhibitors will showcase river and boating safety; hiking and camping safety; and bicycle, motorcycle and pedestrian safety. There will also be lectures, breakout training sessions, police dog demonstrations, live entertainment and over 40 exhibitors. Don't miss the "Seat Belt Convincer" ride and explosion demonstrations. Come enjoy

barbeque-style food and beverages (for sale) and listen to the jazzy sounds of the CIT Band.

NIH Safety Day supports President Obama's Protecting Our Workers and Ensuring Reemployment initiative, which sets aggressive goals to help ensure federal workers are provided with safe and healthful work environments as well as support after experiencing a work-related injury or illness.

For more information and a complete schedule of activities, visit the NIH Safety Day web site at [www.ors.od.nih.gov/sr/dohs](http://www.ors.od.nih.gov/sr/dohs). The event, sponsored by the Office of Research Services, Office of Research Facilities and the NIH occupational safety and health committee, will take place rain or shine. Individuals who need reasonable accommodation to participate should contact Chris Gaines at (301) 451-3631 and/or the Federal Relay at (800) 877-8339.

### Research Festival Set, Oct. 24-28

Mark your calendar for this year's NIH Research Festival, which will be held Oct. 24-28. The festival will include scientific symposia, poster sessions, a special session on improving workplace dynamics, the scientific equipment tent show and more. Meet colleagues from across campus, learn about new research efforts and celebrate the intramural community. For more information, visit <http://researchfestival.nih.gov/> (after Sept. 1) or email [researchfest@mail.nih.gov](mailto:researchfest@mail.nih.gov).

### NIH Institute Relay Scheduled, Sept. 22

It's time for the 28th NIH Institute Challenge Relay. The NIH Recreation and Welfare Association, members of the original NIH Health's Angels running club and the Division of Amenities and Transportation Services, ORS, invite you to this year's relay, set for Thursday, Sept. 22 at 11:30 a.m. in front of Bldg. 1.

Relay teams consist of five runners, each whom runs a 1/2-mile loop around Bldg. 1. All institutes, centers and contractors are invited to enter as many teams as they wish. Each team must have men and women runners, with at least two runners of the same sex. The team with the fastest five will win the Allen Lewis NIH Memorial Trophy located at the Bldg. 31 Fitness Center.

There is a \$10 entry fee per team. Group leaders should email Randy Schools at [schoolsr@mail.nih.gov](mailto:schoolsr@mail.nih.gov) with team name (be as creative as you can) and list of participants. Volunteers are also needed; call the R&W office at (301) 496-6061 or email Schools if you can help.

nih record



*Dr. Mahendra Rao was recently appointed first director of NIH's new intramural Center for Regenerative Medicine.*

PHOTO: MICHAEL SPENCER

## Rao Named First Director of New Center For Regenerative Medicine

Dr. Mahendra S. Rao was recently appointed director of the new NIH intramural Center for Regenerative Medicine. The NIH-CRM is an initiative to create a world-class center of excellence in stem cell technology on campus, including induced pluripotent stem cells (iPSC), which can have applications in many systems and organs of the body. This is an initiative of the NIH Common Fund and will be administered by NIAMS.

"Dr. Rao's varied experience makes him perfectly qualified to bring large groups together in order to move stem cell technologies through clinical trials and beyond to the clinic," said NIH director Dr. Francis Collins, announcing the appointment.

A major goal for the center is to build on existing NIH investments in stem cell research to advance translational studies and ultimately cell-based therapies in the Clinical Center. The center will also serve as a resource for the scientific community, providing stem cells, as well as the supporting protocols and standard operating procedures used to derive, culture and differentiate them into various cell types.

In addition to the NIH-CRM director position, Rao will hold a joint research appointment in NIAMS and NINDS.

NIAMS scientific director Dr. John O'Shea noted, "Dr. Rao is an ideal choice to lead the NIH-CRM at this pivotal time for stem cell research. His unique background will serve him and the center well as we move forward to fulfill the great promise of stem cell technology."

Rao is internationally renowned for his research involving human embryonic stem cells and

other somatic stem cells. He has worked in the stem cell field for more than 20 years, with stints in academia, government and regulatory affairs and industry. He received his M.D. from Bombay University in India and his Ph.D. in developmental neurobiology from California Institute of Technology.

Following postdoctoral training at Case Western Reserve University, he established his research laboratory in neural development at the University of Utah. He next joined the National Institute on Aging as chief of the neurosciences section, where he studied neural progenitor cells and continued to explore his longstanding interest in their clinical potential.

Most recently, he spent 6 years as vice president of regenerative medicine at Life Technologies, Carlsbad, Calif. He also co-founded Q Therapeutics, a neural stem cell company based in Salt Lake City. ●

## LaVeist To Give 'Mind the Gap' Lecture, Sept. 6

Dr. Thomas A. LaVeist, director of the Hopkins Center for Health Disparities Solutions and William C. and Nancy F. Richardson professor in health policy at Johns Hopkins Bloomberg School of Public Health, will speak on Tuesday, Sept. 6 from 1 to 3 p.m. in the Natcher Bldg., Rms. E1/2.

He will discuss the state of efforts to explain race disparities in health. He will explore why biological/genetic approaches, health care access and socioeconomic status have all failed to explain race disparities. Results from a study being conducted at the Hopkins Center for Health Disparities Solutions show that social factors seem to be the primary reason for race disparities. Specifically, this research indicates that disparities are caused by race differences in the health risk environments where black and white Americans live.

LaVeist is a professor, author and public speaker who has been featured in *Newsweek*, *Newsday*, *Black Enterprise* and the *Baltimore Sun* as well as on CNN, National Public Radio and other national media outlets. His studies have focused on the major health care gaps in America, the trends causing them and the problems they create. He has written numerous articles published in scientific, public health and medical journals. LaVeist received his bachelor of arts degree from the University of Maryland, Eastern Shore, and his Ph.D. degree in medical sociology from the University of Michigan.

This seminar, part of the Medicine: Mind the Gap lecture series, is sponsored by the Office of Disease Prevention, the Office of Behavioral and Social Sciences Research and NCI's health disparities interest group. Registration is not required; seating is on a first-come, first-served basis.

Sign language interpreters will be provided. Those who require reasonable accommodation to participate should contact Paris Watson, Paris.Watson@nih.gov, (301) 496-6615. For more information, visit <http://consensus.nih.gov/mindthegap>.



## HOTEZ

CONTINUED FROM PAGE 1

and which draw much public attention and funding, the NTDs get comparatively little attention, Hotez argues. They also lack robust research funding.

Hotez, who is president of the Sabin Vaccine

Institute and a world authority on tropical diseases who was recently recruited to Baylor College of Medicine from George Washington University, said NTDs were first identified as a category only 6 or 7 years ago. “They are the most prevalent infections of poor people,” he noted.

The most widespread infection is ascariasis, or roundworm, which afflicts an estimated 807 million people globally; trichuriasis (whipworm) places second with 604 million people infected, followed by hookworm, with 576 million victims.

The infections tend to cluster in low- and middle-income nations such as those of sub-Saharan Africa, where many people are “polyparasitized,” hosting multiple infections, Hotez said. NTDs account for the loss of some 56.6 million DALYs annually, he reported.

“These diseases are actually a cause of poverty,” Hotez explained; victims are often unable to work because of their illness. “Farmers are too sick to work in the field.” Further, hookworm alone has been shown to lower IQ, in addition to harming physical development.

“These are some of the stealth reasons why the so-called ‘Bottom Billion’ can’t escape poverty,” he said.

Hotez, who is editor-in-chief of the scientific journal *PLoS Neglected Tropical Diseases*, said NTDs “are the opposite of emerging infections”—they have been around for millennia. “They are the most common infections in developing countries.”

But their longevity in the human population has not earned the attention of the pharmaceutical industry, Hotez said; his institute is stepping into the gap with the goal of providing “the right of access to innovation.” The Sabin institute has in the pipeline vaccines for human hookworm infection, schistosomiasis and Chagas disease.

The institute has its manufacturing arm in Brazil, which itself has high rates of NTDs. “Brazil is known as an innovative developing country, or IDC,” Hotez explained. “There is lots of talent and innovation, but also a lot of poverty.”

Because hookworm is almost always found in tandem with schistosomiasis, Hotez and his colleagues hope to create a “multivalent, anthelmintic antipoverty vaccine.”

He then made note of interesting trends that he worried were more about generating than testing hypotheses.

Hotez has observed that NTDs appear to be the legacy of the so-called “Middle Passage,” or mid-Atlantic slave trade. “Brazil is ground zero for NTDs that are endemic to Africa’s west coast,” he said. “You show me extreme poverty and I’ll show you NTDs.”

### Neglected Infections of Poverty in the U.S.

Hotez said his recent analysis shows that pockets of parasitic diseases exist in poor parts of the U.S., which currently has an estimated 44 million people living in poverty, including 16 million in “abject poverty,” or subsisting on less than \$50 per week for food.

“The U.S. has the world’s highest relative poverty rate for a developed country,” he reported. He cited a 2005 research paper from Chris Murray and his colleagues showing that the U.S. is actually a mosaic of 8 countries, including 4 socio-economically disadvantaged ones: Appalachia/Mississippi Valley, the Indian reservations of the American West, poor black communities of the rural South (Cotton Belt) and poor black high-risk urban neighborhoods.

Other researchers add the Mexico borderlands and the post-Katrina Gulf to this list and think only a Marshall Plan-type effort could reverse the problems.

Many NTDs are not considered reportable diseases by the Centers for Disease Control and Prevention and there is no active surveillance of their prevalence, Hotez said. There are, nonetheless, seven diseases that are “incredibly common in African Americans and Hispanics.” They are known as “3 Cs and 3 Ts,” to which Hotez adds a seventh—dengue fever. They include:

■ Chagas disease, which has “globalized” in recent years. There are an estimated 300,000 cases in the U.S. It can cause sudden cardiac death and is spread by triatomines, or “kissing bugs,” which have a broad range in the U.S. The Carlos Slim Institute of Health is financing a recombinant Chagas disease vaccine known



Hotez said, “I get very frustrated when I see the press focusing on diseases that disproportionately affect wealthy people living in the suburbs.”

PHOTOS: ERNIE BRANSON

as Cruzmexvax. There is only one center in the U.S. (in Los Angeles) where patients can receive drugs to treat Chagas disease, Hotez said.

▣ Congenital cytomegalovirus infection, which when transmitted from mother to child can result in hearing loss and severe intellectual deficits.

▣ Cysticercosis, which is transmitted by worms and has been shown to cause epilepsy in Hispanic Americans.

▣ Toxocariasis is caused by worms from the feces of dogs and cats. It affects the eyes and viscera, also the lung, where it causes a Loeffler's pneumonitis that resembles asthma. It is also thought to harm the brain and result in developmental delays. The highest rates of toxocariasis are found in the South, affecting some 3 million African Americans. Hotez asked, "Shouldn't we be doing more active studies working to link toxocariasis and asthma and developmental delays?"

▣ Toxoplasmosis, a parasitic disease transmitted mainly by cats.

▣ Trichomoniasis, a sexually transmitted disease affecting some 880,000 African-American women, with high rates found in Louisiana.

▣ Dengue fever, too, has emerged in the U.S. in types 1 and 2 and is transmitted by mosquito. Hotez worries about what will happen when the two types genetically combine.

The most urgent public health needs are assessing the NTD burden in the U.S. and determining the extent of transmission and ecology of the 3 Cs and 3 Ts, Hotez said.

"We also have a huge R&D agenda," he added, "that would include improved diagnostics and accelerated development of vaccines and drugs."

Quoting Mahatma Gandhi, Hotez said, "A civilization is judged by the treatment of its minorities."

He continued, "If wealthy white people were affected by these diseases, it would be on Sanjay [Gupta] and Oprah every night...but it goes sight unseen...I get very frustrated when I see the press focusing on diseases that disproportionately affect wealthy people living in the suburbs."

Hotez's talk was part of the NIH Health Disparities Seminar Series sponsored by NIMHD and was taped for viewing at [www.videocast.nih.gov](http://www.videocast.nih.gov). 



## NCI Scientist Honored for Life-Saving Invention

Dr. Frank Gonzalez, chief of the Laboratory of Metabolism in NCI's Center for Cancer Research (CCR), and Dr. Pedro Fernandez-Salguero, a former CCR fellow who is now a professor in Spain, received the 2011 Federal Laboratory Consortium National Award for Excellence in Technology Transfer for developing and transferring a life-saving diagnostic test to the marketplace.

Mojdeh Bahar and Dr. Betty Tong of NIH's Office of Technology Transfer were also recognized for their contribution to the successful transfer of this technology to a number of licensees. The award recognizes those who have done an outstanding job in transferring technology developed in a federal laboratory to partners in the private sector.

*Above, Dr. Frank Gonzalez of NCI and (below, from l) Mojdeh Bahar and Dr. Betty Tong of NIH's Office of Technology Transfer recently received tech transfer awards.*

Gonzalez and Fernandez-Salguero were recognized for their work on the development of a diagnostic test to identify those patients undergoing chemotherapy treatment with 5-FU who may have a toxic reaction to the drug. They determined the molecular basis for 5-fluorouracil (5-FU)-linked toxicity. They discovered a splicing mutation in the dihydropyrimidine dehydrogenase (DPD) gene, which is normally involved in the degradation of the drug. Patients' sensitivity to 5-FU is directly correlated with a mutated DPD gene and low DPD activity levels, resulting in the accumulation of 5-FU in the body.



Before administering the 5-FU, it is now possible to screen patients for a mutation that puts them at risk for life-threatening toxicity. The test has been nonexclusively licensed to several companies in Europe and the United States.

In the U.S. alone, more than 1,300 patients die each year as a result of 5-FU toxicity. "As a result of these multiple licenses," noted Gonzalez, "many patients around the world can avoid being treated by a drug that may prove to do them more harm than good."

*“As a leader you need to show your excitement,” said Searfoss. You must be a “salesperson” of sorts, giving regular reminders to your employees that the work they are doing is valuable and exciting. “This excitement takes you off the launch pad and gets you on your trajectory.”*

PHOTOS: BILL BRANSON



ers for good.” His “flight plan” for getting the best out of any team focuses on the “4 Ps”: purpose, program, people and perspective.

In describing purpose, Searfoss said a team must have a “mission that matters” and know that what they are doing is important. For him, service to others is paramount.

But it is not enough to “have a pretty mission statement in a nice little bin,” he added. That is why program is crucial in moving from your vision to the nuts and bolts, the day-to-day of getting the job done. You have to keep your operation running effectively and create ways to make it work even better. A leader must take a long-range view, with an eye on the big picture, even while dealing with the everyday tasks of a job.

The most important P, he said, is people. “At the end of the day, it’s people who make up for the shortcomings of everything else. When something goes wrong, who fixes it? People.” Searfoss says that at all the companies he has worked with over the years, it has always been people who make the difference.

For example, teammates who are passionate about what they do can inspire others. Searfoss shared a story of one project involving computers and cameras. At first, it did not interest a pilot like himself, who was used to dealing with hydraulics and “things that might kill me.”

But then he met the students at ground control working on the project. “The kids were so excited that my attitude completely changed,” Searfoss recalled. He said it was their natural excitement that sold it for him.

“As a leader you need to show your excitement,” said Searfoss. You must be a “salesperson” of sorts, giving regular reminders to your employees that the work they are doing is valuable and exciting. “This excitement takes you off the launch pad and gets you on your trajectory.”

As commander of the Neurolab mission, he acknowledged that every person was crucial. “I wasn’t a researcher or doctor myself, but I thought it was so cool that I was playing a role,” he said. “It’s easy to get absorbed in to-do lists, but we, as leaders, need to remind others of how important their job is.”

His take-away message echoed that statement: “One person can make a difference. You can be part of an enterprise that is bigger than any one person, such as the work here at NIH.”

## LEADERSHIP

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### NIH, NASA Share History of Collaboration

NIH-funded projects have long accompanied astronauts aboard NASA missions into space. They were included in at least 11 Space Shuttle journeys and another 6 expeditions to the International Space Station. These projects have addressed such topics as cell culture studies and single-cell organisms and whole-animal studies.

NASA mission STS-95 in 1998 included 76-year-old U.S. Sen. John Glenn, who underwent pre- and post-flight analyses of balance function, as part of an NIDCD grant.

NIH payloads on NASA missions examined the effects of space flight on rat developmental processes and on the development of cells within chicken embryos. Another experiment studied the role of calcium in the regulation of blood pressure.

Not all of the collaboration took place in space. Joint NIH-NASA activities have also included workshops, ground-based and flight research and a library referencing system.

at the fourth seminar of the 2010-2011 Deputy Director for Management Seminar Series. In a lively presentation, Searfoss used stories and examples from his career as an astronaut to talk about leadership and teamwork.

He began the seminar with the rumbling sound of a shuttle launching into space. The work of NASA and the work of NIH may seem miles apart, but Searfoss said NIH’s mission of seeking knowledge of living organisms runs on a similar path as NASA and its mission of seeking knowledge of air and space.

“Finding out what happens to organisms in space is where these two overlap,” Searfoss said. “And this was the goal of the mission I commanded.”

Searfoss was the leader of a mission—the STS-90 Neurolab flight on the Columbia space shuttle—that NASA carried out in partnership with NIH (see sidebar).

“The Neurolab experience was truly unique among NASA shuttle missions,” he said. It employed thousands of people to get a world-class laboratory up and running and bring seven scientific researchers into space. The project resulted in a book full of peer-reviewed science papers, something no other shuttle mission can claim. From experiences such as the Neurolab mission, Searfoss learned important lessons about leadership.

“You are, every single one of you here, a leader,” he said. “You have the opportunity to affect oth-

## feedback

Have a question about some aspect of working at NIH? You can post anonymous queries at [www.nih.gov/nihrecord/index.htm](http://www.nih.gov/nihrecord/index.htm) (click on the Feedback icon) and we'll try to provide answers.

**Feedback:** What is the status of the promised doors for the restrooms in Bldg. 31B?

**Response from the Office of Research Facilities:** The Office of Research Facilities has committed funds to renovate the second through fifth floor restroom doorways in the B wing of Bldg. 31. Work is anticipated to be completed by the end of December 2011.

**Feedback:** For awhile I've wondered about the homes between Bldg. 31 and the Children's Inn. Who are they for and do people actually live in them?

**Response from ORF:** The area you are referring to is known as the "Quarters." The area is generally used as on-campus housing. Several are rented by senior staff at NIH. Occupants are charged the market rental rate for comparable units in the local area in accordance with the Office of Management and Budget Circular A-45. In some cases, these units are used for administrative offices such as for staff members of NIAID and the NIH Fire Marshal.

The Quarters exist due to a set of land donations to NIH by a local family, the Wilsons, in the 1930s. As part of the first donation in 1935, an existing structure known as "Top Cottage" (Bldg. 15A) conveyed. A subsequent donation in 1938 allowed for the expansion of the Quarters into two to six sets of double quarters and two single detached residences completed in 1939. The Quarters are eligible for the National Register of Historic Places.

**Feedback:** Why can't the shuttle allow riders to board at non-designated pick-up locations, i.e. stop signs?

**Reply from Office of Research Services:** The ORS Division of Amenities and Transportation Services (DATS) oversees the NIH Shuttle contract. We understand the inconvenience of missing a shuttle bus. However, running to catch one can be dangerous. For more than 10 years, shuttle contracts have stipulated that drivers are prohibited from stopping at undesignated stops. DATS requires shuttle drivers to stop only at specific locations.

Once the shuttle makes a stop and pulls away from the curb, it is not to stop again and pick up passengers a second time. There are two reasons for this, both of which are safety related. When this occurs, the passenger is typically in the roadway or parking lot and cars can attempt to move around a shuttle bus on either side once it starts moving, thus creating a hazardous condition for the passenger. Just as important, the pulling away and then stopping again is commonly referred to as a "false start" and has been identified as a contributing factor in rear-end collisions. The traffic behind the bus sees it start to move, most likely cannot see the passenger approaching and does not anticipate the bus suddenly stopping again. When the bus stops unexpectedly, a collision may occur.

We understand that each designated stop may appear to be safe. However, our goal is to avoid even one injury. Since this policy has been in effect, there have been no reported injuries.

### NIH Commissioned Officers Honored During National Symposium

NIAID medical officer Capt. Lydia Soto-Torres and NIEHS chief of staff Cdr. Paul Jung received awards during the 2011 Public Health Service Scientific and Training Symposium, held recently in New Orleans.

The symposium is an annual meeting hosted by the Commissioned Officers Foundation that brings together public health experts and PHS officers from around the country and world.

The theme for 2011 was "Public Health Leadership: The Key to a Healthier Nation." The awards were among 10 presented at the Minority Officers Liaison Council Awards Ceremony.

Soto-Torres received the Juan Carlos Finlay Award for career dedication and leadership in the development of programs and services that improved access and health services for Hispanics and other minorities. As a medical officer in the Division of AIDS, Soto-Torres serves as research liaison for the Caribbean and Latin America, advocating for an increase of scientific research in Latin America. She advocates for Hispanic representation in clinical HIV prevention trials so that proven HIV prevention modalities may be accessible to at-risk populations. During her professional career of almost 33 years, her commitment to the health of the Hispanic community is exemplified through various roles such as special assistant for minority and women's health (1992-1993) in the Office of the Surgeon General, where she was instrumental in coordinating the first *Surgeon General's Report on AIDS* to be written in Spanish.

Jung was awarded the Samuel Lin Senior Officer Award for exceptional contributions by a senior officer to the mission of PHS and to the Asian Pacific American community. The award recognizes his work in helping to start the Asian Pacific American Medical Student Association and serving on its physician advisory board for more than a decade. Jung's prior assignments include details to the House energy and commerce committee and the Peace Corps.



*Awardees Cdr. Paul Jung (l) and Capt. Lydia Soto-Torres (r) stand with guest speaker Adm. Epifanio Elizondo, chief professional officer of the health services category and HHS regional health administrator for region VI.*

PHOTO: DAVID LAU

## STONES

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*According to NIDDK's Dr. Ziya Kirkali, "Someone who is particularly at risk for stones should be drinking at least 12 glasses of water each day, especially during the summer."*

kidney stones—known as renal calculi—are solid, often sharp substances made of mineral and acid salts. They can travel into the ureter (the tube connecting the kidney and bladder), dish-ing out excruciating lower back pain and genital discomfort. In addition, the afflicted may also experience bloody urine, fever and chills, nau-sea and vomiting and, most frequently, a con-stant urge to urinate.

Experts note that the stone may vary in size and can be as small as a grain of sand or as large as a pearl. The smaller they are, the more like-ly they can pass through the system naturally, without medical treatment.

According to the National Institute of Diabetes and Digestive and Kidney Diseases, more than 3 million patients (more men than women) or nearly one person in 8 will see their primary care physician or urologist annually for kidney stones, while another half million will visit their local emergency room seeking relief. Viewed another way, one in 300 persons in the U.S. will experience a kidney stone in any given year.

Meanwhile, the disorder is a major contributor to morbidity and loss of time from work. And unfortunately, it may not be a one-time thing. Experts say that once you've had a stone, you have a 50 percent chance of developing another one within the next 5 years. This risk generally increases with advancing age.

Stones can create havoc in a number of ways, says one authority.

"While we really do not know the exact mecha-nism for why humans develop kidney stones, what we do know for certain is that these stones inflict a tremendous amount of mis-ery and suffering for the individual and, for the nation as a whole, much economic distress," said Dr. Ziya Kirkali, senior scientific advisor to NIDDK's Division of Kidney, Urology and Hematology. He added that more than \$2 bil-lion is spent in the U.S. each year for treatment of the malady.

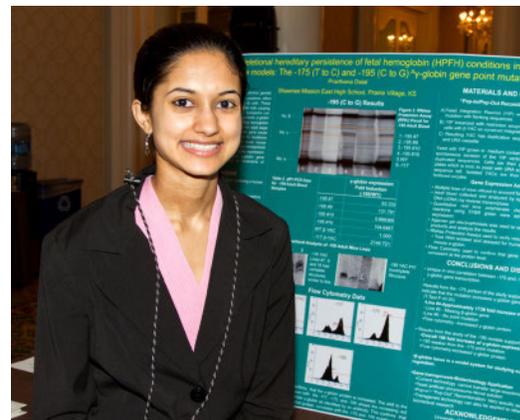
According to Kirkali, the pain of kidney stones occurs when the ureter contracts in an attempt to pull the stone through the bladder tube. If the surface of the stone is sharp or pointed, as is often the case, it unleashes a nagging or stab-bing discomfort in the lower back and/or groin.

Heritability does not appear to be a cause of kidney stones, but time of year is associated with its occurrence.

What is almost beyond question, authorities maintain, is that we do not drink enough liq-uids, especially water, a fact that rings particu-larly true during the summer months, when we lose body fluid through perspiration and fail to replace it.

"Someone who is particularly at risk for stones [a "stone-former"] should be drinking at least 12 glasses of water each day, especially dur-ing the summer," Kirkali said. "This helps dilute your body liquids, as well as calcium oxalate, the substance that makes up most types of renal stones. Drinking enough water is really critical for preventing the development of stones. Fur-ther," he advises, "you cannot afford to let your-self get dehydrated in the summer."

While some say lemonade can help circum-vent the problem, the NIDDK expert thinks water is the superior drink. "It's your great protection against the development of kidney stones," Kirkali said. 🍷



### Grantee's Protégé Honored for Project

*Prarthana Dalal, a summer student in the lab of NIDDK grantee Dr. Kenneth Peterson, University of Kansas Medical Center, has won the International BioGENEius Challenge, a competition for high school students who demonstrate an exemplary under-standing of biotechnology through science research projects. Her winning project looked at hemoglobin genetics and how sequence changes can affect fetal hemoglobin production in mouse models, knowledge that can be used to improve treatment for sickle cell disease. Dalal's work was funded by an American Recovery and Reinvestment Act Summer Student Experience award.*

## CC Grand Rounds Looks at Hepatitis E

Hepatitis E, the fifth form of viral hepatitis, is the youngest, most poorly understood, most mysterious, and, recently, most challenging of the five, according to Dr. Jay Hoofnagle, director of the NIDDK Liver Diseases Branch and long-term senior investigator and liver expert. He delivered “Hepatitis E, an Emerging Infectious Disease,” at a recent Great Teachers Lecture during Clinical Center Grand Rounds.



*NIDDK's Dr. Jay Hoofnagle delivers a recent Great Teachers Lecture, part of the Clinical Center's Grand Rounds series.*

PHOTO: BILL BRANSON

Proof for a fifth type of viral hepatitis, Hoofnagle recalled, was first announced in 1980 when two groups of researchers—one from NIAID's Laboratory of Infectious Diseases—found that outbreaks of severe hepatitis in India were not due to hepatitis A or hepatitis B.

These large epidemics had always been mentioned as “classical” examples of hepatitis A—infectious hepatitis caused by sewage contamination of the water supply, typically found in underdeveloped areas of the world (Asian subcontinent, sub-Saharan Africa, Central America). The fact that it wasn't hepatitis A (or B) was an eye-opener and led to its first, somewhat cumbersome name “epidemic non-A, non-B hepatitis.”

Hoofnagle said these first reports triggered a search for its cause. One year later, researchers from Moscow Institute of Virology made the seminal discovery. Using the same methods that led to the discovery of hepatitis A (immune electron microscopy), they found a small virus particle in stool specimens from Russian soldiers who had fallen ill with hepatitis in Afghanistan.

That breakthrough soon led to the identification of hepatitis E as an RNA virus, development of diagnostic tests for antibody and careful definition of its course, complications and means of spread.

Hepatitis E was virtually non-existent in the United States, where only “imported” cases were found. It caused an acute hepatitis that was occasionally severe and could be fatal, but never persistent or chronic or causing cirrhosis.

Hepatitis E appeared to be a problem limited to the underdeveloped world. For the U.S. and the developed world, creating tests for its diagnosis or

vaccines for its prevention did not seem critically important.

Recently, Hoofnagle reported, these concepts have changed. Hepatitis E does occur in the U.S., but as sporadic cases—not in epidemics and not linked to drinking polluted water or traveling abroad. The disorder can be severe and fatal and can cause chronic infection and lead to cirrhosis.

Curiously, most cases are in older men. Why have these concepts about hepatitis E changed so much?

The reason, Hoofnagle said, is that hepatitis E occurs in two distinct forms caused by different strains (or “genotypes”) of the virus, which have different means of spread and can have different outcomes.

Epidemic hepatitis E that occurs in Asia, Africa and Central America is caused by genotypes 1 and 2—viruses that are native to humans.

Sporadic hepatitis E that occurs in the Western or “developed” world (which now includes China) is caused by genotypes 3 and 4—viruses that are native to swine (pigs and wild boars) and infect humans secondarily.

Similar hepatitis E viruses are also found in deer, elk, goats, sheep and even the black rat.

So far only the swine form of hepatitis E has been proven to infect humans. The most likely cause of spread of this form of hepatitis E is eating undercooked pork or wild game. The disease is particularly severe in the elderly and can lead to a chronic infection in persons with immune problems, including transplant patients and people with AIDS, in whom it can eventually lead to cirrhosis.

Many questions about hepatitis E remain. Just how common is it in the U.S.? What can be done to block its spread? Is it treatable and with what antiviral medications?

The mysteries of hepatitis E are unfolding, as are important challenges for research, Hoofnagle noted. Immediate goals are to develop reliable diagnostic tests and means of treatment and prevention. Perhaps a first step, however, is a wider appreciation of the significance and frequency of hepatitis E in the U.S. as an emerging infection.

Research in viral hepatitis has made major inroads into the prevention and control of hepatitis A, B, C and D, Hoofnagle concluded. The fifth form of viral hepatitis is waiting in line; its mysteries are likely soon to be unveiled and lead to similar inroads into its prevention and control. ●

### Principles of Clinical Pharmacology Course

The Principles of Clinical Pharmacology course, sponsored by the Clinical Center, will begin in Lipsett Amphitheater, Bldg. 10 on Sept. 1. The course will be held Thursday evenings from 6:30 to approximately 7:45 and will run through Apr. 26, 2012.

The course covers topics such as pharmacokinetics, drug metabolism and transport, assessment of drug effects, drug therapy in special populations and drug discovery and development.

Registration is open to all interested individuals at no cost unless the course is being taken for graduate credit. The course may be taken for credit through FAES as PHAR 500 I and PHAR 500 II; contact FAES directly at (301) 496-7976. Deadline for registration is Aug. 31. Certificates of participation will be awarded at the end to all students who attend 75 percent of the lectures. More information is available at [www.cc.nih.gov/training/training/principles.html](http://www.cc.nih.gov/training/training/principles.html) or by calling (301) 496-9425.

### Researchers Develop Mouse with 'Off Switch' in Key Brain Cells

NIH-funded scientists have developed a strain of mice with a built-in off switch that can selectively shut down the animals' serotonin-producing cells, which make up a brain network controlling breathing, temperature regulation and mood. The switch controls only the serotonin-producing cells and does not affect any other cells in the animals' brains or bodies.

When the researchers powered down the animals' serotonin cells, the animals failed to sufficiently step up their breathing to compensate for an increase of carbon dioxide in the air and their body temperatures dropped to match the surrounding temperature.

The finding has implications for understanding sudden infant death syndrome, or SIDS, which has been linked to low serotonin levels and is thought to involve breathing abnormalities and problems with temperature control. The study results appeared in the July 29 issue of *Science*.

### Gene Variant ID'd in Proteus Syndrome

A team led by NHGRI researchers has identified the genetic mutation that causes Proteus syndrome, a rare disorder in which tissue and bone grow massively out of proportion. The discovery, which has implications for potential drug therapies and even cancer, appeared in the July 27 early online edition of the *New England Journal of Medicine*.

Proteus syndrome gained wide public attention in 1980, through the movie *The Elephant Man*, about a 19th century Londoner whom experts believe may have suffered from the disease.

Researchers found that a point mutation—a single-letter misspelling in the DNA of the genetic code—in the *AKT1* gene activates the sporadic tissue growth characteristic of Proteus syndrome. Physicians named the condition for the Greek god who could transform his shape. There are fewer than 500 people with the disease in the developed world, where it can be tracked.

Unlike inherited disease-causing mutations, the gene variant that triggers Proteus occurs spontaneously in each affected individual during embryonic development. The severity of the disease depends on the timing during embryonic development that the genetic mistake occurs

in a single cell and in which part of the developing organism.

### NIH Researchers Trace Early Journey of Modulating Cells in Brain

Key cells in the brain region known as the hippocampus are formed in the base of the brain late in fetal life and undertake a long journey before reaching their final destination in the center of the brain shortly after birth, according to researchers at NIH.

The hippocampus is involved with attention, navigation and converting short-term memories to long-term memories. Interneurons, the brain cell population the researchers studied, regulate communication between networks of brain cells. Previous research suggests that brain cell networks in the hippocampus may be disrupted in developmental disorders, including autism, as well as in epilepsy, Alzheimer's disease and schizophrenia.

"The hippocampus seems to be at the crossroads of many disorders affecting the brain," said Dr. Chris McBain of NICHD. "With these findings, we can begin to understand how proper communication is established in the brain and to investigate why sometimes it breaks down in this critical area."

The findings appeared in July in the *Journal of Neuroscience*.

### New Method Proposed to Predict Fertility Rates

Researchers supported by NIH have developed a new statistical technique to forecast changes in fertility rates. The method mathematically compensates for uncertainty and is expected to allow governments to plan more reliably for the infrastructure and social services needed to accommodate large-scale population changes.

Conventional methods for predicting a country's fertility rate are based on two considerations. The first is an average figure for the number of times a woman gives birth during a lifetime. The second is an estimation of how this number changes as a woman grows older. In addition, to account for the possibility of deviations, analysts have added and subtracted 0.5 children to the average rate predicted, creating a range of predictions. However, previous methods could not calculate how likely it was that such a variation would actually occur.

The new method is based on the idea that the transition from high to low fertility rates follows a similar pattern in all countries. The method uses a statistical formula to take into account historical fertility estimates and the likelihood of future trends. The findings appeared in July in the journal *Demography*.



In this British medical journal image, the head and shoulders of John Merrick, who became known as the Elephant Man, are illustrated.



The phone numbers for more information about the studies below are 1-866-444-2214 (TTY 1-866-411-1010) unless otherwise noted.

### Pediatric Cancer Survivors Study

You may be eligible to participate in a clinical research study that will evaluate, screen and provide long-term follow up for any prevalence of childhood cancer-related treatment side effects for cancer survivors. This study will be on an outpatient basis and may require other tests such as MRI and blood draws. If you have had a childhood cancer and are between ages 2-24, you may be eligible to participate. Refer to study 07-CH-0192.

### 'Smart Pill' Study

If you have been diagnosed with acid reflux, peptic ulcer or gastric hypersecretion disease, you may be eligible to participate in a study that will measure stomach acid secretions using the SmartPill to compare to other measurement methods. All participants will come to the Clinical Center as outpatients. The study will last approximately 4 days. All study-related tests and medications will be provided at no cost. Participants must be 18 or older and have been diagnosed with gastroesophageal reflux, peptic ulcer or gastric hypersecretion disease. Refer to study 08-DK-0138. Se habla español.

### Arterial Plaque Study

If you have narrowing of the arteries and are taking statin medication, you may be eligible to participate in a study that will investigate if using magnetic resonance imaging is an effective method of measuring plaque in comparison to other methods available to estimate your risk of heart disease and stroke. All participants will receive statin medication or be willing to modify their current dose. All participants will come to the Clinical Center. The study will last approximately 24 months. All study-related tests and medications will be provided at no cost. Participants must be 55 or older. Refer to study 10-CC-0214. Se habla español.

### Eosinophilic Gastroenteritis Research Study

Doctors at the National Institute of Allergy and Infectious Diseases are conducting a study to improve understanding of how the immune system responds to food allergens and how immune cells contribute to disease in individuals with food allergies and eosinophil-associated gastrointestinal disorders (EGIDs). If you have EGID and are 18 to 65 years old, consider participating in this study. There's no cost for study-related procedures and compensation may be provided. Se habla español. Refer to study 10-I-0196.

### Sickle Cell/Leg Ulcers Study

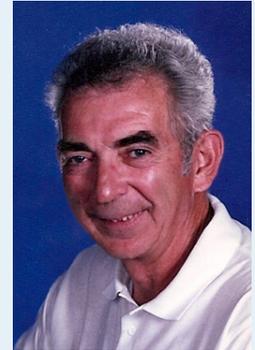
If you have sickle cell disease and have had a leg ulcer for more than 28 days, you may be eligible to participate in a study that will evaluate therapies to improve the healing process for the ulcer. Study participants will be required to travel to NIH for initial screening and to participate in the study. The study duration is approximately 3 months. All study-related tests and medications will be provided at no cost. Compensation is provided. Travel assistance may be available. Refer to study 11-H-0121. Se habla español.

### Women's Health Studies Seek Healthy Volunteers

Healthy women ages 18-65 are invited to participate in outpatient research studies. Compensation is provided. Call (301) 496-9576 and refer to protocols 81-M-0126, 88-M-0131 and 03-M-0138.

### RML's Peacock Mourned

NIAID's Rocky Mountain Laboratories lost a humble and hard-working scientist on June 16 when Marius Peacock passed away at age 79.



For 45 years—from 1962 to 2008—Peacock was employed at RML in various roles. Along the way he worked with some of the most prominent figures in RML history—Richard Ormsbee, J.C. Williams and Jack Munoz among them—and helped train and mentor some of today's scientific leaders at RML.

Known as Mort to friends and colleagues, Peacock spent most of his career working with *Rickettsia*, the genus of bacteria that causes diseases such as Rocky Mountain spotted fever, and *Coxiella burnetii*, which causes Q fever. In 1997, a new species of bacterium that he had isolated from wood ticks was named after him, *Rickettsia peacockii*.

Many colleagues considered Peacock a world expert in isolating and cultivating *Rickettsia* and *Coxiella* because of his vast knowledge and skilled techniques.

"Mort had incredible hands in the lab, and his ability to accomplish technically challenging procedures was renowned," said RML's Dr. Robert Heinzen. "He had a sixth sense in working with these difficult bacteria." Heinzen learned from Peacock both as a postdoc from 1991-1996 and then while overseeing his own lab starting in 2003.

During his career, Peacock isolated many strains of *Rickettsia* from natural sources such as infected tissue and established pure stocks that scientists still use today in research projects. He also was instrumental in developing many research techniques and tests still in use.

"Mort was a gentle and modest man who was always willing to help out or share his expertise," said RML's Dr. Ted Hackstadt. "He supported several scientists and trained many postdoctoral fellows and technicians." Hackstadt lured Peacock out of a brief retirement in 1990, hiring him to work on Rocky Mountain spotted fever.

Colleagues also recalled Peacock's love of the outdoors and enthusiasm to help plan hiking trips.

"If you were going to be lost in the woods, Mort was the person you wanted to be with," said RML's Dr. Marshall Bloom. "He was just as skilled in the outdoors as he was in the lab."

Peacock, a Missoula native, received degrees from the University of Montana in 1959 in bacteriology and in 1960 in microbiology and public health. During his career, he published more than 60 scientific articles. He also was elected as an honorary member of the American Society for Rickettsial Diseases.—Ken Pekoc



**Above, from l:** Rashaunda Thomas of medical arts collects a donation while co-worker Bonita Smith holds up one of many signs posted around campus. The campaign lasts at NIH until Aug. 25.

Woodrow “Spike” Harrison of NIH’s plant management team helps a generous NIH employee, Gilbert Jones, with his donation while the Division of Medical Arts and Fire Department volunteers of ORS look on. Harrison tours campus several times a week to round up donations to the food bank.

**Below:** Tammie Edwards and Wayne Randolph of medical arts assist Harrison with collecting donations during the July Fill the Truck campaign. Cereal, pasta and canned goods are popular donation items.

PHOTOS: ERNIE BRANSON, LEMUEL CANADY



*‘Fill the Truck’ This Month*  
**Feds Feed Families: NIH’ers Rally to the Call**

Here in the metropolitan area there are many families—some might be your neighbors or co-workers—who often go to bed hungry. Public charities and food banks are doing more than ever before, but they can’t keep up with the need.

For this reason, NIH is working with the Capital Area Food Bank for the third year in a row as part of the government-wide Feds Feed Families campaign to collect canned and boxed food and beverages, as well as hygiene products such as soap, toothpaste, tissues and shampoo. The food bank serves more than 700 food pantries, soup kitchens and other service organizations in the District of Columbia, Virginia and Maryland.

The goal is to collect 15,000 pounds of donations this year, a 2,000-pound increase over last year’s NIH goal. The food drive lasts through the end of August.

“To be able to help those in need is very rewarding,” said Rashaunda Thomas, who is coordinating the effort along with the Division of Medical Arts, ORS. “These are tough times for a lot of people; some have lost jobs due to the economy. There are so many generous people at NIH. Our July Fill the Truck event was very successful—we collected over 5,000 pounds of food.” There will be another Fill the Truck event Aug. 24-25.

Thomas and her colleagues from medical arts and other volunteers plan to keep the campaign visible on campus until NIH’s Aug. 25 deadline. The final opportunity to Fill the Truck will be that morning at Bldg. 10 South (parking lot 10H) from 7 to 9:30. Drop-off boxes at the 10 locations around campus and 19 off-campus sites will continue to receive donations through close of business that day.

For a complete list of donation sites, visit [www.medarts.nih.gov](http://www.medarts.nih.gov) and download a copy of the Feds Feed Family flyer. Additionally, for those using Metro, a donation box will be available at the NIH Gateway Center, adjacent to the Medical Center Metro station.

**Green Labs Fair Schedule Set**

The NIH Environmental Management System, in conjunction with NIDDK, NINDS, NHGRI, NIMH and NIDCD, will be hosting a series of Green Labs Mini Fairs open to all employees and held in multiple locations for the convenience of the research community.

Each fair consists of a vendor show, panel presentations on greening efforts on campus and a panel discussion and opportunity for the audience to ask questions or share their green lab ideas with others. The vendor fair will highlight equipment and other products that can green your lab and even save money.

Panel presentations include IC Green Team initiatives, lab greening opportunities, solvent recycling, green innovation and laboratory recycling. NIH environmental protection staff, occupational health and safety staff, along with IC Green Teams will also have tables set up to answer questions.

The NEMS sustainable lab practices working group will also provide information to promote recycling, energy-reduction activities in the lab and reduction of toxic chemicals and reagents. Come learn what your fellow researchers are doing to go greener.

Vendor fair and information tables open from 11:30 a.m. to 2:30 p.m.; short greening presentations followed by panel discussions occur from noon to 1:30 p.m.

Fair dates are:

- ✔ Wednesday, Aug. 31; Bldg. 50, first floor conf. rm.
- ✔ Monday, Sept. 12; Bldg. 40, first floor conf. rms.
- ✔ Wednesday, Sept. 14; Bldg. 10 South Lobby and NIH Library
- ✔ Thursday, Sept. 22; 5 Research Court, Rockville; second floor conf. rm.

Check [www.nems.nih.gov](http://www.nems.nih.gov) for details.