

Neuroscience Seminar Looks at Brain Plasticity

BY AMBER SNYDER

Our brains are incredibly complex. They process multiple kinds of sensory input and dictate the motion of our bodies. But what happens when some of that sensory input is lost?

Dr. Ella Striem-Amit of Georgetown University is investigating this question in her SAMP (sensory and motor plasticity) Lab. She studies neural processing in three categories of people with early-onset sensory and motor deprivation: people born without hands, and people who are born blind or deaf.

Does a handless person still use the “hand” area of their brain (in the

sensorimotor cortex) when performing tasks with their feet? If an individual is born blind, how will that influence the way their visual cortex develops? Striem-Amit discussed these questions in a recent NIH Neuroscience Seminar Series lecture,



Dr. Ella Striem-Amit

“Plasticity, Abstraction and Variability: Lessons from Studying People Born Blind or Without Hands.”

Studying these conditions, Striem-Amit said, allows us to

“uniquely target the causal role of environmental factors” in brain development.

Plasticity is the brain’s ability to change and adapt through growth and reorganization. To study the effects of congenital

handlessness on brain organization, Striem-Amit used fMRI (functional MRI) to view the sensorimotor cortex as people born without hands completed tasks. The sensorimotor cortex, located in the parietal and frontal lobes, plays an influential role in executing body movements. Researchers have learned how to isolate motions of certain body parts to specific regions of the sensorimotor cortex.

The individuals in her study could use their feet to execute the same tasks the average person would use their hands for—everything from texting and writing to carving pumpkins and playing the drums.

What happens to the hand region of the sensorimotor cortex in individuals who use their feet as effectors? Striem-Amit evaluated two groups (handless individuals and a control group, i.e., those with hands) as they reached for and grasped an object. The

SEE **BRAIN**, PAGE 6



NEI 5K comes roaring back. See p. 12.

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Dr. Ibram Kendi

PHOTO: JANICE CHECCHIO

THE BIG READ RETURNS

Kendi Expounds on Defeating Racism

BY DANA TALESNIK

Many people find it uncomfortable to even mention racism, but that’s what Dr. Ibram Kendi urges everyone to do. Discussing it, unabashedly and consistently, he contends, is the only way to dismantle it.

Kendi, author, professor and founding

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‘EVERY DOLLAR COUNTS’

Tabak, NIMHD Launch Annual CFC Effort at NIH

BY ERIC BOCK

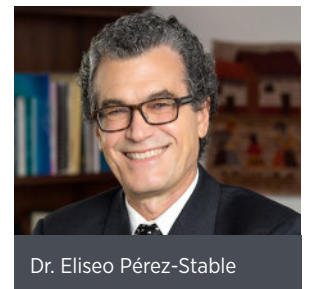
The NIH community works hard every day to advance medical research, said Dr. Lawrence

Tabak, who is performing the duties of NIH director, during the 2022 NIH Combined Federal Campaign (CFC) virtual

kickoff event on Oct. 12.

“Your generosity and support of the CFC is another way you can help make the world a better place,” he said.

The CFC is the annual workplace fundraising drive among federal employees



Dr. Eliseo Pérez-Stable

SEE **CFC**, PAGE 8



Native American Heritage Month guest presenters Pamela Miller (l) and Viola “Vi” Waghayi of the Alaska Community Action on Toxics

Native American Heritage Month Annual Lecture Set, Nov. 16

In November, the NIH Tribal Health Research Office (THRO) celebrates National Native American Heritage Month, a special opportunity to highlight American Indian and Alaska Native culture, ingenuity and contributions to biomedical research.

Join THRO and the National Institute of Environmental Health Sciences (NIEHS) on Wednesday, Nov. 16 at 3 p.m. ET for the annual Native American Heritage Month guest lecture. Learn about NIEHS-funded environmental health research in Alaska with co-presenters Pamela Miller and Viola “Vi” Waghayi of the Alaska Community Action on Toxics. They will present “Protecting the Health of Future Generations Through Community-Based Research and Actions: Working in Partnership with the Tribes of Sivuqaq, Alaska.”



The speakers will share stories about the region and how this collaborative research began. They will discuss their decades of experience conducting community-based participatory research with local Tribes. They also will talk about how their work has been informed by traditional and community knowledge, provide a summary of their findings, and recommend policy actions and interventions to protect health.

Watch live: <https://videocast.nih.gov/watch=46388>.

Throughout the month, THRO will highlight NIH Tribal health research and collaborations with Native communities on LinkedIn and Facebook. Learn more about THRO and the guest lecture: <https://www.nih.gov/tribalhealth>.

‘Feds Feed Families’ Ends for Summer

The 2022 Feds Feed Families Virtual Campaign

Tabak To Receive Research!America Advocacy Award

Dr. Lawrence Tabak, who is performing the duties of NIH director, will receive the John Edward Porter Legacy Award. The award, announced by Research!America on Oct. 6 and supported by Ann Lurie, honors individuals who show outstanding commitment to sustaining the nation’s world-class leadership in medical and health research. The 27th annual Advocacy Awards will be presented in March 2023.



“We are pleased to honor Dr. Tabak for his years of leadership and service in working to ensure that the United States has a strong and vibrant medical and health research ecosystem,” said Susan Dentzer, chair of Research!America’s board of directors. “We are also grateful to Dr. Tabak for his all-important role in leading the NIH through the current period of transition.”

Tabak has worked to advance solutions to complex public health and scientific issues including peer review, team science, precision medicine, data science, rigor and reproducibility, brain research, opioid use disorder and the Covid-19 pandemic, to name a few.

“He may be remembered most, however, for his efforts to advance diversity and equity at NIH, initiating critical programs to diversify the biomedical research workforce and increase diversity, inclusion and accessibility within NIH,” according to the award announcement.

The annual Research!America Advocacy Awards—first hosted in 1996—recognize individuals and organizations whose leadership efforts have advanced the nation’s commitment to medical, health and scientific research.

has ended. This summer, NIH donated almost 118,000 pounds of food to local communities to assist children, older adults, veterans and families in need. Across the federal workforce, more than 7 million pounds of food have been donated.

While the campaign has ended, the need continues. According to the USDA, more than 38 million Americans do not have access to affordable, nutritious food. That equates to 1 out of every 10 people being food insecure. For individuals who want to continue to assist, there are ways to give year-round to support people who face food insecurity.

Consider donating to a food bank or pantry. Purchase food online and have it delivered directly to a food bank or pantry or drop off food donations at your local food bank or pantry.



For more information on donating to local food banks or pantries, visit <https://bit.ly/3h2Qm0E>.

If you have any questions about the campaign, email FedsFeedFamiliesNIH@nih.gov.

OBSSR Issues RFI for Strategic Plan

The Office of Behavioral and Social Sciences Research (OBSSR) is seeking input on scientific priorities and cross-cutting themes for its Strategic Plan 2023-2028. OBSSR’s mission is to enhance the impact of health-related behavioral and social sciences research; coordinate BSSR conducted or supported by NIH and integrate these sciences within the larger NIH research enterprise; and communicate health-related BSSR findings to various collaborators within and outside the federal government.

Proposed scientific priorities and themes for the plan include:

Three scientific priorities

- Improve synergy between basic BSSR and research testing approaches to improve health outcomes
- Enhance and promote research measures, methods and infrastructure needed to support an integrated and more cumulative approach to BSSR
- Accelerate sustained adoption of BSSR findings in practice

Four cross-cutting themes

- Integration of BSSR across NIH research
- Science of science
- Diversity, equity, inclusion and accessibility
- Training and capacity-building

To learn more, visit <https://bit.ly/3WnJ7kk>. All responses must be received by Monday, Nov. 14 at 11:59 p.m. ET: <https://bit.ly/3WnJ7kk>.



Panelists at a White House workshop coordinated by the NIH Path to Excellence and Innovation Initiative included (from l) Dr. Jon Lorsch, Dr. Trivia Frazier and Dr. Lesia Crumpton-Young.

Lorsch Highlights Workforce Development Programs for White House Workshop

NIGMS director Dr. Jon Lorsch represented NIH in a panel discussion during the White House Initiative on historically Black colleges and universities (HBCUs) annual conference on Sept. 21.

His presentation, which was streamed live on the event's mobile app and viewed by virtual and in-person attendees, focused on agency and institute programs that promote diversification of the biomedical research workforce and funding to HBCUs.

"NIGMS is the basic science institute at NIH and it's also the institute that by far funds the most programs in the extramural community in training, workforce development and diversity," said Lorsch, adding that the "key features of this are that we cover the entire career pathway" of someone pursuing a career in the biomedical life sciences.

Sharing a comprehensive chart, Lorsch noted that NIGMS's programs begin with the Science Education Partnership Award and go all the way to independent faculty careers. He highlighted the Medical Scientist Training Program (MSTP), which supports training of clinician scientists getting dual degrees such as M.D.-Ph.D.s.

In order to broaden institutional and regional participation in MSTP, NIGMS is starting a second branch of the program called Leading Equity and Diversity (LEAD) MSTP, which will have eligibility limited to HBCUs, Tribal colleges and universities

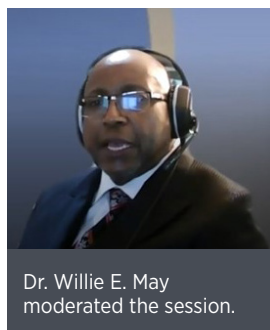
and institutions in Institutional Development Award (IDeA) eligible states. Learn more about MSTP at: <https://bit.ly/3eB746y>.

NIGMS and NIMHD provide more funding to HBCUs than any other NIH institute or center. Lorsch presented FY 2021 data in which NIGMS awarded \$17.6 million in direct grants to 28 of the 101 HBCUs. NIGMS also supports capacity building and training at many under-resourced institutions, including 100 minority-serving establishments and 400 organizations located in states that received the IDeA.

"On the one hand, we are proud of the fact that along with NIMHD we are the biggest funder of HBCUs at NIH," Lorsch said. "On the other hand, you can see that it is a minority of HBCUs that actually have a grant from NIGMS and the amount is relatively small compared to the budget of NIGMS."

NIGMS manages the IDeA program, which is a congressionally mandated initiative to provide funding necessary to build research capacity, as well as support research and research training in states that historically have not received much research funding support from NIH. One component of the program is the IDeA Networks of Biomedical Research Excellence (INBRE).

"INBRE provides support for faculty and students to



Dr. Willie E. May moderated the session.

Speakers in this workshop will discuss the current scientific evidence on predicting and preventing poor postpartum health outcomes. Attendees will have opportunities to submit questions and comments. After the workshop, an independent panel will draft a report outlining evidence gaps and priorities for future research.

The workshop is cosponsored by ORWH, NHLBI, NICHD and NIMHD.

Learn more or register for the workshop at prevention.nih.gov/P2P-PostpartumHealth. Register by Nov. 14.

conduct research and also provides infrastructure in the form of core facilities," Lorsch said, noting that INBRE currently includes 12 HBCUs.

Lorsch was joined on the panel by Dr. Robert Langer, institute professor at Massachusetts Institute of Technology; Dr. Lesia Crumpton-Young, president of Texas Southern University; Dr. Trivia Frazier, CEO of Obatala Sciences, Inc.; and moderator Dr. Willie E. May, vice president of research and economic development at Morgan State University. Texas Southern University and Morgan State University are HBCUs within the NIH Path to Excellence and Innovation (PEI) Initiative.

The workshop, the Role of HBCUs in Creating Entrepreneurial Equity, was coordinated by the initiative, which is administered by the Small Business Program Office. PEI's mission is to empower HBCUs with the knowledge, resources and skills they need to effectively and consistently compete for and win NIH contracts. **R**



ON THE COVER: This Petri dish contains microscopic roundworms called *Caenorhabditis elegans*. Researchers use these particular worms to study how *C. elegans* senses the color of light in its environment.

IMAGE: EUGENE L.Q. LEE/MASSACHUSETTS INSTITUTE OF TECHNOLOGY

The NIH Record

Since 1949, the *NIH Record* has been published biweekly by the Editorial Operations Branch, Office of Communications and Public Liaison, National Institutes of Health, Department of Health and Human Services. For editorial policies, email nihreford@nih.gov.

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ODP To Host Virtual Workshop on Postpartum Health Research

The NIH Office of Disease Prevention will host the Pathways to Prevention Workshop: Identifying Risks and Interventions to Optimize Postpartum Health on Nov. 29-Dec. 1. This virtual workshop is free and open to the public.

The United States is experiencing a growing maternal health crisis. The majority of maternal deaths and complications occur during the first year after the pregnancy has ended (the postpartum period). The research community must increase efforts to improve postpartum care.

Big Read

CONTINUED FROM PAGE 1

director of the Center for Antiracist Research at Boston University, spoke Sept. 27 at the NIH Big Read, an annual tradition presented by the NIH Library, the Foundation for Advanced Education in the Sciences (FAES) and the NIH Office of the Director. Each year NIH staff read and discuss an important, readily understandable book, culminating in an author event.

More than 1,200 NIH'ers tuned in live for this year's Big Read, featuring an online conversation between Kendi and Dr. Eliseo Pérez-Stable, director, National Institute on Minority Health and Health Disparities. Dr. Tara Schwetz, NIH acting principal deputy director, also joined the chat.

"Like fighting an addiction," Kendi wrote in his 2019 bestseller *How to Be an Antiracist*, "being an antiracist requires persistent self-awareness, constant self-criticism and regular self-examination."

During the Big Read, he urged everyone "to enter into these conversations with a level of humility, with an openness to transformation."

Kendi states unequivocally there is no in-between. Ideas and policies are either racist or antiracist. A society has racial hierarchy or equality; policies are inequitable or equitable. But when describing individual people, he noted, racist is not a permanent label or fixed category.

"Many people across history have expressed racist and antiracist ideas," Kendi said, "sometimes in the same speech, or the same book, or the same paragraph or the same conversation." So, how do you identify the person who is expressing these opposing views?

Kendi likened it to a doctor making a diagnosis, an affliction happening in the body that isn't permanent. "Racist is a descriptive term—it describes what a person is being in any given moment," he said. "Clearly, you can be treated; you can be different. Clearly, you can be healed and you can turn around and be a healer. To be antiracist is to acknowledge the times we're being racist, because the only way we're going to heal and be better is if we accept that diagnosis."

For centuries, people—even



Dr. Tara Schwetz, NIH acting principal deputy director, shares a light moment with NIMHD director Dr. Eliseo Pérez-Stable (top r) and Kendi during the Big Read.

scientists—have debated racial hierarchy, some arguing that each race is biologically distinct. Many have sought to dispel that myth. Scientists officially debunked the misconception with the mapping of the human genome in 2000, which confirmed all humans are 99.9 percent genetically alike.

• • •

“Like fighting an addiction, being an antiracist requires persistent self-awareness, constant self-criticism and regular self-examination.”

-DR. IBRAM KENDI

• • •

"The work of people in NIH to bring that scientific finding to the world has been so absolutely critical for those of us who study and talk about race and racism," said Kendi, "because we're able to say definitively that race is a fiction and racism is a fact."

Pérez-Stable underscored, "We all agree that race and ethnicity are social constructs; they're not defined biologically. I like to say they can be used as tools for discovery science."

While writing *How to Be an Antiracist*, Kendi was blindsided by an ominous diagnosis—stage 4 metastatic colon cancer—not long after his wife Sadiqa had endured her own cancer battle. Immersed in his research, he didn't notice the weight loss and other related symptoms. Following treatment, Kendi is now cancer-free and a couple of

months from reaching the elusive 5-year survival rate.

Drawing parallels with his racism research, Kendi wrote, "as long as the underlying cause remains, the tumors grow, the symptoms return and inequities spread like cancer cells." But, he noted optimistically, "We can survive metastatic racism."

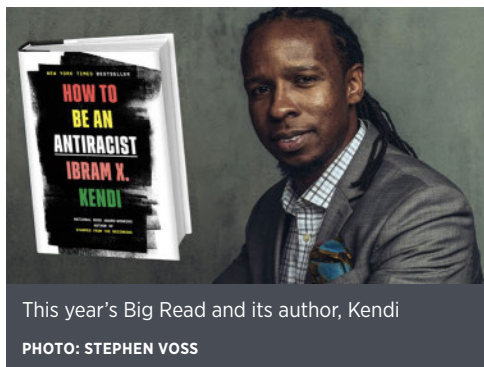
One solution Kendi proposes that resonates with many NIH'ers is striving to prevent bias in research.

"One of the things I've tried to do through my work is allow people to under-

stand the context in which they're asking research questions and they're proposing potential solutions to problems," he said. "If [a researcher] believes that a particular racial group is culturally or behaviorally superior or inferior, that's going to factor into what [they] consider the problem and thereby what [they] consider to be the solution."

"To presuppose that a particular racial group is dying at higher levels because of how they are behaving is to presuppose that there is something wrong with that racial group, which is to presuppose racist ideas."

However, noted Pérez-Stable, such diseases as diabetes and cancer may be more common in one group or another, "so in many ways, [considering constructs such as race, class and ethnicity] captures something we need to leverage in our scientific inquiry."



This year's Big Read and its author, Kendi

PHOTO: STEPHEN VOSS

Kendi responded, “If we are finding a racial health disparity, then we should be investigating racism...If we’re finding a disparity between Black working-class people and White working-class people, then we should be investigating both racism and the economic system.”

When people blame class or education attainment for racial health disparities, this ignores, for example, how maternal mortality is higher for Black women with college degrees than for White women without high school diplomas. “It’s actually racism,” Kendi argues, “because you have upper-income people of color suffering worse mortality than low-income White folks.”

Toward eliminating racial barriers in research and promoting diversity, Pérez-Stable highlighted UNITE, NIH’s long-term initiative to diversify research and the workforce, to tackle structural inequities head on. Kendi applauded the effort.

In striving to build more diversity into the scientific workforce, Kendi said, some argue there are not enough people of color in the pipeline. He likened that fallacy to a college football coach trying to recruit Black athletes. It’s not the pool in academia either, he pointed out. When coaches want to increase the pool, they invest in camps and training.

Kendi’s 6-year-old daughter aspires to be a scientist. “Like my daughter, there are many people of color who are interested in this work if they only have the opportunity. And what those college football coaches are doing is creating those opportunities where they don’t exist.”

Dr. Marie Bernard, NIH’s chief officer for scientific workforce diversity, joined in to ask if Kendi had advice for UNITE’s antiracism steering committee.


Kendi recommended using longitudinal racial data to gauge whether interventions are making an impact. Beyond data,

he suggested focus groups or extended interviews with staff to truly understand perceptions and feelings.

“I also think it is important for everyone to realize that these equitable initiatives are beneficial to NIH’s work, that they are going to create better science,” he said. “This isn’t just to create equity. This is to create a better NIH.”

Pérez-Stable agreed. “We do know that diversity in scientific teams leads to better science, more thoughtful science, different kinds of questions,” he said.

“I wish that as researchers,” said Kendi, “we spent our time and our money trying to investigate the whole host of policies and practices and conditions that were causing health struggles in particular communities, actually causing racial health disparities.

“There are so many brilliant minds... that if we were to shift our attention there, we would be able to discover not only the problems, but even the solutions to many of what seemingly appears to be some of the most intractable racial health disparities of our time.” 

NEW SERIES DEBUTS

Carson To Give First CURE ‘Shining Stars Seminar,’ Nov. 30

Dr. Tiffany L. Carson will present the inaugural lecture in the NCI Center to Reduce Cancer Health Disparities’ Continuing Umbrella of Research Experiences (CURE) Shining Stars Seminar (SSS) Series on Wednesday, Nov. 30, from 1 to 2 p.m. ET, via WebEx. Her talk is titled, “Unlocking the Keys to Disparities in Obesity and Cancer: The Role of Bio-Behavioral Research.”



Dr. Tiffany L. Carson

Carson will discuss:

- Characterizing the public health challenge: epidemiology of obesity and cancer, observed disparities and proposed associations
- Behavioral interventions as an approach to treat obesity and reduce the risk for some cancers
- Need for participation of diverse populations in biospecimen research to understand mechanisms and to identify points of intervention
- Exploring the gut microbiota as a potential contributor to disease risk, disparities and point of preventive or therapeutic intervention

SSS recognizes former CURE scholars who succeed in securing subsequent research funding, conduct impactful research and serve as examples to current scholars.

A former CURE K01 scholar, Carson is associate member and George Edgecomb scholar at Moffitt Cancer Center, as well as associate professor in the department of oncological sciences, Morsani College of Medicine at the University of South Florida, Tampa.

As an applied epidemiologist, Carson has a breadth of research experience with a central theme of population-based, bio-behavioral, observational and intervention studies for obesity treatment and cancer prevention and control. She is currently principal investigator on two NIH-funded R01 studies (NCI, NIDDK) investigating behavioral and biological aspects of weight management, cancer prevention and health disparities.

Carson has published in multiple peer-reviewed journals, including *Obesity*, *Psychosomatic Medicine*, and *JAMA*. In addition to her research portfolio, she has nearly a decade of experience mentoring early-stage scientists.

Carson completed her bachelor’s degree at Florida State University. She later earned a master’s degree and Ph.D. in epidemiology from the University of Alabama at Birmingham and completed a postdoctoral fellowship at University of Arkansas for Medical Sciences.

CURE supports individuals from underrepresented groups across the academic continuum—beginning with middle school students and continuing through independent cancer researchers—via a pipeline of research funding opportunities. SSS is a sister series to the CURE Distinguished Scholars Seminars.

To register for the seminar, visit: <https://bit.ly/3zyAQ3e>. Individuals who need reasonable accommodation to participate should email Victoria Coan (victoria.coan@nih.gov) preferably at least five business days before the event.

control group used their feet for some trials and their hands for others.

Interestingly, Striem-Amit found that there are some areas in the sensorimotor cortex that seem to prefer certain kinds of actions (or movements) regardless of what body part is performing the action, and regardless of whether the individual has experience using a specific body part for a task.

However, looking specifically at the hand area of the primary sensorimotor cortex as handless individuals completed tasks, Striem-Amit found that participants did activate the hand area (in addition to the foot area), but the hand area “was not the primary driver of foot movement.” Some of the hand area also seemed to be “taken over” by other nearby body parts, such as the shoulder and abdomen.

“Compensatory use and plasticity don’t [entirely] overcome anatomical...constraints,” Striem-Amit found. In the future, she said she would like to find out what areas in the sensorimotor cortex also have the ability to reorganize to nearby regions, and which areas reorganize based on effector/body part use.

Such a determination also might help in developing prosthetics (which might be able to read out which tasks people want to perform), she added, but that would require more research.

Researchers also still have a lot to learn about how the visual cortex develops in congenitally blind individuals. The visual cortex is located in the occipital lobe, in the rearmost portion of the brain. Interestingly, MRI scans of these individuals showed that some parts of the visual cortex still “know” how to organize themselves, even in the absence of sight. However, that didn’t tell Striem-Amit much about the function of other regions in the earlier stages of visual processing.

Researchers already knew that the primary visual cortex responds to more than just visual stimuli; Braille, sound, smell and other sensory input can also activate the primary visual cortex in blind individuals. These responses are far more varied in blind individuals than in sighted ones.

“Is brain plasticity variable?” Striem-Amit asked. “Are there different plastic patterns of visual use in blind people, and

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“Studying brain connectivity before surgery can help inform how sight will improve following surgery.”

- DR. ELLA STRIEM-AMIT

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what does that tell us about the role of experience in generating consistency of brain organization and function?”

To answer those questions, she decided to look at functional connectivity from the visual cortex of blind people. She found that “blind people had 3-10 times as much variable functional connectivity compared to sighted people, from their visual cortex to multiple and meaningful other areas of the brain.”

Plasticity in the visual cortex must be inherently variable, she concluded, because it generates far more variable outcomes in the blind.

To demonstrate, she displayed a diagram

that grouped blind individuals with similar kinds of functional connectivity. Some people have a strong connection between the visual and auditory cortices, for example, while others do not. Striem-Amit pointed out a pair of sisters with the same genetic blindness whose functional connectivity was so different they ended up in different parts of the diagram.

These observations may come in handy when determining which assistive technologies and treatments to offer each person, she revealed.

One example is Project Prakash, a nonprofit organization, led by Dr. Pawan Sinha of MIT, that treats curably blind youth in rural India. Young people are treated (the most common procedure is cataract removal)

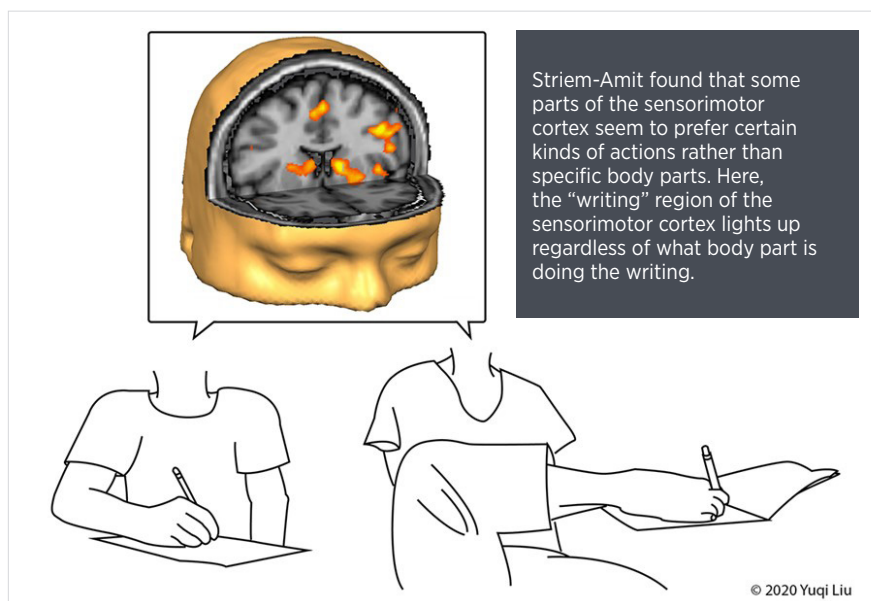
and then researchers track their sight restoration by studying behavioral and neural measurements. There is a lot of variability in outcomes, and not all of it is easily explained.

Striem-Amit proposed that brain connectivity plays a role in determining sight restoration. By examining data shared by the Project Prakash team, she found that “studying brain connectivity before surgery can help inform how sight will improve following surgery.”

Although this was a very small study, it has exciting implications.

“Could it tell us what networks are involved in improved sight recovery?” she asked. “Could we boost those networks in people who otherwise wouldn’t gain that much sight back?”

Striem-Amit considers plasticity in the early visual cortex in blindness to be unresolved at this point, but summarized that functional plasticity from congenital blindness and handlessness are variable and may even provide new opportunities for predictive treatment outcomes and individually tailored assistive treatments. **R**





Dr. Ishita Singh (l) and Dr. Leah Leinbach joined NIDCR as the inaugural cohort of the newly expanded Dental Public Health Research Fellowship program.

skills to carry out population-level research aimed at improving the oral health and well-being of individuals, families and communities.

As part of their training, Singh and Leinbach will work within public health organizations to gain practical experience in community-level research and program implementation. In addition to research skills, NIDCR offers networking opportunities and communication and leadership training.

A few months into the program, the fellows are already benefiting from NIDCR's resources and are excited about their prospects.

"We received training on how to do a literature search one week into the program and that's something I was never formally taught but was often expected to know," said Singh. "There is

an immense potential of expanding your knowledge and skillset. You're at a place where you can truly make an impact."

Singh, who seeks to reduce oral health disparities, wants to better serve patients from groups that have been socially marginalized, such as those with special needs and those from the LGBTQ+ community.

Leinbach is especially interested in integrating oral health care with the broader health care system through policy and management.

"The environment and people are really important for career growth, and we're surrounded by the best at NIDCR," Leinbach said. "It's really an honor to be here to help shape the future of oral health and health in general."

Interested in applying to the fellowship program? NIDCR is accepting applications through Monday, Nov. 21. Visit: <https://bit.ly/3TOu15D>. **R**

SHAPING THE NATION'S SMILES NIDCR Fellows Strive to Improve Oral Health for All

BY TIFFANY CHEN

As practicing dentists, Dr. Ishita Singh and Dr. Leah Leinbach have seen smiles in all shapes. From caring for children with special needs to treating oral infections in patients preparing for invasive heart surgeries, they're experts at tackling oral health problems. Given their holistic views of patient care, both dentists recognized issues outside of the mouth that made their patients vulnerable to oral diseases. These observations, and their desire to address oral health challenges on a community level, led them to join the newly expanded Dental Public Health Research Fellowship program at the National Institute of Dental and Craniofacial Research (NIDCR).

Singh, who is originally from India and most recently worked as an oral health researcher in Utah, noticed that factors such as socioeconomic status, gender, race and ethnicity and environmental toxins weighed on the oral health of her patients.

Leinbach, who previously provided hospital-based oral health care at two large academic medical centers, realized that financial barriers and limited access to oral health information made it difficult for many of her patients to be truly healthy.

"So I thought there was an opportunity to tackle the problems from a different perspective—through dental public health," she said.

Rather than treating individual patients, dental public health practitioners focus on preventing oral diseases and promoting oral health in communities. Strategies include surveillance, research, public health education campaigns, policy development and dental care programs.

As the inaugural cohort of the revamped NIDCR program, the two dentist-scientists will learn how to tackle system-wide challenges faced by their patients. The three-year fellowship is designed to equip dental professionals with the knowledge and

'MUCH ACCOMPLISHED, MUCH TO DO'

Stetten Lecture To Look at Biomedical Research in Rural America

Dr. Sally Hodder, director of the West Virginia Clinical and Translational Science Institute (WVCTSI), works to alleviate health disparities that disproportionately impact rural America, especially regarding public health crises like the Covid-19 pandemic and the opioid crisis. At the 2022 DeWitt Stetten Jr. Lecture on Nov. 30 at 3 p.m. ET., she will discuss her work establishing a statewide health research program in West Virginia and engaging rural communities in research.



Dr. Sally Hodder
PHOTO: WEST VIRGINIA UNIVERSITY

Sponsored by the National Institute of General Medical Sciences (NIGMS), the virtual lecture, "Biomedical Research in Rural America: Much Accomplished, Much To Do," is part of the NIH Director's Wednesday Afternoon Lecture Series. The event will broadcast live at <https://videocast.nih.gov/>.

Hodder will share insight on WVCTSI's specific research agendas and results regarding innovative treatment of refractory substance use disorder using deep brain stimulation. She will also discuss findings relating to the epidemiology of SARS-CoV-2—the virus that causes Covid-19—and treatment of the disease.

Hodder is an infectious disease physician and has extensive experience running clinical trials. She's headed large clinical trials in the pharmaceutical industry as vice president of virology medical affairs at Bristol-Myers-Squibb, and she built an HIV clinical trial and prevention program during her time at Rutgers University.

In addition to directing WVCTSI, she serves as associate vice president of clinical and translational research and a professor of medicine at West Virginia University (WVU).

In August, Hodder was named WVU School of Medicine's inaugural chancellor's preeminent scholar chair in recognition of her outstanding achievement.

The Stetten series was established in 1982 in honor of NIGMS's third director. The lecture is open to all.

For sign language interpretation or other reasonable accommodation to participate in this event, email WALSoffice@od.nih.gov five days before the lecture.

For more information, visit <https://bit.ly/3DRtST9>.

that serves more than 5,000 charities, said National Institute on Minority Health and Health Disparities (NIMHD) executive officer Kimberly Allen. NIMHD is the lead institute for this year's campaign. She thanked deputy and assistant coordinators



“Your participation today and throughout the campaign will help make a crucial difference in many, many lives.”

-KIMBERLY ALLEN



and keyworkers for their efforts. “You are the heart and soul of our campaign.”

NIMHD director Dr. Eliseo Pérez-Stable said he is excited to be co-chairing the 2022 campaign alongside Tabak because of NIH's strong CFC tradition. Over the past 17 years, employees raised nearly \$35 million.

“This is a remarkable accomplishment,” said Pérez-Stable. “It reflects the spirit of NIH—a caring and collaborative community.”

Last year, under the leadership of Fogarty International Center, employees raised more than \$2 million, even though the target was \$1 million. Pérez-Stable is confident NIH will once again exceed its goal.

“The pandemic is still affecting all of us

in many different ways in every corner of the world, with the most vulnerable both at home and abroad, suffering the greatest,” he said. “This is our chance to help those in need by making a donation to the CFC campaign. Every dollar counts.”

A couple of CFC charities had representatives join the kickoff to talk about the campaign's impact on their organizations.

CFC donations have helped the Foundation for the Advancement of Music and Education (FAME) get through the past few difficult years, said Toni Lewis, FAME founder and executive officer.

The foundation was established in 2004 to

give young musicians the best opportunity to succeed in life by providing them with music training and academic support.

“Our students don't just enhance their skills, they transform the way they think about themselves and the possibilities for their futures,” she said. “They do that with the power of music.”

Last year, 1,262 students participated in three FAME programs: the FAME Jazz Band, the school-based Music is Central program and the summer music programs. This school year, Lewis hopes more than 2,000 students will participate in FAME programs.

“All contributions help us continue to develop the talent and support the dreams and economic futures of our young students,” she said.

With support from the CFC, Partners in Health (PIH) will be able to grow its efforts to “ensure that every person, regardless of where

they live, has access to high quality, lifesaving



Above, Dr. Lawrence Tabak, performing the duties of the NIH director; below, Cate Oswald of Partners in Health



health care,” said Cate Oswald, PIH chief policy and partnership officer.


The organization works in 12 countries across Africa, Latin America and Central Asia. Because of its experience responding to infectious disease outbreaks around the world, PIH also began operating in the U.S. to help control the spread of Covid-19 in 2020.

“Since then, our work has expanded to focus on strengthening community health systems as a fundamental component of realizing health as a human right,” said Oswald.

Across the country, community health workers have worked with state health departments, community-based organizations and health centers to serve more than 2.5 million people, she said. “We know this is just the start.”

CFC officially started on Sept. 1. It will end on Jan. 14, 2023. The theme of the campaign is “You Can Be the Face of Change.”

At the end of the kickoff, Allen said, “Your participation today and throughout the campaign will help make a crucial difference in many, many lives.”

NIH'ers can view a videocast of the event at <https://videocast.nih.gov/watch=46118>. For more information about the campaign, visit <https://cfc.nih.gov/>. 



The kickoff opened with a saxophone performance of the National Anthem played by Langston Hughes II, a former student of the Foundation for the Advancement of Music and Education, one of the charities represented in this year's CFC.

Chief Research Audiologist Brewer Retires

BY PATRICIA BLESSING

After 20 years of federal service, Dr. Carmen Brewer, chief research audiologist in the audiology unit at the National Institute on Deafness and Other Communication Disorders (NIDCD), retired on Oct. 27. At a symposium held in her honor, colleagues, staff, researchers and practitioners celebrated her contributions to the audiology field as a researcher, clinician and mentor. She was presented with an Award of Excellence for her sustained support of the NIDCD mission over the past two decades.



Dr. Carmen Brewer

“My experiences at the National Institutes of Health, all with NIDCD and the Clinical Center [CC], gave me the opportunity to conduct research, treat patients and train future generations of audiologists,” she said. “It couldn’t have been more fulfilling to have collaborated with a team of professionals and colleagues who are truly committed to advancing science and clinical care for persons with hearing loss.”

Brewer began her NIDCD career in 2002 as a research audiologist and chief of the audiology unit. Under her leadership, the unit has evolved into a top-notch center for conducting research on the auditory and vestibular systems, delivering clinical services and providing a comprehensive mentor program.

As a key CC component, the unit provides hearing and balance tests to study participants, including adult and pediatric patients with rare diseases as well as patients taking lifesaving but potentially ototoxic drugs or participating in investigational treatments. The unit also studies healthy volunteers to better understand the normal function and variability of the auditory and vestibular systems and to identify novel methods to evaluate these systems.

“Carmen’s career-long dedication to her patients, trainees and colleagues is mirrored in her scientific accomplishments and her establishment of a world-class audiology unit,” said NIDCD scientific director Dr. Lisa L. Cunningham. “[It] is a shining star for NIDCD and for the Clinical Center. Her ability to build strong collaborative relationships that advance both clinical care and scientific discovery is reflective of her leadership and excellence that will endure in the legacy she has built here at NIDCD.”

Brewer’s research on the natural history of a variety of genetic and other disorders has provided valuable insight into how these diseases affect the hearing and balance systems. In many of these studies, she worked with multidisciplinary teams of NIH clinicians to investigate neurofibromatosis type 2, Usher syndrome, enlarged vestibular aqueducts, Niemann-Pick type C (NPC), xeroderma pigmentosum and Moebius syndrome.

Her team’s natural history studies of NPC were the first to detail the effects of this rare disease on hearing and the ototoxic effects of an experimental drug used to treat the disease. The work led to collaborations among NIDCD, the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) and other NIH scientists and biotechnology companies to test promising new therapies for treating people with NPC.

Brewer’s research interest in the genetic aspects of auditory processing—how sounds are handled in the brain—led her to examine the heritability of this process in identical and fraternal twins. She collaborated with NIDCD’s

Laboratory of Molecular Genetics to demonstrate that dichotic listening—the ability to listen to and understand different speech signals when presented to each ear at the same time—is inherited.

Brewer expanded her findings to show that the auditory processing of non-speech signals, such as distinguishing various pitches, can also be inherited. Much of her work was conducted at the annual Twins Days Festival in Twinsburg, Ohio, where her team of researchers evaluated the auditory processing skills of twins.

Brewer has maintained a strong interest in mentoring young and aspiring scientists. Early in her career, she began mentoring a handful of students studying audiology, hearing science and speech science at local universities.

Since then, she has built a model training program that attracts high school and university students, doctor of audiology and Ph.D. students and medical residents across the country by offering hands-on experience working with clinical audiology approaches and research opportunities. She has mentored more than 100 training program participants.

Prior to joining NIDCD, Brewer earned a bachelor’s degree in speech pathology from Douglass College, Rutgers University, and a master’s degree and Ph.D., both in audiology and hearing science, from the University of Maryland, College Park.


She has been a UMD lecturer in the hearing and speech sciences department for more than 25 years and was previously a lecturer in Gallaudet University’s department of audiology and speech. She served as a clinical fellow in audiology at Washington Hospital Center (WHC) and rose to positions as director of hearing and speech; administrative director in oral surgery and otolaryngology; and administrative director of surgical subspecialties and anesthesia.

In her 28-year tenure at the WHC, she was instrumental in developing a successful audiologic assessment and rehabilitation program for adult patients; implementing a newborn hearing

screening program; cultivating community outreach programs; and administering a comprehensive audiology and speech pathology program.

Brewer’s career has yielded an abundance of publications and awards. She has published more than 100 research studies, contributed to numerous book chapters and presented at more than 100 scientific meetings. She has received numerous awards, including multiple NIH Director’s Awards and NIDCD Director’s Awards.

Brewer also has been commended by professional organizations. Most recently she received the Honors of the Association Award from the American Speech-Language-Hearing Association for her lifetime contributions to the field of communication sciences and disorders.

NIDCD research audiologists Dr. Christopher Zalewski and Julie Christensen will alternate as acting chief research audiologist until a permanent director is named. Brewer will continue to serve NIH as research audiologist emeritus. 

VOLUNTEERS

Volunteers Needed for Lung Study

An NHLBI research team seeks people with asthma and healthy adults for a study. Scientists are studying cells taken from the lungs of healthy individuals to compare to cells taken from individuals with asthma and other lung diseases. Compensation provided. For details, call 1-866-444-2214 (TTY users dial 711). Online: <https://bit.ly/3RID1hc>. NIH study #99-H-0076.

Gum Disease Study Seeks Volunteers

Do you or someone you know have gum disease? Have previous treatments failed? Researchers at the Clinical Center want to look at the oral bacteria and genetic immune problems of different people to learn how these affect gum disease and other conditions of the mouth. Call 1-866-444-2214 (TTY users dial 711) or ccopr@nih.gov. Refer to study #12-D-0100. Online: <https://bit.ly/3W1X4UJ12D0100>.

Glioma Drug Study Recruits

Diffuse midline gliomas are the most aggressive brain tumors of children and young adults. Researchers are looking to evaluate the safety of the anti-cancer drug Abemaciclib in the brain and blood of patients. Findings of the study can help explain how much drug gets in the brain and how drugs work to shrink high-grade gliomas. The study is enrolling adults ages 18-39 with recurrent high-grade glioma or diffuse-midline glioma. There is no cost for participation, tests, treatments or procedures. Contact the Office of Patient Recruitment at 866-444-2214 (TTY users dial 711) or ccopr@nih.gov. Refer to study #22-C-0003. Online: <https://bit.ly/3S6MCIG>.



PHOTO: MONKEY BUSINESS IMAGES/SHUTTERSTOCK

Study Finds Racial Disparities in Heart Failure Treatment

Black adults treated at advanced heart failure centers received potentially life-changing therapies, such as transplants and heart pumps, about half as often as White adults, possibly due to racial bias. The finding comes from a small NIH-supported study.

Researchers followed 377 patients receiving treatment at one of 21 centers in the U.S. and found that 62 of 277 White adults (22%) received a heart transplant or ventricular assist device (VAD), a mechanical device that pumps blood for the heart. In comparison, 11 of 100 Black adults (11%) received these end-stage heart failure therapies, which can extend and improve a patient's quality of life.

Researchers said the findings, which appear in *Circulation: Heart Failure*, underscore the importance of strengthening equity in clinical decision-making for the 600,000 Americans—particularly Black adults—who have end-stage heart failure. Prior studies have shown Black adults have a greater risk for heart failure and are twice as likely to die from it.

To help address this disparity, “an immediate step could be to require implicit bias training, particularly for transplant and VAD team members,” suggested Dr. Wendy Taddei-Peters, study author and clinical trials project official in NHLBI's Division of Cardiovascular Sciences.

The findings are from the Registry Evaluation of Vital Information for VADs in Ambulatory Life (REVIVAL), an observational two-year study supported by NHLBI.

For their analysis, the researchers controlled for multiple factors, including disease severity, quality of life and several social determinants of health. Despite that treatment preferences between the two groups were similar, being Black was associated with a 55% reduced rate for receiving VAD therapy or a heart transplant.

The researchers suggested that unconscious bias—and even overt racism and discrimination—among health care providers and within the health care system itself likely came into play.

In addition to recommending training, researchers suggest studying ways to standardize advanced heart failure therapy. Using patient registries to identify when and where disparities in clinical care occur could be a start. Medical centers could partner with “disparity experts” to identify pivotal decision-making points where bias may creep in.

Do Video Games Improve Cognitive Performance?

A study of nearly 2,000 children found that those who reported playing video games for three hours per day or more performed better on cognitive skills tests involving impulse control and working memory compared to children who had never played video games. Published in *JAMA Network Open*, this study analyzed data from the ongoing Adolescent Brain Cognitive Development (ABCD) Study, supported by NIDA.

“Numerous studies have linked video gaming to behavior and mental health problems,” said NIDA director Dr. Nora Volkow. “This study suggests there may also be cognitive benefits associated with this popular pastime, which are worthy of further investigation.”

Scientists at the University of Vermont, Burlington, analyzed data obtained when children entered the ABCD Study at ages 9 and 10 years old. The research team examined survey, cognitive and brain imaging data from nearly 2,000 participants from within the bigger study cohort.

The three-hour threshold was selected as it exceeds the American Academy of Pediatrics screen-time guidelines, which recommend that video gaming time be limited to one to two hours per day for older children.

Investigators found that the children who reported playing video games for three or more hours daily were faster and more accurate on cognitive tasks than those who never played.

In the gamer group, functional MRI brain imaging analyses found higher brain activity in regions of the brain associated with attention and memory. This group also had more brain activity in frontal brain regions associated with more cognitively



Study finds improved cognitive and memory skills in kids who play video games.

PHOTO: PRESSMASTER/SHUTTERSTOCK

demanding tasks and less brain activity in brain regions related to vision.

While prior studies have reported associations between video gaming and increases in depression, violence and aggressive behavior, this study did not find that to be the case. There were reports of higher mental health and behavioral issues in this cohort but the authors could not confirm whether this trend reflected a true association or chance. They note this will be an important measure to continue to track and understand as these children mature.

Hepatitis B Vaccine Regimen Protects People with HIV

A three-dose course of the hepatitis B vaccine HEPLISAV-B fully protected adults living with HIV who had never been vaccinated against or infected with the hepatitis B virus (HBV), according to study findings from an ongoing NIAID-sponsored phase-3 study.

HBV is spread primarily through sexual contact and sharing of contaminated needles. It causes chronic hepatitis B infection and can lead to progressive liver disease. People living with HIV, including those who are taking antiretroviral therapy, are at greater risk of liver-related illness and death when co-infected with HBV.

The CDC reports 10% of U.S. adults with HIV also have hepatitis B. People living with HIV are less likely to produce a protective immunological response to HBV vaccination. The HEPLISAV-B vaccine was approved in 2017 by the FDA as a two-dose vaccine regimen for adults. However, little was known about its protective effects in people living with HIV.

Researchers at the University of Cincinnati College of Medicine and Weill Cornell Medical College in New York tested a three-dose course of HEPLISAV-B among 68 adults living with HIV at 38 sites in the U.S., South Africa and Thailand. None of the participants had received a previous HBV vaccination or had evidence of a previous HBV infection; all were on antiretroviral therapy.

Following the initial dose of HEPLISAV-B vaccine by intramuscular injection, study participants received additional doses at four weeks and 24 weeks.

All participants achieved seroprotection with 88% of participants achieving HbsAb levels greater than 1000 mIU/mL. High antibody levels are thought to be associated with long-term vaccine durability.

The international study will continue to examine the effects of two-dose HEPLISAV-B, as well as a three-dose regimen of another hepatitis B vaccine, ENGERIX-B, among adult participants who did not achieve an adequate immunologic response. The clinical trial is estimated to complete vaccinations in March 2023.

Halloween Pet Parade

NIH pets put on a show recently to mark All Hallow's Eve. Here are several contenders vying for best dressed. We'll add more images to the gallery online at <https://nihrecord.nih.gov/>.



Halloween fiesta! Squeak sports a sombrero.—submitted by Sabrina Springer, NLM



Do the Talesnik fish dare enter their new haunted house?—submitted by Ryan Talesnik, NICHHD



"I'm Kathy, a service dog in training with Warrior Canine Connection (CFC #94624, <https://warriorcanineconnection.org/>). I'm being raised by NIH'er Jennifer Marill and her retired husband. Wishing everyone peace, love and (service) labs."—submitted by Jennifer Marill, NLM



Samwise (presumably of Hogwarts) says, "Accio dog treats!"—submitted by Eliza Jacobs-Brichford, NIMH



Colt's costume is dino-mite.—submitted by Eric Bock, OD



Coco the Wonder Dog?—submitted by Leslie Rivera Quiroz, NIAMS



Beagle mix Benny doing his best hot dog impression for Halloween—submitted by Jennifer Morgan Gray, NIAMS



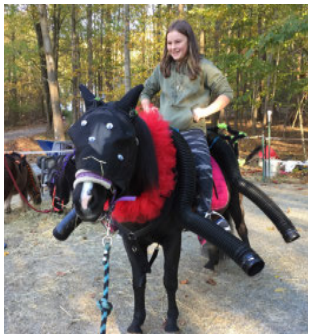
There's a lion in the house! Dante dons his mane.—submitted by Usha Singh, ODP/OD



Biscuit Prince hoping to conjure up some dog treats this Halloween.—submitted by Scott Prince, OD



Zilly the therapy dog dressed as a cat for the holiday. Here, she's shown in a group photo with the rest of the staff of the Children's Inn at NIH.



Black pony Licorice went as a spider.—submitted by Terry LaMotte, NHLBI



The largest-ever NEI 5K Run/Walk/Roll starts.



NEI director Dr. Michael Chiang rallies participants at the 5K start.



5K winners are (from l) Ian Morgan of NIGMS (second place), Isaiah King of NCI (first place) and Takashi Akera of NHLBI (third place).

PHOTOS: LESLIE E. KOSOFF

NEI 5K Is Largest Ever

The third 5K Walk/Run/Roll, held Oct. 19 by the National Eye Institute (NEI), was the largest ever with more than 500 participants from across NIH. Organizations also staffed booths and kiosks, providing health info and demonstrations.

“We have a dedicated, vibrant community here at NIH,” said NEI director Dr. Michael Chiang. “I hope this event gives you an opportunity to meet face-to-face with folks who perhaps you’ve only met virtually, and chat with many others you haven’t seen in a while.”

The annual event was suspended in 2020-2022 due to the Covid-19 pandemic.



With perfect fall weather and a record turnout, the 2022 event was deemed a success. Each institute and center was represented among participants. NEI launched the event in 2018 as part of its 50th anniversary celebration.



At left, NEI’s Dustin Hays promotes the NIH Blood Bank’s blood drive. Blood bank staff signed up more than 40 new donors at NEI’s annual 5K Walk/Run/Roll. Above, all smiles for a fun time.