

nih record



ABOVE • Operation Smile corrects facial defects in children; an NIAAA nurse helps out. See story on p. 12.

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Building a 'Community of Colleagues'

NIH Steering Committee Reaches Milestone as Governance Model

By Carla Garnett

It was late 2002 and NIH's historic budget doubling was set to end in 2003. Looking ahead, new NIH director Dr. Elias Zerhouni foresaw a time when the agency's expanded size and complexity could become unwieldy—just when NIH would have to be agile.

"We needed to have more transparency and to share information so that decisions could be made more effectively as a group," he recalls. "We're such a large and complex organization. We have to develop more effective mechanisms of interactions and coordination across institutes. It's understandable, because NIH grew very fast. One of the things people don't realize is that if you double in size, the complexity of managing the organization doesn't just double—it quadruples, it grows exponentially. I think over the years NIH grew and grew and grew, but didn't look at its way of making decisions."

Taking into account his prior experience with such organizational issues, and after getting advice from several experts, Zerhouni proposed a slimmed-down model for

SEE STEERING COMMITTEE, PAGE 6



The English vs. The American Patient **Health Disparity Paper Spurs Debate**

By Sarah Schmelling

When *JAMA* published an article in May 2006 reporting that Americans in late middle age are "sicker" than their English counterparts, there was a swift, intense reaction.

"How could this be?" wrote a columnist in the *Washington Post*. "The British diet is terrible." And, "Forget vitamin D: The English rarely see the sun in a dank climate where the national dress is a raincoat."

But according to Dr. James Smith, a study coauthor and senior economist with the RAND Corp. who shared this quote in a recent presentation here, the findings are true. In fact, even as critics have posed potential issues with the report, further study has only made the case for the article stronger, Smith believes.

"We were convinced when we wrote it," he

SEE ENGLISH VS. AMERICANS, PAGE 4

A Brief Biography Of the Universe **Nobelist Mather Brings 'Big Bang' to NIH**

By Belle Waring



NIH may seem like its own universe, but there's another one out there with even bigger shoulders that are getting broader every second. Scientists say that the universe is expanding, but how do they know? How do they clock it?

The NIH Director's Cultural Lecture recently turned to NASA's Dr. John Mather to tell the story of the big bang and the discoveries that netted him (and co-recipient George Smoot of UC-Berkeley) the 2006 Nobel Prize in physics. In the space of an hour, "From the Big Bang to the Nobel Prize and on to the James Webb Space Telescope" covered the 13.7-billion-year history of the universe and how scientists are deciphering its secrets.

"This is something very shocking," he told a packed house in Masur Auditorium. "If you look in the mirror, you're seeing stuff that was

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briefs

Last Chance To Comment on BRAC Impact

The public comment period on the planned relocation of Walter Reed to the National Naval Medical Center ends on Wednesday, Jan. 28. NIH has closely followed this issue because of its impact on local traffic and services and has concluded that: NIH employees and patients will be adversely impacted by the BRAC move; NIH's ability to attract and retain a high-quality workforce will be affected; and NIH must take internal and external measures to mitigate the impact of BRAC, both short- and long-term. Comments can be submitted to the Navy via email at NNMCEIS@med.navy.mil or by fax at (301) 295-5020. Comments can also be mailed to BRAC Program Manager, Navy Medicine National Capital Area, 8901 Rockville Pike, Bethesda, MD 20889-5600.

FAES Bookstore Holds Sale

The Foundation Bookstore, located on the B1 level of Bldg. 10, is a place to find your next book. For a limited time, all fiction and nonfiction books currently in stock will be 20 percent off. The store stocks all textbooks for FAES classes for the spring semester. For more information, visit the store or call (301) 496-5272.

NIH-Duke Training in Clinical Research

Applications for the 2008-2009 NIH-Duke Training Program in Clinical Research are now available in the Clinical Center, Office of Clinical Research Training and Medical Education, Bldg. 10, Rm. B1L403.

The NIH-Duke program, implemented in 1998, is designed primarily for physicians and dentists who desire formal training in the quantitative and methodological principles of clinical research. The program is offered via videoconference at the CC. Academic credit earned by participating in this program may be applied toward satisfying the degree requirement for a master of health sciences in clinical research from Duke School of Medicine.

For more information about course work and tuition costs, visit <http://tprc.mc.duke.edu>. Email queries about the program may be addressed to tprc@mc.duke.edu. The deadline for applying is Mar. 1. Applicants who have been accepted into the program will be notified by July 1.

Science Fair Judges Needed

ScienceMONTGOMERY, the volunteer organization sponsoring Montgomery County, Md.'s annual junior-senior science fair, invites NIH staff to sign up to judge on Saturday, Mar. 15 between 8 a.m. and 5 p.m. at the Reckord Armory at the University of Maryland, College Park. For judging categories, other details and to sign up, visit www.Science-Montgomery.org. The fair presents the top projects of the county's middle and high school students.

DDM Management Seminars Continue

The second lecture in the Deputy Director for Management Seminar Series will take place on Thursday, Feb. 14 from 11 a.m. to noon in Masur Auditorium, Bldg. 10. A light reception will follow. Dr. Al Siebert will present "Resiliency Strengths for Managing Non-Stop Change." Siebert is internationally recognized for his research into the inner nature of highly resilient survivors. No pre-registration is required for the lecture. Seminars are open to all. Videocasting and sign language are provided for each event. For more information and the complete schedule for the series, visit www.ddmseries.od.nih.gov/ or call the Office of Management at (301) 496-3271.

NIH Library Offers Winter Classes

Enhance your information retrieval with a free class from the NIH Library. Quosa, EndNote, Reference Manager, Web of Science, PubMed and more are featured resources in the NIH Library winter class schedule. Register now for February and March hands-on training. For details on all classes, visit <http://nihlibrary.nih.gov/ResourceTraining/>.

Correction

A photo caption in the Jan. 11 issue of the *NIH Record* incorrectly listed Tom Quinn of NIAID as a participant in the opening of an International Center for Excellence in Research in India. The correct name for the caption on p. 4 of that issue is Tom Nutman.

Efforts Expand to Address Childhood Overweight Epidemic

Acting Surgeon General Steven Galson, NIH director Dr. Elias Zerhouni and other NIH leaders recently participated in community events at several children's museums to announce a new partnership between NIH's We Can! (Ways to Enhance Children's Activity and Nutrition) program and the Association of Children's Museums (ACM).

The partnership will help expand We Can!'s community-based efforts to address the epidemic of childhood overweight. In addition, three cities—Boston, Pittsburgh and Las Vegas—were designated as We Can! cities. NHLBI director Dr. Elizabeth Nabel, NHLBI deputy director Dr. Susan Shurin and NIDDK director Dr. Griffin Rodgers each participated in We Can! promotional events.

Simultaneous events were held in Boston; New York; Pittsburgh; Las Vegas and Carson City, Nev.; Memphis and Oak Ridge, Tenn.; and Rockford, Ill., to bring attention to the growing success and availability of We Can! and to demonstrate how communities are implementing it.

We Can!, a science-based national education program to help children ages 8-13 stay at a healthy weight, has been adopted by more than 500 community sites in 46 states. It is a trans-NIH collaboration led by NHLBI with NIDDK, NICHD and NCI combining their resources and activities. The program was launched in June 2005 by HHS Secretary Mike Leavitt.

"With over 40 partners, We Can! is making strides to bring a common message about the need for children to maintain a healthy weight through a variety of channels, including museums, community groups, corporations, health professionals and educators," said Galson at Boston Children's Museum.

"More than 12½ million American children and adolescents are overweight and are at increased risk for chronic conditions such as high blood pressure, high cholesterol, type 2 diabetes and asthma," Galson added. "Childhood obesity is among the most critical challenges that we—whether policy maker, scientist, public health professional or parent—face."

"We are meeting this crisis, as we must, with energy, imagination and the ongoing dedication of individuals, organizations—and great cities like Boston," noted Zerhouni. "Now more than ever, parents need sensible guidance to help their kids stay at a healthy weight. We Can! works by providing resources and programs



Children from Umana Middle School Academy present the Boston We Can! City sign to Mayor Thomas Menino during a press conference. Adults on hand included (from l) NIH director Dr. Elias Zerhouni; acting Surgeon General Steven Galson; Menino; NHLBI director Dr. Elizabeth Nabel; and Karen Donato, coordinator, NHLBI Obesity Education Initiative.

that offer practical, scientific advice that can show each of us—especially our children—how to live more healthfully in this modern world."

Galson and Zerhouni were joined by Nabel, ACM Executive Director Janet Rice Elman and 25 children from Umana Middle School Academy in East Boston. The students presented Mayor Thomas Menino with the official We Can! City sign to acknowledge his commitment to support intensive We Can! efforts throughout Boston.

NIDDK's Rodgers spoke to children and parents at the We Can! event hosted by the Children's Museum of Manhattan and introduced a healthy cooking demonstration by Chefs for Humanity.

At the Children's Museum of Pittsburgh, the University of Pittsburgh Medical Center (UPMC) Health Plan announced its commitment to implement We Can! programs throughout western Pennsylvania. The plan partnered with the museum, the city of Pittsburgh, Children's Hospital of Pittsburgh, Children's Community Pediatrics and H.J. Heinz Co. to host the event. Mayor Luke Raventahl declared a We Can! day in Pittsburgh and announced that Pittsburgh would become a We Can! City. NHLBI's Shurin described the impact of childhood obesity and the importance of teaching children how to adopt behaviors that can help them maintain a healthy weight.

At the 53rd annual meeting of the National Council of Negro Women (NCNW) held in Washington, D.C., NICHD deputy director Dr. Yvonne Maddox and NCNW chair and president emerita Dr. Dorothy Height announced a collaboration that includes using We Can! materials in NCNW chapters around the country. More than 40 NCNW leaders from around the U.S. participated in a We Can! training session held at the meeting.

"Our collaboration with the NCNW is another way we are building trust with community organizations," Maddox said. "Our collaboration is based on the science the NIH has supported over more than a decade. This program can help parents and children gain the knowledge and tools to help maintain a healthy weight."

For a list of We Can! community sites, cities, partners, resources and more information, visit <http://wecan.nhlbi.nih.gov>.

ENGLISH VS. AMERICANS

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said. “But I’m even more convinced now that what we’re talking about is something real... that in middle age, we Americans are sicker than middle-aged English people.”

He used the article as a takeoff point to discuss reactions to the study and to illuminate some reasons for the discrepancy.

For the article, the authors analyzed data from non-Hispanic, white residents of both countries ages 55 to 64, using two comparable health surveys funded by NIA: the U.S. Health and Retirement Survey and the English Longitudinal Study of Aging. They focused on chronic diseases represented in both surveys including diabetes, hypertension, heart disease, myocardial infarction, stroke, lung disease and cancer. And “lo and behold,” Smith said, “we are number one in all of these diseases by a very large amount.”

They paired this self-reported information with biomarker data, and again, “we were always in a bad state...compared with the English.” They also controlled for risk factors like smoking, drinking and obesity. Still, we came out worse.

Did the authors miss some critical factors in their comparison? Some people thought so. Smith said one frequent reaction concerned mortality. If we’re so much sicker, people asked, why is our life expectancy so similar? The reason, Smith argued, is that life expectancy is a cumulative measure and death rates are higher in England after age 65. This is intriguing, Smith said, but “there’s nothing about mortality rates that contradicts what we say.”

Another issue was how survey respondents measured their general health status, from excellent or very good to fair or poor. If you look at general health as a measure, Americans seem “in pretty good shape,” Smith said. Unfortunately, this is a poor health measure in an international context because the thresholds of what’s considered good health vary greatly from country to country; Americans tend to be optimistic on this subject. “Given the same objective description of someone’s health, Americans are far more likely to say a person’s in excellent or very good health than [people in] any industrialized country we have studied,” he said.

Some critics suggested that certain aspects of

English life—their love of tea, say—could make them healthier. But compared to the average rates in other European countries, whether looking at diabetes, cancer or lung disease, we have the same differential as we do with the English. “Fundamentally then, this seems to me to be an American issue and not something unique to any European country,” Smith said.

Others said the authors hadn’t sufficiently considered the impact of obesity. And though Americans have been in the obesity epidemic longer than the English, Smith explained, “even when we go back and look at our rates of obesity in the late 1970s, our diabetes rate was still higher.” While a critical problem, he said, obesity is “simply not enough to explain the difference.”

So what does explain it? The study authors don’t have final answers yet, but they are investigating a few possibilities.

One of the primary issues they’re considering is disease in childhood. Though this research focuses on people in late middle age, the results might reflect health issues that “happened a much longer time ago,” Smith said. Through early survey results, it appears that a strong connection exists between what happened in a person’s childhood and how a person views his or her current health. When data comes back from the English survey, he said, it might be that the corresponding numbers there are lower.

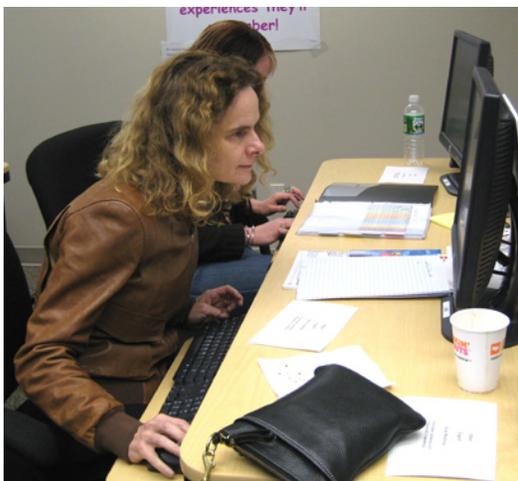
Perhaps even more intriguing are the “social determinants of health,” or the circumstances of where people live and work over their lifetimes. “We found less evidence that the actual workplace is much different in England and America,” Smith explained. “But we found outside of work to be much different, and that [Americans] may be more socially isolated, especially during the work years.” When survey respondents were asked to place themselves on a figural ladder to mark their position in society, the English placed themselves higher. Americans during work years report being lonelier than the English and a great deal of research shows that loneliness can affect health, Smith said. Americans are also less likely to report getting positive support from their spouses, while the English are less likely to report “negative interactions” with a spouse. This social isolation could have a great impact on our health.

As promising as these factors are, Smith said much research remains to be done. It is clear, however, that “the initial questions over whether this was true” no longer exist, Smith believes. “I think it’s really true” that Americans are sicker, he said. The question, still, is why. ●



Study author Smith (l) and Dr. Ronald Abeles, special assistant to the director of the Office of Behavioral and Social Sciences Research, greet guests before the lecture.

PHOTOS: MICHAEL SPENCER



NIDA director Dr. Nora Volkow participates in NIDA's recent Chat Day with youngsters.

Students Ask NIDA Scientists About Drugs, Addiction

Students are craving accurate information on drug abuse and addiction. That's the conclusion scientists from the National Institute on Drug Abuse drew from a recent online chat with high school and some middle school students. In all, there were more than 36,000 questions from schools in 49 states, as well as the District of Columbia, Puerto Rico, the Virgin Islands and Guam. At times, the questions came in as rapidly as 6,000 per hour.

NIDA partnered with Scholastic, a popular in-school publication service, to promote NIDA's Drug Facts Chat Day 2007 through school distribution lists. More than 40 scientists and science writers who specialize in addiction issues took turns throughout the day to answer questions as they were posted during a 10-hour period. NIDA director Dr. Nora Volkow herself answered more than 100 questions.

More than 10 percent of the questions focused on marijuana, another 10 percent on alcohol, and another 10 percent on smoking. More than 600 teens asked how they could get help for a friend and nearly 400 asked about the effects of using drugs or alcohol during pregnancy.

There were more than 100 questions on inhalants, including gasoline, permanent markers and hairspray. At least 50 teens asked about steroids and athletic performance. There were nearly 1,000 questions each on methamphetamine and cocaine, more than 300 on heroin and more than 200 on "shrooms" (mushrooms).

Despite recent surveys showing a consistently high rate of non-medical use of prescription drugs among older teens, there were fewer than 200 questions combined on Vicodin and OxyContin, the most commonly abused medications.

There were thousands of more general questions, from "What drugs are the worst for you?" to "Why do people take drugs?" Some asked "Does rehab work?" with references to recent

celebrity stints in drug treatment centers. More than 100 teens made references to their parents with questions like "How likely are you to start taking drugs if one of your parents uses drugs?"

A teachers' guide was posted at www.drugabuse.gov/chat/teacherguide.html to enhance the discussion, and teacher preparation, with lists of topics and potential questions as well as educational tools and resources.

Plans are already under way for Drug Facts Chat Day 2008, including increasing the capacity to answer more questions. In addition, plans are being made to stay connected to the schools that participated and to reach out to the classrooms that were not able to get their questions answered because of the overwhelming volume.

A transcript of the Chat Day conversation is posted online at www.drugabuse.gov/chat. 

APAO Honors Employee Achievement

The NIH Asian and Pacific Islander American Organization (APAO) recently honored two NIH employees with its Outstanding Achievement Award at its annual award ceremony and holiday luncheon. Award categories recognize APA NIH employees for significant scientific accomplishments in advancing biomedical research and management achievements for advancing NIH/IC EEO goals.

Awardees include Dr. Paul Liu for outstanding contributions to cancer research, signal transduction and developmental biology at NHGRI and Dr. Simon Liu of NLM for excellence in promoting diversity and providing support to APAO.

APAO also installed new officers for 2008: Lucie Chen of NLM, president; Dr. Dar-Ning Kung of NLM, vice president; Donna Wells of NEI, treasurer; JoAnne Wong of NIMH, executive secretary; and Ihsia Hu of NLM, co-executive secretary.

APAO conducts monthly meetings and encourages attendance by those interested in furthering its mission to support the efforts and programs of NIH that promote equality and fairness in the workplace. For more information about APAO, visit www.recgov.org/r&w/apao/index.htm or contact one of its officers.



Attending the recent awards ceremony and holiday luncheon were (from l) scientific achievement award recipient Dr. Paul Liu of NHGRI; APAO 2007 President Prahlad Mathur of OD; NIH director Dr. Elias Zerhouni; Dr. Hameed Khan of NICHD; OEODM Director Lawrence Self; management achievement award recipient Dr. Simon Liu of NLM; and new APAO President Lucie Chen of NLM.

STEERING COMMITTEE

CONTINUED FROM PAGE 1

governance—the steering committee. Now, some 6 years later, the SC is moving nimbly into its fifth year.

“Overall it’s been a great success,” says NIH deputy director Dr. Raynard Kington, *ex officio* SC member. “It was a natural step in the growth and maturation of a large organization. Governance is

deciding how complex decisions are made and who makes them. The goal of this committee structure was to allow a transparent, deliberative process in which there was input from diverse leadership of the agency for formulating policies on matters that affected the entire agency.”

Ten IC directors comprise the committee, in addition to chair Zer-

houni and Kington. Directors of the three largest institutes budget-wise—NCI, NIAID and NHLBI—are permanent members; the other slots rotate in staggered 3-year terms among the remaining ICs. Senior Office of the Director staff also participate, serving on topic-specific fact-finding SC work groups.

Less Is More

Inaugural committee member NIAMS director Dr. Stephen Katz, who is serving a fifth year on the committee at Zerhouni’s request following the initial “trial-run year” and a 3-year appointed term, remembers the pre-SC days.

“Decision-making and information-gathering have become more ordered processes during the last few years,” he says. “The steering committee makes recommendations to the director of NIH who also actively participates in discussions. Candor and debate are essential ingredients that lead to crystallization of the issues at hand. In the past, issues may have been debated at length at meetings, and then punted back to the same or other committees for further debate. Now, there is a clear understanding that issues brought to the [SC] have already been discussed at the relevant stakeholder group meetings—so options presented to the committee are for final discussion and adjudication. Thus, decision-making has been enhanced, accelerated and expedited.”

Zerhouni agrees that having the SC helps put

matters to rest more quickly. “My biggest contribution is that I believe once the decision is reached,” he says, “we have to stick to it. There is empowerment now. There’s no second-guessing afterwards, whether it’s difficult or politically unpopular—whatever—we’ll stick to it.”

NIDCR director Dr. Lawrence Tabak, whose SC rotation recently ended after 4½ years, marvels at the levels of expertise. “The approach has also engaged many more persons,” he notes. “Often issues are first examined by one or more working groups; highly talented people across NIH populate these subcommittees. The net effect is to have the input of many persons inform decision-making.”

Tabak, who co-chaired an IT work group, recalls pondering the start of electronic submission of grant applications. “Many persons—with expertise ranging from computer technology, programming, grants management, grants policy and communications—needed to weigh in,” he says. “In the end we were able to provide a ‘go’ recommendation that considered the multiple dimensions of this activity. Due to the hard work of many persons across NIH, the launch was remarkably smooth.”

Kington remembers how the committee dealt with a mandate handed down by HHS. “At the core of that decision were fundamental policy and scientific questions about how you treat people with addiction,” he explains. “Here was this mundane topic—how do we create a smoke-free campus?—that hit up against a scientific body of evidence on how we view this condition. Everything was discussed about the practical implications of creating a smoke-free environment: Do you have smoke-free sections of the buildings, outside the buildings, how far away, in central places? At what point does it become punitive to people with a health problem?”

“I think we ended up with a reasonable, fair policy,” he continues. “It was a good example of having a smaller, representative group of individuals who are informed of the facts prepare briefings and put forth a proposal. Every year we have a similar thoughtful process for determining the budgets for central services—activities funded jointly by the institutes.”

Growing Pains Addressed

That’s not to say the SC was a universal hit at first. An early review of the SC found that some IC directors not on the committee felt left out of the process.

“There are challenges,” Zerhouni says. “You don’t want to create people that are ‘in the know’ and



NIH director Dr. Elias Zerhouni (l) thanks steering committee members who just completed their rotation as of FY 2007. They are (from l) NIAMS director Dr. Stephen Katz, whose term was extended through FY 2008, NIA director Dr. Richard Hodes, NIDCR director Dr. Larry Tabak and NIDA director Dr. Nora Volkow.

PHOTO: HILDA SCHULKE

‘not in the know.’ We’ve had to make sure that everyone is informed and is aware of what goes on in the steering committee. I’m against top-down management, so I always try to engage people.”

A big problem with governance everywhere is determining where governance stops and management begins, Kington explains. “Governance is about the overall rules and policy. Actually implementing those rules are management decisions. It’s a big challenge in any organization...Before, it was a committee of the whole, in essence, with all of the institute and center directors. But we could not maintain that approach. We’ve overcome some growing pains by tweaking the process.”

The SC instituted several adjustments including a principals-only briefing for IC directors held the week following an SC meeting, and an intranet site developed so IC directors can get documents on deliberations. In addition, an outside consultant was contracted to help evaluate the SC process. Another similar assessment is under way for SC’s work groups.

Some IC directors also worried about the additional scheduling burdens a formal steering mechanism might require. “Initially directors were very concerned about the time it would take,” Zerhouni says. “Was this new thing going to be just another bureaucratic thing? Over time, those who have participated have become fans of the process. What I hear is that it is an enriching experience, something that will last.”

Who Are the Deciders?

“The reality is the IC directors and the NIH director are held accountable,” Kington says, noting that ultimately decisions are made by those who will have to answer for any problems that may result. “We also recognize that we need to tap into the knowledge, expertise and experience of leaders at multiple levels. I think we have a system that allows that. What the SC process does is make recommendations to the NIH director, who then makes the final decisions. Having said that, though, it’s interesting that the difficult decisions have almost always had consensus. It’s rare that someone won’t feel comfortable.”

NINDS director Dr. Story Landis, who has served for 18 months, acknowledges the SC’s impact on decisions. “[There] was a proposal from the extramural activities work group (EAWG) that I presented,” she recalls. “The proposal was based on 2 years of work by a trans-NIH work group to develop principles for determining where grants should be reviewed. EAWG recommended that all unsolicited applications be reviewed in CSR while applications that were solicited—request for application or program announcement with set-aside—could be reviewed in

ICs. There was a very lively discussion—mostly negative—and in the end the recommendations were not implemented. Since then EAWG has made sure that the steering committee has endorsed projects before they are initiated.”

NIH deputy director for intramural research Dr. Michael Gottesman says IC directors do a lot of the groundwork on most topics. “Some of the most important policy issues that come before the [SC] are deliberated extensively by the IC directors in their regular meetings and at special retreats such as the annual leadership and budget conferences, so that the steering committee begins with a good sense of the community of IC directors.” In addition, he points out, SC members “are in constant contact with their colleagues, and many topics that need resolution by the committee are brought to the IC directors as a whole for further input.”

A Lasting Organizational Legacy

Katz says SC members prize their posts at the policymaking table. “Everyone on the steering committee considers it an honor to serve and takes on the responsibility with great commitment. Since no substitutions are allowed for these meetings, members may call in from all over the world, wherever they may be. The importance of these meetings is reflected by ‘attendance by phone’ at 2:30 or 3:30 a.m. local time. This is what I would call real commitment.”

It’s also important for NIH’ers to know the SC doesn’t sit around conjuring up ways to make work life challenging for employees. Each topic the group tackles, Kington concludes, is in response to “some external pressure or internal force” that demands an answer.

“Decisions on policies that affect all of NIH are not just made in a vacuum,” he emphasizes. “They’re made in a very thoughtful way. People spend a lot of time bringing many different perspectives to bear in developing a policy. This is a way to have the leadership buy into the result.”

Ever planning for the future, Zerhouni says governing by way of the SC offers benefits not only for today, but also for tomorrow.

“The other reason I think creating the steering committee has been important is that it has helped develop more effective leadership across NIH—not just among IC directors either,” he says. “By employing work groups that report from the scientific community as well as the administrative community, we have enhanced the ability to develop fresh leadership. Members have grown and matured positively through their experience with this governance mechanism, so the steering committee is also a way of doing on-the-job training for management and leadership skills, promoting collegial citizenship.”

In many ways, Zerhouni concludes, there’s nothing like actual experience to prepare you for making critical decisions.

“Because I was a scientist and never went to any business schools,” he explains, “I learned it on the job—first and foremost through my being director of a large research division. First question you have to ask yourself is, if you get run over by a car tomorrow, would things continue to work well? Not only do you have to have the right team of people, you need the right organizational structure to make decisions as a community of colleagues. I think the steering committee provides that. Now there’s an institutional way for leaders to tackle the issues of the agency. Eventually all the directors will rotate through the committee.

“When an organization is based on knowledge and high-quality people, my experience is that, if you share information reliably and transparently, 95 percent of the time reasonable people will come to similar conclusions. It fosters a spirit of collegiality and synergy. I think that’s what the steering committee has accomplished over time.”

BIG BANG

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Right:

A senior astrophysicist and chief scientist at NASA's Goddard Space Flight Center, Mather earned the Nobel prize in physics for his work on the satellite known as COBE.

PHOTOS: MICHAEL SPENCER

inside a star a few billions of years ago—your chin is made of exploded stars—and if you could grasp the significance of this, it would change your life. This is clearly something of immense cultural importance... to put the history of mankind in context.”

A senior astrophysicist at NASA's Goddard Space Flight Center and chief scientist in the Science Mission Directorate at NASA headquarters, Mather earned the Nobel for his work on the satellite known as COBE—the “Cosmic Background Explorer.” Launched in 1989, COBE measured the spectrum of cosmic microwave background radiation—the residual heart of the big bang, still suffusing the cosmos.

And according to theoretical physicist Stephen Hawking, making a map and finding hot and cold spots in this radiation was “the most important discovery of the century, if not of all time.” (Mather, who has a low-key, layperson-friendly style, didn't mention this.)

His achievement surely forms the strongest proof yet of the big bang theory. Since the discoveries of the 1920s, that theory has gone more or less like this: The universe began as an explosion of a very dense, very hot fireball, spewing matter in all directions. Space has been expanding ever since, carrying galaxies (including us) along with it. The theory explains why distant galaxies are hurtling away at such enormous speeds.

So, Mather said, rounding his index finger and thumb together, the whole presently observable universe was once compressed into something the size of a golf ball. And if you compare the primordial explosion to that of a firecracker and its debris, “you get the same math.”

Speed of expansion offers one type of supporting evidence for the big bang. The theory also predicted that scientists would one day find the background radiation (also called “the afterglow”) left over from the explosion itself.

And that's exactly what COBE discovered: its data matched the theoretical calculations with extraordinary accuracy, the strongest proof yet that the big bang theory is correct.

“I wasn't surprised,” Mather said.

What did surprise him was that COBE found “hot and cold spots.”

“Why are we here?” he asked. “Well, some places are denser than others, they stop expansion locally. These are primordial seeds” for galaxies, stars and planets.



Other surprises: “We are a definite minority,” said Mather. That means that atoms are only 4 percent of “the stuff in the universe” which, displayed in a pie chart, seemed a mighty small sliver next to the 23 percent of “cold dark matter” and 73 percent of “dark energy.”

That “dark energy,” he explained, was discovered in 1995. “This is what we call it,” he said, “but we have no clue what it is. These are huge mysteries.”

To solve them, Mather is leading his NASA team to bring the James Webb Space Telescope to its 2013 launch. As successor to the Hubble, the Webb telescope's mission is to see the first objects that formed after the big bang, learn how galaxies, stars and planets form and evolve and learn how planetary systems become suitable for life.

“It will go 1 million miles away into deep space,” he said, “and it should run for 5 years; we hope for 10.” For now, “We think we know how galaxies have been formed. We think we know how galaxies will grow; how stars are made inside galaxies; how planets may grow around stars.”

Yet “big open questions remain,” he said: “What happened before the big bang? What's at its center? What are space and time? How did we get here?”

Audience members chimed in: Could there be more than just chemosynthetic life on Europa (one of the moons of Jupiter)? Possibly; astrobiology is a huge subject, Mather said. Is the universe bouncing, not just expanding? In particle physics, he noted, there are untold universes.

So are we alone?

“We can see 100 billion galaxies,” he reckoned, “each with 100 billion stars; 10^{22} objects could have planets. And 10 percent of stars like our sun have planets.

“In practical terms, we are alone,” said Mather. “In scientific terms, we are not.”

'Roll the Scroll'**Virtual Medical Papyrus Unfurls at NLM**

The latest addition to the eye-catching Turning The Pages presentation in kiosks at the National Library of Medicine is the Edwin Smith Papyrus, one of the world's earliest known medical documents. It was written in Egyptian hieratic script around the 17th century BCE, but probably based on material from a thousand years earlier. Originally in the form of a scroll with text on both sides, its columns of text had been chopped into individual pages at some point.

Starting with 15 digitized images of those pages from the New York Academy of Medicine, Michael Chung and Dr. Glenn Pearson of NLM's Communications Engineering Branch used Photoshop, Maya and Director animation and rendering software tools to create a virtual scroll, in collaboration with curator Michael North of NLM's History of Medicine Division. Unlike the other books in NLM's Turning The Pages series, which entail touching and turning the pages, the virtual papyrus is touched and scrolled.

The papyrus is a textbook on trauma surgery and describes anatomical observations and the examination, diagnosis, treatment and prognosis of numerous injuries in exquisite detail. Described are cranial sutures, the meninges, the external surface of the brain, the cerebrospinal fluid and intracranial pulsations.

The contents of the papyrus show that the heart, vessels, liver, spleen, kidneys, ureters and bladder were recognized and that blood vessels were known to be connected to the heart. Other vessels are described, some carrying air, some mucus, while two to the right ear are said to carry the breath of life, and two to the left ear the breath of death. However, it appears that the physiological functions of organs and vessels remained a mystery to the ancient Egyptians.

Listed in addition are 48 traumatic injury cases, each with a description of the examination, diagnosis and treatment. It starts with injuries to the head, continues with treatments for injuries to neck, arms and torso, where the surviving copy of the text breaks off. The treatments appear scientific and magic is resorted to in only one case: Case 9, "Instructions concerning a wound in his forehead, smashing the shell of his skull." The remedy prescribed involves an ostrich egg, figs, grease and honey. In addition, a charm is to be sung over this recipe.

The technical challenges in creating the virtual papyrus were considerable. Creative animation techniques, dealing with bend modifier and lattice deformation, were necessary to have the



The Edwin Smith Papyrus, one of the world's earliest known medical documents, has been digitally transformed by NLM into a document that can be perused on computer screen.

scroll unroll and flip over correctly. A "text" mode fades in curator notes atop the scroll, as well as buttons (amusingly shaped like miniature scrolls) that when pressed cause a full English translation of the corresponding section to drop like a curtain.

A "curtain drop" was also used in "menu" mode, to display a thumbnail of the scroll with category buttons (such as "Shoulder and Back Wounds"). Pressing a button rolls the scroll rapidly to the topic of interest. To explore the graceful, two-color calligraphy, "zoom" mode offers a roving magnifying window, which is considerably different from the zoom technique used in earlier Turning The Pages books.

The development of this system is another major step in NLM's effort to bring the treasures of medical antiquity to the public. Planning is now under way to create a web version of the papyrus.—George Thoma

NIDDK's Rodgers Honored By Hematology Society

Dr. Griffin Rodgers, director of the National Institute of Diabetes and Digestive and Kidney Diseases, recently received the American Society of Hematology's Outstanding Service Award at the group's annual meeting in Atlanta. An estimated 20,000 physicians and scientists attended the meeting.

The award recognizes Rodgers' significant contributions to hematology, particularly in the areas of genetic diseases, molecular genetics of human blood cells (hemoglobins) and human blood cell development (hematopoiesis), according to the society. He is also being honored for efforts to increase the number of minority scholars focusing on hematology and for becoming the first hematologist to direct NIDDK, established in 1950.

"Griff Rodgers is an outstanding physician-scientist and molecular hematologist. He's internationally recognized for contributions to the development of effective therapy for sickle cell anemia and other genetic diseases of hemoglobin, and he is also an accomplished scientific leader and mentor," said NIH director Dr. Elias Zerhouni.

"It is an honor to recognize Dr. Rodgers for his strong dedication to improving the understanding and treatment of blood disorders," said ASH president Dr. Andrew Schafer of New York Presbyterian-Weill Cornell Medical Center.



NIDDK director Dr. Griffin Rodgers (r) accepts award from ASH president Dr. Andrew Schafer.

Predicting Psychosis in Youth

According to the largest study of its kind, high-risk youth who will develop psychotic illness can be identified before their illness becomes full-blown up to 80 percent of the time. In the report, published in the *Archives of General Psychiatry* and funded primarily by NIMH, researchers found that youth with a median age of 16 who are going to develop psychosis can be identified 35 percent of the time if they meet widely accepted criteria for risk; this number rises to 65 to 80 percent if they have certain combinations of risk factors such as deteriorating social functioning, family history of psychosis and past or current drug abuse. Scientists said the ability to identify youth who are likely to develop psychosis could eventually help determine the most effective time for interventions.

The Effect of Talking on Drinking

Asking patients in emergency departments about their alcohol use and talking with them about how to reduce harmful drinking patterns can effectively lower rates of risky drinking in these patients. A nationwide, collaborative study supported in part by NIAAA showed that emergency department patients who underwent a regimen of alcohol screening and brief intervention reported lower rates of risky drinking at a 3-month follow-up than did those who only received written information about reducing their drinking.

Researchers concluded that widespread use of the techniques used in the study by emergency personnel could significantly reduce unhealthy alcohol use. The findings were published in the *Annals of Emergency Medicine*.

Brain Injuries and PTSD

A study from NINDS and the National Naval Medical Center with combat-exposed Vietnam war veterans shows that those with injuries to certain parts of the brain were less likely to develop post-traumatic stress disorder (PTSD). Twenty to 30 percent of Vietnam vets have been diagnosed with the disorder, which

involves the persistent reliving of traumatic experiences through nightmares and flashbacks that may seem real. And while war and natural disasters tend to call the greatest attention to PTSD, it's also found in victims of assault, rape, child abuse, car accidents and other traumatic events. The new findings, published online in *Nature Neuroscience*, suggest that drugs or pacemaker-like devices aimed at dampening activity in certain brain regions might be effective treatments for the disorder.

New Biomarker Discovery for Liver Cancer

Research conducted in part by NCI shows that a unique pattern of microRNAs, or small RNA molecules that regulate gene activity, can accurately predict whether liver cancer will spread and whether liver cancer patients will have shorter or longer survival—even in patients with early-stage disease. Published online in *Hepatology*, the study is beneficial, scientists said, because identifying new biomarkers for liver cancer is a first step in alleviating the dismal outcome of the disease. The rate of new cases of hepatocellular carcinoma, the most common liver cancer diagnosed in adults, has been rising over the last 10 years in the U.S. and is very aggressive. This research suggests a real potential for increasing the accuracy of liver cancer diagnosis and prognosis, as well as in monitoring recurrence.

A Factor in How Bird Flu Could Spread Between People

In an NIGMS-supported study, scientists identified a key factor that determines the ability of influenza viruses to infect cells of the human upper respiratory tract, a necessary step for sustaining spread between people. This study, published online in *Nature Biotechnology*, provides new insights into how the H5N1 avian flu virus would have to change in order to gain a foothold in human populations. Experts agree that to trigger a widespread outbreak, the bird flu virus must infect cells lining our noses and throats. The new research adds to this by showing the virus can gain access only through a subset of the sugar molecules coating the cells of our upper airways. This knowledge could point to new therapeutic targets for both seasonal and pandemic flu.—compiled by Sarah Schmelling



Asking patients in emergency departments about their alcohol use and talking with them about how to reduce harmful drinking patterns can effectively lower rates of risky drinking in these patients.



Study of Genes, Aging and Cognition

Healthy volunteers, over the age of 55, are needed for a study of the genetics of aging and cognition. Participation requires a blood draw and non-invasive clinical, neurological and cognitive testing procedures. No overnight stays. No medication trials. Compensation is provided. Call Bobby Das at (301) 435-4593 or email DasB@intra.nimh.nih.gov. Refer to protocol oo-M-oo85.

Healthy Women Needed

The Behavioral Endocrinology Branch, NIMH, is seeking female volunteers ages 18-55 to participate in studies of the effects of menstrual cycle hormones on brain and behavior. Volunteers must have regular menstrual cycles with no changes in mood in relationship to menses, be free of medical illnesses and not taking any hormones or medication on a regular basis. Payment will be in accordance with the duration of each visit and the type of protocol. For more information, call Linda Simpson-St. Clair, (301) 496-9576 (TTY 1-866-411-1010).

Fraternal Twins Needed for Study of Brain Development

Fraternal twins ages 5-25 are needed for an NIMH study of typical brain development. Participants must be in good overall physical and mental health. Study participation includes several hours of cognitive testing and a structural MRI scan. Monetary compensation is provided. If interested, contact Mark Celano at celanom@mail.nih.gov or (301) 435-4515.

Neck Pain Study Needs Volunteers

The Clinical Center's rehabilitation medicine department is seeking individuals with neck pain and healthy volunteers between the ages of 21-65 to participate in a natural history study of neck pain (02-CC-0245). Participation involves 4 monthly visits (about 1 hour each) for a comprehensive cervical musculoskeletal examination. No compensation is provided. Contact neckpainstudy@gmail.com or (301) 451-7514.

One-Day Outpatient Study

Healthy volunteers, ages 19 to 55, are needed to participate in research studying genes and brain function. Testing procedures involve a blood draw, non-invasive neuroimaging, interviews and cognitive testing. No overnight stay. No medication trial. Compensation is provided. Call the Clinical Brain Disorders Branch at (301) 435-8970 or email Danielelef@mail.nih.gov. Refer to protocol 95-M-0150.

Are You Nearing the Perimenopause?

The Behavioral Endocrinology Branch, NIMH, seeks healthy female volunteers ages 40-50 to participate in longitudinal studies of the perimenopause. Volunteers must have regular menstrual cycles and be medication-free. Periodic hormonal evaluations, symptom ratings and occasional interviews will be performed. Participants will be paid. Call Linda Simpson-St. Clair, (301) 496-9576 (TTY 1-866-411-1010).

Heart Disease Risk Factor Study Needs African Americans

West-African volunteers are needed for a study investigating the relationship of obesity to heart disease risk factors. Volunteers must be born in West Africa, non-diabetic and between ages 18 and 49. There will be 3 outpatient visits to NIH. Compensation is provided. Call (301) 402-7119 for information. Refer to protocol 99-DK-0002.

Indo-U.S. Group on Vision Research Meets

The second meeting of the Indo-U.S. joint working group (JWG) was held recently at Lawton Chiles International (Stone) House on campus. The meeting's theme was Global Partnerships: Expansion of Collaborative Vision Research. Attendees included Dr. Roger Glass, director of the Fogarty International Center; Dr. Maharaj K. Bhan, India's secretary of the department of biotechnology, Ministry of Science and Technology; Dr. Leon Ellwein, JWG secretary/convenor and past associate director for applications of vision research at NEI; and Dr. Dorairaj Balasubramanian, director of research at the L.V. Prasad Eye Institute and initiator of the Indo-U.S. collaborative program.

The JWG grew out of two workshops in 2005 attended by leaders in eye and vision research from the United States and India. Workshop participants identified core research areas.

In August 2005, NIH director Dr. Elias Zerhouni and Bhan signed a U.S.-India statement of intent for collaboration on expansion of vision research. Since then, researchers from both countries have begun partnerships in the core areas.

NEI director Dr. Paul Sieving emphasized the importance of transparency of the research planning process in both countries so investigators can collaborate successfully. "Imagine what creative scientists in two major countries of the world can accomplish," he said.

Dr. Loré Anne McNicol, director of NEI's Division of Extramural Research, gave a presentation on an existing Indo-U.S. collaborative trial on corneal ulcers. She explained that the agreement has improved material transfer and joint grant application opportunities.

Dr. Sheldon Miller, NEI scientific director, spoke on NEI's Overseas Scholars Program and the NIH Global Health Research Initiative Program. Under these programs, researchers from low-to-mid-income countries can be trained at NIH for 2 or more years and then return home to broaden their research. This increases the pool of overseas researchers and helps develop research infrastructure in the home countries. A meeting is planned to sign an agreement with India for several post-doctoral fellows to conduct research in the NEI intramural program.

The JWG discussed a number of pending and potential joint Indo-U.S. research applications. The group plans to continue to facilitate new joint research projects through future meetings, web site content and international workshops. Information on the agreement can be found at www.nei.nih.gov.



‘Operation Smile’ Treats Facial Deformities in Kids

Back in November, to commemorate a quarter-century of providing new smiles, Operation Smile International launched the World Journey of Smiles, a multifaceted initiative aimed at increasing the number of children served each year. Around the world—on the same day, at the same local time—volunteers conducted 40 missions in 25 countries with the hope of treating an estimated 5,000 children with facial deformities. Some 4,149 children were reportedly treated during the event.

Operation Smile is a nonprofit volunteer medical services organization that provides free reconstructive surgery to children and young adults around the world suffering with cleft lips, cleft palates and other facial deformities.

Capt. Angela Martinelli of NIAAA, an Operation Smile nurse volunteer since 1993, joined a team in Santa Rosa de Copán, a town located in the western mountains of Honduras. The ruins of Copán, just 7 miles from the Guatemala border, are a designated World Heritage Site believed by archeologists to be the cultural center of the Maya world.

“Our first 2 days consisted of patient-screening and setting up the operating rooms, recovery room and pre/post-operative wards,” Martinelli said. During the mission, in addition to screening for eligibility, patients were offered the opportunity to participate in a study aimed at identifying genetic markers in candidates with a cleft lip and cleft palates and family members without the disorder.

“Our team provided free medical evaluations to 81 children,” Martinelli said. “Children presented with a variety of problems including primary cleft lips, cleft palates and the need for revisions of previously repaired lips and palates. Many of the children came from the surrounding area, but some traveled as many as 8 hours through the mountains.”

Of the 81 children, 61 were eligible for surgery and 59 received free reconstructive surgery for their deformities. Some were not eligible for surgery because of infections, pre-existing medical conditions or not meeting age and weight requirements.

“As an operating room nurse, I was responsible for setting up the operating suites,” Martinelli explained. “We occupied four operating beds and worked side-by-side with our Honduran counterparts. One patient who stood out for me was an adorable infant who had traveled approximately 8 hours with her parents through the mountains from Francisco Morazán, Honduras. This child had a unilateral cleft lip that was beautifully repaired by one of our Honduran surgeons.

“After 10 days and many laughs and tears, we accomplished our mission and also had a great deal of fun,” Martinelli said. “We made wonderful new friends with parents and children alike.”

Before (l) and after photos show the impact of Operation Smile.

PHOTOS: JUSTIN BOWEN