

# nih record



ABOVE • NIH director sings at NIMHD planning session. See p. 12.

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*In Search of Long-Term Behavior Modification?*

## Tap Into Your Inner Change Agent to Prevent Cancer

By Carla Garnett

Insight at this year's Advances in Cancer Prevention Lecture sounded a lot like a familiar quip. *How many psychiatrists does it take to change a light bulb? One, but the light bulb has to really want to change.* Turns out that bit of humor has more than a grain of truth in it, according to Dr. John Pierce, director of population sciences at the University of California, San Diego. In a recent NIH lecture "How Do We Motivate Long-Term Behavior Change to Prevent Cancer?" he shared tips gleaned from the behavior intervention research he's conducted over the last 2½ decades.

How do you get people to change their ways for life? It's a question everyone's asking, from professional coaches and trainers whose job it is to help folks overcome unhealthy behavior to smokers, alcoholics and overeaters who want to put an end to their own bad habits.

For proven answers, Pierce decided to

SEE CANCER PREVENTION, PAGE 6



Dr. John Pierce of the University of California, San Diego, offers tips on behavior modification.



Devin Wahl

### To Be Young, Gifted and Post-Bac Wahl Swims Channel with Siblings to Fight Alzheimer's

By Belle Waring

After 11 hours in cold, dark water, whipsawed by currents, scourged by jellyfish and nearly shattered by exhaustion,

Devin Wahl stood up on a moonless beach in northern France.

He had just swum 24 miles across the English Channel to raise awareness—and funding—for Alzheimer's disease.

"I landed at 10 p.m. on July 27, when it was completely dark," says Wahl, a 24-year-old IRTA fellow. "I stood up, with no one around me. I was extremely proud."

Sharing the glory, somewhere in the foggy dis-

SEE WAHL, PAGE 4



Malian President Ibrahim Boubacar Keita was one of several heads of state who visited NIH during the first-ever U.S.-Africa Leaders Summit.

### U.S.-Africa Leaders Summit Encourages Health Investments

Health was on the agenda as leaders from nearly 50 countries gathered in Washington in early August for the first-ever U.S.-Africa Leaders Summit, intended to expand trade and investment, encourage sustainable development and enhance cooperation on peace and security.

SEE AFRICAN LEADERS, PAGE 8



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NIH...Turning Discovery Into Health



**Author, Professor Ariely To Give DDM Seminar**

The Deputy Director for Management (DDM) announces the final DDM seminar of the 2013-2014 series "Management and Science: Partnering for Excellence." The event on Thursday, Sept. 25 from 11 a.m. to 12:30 p.m. in Masur Auditorium, Bldg. 10 will feature Dr. Dan Ariely, who will discuss "Now and Later: The Problem of Self Control." Despite our intentions, why do we so often fail to act in our own best interest? Are we in control of our own decisions? What are the forces that influence our behavior? Ariely will answer these questions and others during his discussion.

Videocasting and sign language will be provided. Individuals who need reasonable accommodation to attend should call (301) 496-6211 or the Federal Relay Service at 1-800-877-8339.

For more information about the series, visit [www.ddmseries.od.nih.gov](http://www.ddmseries.od.nih.gov) or call (301) 496-3271.

**Principles of Clinical Research Class**

Registration for the 2014-2015 "Introduction to the Principles and Practice of Clinical Research" is now open. The course will run from Oct. 14 through Mar. 9, 2015. The deadline for registering is Oct. 6. Classes will be held on campus in Lipsett Amphitheater, Bldg. 10 at 5 p.m. There is no charge for the course but purchase of a textbook is suggested. A certificate will be awarded upon successful completion of the course, including a final exam. For more information or to register, visit <http://clinicalcenter.nih.gov/training/training/ippcr.html> or contact course coordinator Daniel McAnally at [daniel.mcanally@nih.gov](mailto:daniel.mcanally@nih.gov) or by calling (301) 496-9425.

**Shingler Receives BIG's Highest Honor**

Felicia Shingler, a program analyst in the Office of Extramural Research, recently received the Distinguished Service Hall of Fame Award, the highest honor given by Blacks In Government (BIG).

A life member of BIG and currently a member of the board of directors and national executive committee, she has served as BIG national secretary for the past 4 years. The hall of fame award honors members who have been active in the organization for a minimum 15 consecutive years and who have made exceptional contributions at the national, regional and/or chapter levels. Shingler also received two awards for national BIG service—from the board of directors and from the president on behalf of the executive committee.

During her 4 years as secretary, Shingler has consistently encouraged BIG to "go green." In 2011,



*Felicia Shingler (c) receives BIG's highest honor from BIG board chair Dr. Hezekiah Braxton III and BIG National President Darlene H. Young.*

PHOTO: VERONICA GODFREY ROBINSON

she initiated paperless meetings for the board of directors and national executive committee, reducing print costs significantly. In addition, she has served as national communications and public relations chair. In that post, she produced numerous editions of several publications, including *BIG Reporter* and *BIG Bulletin* and managed the press room during BIG conferences.

At the local chapter level, Shingler established and chaired the first young adult resources and development (YARD) committee in 1989-1990. Created to ensure that BIG's seasoned leadership would empower the next generation, YARD was the catalyst for the current BIG National Youth Program. As NIH chapter president, Shingler also initiated the chapter's first policy and procedure manual. She served as the NIH activity codes manager for 24 years and currently works as a program analyst for the *NIH Guide* in OER.

**Swain Named Chief of NIGMS Biomedical Technology Branch**

*Dr. Amy Swain was recently appointed chief of the Biomedical Technology Branch in the NIGMS Division of Biomedical Technology, Bioinformatics, and Computational Biology.*



*Her prior positions included serving as acting director of the division and as acting director of the Division of Biomedical Technology in NCR, where she also worked in other capacities from 1999 to 2011. Prior to that, she led the protein crystallography laboratory at Hoffmann-La Roche Inc. Swain is a leader in synchrotron resource discussions and activities across NIH and other agencies. She earned a B.S. in biology from Frostburg State University and a Ph.D. in chemistry from the University of South Carolina and then did postdoctoral research at NCI's Macromolecular Structure Laboratory.*

## The Changing Role of Hospital Emergency Rooms

By Dana Talesnik

We know to call 911 if someone might be having a heart attack, stroke or other life-threatening emergency. But these days, hospital emergency rooms are increasingly handling much more than medical emergencies.

Each year, 1 in 5 American adults makes at least one visit to the emergency department (ED), according to the Centers for Disease Control and Prevention. Yet of the more than 120 million annual visits to U.S. emergency rooms, relatively few are life-threatening cases. The CDC estimates that nearly 80 percent of adults visit the ED because they lack access to other options at the time.



Dr. Jeremy Brown

“Many people are using the ED for evaluation of medical questions; sometimes they simply can’t get to see their primary care doctor or their primary care doctor cannot provide the level of tests and services that are needed,” said Dr. Jeremy Brown, director of NIH’s Office of Emergency Care Research, within NIGMS.

A 2013 RAND report titled “The Evolving Role of Emergency Departments in the United States” found that most patients in nonemergency situations visited the ED because they were referred by a doctor, believed the condition was serious or didn’t think they had any alternative.

“I think the ED provides this critical safety net that people can use 24 hours a day, 7 days a week, 365 days a year,” said Brown. “It does an excellent job of taking care of both the emergency issues and also people’s chronic issues that can’t be taken care of elsewhere.”

EDs have come to handle a wide range of medical needs, from the unplanned—an injury or a bout of pneumonia—to the planned, such as a diagnostic test. The ED has become an important place of care for patients who don’t have a medical home or who can’t use their primary care doctor because the office is closed at the time or the office cannot solely provide for all of their needs, said Brown.

In fact, more people are admitted to the hos-

pital through the ED than any other way. Excluding women who come in to give birth, most people who end up in the hospital first arrived through the ED. According to the RAND report, in 2009, for example, apart from childbirth, admissions from EDs accounted for about half of all inpatient hospital admissions in the United States. So the emergency room (ER) essentially has become the front door to the hospital.

“We tend to think of the ER as either people who don’t need to be there or are there for something severe like a gunshot wound or stopped heart. Neither of these two extremes represent most ER cases,” said Brown. “Some are life-threatening emergencies but the vast majority of people drive there and leave by themselves.”

The ED can refill a prescription or evaluate pain you’ve had for months or treat an asthma attack, but it shouldn’t be a substitute for preventive care. “The ER can handle if you run out of blood pressure medicine or if your blood pressure has gotten worse,” he said, “but the real place to have your BP controlled is not in the ER but with your primary care doctor and scheduled visits.”

While other NIH institutes focus on a certain disease, organ or population, Brown’s office focuses on a specific time of need—emergency care—a discipline that reaches across all health conditions, organs and populations. The office, which has a coordinating role across NIH, also focuses on discerning the needs of vulnerable populations who use the ED because they have nowhere else to go.

“We must think of the ED in a bigger way,” says Brown. “The ED provides emergency care and also the backup ability to do some of what the health care system can do, but when patients can’t get to it. The ED is a rapid diagnostic unit, treating patients in their moment of crisis.”

## HHS Night at Nationals Park

Enjoying HHS Night at the Ballpark on Aug. 5 were (right, from l) NICHD director Dr. Alan Guttmacher, his wife Brigid, Rigo Taboada, 14, of Colorado, a patient of Dr. Constantine Stratakis (r), scientific director of NICHD. Rigo and his parents, along with Guttmacher and Stratakis, joined Nats players on the field before the game against the New York Mets. Also at the stadium that night was Vicki Contie (below) of the NIH Office of Communications and Public Liaison. She was on hand to offer free health information from NCI, NIAMS and the Office of the Director with tips on preventing skin cancer and staying safe in the summer sun.

PHOTOS: ROSALINA BRAY (TOP), JOSHUA BALDWIN



## WAHL

CONTINUED FROM PAGE 1

tance, were his sister Danielle, age 21—“she came in 13 minutes ahead of me”—and their 19-year-old brother Dustin. Although Dustin did not complete the swim, he endured a full 7 hours in the chilly Channel waters—a noble effort—before being pulled out for safety’s sake.

A 2012 graduate of Colorado College, where he studied neuroscience, Devin is now completing his second year with NIA as a post-baccalaureate IRTA fellow in Dr. Rafael de Cabo’s Laboratory of Experimental Gerontology in Baltimore. Wahl works on several projects involving memory and cognition.

Swimming the English Channel was more than a cool way to spend summer vacation. More than 5 million Americans are living with Alzheimer’s disease (AD), which has touched the Wahl family directly. Devin wanted to help.

“I can clearly remember my Grandpa Jerry, how he deteriorated [from AD],” Wahl says. “He went, within a couple of years, from not remembering a phone number to not remembering his daughter’s name. He would be flipping through photo albums and crying.”

His grandfather passed away. Now a beloved uncle, who also suffers from AD, is “deteriorating really quickly,” Wahl says. The goal of the Channel swim was, in large part, to honor his Uncle Konrad.

Devin, Danielle and Dustin’s dream was to be the first sibling trio to swim the English Channel. Along with 2 other siblings, 5 in all, they grew up in Colorado Springs, Colo. Both parents had been endurance athletes in their prime. Thus genetically endowed, Devin has competed in two Ironman triathlons, both with his father. Both his father, a dentist, and his mother, a high school teacher, encourage their children’s athleticism and support their work on Alzheimer’s awareness.

“For me it took a year of planning and fundraising,” Wahl says. He sent out countless letters and emails, pumped up his social media and designed a web site called “Wahl Channel Crossing: Three Siblings, One Channel: An Alzheimer’s Awareness Project.”

De Cabo and his laboratory colleagues were extremely supportive of the Channel project, Wahl says; still, postbacs are expected to work extremely hard.

“I’ve been a swimmer all my life,” he says. “For the last year, every day I got up at 4:45, swam from 5:30 to 7:30, got to the lab and worked until 6. Then I would swim and lift weights for 2 hours—I



had a coach for weight training.”

To acclimate his body, each evening he would sit in an ice bath for 40 minutes. The water in the English Channel ranges from 55 to 65 degrees during summer months. No wetsuits allowed—only a Speedo, cap and goggles.

“My sister swam the Channel last year,” Devin adds, “so she gave me advice.”

Danielle now holds the record for the fastest American to swim the English Channel in 2013. Since 1875, which marks the first successful Channel swim, the success rate has varied dramatically, depending on conditions.

“We each had a fishing boat with a GPS,” says Wahl. “The captains do this for a living: They calculate by current, weather, swimming speed... You swim alongside the boat, although you’re not allowed to touch it. They feed you from a pole, a basket with food and drink; I ate every 45 minutes, 10 to 15 seconds each time. Then I had the captain screaming at me to keep going.”

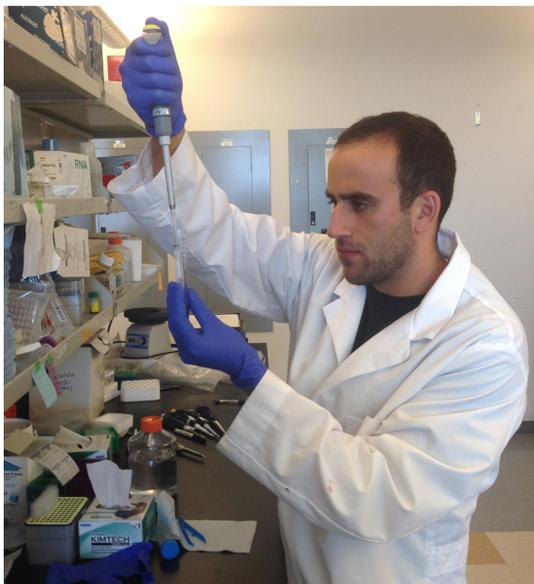
It was much harder than he thought it would be. The jellyfish were horrendous—he was stung 8 times, 3 times in the face—and the currents were fierce.

“If you stop to rest 1 minute, you lose 5 minutes,” Devin says. “After 7 hours, I was hallucinating a little bit. I thought I saw my Uncle Konrad on the boat. Eight hours in, I almost lost consciousness. But I kept thinking, Why was I doing this? For Alzheimer’s. I’m passionate about it.”

### Right:

*Dustin, Danielle and Devin Wahl: Their goal was to be the first sibling trio to swim the English Channel.*

PHOTOS: MICHAEL WAHL,  
MICHAEL PETR



*Wahl works on projects involving memory and cognition.*

The project has raised more than \$17,000 so far. All money goes to the Alzheimer's Association.

People of his own generation, Wahl says, may consider AD a normal part of aging. "But it is a disease with a biological basis," he explains, "in which you lose your memory and your sense of identity."

When he talks about swimming, Wahl shows the competitive edge of a young athlete. But when he talks about science, he envisions a cultural shift.

"Science can be competitive," he says. "It can also be compassion and camaraderie. So let me share my results. Talk to people, if you see they're having trouble, help them, be friendly. If you have a talent outside the lab, then use it. Some people have a talent for making very complex things very simple. Go and educate children, take your passions outside the lab to make outreach even better."

He plans to spend another 8 or 9 months at NIA, finish his fellowship and then apply to graduate school. His goal: to be a professor.

Meanwhile, watch for Wahl and NIA Baltimore's "A Team" in the upcoming NIH Institute Relay; last October they placed first.

"In the past," he says, "science has always been about publications and what you do in the lab. That is important, but we also have an obligation to do other things. My motivation was compassion for the millions of people who have Alzheimer's disease. Trying to make a change outside the lab. Sometimes you have to do something big to make that change."

For more information about the Wahls' Alzheimer's awareness project, visit <http://wahlchannelcrossing.org>.

## NINR Director's Lecturer Focuses On Change

Dr. Barbara Drew clearly identifies with NINR's mission of building the scientific foundation for clinical practice. A professor of physiological nursing and clinical professor of medicine in cardiology at the University of California, San Francisco, she began her recent NINR Director's Lecture by asking: "How do you judge whether a program of clinical research is successful?" Her answer: clinical research is successful if it changes clinical practice. In her presentation, "Electrocardiographic Monitoring: Two Decades of Discovery," Drew shared several examples of how her NINR-supported work has changed clinical practice related to cardiac monitoring techniques over the past 20 years.



*Dr. Barbara Drew of the University of California, San Francisco*

PHOTO: ERNIE BRANSON

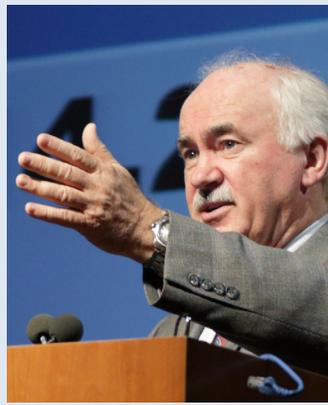
"Dr. Drew is a real pioneer in the area of electrocardiography," said NINR director Dr. Patricia Grady. "Her work has resulted in the modification of the way we approach clinical monitoring, ECGs and the monitors themselves and how these results are interpreted."

In one of her studies, Drew did a retrospective analysis of Holter monitor data after the untimely death of a young man who had received cardiac monitoring during his hospital stay. The analysis showed unstable ST segments in the overnight hours, indicating an acute coronary syndrome that could lead to acute myocardial infarction. No one saw these changes on the monitors in the ICU because they weren't using the ST-segment monitoring function, even though that feature was available. As a result of Drew's findings, ST-segment monitoring is now the default setting for the monitors in the cardiac care units where she works.

A subsequent study that Drew conducted, the NINR-funded ST SMART study, was a "pre-hospital" ECG program where data for cardiac patients was automatically transmitted from the ambulance to the emergency department using cell phone transmission while patients were en route to the hospital. This new method of communicating ECG monitoring data made a huge difference. In the first month, one study subject showed a "door to balloon" [treatment] time of 46 minutes on a Sunday, compared to a pre-study average of 105 minutes. Six years later, the county that was involved in the research still maintains a pre-hospital ECG program.

In addition to influencing clinical practice, Drew's research has shaped technological innovation. Her work has influenced the development of commercial cardiac monitors, including the introduction of multi-lead ECG monitoring and QT interval monitoring and strategies to reduce clinical alarm fatigue.

Drew describes alarm fatigue as a "current patient safety crisis." In an analysis of patient alarm data, she found an average of 187 audible alarms per bed, per day in the adult intensive care units where she conducted her research. A large percentage of alarms were false positives. This contributes to alarm fatigue causing clinicians to ignore the alarms, which could result in patient death. Drew identified the need for nurse scientists to study this problem and how to reduce the number of false alarms, through improved algorithms and technology and a change in practice. She noted the importance of engaging interdisciplinary teams for this work, saying, "We have a wonderful group of engineer scientists, computer scientists, math scientists and nurse scientists working on the problem of alarm fatigue."



## CANCER PREVENTION

CONTINUED FROM PAGE 1

**Above, from l:** Greeting Pierce (c) in Masur Auditorium are NCI Cancer Prevention Fellowship Program staff (from l) Tamika McKay, fellowship program director Dr. David Nelson, Study Auguste and Katherine Ross.

Pierce says, “If it’s not fun, then [study participants are] not going to do it. They’re going to drop out of it...In behavior change, unless the person is prepared to do something themselves, the chances that you can make a difference to their behavior are much, much smaller. You’ve got to have evidence that they’re willing to do something.”

**Below:** Ross presents a framed event poster to Pierce.

PHOTOS: BILL BRANSON



approach the Women’s Healthy Eating & Living (WHEL) study—which he led in the late 1990s—from a different angle. WHEL enrolled more than 3,000 women who had been diagnosed recently with early stage breast cancer. Participants were divided into a control group and an intervention group. Lay telephone coaches then advised one group to eat more vegetables, fruits and fiber and less fat, in order to determine whether such a plant-based dietary pattern might prevent recurrence of breast cancer. Researchers followed the women a minimum of 6 years, “documenting significant movement to a plant-based dietary pattern with validation of vegetables and fruit increases with plasma carotenoid concentrations,” according to Pierce.

Ultimately, WHEL concluded the diet did not affect breast cancer prognosis, but the study had been remarkably successful at something else: helping women change their eating patterns.

So “what are the components of an effective intervention” for behavior modification? asked Pierce, who before WHEL had written extensively in the early 1990s on tobacco control programs in California and how they could effectively reduce smoking.

To determine specifically what works to help change behavior, Pierce said he looked back much farther in history. He took cues from William James, “who is sometimes called the father of American psychology.”

In his 1890 treatise on habits, James observed that successful motivation requires abrupt change and strong, immediately enacted resolve. Most evident, however, was that lasting change comes first from within the individual.

James wrote that people have to arrange their environment to reinforce their motive, put themselves in situations that encourage the new way, make a public pledge to enhance their resolve and not accept any exceptions until the new behavior is securely rooted.

“How do we achieve a long-term change in habitualized behavior? Because that’s really what we’re

talking about with middle-age women who have many, many years practice of their current eating pattern,” Pierce said.

The study used a client-centered counseling approach that “emphasizes the importance of all decisions for change being made by the participants themselves. Coaches can assist in that effort but we can’t tell them what to do.”

WHEL incorporated the James observations in four phases: Build motivation, help implement self-regulatory mechanisms, help consolidate change into everyday life and help prevent relapse. At an initial meeting with study participants, a nutritionist presented the scientific evidence for adopting a diet with more fruits/vegetables, described the perceived risks and benefits and reviewed social norms and environmental influences. Slide shows and food demonstrations helped illustrate the targets and goals of the study.

An explicit goal was that participants leave the motivation sessions “convinced that the diet could influence cancer recurrence and enthusiastic about trying the new eating pattern.”

Pierce said researchers were careful to choose enthusiastic nutritionists to present the slide shows. In addition, within 2 weeks of the info session, lay coaches made follow-up phone calls to the women. These calls emphasized participant responsibility and outlined the role of the coach as well as the participant’s strategy and that of any supporting cast members in the participant’s environment.

“The concept is, this study’s got to be fun,” Pierce stressed. “If it’s not fun, then they’re not going to do it. They’re going to drop out of it...In behavior change, unless [people are] prepared to do something themselves, the chances that you can make a difference to their behavior are much, much smaller. You’ve got to have evidence that they’re willing to do something.”

After each phase, researchers evaluated both the group contacted by coaches and the control group. Pierce said the intervention group had already begun to change their eating patterns significantly before the behavior change coaching officially began. Already the behavior-change-via-coach model was proving effective.

The first phase of behavior change coaching was termed “exploring maximal change.” In this phase, WHEL coaches helped participants set goals, monitored participants’ performance for them and helped the women judge their own performance, encouraging the use of self-rewards. At the end of this phase—6 weeks into the study—participants were consuming the plant-based

dietary pattern of 5 daily servings of vegetables, 3 fruits, 30 grams of fiber and 20 percent energy from fat.

“[Participants] need to take ownership and set their own goals,” Pierce pointed out. “Goals should be proximal and short term—what can they do in a day, what can they do in a week, not what they can do over a year...The problem that people have doing this on their own is that they’re overambitious. And that jeopardizes the change attempt. The work of a coach here is to make sure [goals are] challenging but achievable.”

After the first 6 months, WHEL data showed a remarkable nearly 80 percent increase in veggie intake by participants who had to change their behavior the most—those whose baseline vegetable consumption was the lowest at the start of the study. After 6 years, those same women were maintaining about a 55 percent increase in eating vegetables. They had successfully incorporated the new diet into their lifestyle.

For future studies, Pierce said, researchers are considering ways technology—smartphone apps or increasingly popular sensor devices, for example—might help with long-term behavior change, particularly with self-monitoring during the phase when participants need to consolidate changes made in the first 6 weeks into their lifestyle.

In total, each participant received 30 calls at \$50 per call. “Fifteen hundred dollars is really not a lot for an intervention,” Pierce noted.

Throughout all four phases, he said, it was clear that study participants themselves were their own best motivators. Coaches provided a sounding board for coping strategies and recipe ideas, helped women keep track of details and kept participants from judging themselves too harshly—or quitting—whenever short-term goals were not met.

“It’s really not social support we’re giving them,” Pierce explained, but a measure of accountability. “They will never change just because they’re getting coached...but [intervention calls] give them a way to talk about the diet and what they’re doing that’s non-judgmental and doesn’t [otherwise] affect them in their everyday life.”

Sponsored by NCI’s Division of Cancer Prevention’s Cancer Prevention Fellowship Program, Pierce’s full lecture can be viewed online at <http://videocast.nih.gov/summary.asp?Live=14358&bhcp=1>. 

## letters

**Dear Editor,**

I agree with Dr. Matthew Nock’s thoughts [Aug. 1 *NIH Record*, “New Studies May Help Us Understand, Predict Suicidal Thoughts, Behavior”] on suicidal tendencies, “people tend to deny or contain thoughts of suicide.” With that said, why do researchers continue to survey Americans about suicidal thoughts? The data will always be a vague estimate.

It’s not possible to quantify what’s going on inside the mind of a person suffering from personal distress—and that’s why “suicide risk is higher for those who are younger [teenagers, coming of age], unmarried [looking for love], or have mental disorders [internal struggles that are sometimes debilitating].” Current research is geared toward developing new cognitive tests to acquire suicidal statistics. But are new cognitive tests what Americans need? Clinical mental health researchers should invest their time developing cognition tasks that encourage suicidal patients to love [themselves]. Without self-love, it’s almost impossible to kickstart one’s thoughts positively.

Americans want to feel appreciated, respected and feel loved by their family and friends daily. When that recipe is cooking on the stove, the likelihood of someone thinking about suicide or committing suicide will naturally decrease. Predicting suicidal thoughts with cognitive testing may be essential for mental health professionals. However, new testing won’t keep severely ill patients from retiring to an early grave.

**Kristine Evers, medical writer-editor**  
*Laboratory of Diagnostic Radiology Research, CC*

### Drive-In Movies Draw Crowds

*The 18<sup>th</sup> annual Comcast Outdoor Film Festival benefitting the NIH Children’s Charities took place Aug. 15-17 in the parking lot of the MCPS Board of Education at 850 Hungerford Dr. in Rockville. The Lego Movie on Friday was the most popular night as the festival drew more than 10,000 attendees.*

*More than 100 pounds of aluminum cans and plastic bottles were recycled at the “green” event. Funds raised for the NIH Charities through sponsorships and vending amounted to \$6,400, which organizers say is a significant increase from 2013. Although many watched from their cars, the group above found it more comfortable to come down front, spread out and relax.*





## AFRICAN LEADERS

CONTINUED FROM PAGE 1

### *Above, from l:*

*NIH director Dr. Francis Collins (r), FIC director Dr. Roger Glass (l) and NHLBI director Dr. Gary Gibbons (second from l) welcomed Tanzanian President Jakaya Kikwete (c) and his delegation to campus for discussions about U.S.-African research partnerships.*

*NIAID director Dr. Anthony Fauci (r) discussed vaccine development and other ongoing infectious disease research with African leaders.*

PHOTOS: BILL BRANSON

NIH director Dr. Francis Collins participated in one of the sessions, titled “Investing in Health: Investing in Africa’s Future.” HHS Secretary Sylvia Burwell opened the program noting “Africa is on the rise” and that public health is the anchor of economic health and individual well-being, in Africa and elsewhere. During the 90-minute conversation, participants discussed global health security, ways to improve HIV/AIDS prevention and treatment and enhance maternal and child health. Collins led the portion devoted to examining how biomedical research can accelerate treatment advances.

African nations should strengthen training opportunities for their scientists and develop stable career paths to lessen the “brain drain” from their countries, Collins urged. He also encouraged leaders to consider their nation’s long-term needs for the scientific expertise required to conduct research on critical health issues to protect their populations from health threats.

Before and after the official summit, Collins hosted a number of African leaders and delegations at the NIH campus for discussions with the agency’s top scientists and tours of the Clinical Center. Representatives from the Republic of the Congo, Kenya, Mali, Tanzania and Zambia took part in conversations on how best to collaborate to improve health across Africa.

“Investing in health is not only the right thing to do, to reduce suffering from disease, it also results in economic returns,” Collins told his visitors. NIH currently supports research and training across the African continent through about 1,500 grants, representing a significant portion of its international activities. Since Africa is home to 7 of the world’s 10 most rapidly growing economies, “this seems like a great opportunity to talk about the potential to go even further in making investments in biomedical research,” Collins said. Tanzanian President Jakaya Kikwete agreed that investing in medical research is a high priority. “We’re all thinking about the importance of research in my country,” he said. Partnerships that help build capacity, such as with NIH, “are crucial,” he added.

Infectious disease research advances—including an update on Ebola vaccine research—were presented by NIAID director Dr. Anthony Fauci.

“Obviously, we are concerned about Ebola, and it is a grave situation with malaria and HIV as well,” said Congolese President Denis Sassou Nguesso. “We have a lot of challenges and need partners such as you.”

The group also agreed there is an urgent need to address the most rapidly growing health problems in Africa, including heart disease, diabetes, cancer and other noncommunicable diseases (NCDs).

In Kenya, cancer is now the second biggest killer, according to its Health Secretary James Macharia. New annual diagnoses number 70,000, and other NCDs are on the rise, “but we don’t have the capacity to treat these diseases,” he said. Kenya has only 12 oncologists and a population of 43 million. Several other leaders reported similar shortcomings in their countries and mentioned the high cost of sending patients to South Africa or India for treatment.

Collins assured the group that NIH is committed to helping them make the shift from a strong focus on infectious diseases to NCDs. Other senior NIH officials suggested promising research and training opportunities. NHLBI director Dr. Gary Gibbons said genomics studies in Africa are important not only to local populations but also to African Americans, who can share genetic variations that cause illnesses such as sickle cell disease.

Reducing mother-to-child transmission of HIV and improving newborn care are two ways research is lowering child mortality in Africa, said NICHD director Dr. Alan Guttmacher. NCI deputy director Dr. Douglas Lowy cited examples of successful collaborations, such as development of Zambia’s acetic acid screening for cervical cancer, but said research is needed to develop earlier screening methods and strengthen data collection. Finally, African scientists can benefit from training and mentorship through the NIH Medical Research Scholars Program, said CC director Dr. John Gallin.

Investments must also be made to ensure well-trained investigators are retained in their home countries, observed FIC director Dr. Roger Glass. “Young investigators are an important resource that needs to be cultivated so that they grow into scientific leaders who can identify and advance the local research agenda.”

For more information, visit [www.whitehouse.gov/us-africa-leaders-summit](http://www.whitehouse.gov/us-africa-leaders-summit). 

## digest

**Scientists Plug into a Learning Brain**

Learning is easier when it only requires nerve cells to rearrange existing patterns of activity than when the nerve cells have to generate new patterns, a study of monkeys has found. The scientists explored the brain's capacity to learn through recordings of electrical activity of brain cell networks. NICHD partly funded the study.

"We looked into the brain and may have seen why it's so hard to think outside the box," said Dr. Aaron Batista of the University of Pittsburgh, a senior author of the study published in *Nature*, with Dr. Byron Yu at Carnegie Mellon University.

The human brain contains nearly 86 billion neurons, which communicate through intricate networks of connections. Understanding how they work together during learning can be challenging. Batista and his colleagues combined two innovative technologies, brain-computer interfaces and machine learning, to study patterns of activity among neurons in monkey brains as the animals learned to use their thoughts to move a computer cursor.

"This is a fundamental advance in understanding the neurobiological patterns that underlie the learning process," said Dr. Theresa Cruz, a program official at the National Center for Medical Rehabilitation Research at NICHD. "The findings may eventually lead to new treatments for stroke as well as other neurological disorders."

**Scientists Looking Across Human, Fly and Worm Genomes Find Shared Biology**

Researchers analyzing human, fly and worm genomes have found that these species have a number of key genomic processes in common, reflecting their shared ancestry. The findings, which appeared Aug. 28 in the journal *Nature*, offer insights into embryonic development, gene regulation and other biological processes vital to understanding human biology and disease.

The studies highlight the data generated by the modENCODE Project and the ENCODE Project, both supported by the National Human Genome Research Institute. Integrating data from the three species, the model organism ENCYclopedia Of DNA Elements (modENCODE) Consortium studied how gene expression patterns and regulatory proteins

that help determine cell fate often share common features. Investigators also detailed the similar ways in which the three species use protein packaging to compact DNA into the cell nucleus and to regulate genome function by controlling access to DNA.

Launched in 2007, the goal of modENCODE is to create a comprehensive catalog of functional elements in the fruit fly and roundworm genomes for use by the research community. Such elements include genes that code for proteins, non-protein-coding genes and regulatory elements that control gene expression. The current work builds on initial catalogs published in 2010. The modENCODE projects complement the work being done by the ENCYclopedia Of DNA Elements (ENCODE) Project, which is building a comprehensive catalog of functional elements in the human and mouse genomes.

**NIH Launches Human Safety Study of Ebola Vaccine Candidate**

Initial human testing of an investigational vaccine to prevent Ebola virus disease began this month at the National Institute of Allergy and Infectious Diseases.

The early stage trial began initial human testing of a vaccine co-developed by NIAID and GlaxoSmithKline (GSK) and will evaluate the experimental vaccine's safety and ability to generate an immune system response in healthy adults. Testing takes place at the Clinical Center.

The study is the first of several phase 1 clinical trials that will examine the investigational NIAID/GSK Ebola vaccine and an experimental Ebola vaccine developed by the Public Health Agency of Canada and licensed to NewLink Genetics Corp. The others are to launch in the fall. These trials are conducted in healthy adults who are not infected with Ebola virus to determine if the vaccine is safe and induces an adequate immune response.

In parallel, NIH has partnered with a British-based international consortium that includes the Wellcome Trust and Britain's Medical Research Council and Department for International Development to test the NIAID/GSK vaccine candidate among healthy volunteers in the United Kingdom and in the West African countries of Gambia (after approval from relevant authorities) and Mali.

Additionally, the Centers for Disease Control and Prevention has initiated discussions with Ministry of Health officials in Nigeria about the prospects for conducting a phase 1 safety study of the vaccine among healthy adults in that country.

The pace of human safety testing for experimental Ebola vaccines has been expedited in response to the ongoing Ebola virus outbreak in West Africa. According to the World Health Organization, by Sept. 5 nearly 2,000 suspected and confirmed deaths from Ebola infection had been reported in Guinea, Liberia, Nigeria and Sierra Leone; the outbreak was first reported in March 2014.

"There is an urgent need for a protective Ebola vaccine and it is important to establish that a vaccine is safe and spurs the immune system to react in a way necessary to protect against infection," said NIAID director Dr. Anthony Fauci.



# milestones

## NHGRI's Guyer Retires, Played Role in Human Genome Project

By Steve Benowitz

After 28 years at NIH, Dr. Mark Guyer retired from federal service on June 30. He looks back on a career that saw him play a critical role in the Human Genome Project (HGP) and countless other genomics programs at what later became the National Center for Human Genome Research and, ultimately, the National Human Genome Research Institute.

Guyer earned a Ph.D. in bacteriology and immunology from the University of California, Berkeley, in 1974, and later joined a Maryland biotech start-up “where every decision seemed life and death, and we had to do everything ourselves.” He came to NIH in 1986, but eventually left the National Institute of General Medical Sciences, where he was a program director and staff liaison to the HGP, to join the newly formed Office of Human Genome Research.

As one of the first employees hired at OHGR after Dr. Elke Jordan became director in 1988, he helped shape the new and evolving organization. “Mark came with a great understanding and knowledge of the latest technologies,” Jordan said. “He became the go-to person for people to discuss issues with grants and bounce ideas off of—he was the glue that held the program together.”

“We all played many roles—we had to create the HGP infrastructure ourselves,” said Guyer. “When we became a center, we hired people for grants management, research and running the centers—the project became more of a reality. Many doubted a project of this size could be done and we had to constantly respond to criticisms.”

Over the years, Guyer has worn many hats. At the HGP—among his responsibilities—he helped write a series of 5-year strategic plans for the project between 1990 and 2003, and he was involved in the development of the “Bermuda Principles” in 1996, which laid the foundation for widespread data sharing among scientists. His meeting report was published in *Genome Research*.

“Mark was indispensable to so many aspects of the Human Genome Project,” said NIH director Dr. Francis Collins. “He was there at the beginning and his leadership helped usher the HGP and a nascent genomics field through many growing pains to ultimate success.”

In 2002, Guyer was named director of the NHGRI Division of Extramural Research, now known as the Extramural Research Program. At NHGRI, he said, others managed programs and grants while he played more of a consultant role. He had a hand in helping establish programs such as the 1,000 Genomes project, the Large-Scale Genome Sequencing and Analysis Centers, the ethical, legal and social implications (ELSI) research program, the Cancer Genome Atlas project and others.

“Mark has brought an incredible wealth of knowledge and experience to his many different roles at NHGRI,” said NHGRI director Dr. Eric Green, who appointed Guyer deputy director of the institute in 2011. “He’s had an impact on nearly every major program at the institute, from the development of the ELSI program and genome sequencing centers to, most recently, the Human Heredity and Health in Africa program. His counsel will be greatly missed.”

Guyer is most proud of “whatever contribution I have made in changing the culture of science with respect to the value of team science,” he said. He also takes pride in what NHGRI has contributed to many genomics-related fields since the HGP ended in 2003.

Guyer isn’t retiring completely; he is planning to return part-time to NIH and NHGRI to work on the Human Heredity and Health in Africa program (which aims to build a genomics research infrastructure in Africa) and another program he helped nurture, the Big Data to Knowledge initiative. The latter is developing new approaches for using large datasets in biomedical research.

## Schneider Retires From Center for Scientific Review

By Paula Whitacre

Most workdays for 24 years, Dr. Donald Schneider commuted by bicycle from his home in Garrett Park Estates in Kensington to the Center for Scientific Review, tacking on an extra loop through Rock Creek Park to up his mileage to 10,000 miles annually.

“Going the proverbial extra mile characterized his career at CSR,” said CSR director Dr. Richard Nakamura. “Everyone from the top to bottom of CSR and many parts of NIH know him for his great commitment to NIH and his generous spirit.”

Schneider was a scientific review officer, chief of



After 28 years at NIH, Dr. Mark Guyer recently retired from federal service.



an integrated review group and, for 10 years, director of the Division of Basic and Integrative Biological Sciences. In 2011, at age 70, he stepped away from this role to become a senior advisor to the CSR director. Among other accomplishments, Schneider helped create an arbitration board to deal with complaints and other concerns from the scientific community. “The cases are inherently interesting, each one like a puzzle to solve,” he observed.

“His ability to work both on what is important for even-handed review and what’s important for the long-run success of science has always been Don’s wise vision,” said Nakamura. “He has been invaluable in helping me acclimate to being CSR’s director.”

“One quality unique to Don is—no matter who you are, your problem, how busy he is—you get his full, absolute attention,” said Dr. Noni Byrnes, who succeeded Schneider as division director. In fact, she said, he has a knack of making a person feel better.

Schneider grew up in western Michigan and attended Kalamazoo College. Planning on a nature-related job in-state, he credits a biology professor for introducing him to the possibilities of graduate work and research. She recommended he go to Michigan State, where he earned his Ph.D. in biochemistry under Dr. Willis Wood. From there, he held postdoctoral appointments at Cornell University under Dr. Efraim Racker and at Rockefeller University under Dr. Christian de Duve.

“In addition to working with eminent scientists, I learned how people who do good science have different styles of running a lab,” Schneider said. He applied that understanding to his own labs at the University of Massachusetts and, for 14 years, as a faculty member at Dartmouth Medical School. He discovered a vacuolar membrane protein pump in lysosomes, building on an idea he gleaned from Racker’s work with mitochondria.

Schneider and Dr. Jean Chin married in 1979. After several years working in different states (he in New Hampshire, she in Massachusetts), they applied to NIH. Chin is a program officer in NIGMS.

Schneider hopes to spend more time in Michigan and travel, do some writing and, of course, keep biking in retirement. He and Chin ride a tandem bicycle. “Tandems are great for us because we travel to new places, get exercise and socialize with fellow riders,” he said. “Plus, she clips the directions on my back and tells me what to do!”



## Long-Time NIH'er Hartman Mourned

By Harriet Greenwald

Mary Ruth Calley Hartman, 92, a longtime NIH employee, died May 9 at Wilson Health Care Center, Gaithersburg, where she had been a resident since November 2013. For the past year and half she had been in failing health. Her career at NIH spanned 26 years.

In 1952, she began her government service as a member of the U.S. Civil Service Board of Examiners. In 1953, she joined the National Cancer Institute, where she was a secretary to the director, Dr. John Heller. She then moved to the National Institute of Neurological Diseases and Blindness

(now NINDS). In 1963, she became assistant chief of the special events section at the Clinical Center, where she arranged guided tours for visitors, handled correspondence, set up meetings and lectures and distributed NIH publications. She also arranged for ushers, hostesses and refreshments at events in Masur Auditorium—her charges were affectionately known as “Calley [rhymes with valley] girls.”

In 1969, she was appointed chief of the special events section in the CC’s Office of Clinical Reports and Inquiries. She was also responsible for preparing programs, itineraries and logistics for visitors to NIH as well as the CC. She also arranged for official NIH lectures as well as other professional meetings. Among the many visitors she greeted were President Gerald Ford, First Lady Rosalynn Carter, Sen. Edward Kennedy, Mrs. James Callaghan (wife of the Prime Minister, United Kingdom), Mrs. Anwar Sadat (wife of the Egyptian president) and Prince and Princess Hitachi of Japan. She retired on Aug. 23, 1978.

Hartman loved working at NIH, was devoted to her job and was meticulous in its execution. While at the Clinical Center, she received the NIH Director’s Award and the Public Health Service Commendation.

After retiring, she traveled around the U.S., often via tours sponsored by the Smithsonian Institution. She also worked part-time for the Foundation for Advanced Education in the Sciences, helping with administrative work dealing with membership, the graduate school and the insurance enrollment. In 1989, she joined the office of the NIH Alumni Association (NIHAA) as assistant to the executive director; she was in charge of membership records, files and office activities. In 2006, she retired when the association ended its 18-year run. She received the NIHAA Award for long and faithful service in the office. She was also during this time an active member of the Ladies Auxiliary of the Fleet Reserve Association, attending conventions and meetings.

Hartman was preceded in death by her first husband, Samuel Calley, a mechanical engineer for the Office of Engineering Services, DRS; second husband Paul Hartman; and her companion for 25 years, Wilho “Tommy” Tommila, who died in February 2014. 🕯

## Research Festival Set, Sept. 22-24

The 2014 NIH Research Festival, the annual showcase of the NIH Intramural Research Program, will be held Sept. 22-24. This year's theme is "The Era of the Brain." The festival kicks off with an opening plenary session at 10 a.m. on Monday, Sept. 22 in Masur Auditorium, Bldg. 10. The plenary session will include remarks by NIH director Dr. Francis Collins, followed by the FARE awards ceremony and scientific talks by Drs. Antonello Bonci (NIDA) and Mark Hallett (NINDS).

This year's festival will be held entirely in Bldg. 10. Concurrent symposia and poster sessions will be held in Lipsett Amphitheater and the FAES Academic Center. In addition to the more than 100 talks and 300 posters, the festival will feature a special institute directors and scientific directors poster session and cooking contest on Monday afternoon. Come by and see what your directors have been up to in their labs and try some of their tasty treats.

Other highlights include NIH history tours and Clinical Center tours on Tuesday, Sept. 23 and Wednesday, Sept. 24; NIH Green Labs Fair on Monday, Sept. 22; and a food festival lunch for a nominal fee on Tuesday, Sept. 23. The Technical Sales Association vendor tent show will be on Sept. 23 and 24 in parking lot 10H.

No festival program will be printed this year. Visit <http://researchfestival.nih.gov> for the full schedule and download options. Posters and yard signs with QR codes will direct your mobile devices to the schedule.

## NIEHS Fellow Cruz-Topete Earns FLARE Internship

Dr. Diana Cruz-Topete was one of seven young scientists to receive a 2014 Future Leaders Advancing Research in Endocrinology (FLARE) Internship from the Endocrine Society. Cruz-Topete



PHOTO: STEVE MCCAWE

is a research fellow in the NIEHS molecular endocrinology group and studies how glucocorticoids regulate cardiac function under normal and stressful conditions. She accepted the award at a recent joint meeting of the International Society of Endocrinology and the Endocrine Society in Chicago.

The internship gives her the opportunity to encourage young people from underrepresented groups to continue their paths in science and gives her a chance to talk about her research and why endocrinology is so exciting.

Cruz-Topete's mentor, Dr. John Cidlowski, head of the NIEHS Laboratory of Signal Transduction, encouraged her to apply for the FLARE internship. He believes she'll make a great mentor one day. "Diana thoroughly loves doing research and that drive will inspire her students," Cidlowski said.

The FLARE program, which launched in August 2012, provides training and professional development opportunities for senior graduate students, postdocs and clinical research fellows from underrepresented groups doing hormone health research. The FLARE awards are supported by the National Institute of Diabetes and Digestive and Kidney Diseases.

Cruz-Topete is a native of Vera Cruz, Mexico, and has been with NIEHS since 2012. —Robin Arnette



## Director Entertains NIMHD Crowd

NIH director Dr. Francis Collins offered a song and brief remarks at a 2-day 2015-2016 scientific operations planning session of the National Institute on Minority Health and Health Disparities. Held recently in Bldg. 60, the meeting was convened by NIMHD acting director Dr. Yvonne Maddox, who also asked Collins to bring along his guitar. PHOTO: ERNIE BRANSON