

NETWORKS & SERVERS & FIREWALLS, OH MY! CIT's De La Torre and Team Make Mass Teleworking Safe, Seamless

BY CARLA GARNETT

The fact that more than 31,303 folks working at NIH—but not physically at NIH, due to Covid-19 “stay home, stay healthy” measures—can telework safely and almost seamlessly cannot be taken for granted.

Try to imagine thousands of moving parts, operating simultaneously, together, alone and in hundreds of small groupings. Servers, networks, firewalls, applications, users—all being called to perform at once. That’s the challenge that faced Victor De La Torre, director of the business application



Victor De La Torre

services division, and his team in CIT’s Office of IT Services Management Directorate earlier this year.

He was just a few months into his new position at NIH when the global pandemic began forcing employers large and small all over the country to adopt

social-distancing measures and allow nearly universal remote access to work. NIH, which employs many thousands of people in all sorts of roles, was no different. Would the IT infrastructure withstand the new volume of

SEE TELEWORK, PAGE 4

REDS FAMILY OF RESEARCH

The Vital Role of Blood in Combating Covid

BY DANA TALESNIK



Dr. Iman Martin

There’s a whole network of researchers and specialists who work tirelessly behind the scenes to safeguard the nation’s blood supply, and their heroic efforts have recently kicked into high gear. Another unsung hero in the coronavirus

pandemic is blood, the lifeline that underlies

SEE BLOOD, PAGE 8



Chris (l) and Jason Plummer

The Plummers Find Fulfillment in Fostering Children

BY DANA TALESNIK

“Dada!” exclaimed the 2-year-old, and the 1-year-old echoed, babbling as they bounced on their daddy’s lap during his phone interview. The two little ones are among the foster children currently living with Jason Plummer, an OD supervisory administrative

SEE PLUMMERS, PAGE 10



Dr. Eliseo Pérez-Stable and Dr. Francis Collins

NIMHD Marks 10th Anniversary

“It’s hard to believe, but I’ve been the NIH director for almost 11 years,” said Dr. Francis Collins. “I’ve watched the way in which the National Institute on Minority Health and Health Disparities enterprise has evolved from a center to an institute.”

He was speaking at NIMHD’s 10th anni-

SEE ANNIVERSARY, PAGE 6



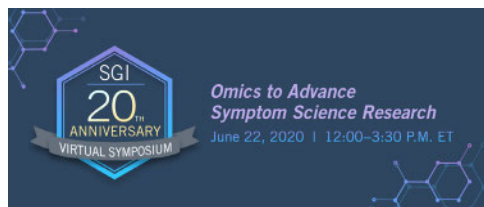
Telework companions still hogging the spotlight. See final gallery, p. 12.

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NINR Marks 20th Anniversary of Summer Genetics Institute

On Monday, June 22, from noon to 3:30 p.m., NINR's Division of Intramural Research will hold a virtual scientific symposium to mark a milestone anniversary—celebrating 20 years of its Summer Genetics Institute (SGI). NINR invites the NIH community and fellow scientists to join them in examining how omics methodologies are improving symptom measurement and characterization. This event is free of charge, but registration is required.



The symposium will include opening remarks from NIH director Dr. Francis Collins and lectures from leading nurse scientists who will discuss their research in omics and perspective on the future of omics in translational programs of research and clinical care: Dr. Christine Miasowski, University of California San Francisco; Dr. Yvette Conley, University of Pittsburgh; and Dr. Angela Starkweather, University of Connecticut.

The SGI provides nurse scientists with a foundation in molecular genetics appropriate for use in research and clinical practice. Nearly 450 SGI graduates are making a difference in communities across the country—building programs of nursing research in genetics, disseminating the results of genetics-related research in peer-reviewed scientific publications and at scientific conferences and integrating genetics content in nursing school curricula and nursing practice.

Register at ow.ly/W6a550zB9Fd and view the symposium agenda at <https://ow.ly/H8NS50zF3zv>. To request reasonable accommodation, contact precious.enyidah@nih.gov at least 5 days before the event. Real-time captioning will be available via videocast by pressing the CC icon on the video player.

Light's Effects on Health Is Lecture Topic

June 30

NCCIH will hold a virtual lecture by Dr. Helen Burgess on Tuesday, June 30 at 11 a.m., "Lighting Up Our Lives: How Light Influences Our Mental and Physical Health." The talk inaugurates a series, "Novel Approaches at the Intersection of Mental Health and Pain," part of the center's Integrative Medicine Research Lecture Series.



Dr. Helen Burgess

Natural outdoor light



Germfree Modules Go Skyward

As part of construction of the Clinical Center department of transfusion medicine's Cell Processing Facility on the east terrace of Bldg. 10, one of six germfree modules is lifted into place at the CC on May 5. The modules were delivered by semi-trailers to the site along Memorial Drive, between Bldgs. 10 and 5, then hoisted by a large crane. Workers spent the day nesting the units into position.

PHOTOS: DPR CONSTRUCTION



and artificial indoor light can affect our mental and physical health. This is especially relevant in the current times when we are asked to stay home and spend less time outside.

Burgess will examine how light reaches the brain and can alter brain centers that regulate circadian (body clock) timing, sleep and mood. Other topics include specific properties of light—such as intensity, wavelength and timing—and individual differences in light sensitivity.

Current approaches to morning light treatment and how it can be used to improve health and reduce symptom burden in clinical disorders

(e.g., chronic pain conditions, depression and post-traumatic stress disorder) will also be addressed.

Burgess is professor in the department of psychiatry and co-director of the Sleep and Circadian Research Laboratory at the University of Michigan and holds a Ph.D. in psychology from the University of Melbourne, in Australia.

Her lecture will be streamed live and archived at <https://videocast.nih.gov/watch=37830>. Additional dates in the series are to be announced.

Covid-19 Researchers Gain Quick Access to Surveys, Protocols

BY KELLY LENOX

A new collection of resources and tools for epidemiologists, clinicians and other scientists studying Covid-19 became available in April thanks to the NIH Disaster Research Response (DR2) program. DR2 is led by NIEHS in collaboration with NLM.

In addition to the new Covid-19 resources, DR2 offers a compilation of more than 350 disaster-related data collection tools. The resources include survey questions already in use, training materials and study protocols pre-reviewed by institutional review boards. The collection has been used to help improve study designs and speed the launch of time-critical studies in response to Hurricane Harvey, wildfires and other disasters.



Dr. Aubrey Miller said the NIH effort will help researchers work fast and smart by helping them readily access available instruments that are highly credible and in use by others.

PHOTO: STEVE MCCAWE

The new data collection tools and protocols, hosted by DR2 in collaboration with the NIH-funded PhenX Toolkit, will enable research using these tools to be more easily compared and more broadly applied, according to NIEHS senior medical advisor Dr. Aubrey Miller. “Researchers can build on each other’s efforts, rather than having many unique surveys whose findings cannot be combined,” he explained.

Dr. William Riley, head of the Office of Behavioral and Social Sciences Research (OBSSR), encouraged scientists to select Covid-19 survey items and protocols from these repositories. “Researchers with additional survey items about to be fielded are encouraged to make them public for other researchers to consider, by submitting the survey to NIHCOVID19Measures@nih.gov,” he said.

Such public sharing of survey tools is uncommon, yet especially important in an emergency, according to NIEHS acting deputy director Dr. Gwen Collman. “People generally publish their findings, not their data collection tools,” she explained. “Now, instead of spending weeks or months to develop them, or days trying to locate them, researchers can save valuable time by seeing how a question has already been asked.”



Dr. Bill Riley noted that since the pandemic began, researchers with studies already underway began developing new survey items to assess such topics as knowledge and attitudes, symptoms and social and economic impacts.

community through NIH platforms. “We are working with researchers from across NIH, under short timelines of high-intensity activity, to help support our research enterprise response to this crisis, from multiple perspectives,” he said.

Riley agreed. “The staffs involved in PhenX and DR2 have been absolutely wonderful in working with the trans-NIH group to get a listing of Covid-19

OBSSR has led NIH efforts to ensure that data collection tools related to the coronavirus were posted on the DR2 website and the PhenX Toolkit, to improve the usability of these high-value resources. Studies of the pandemic need to be fielded in just a few weeks—a phenomenally short time. When asked about these ongoing efforts, Miller said that it is all-hands-on-deck right now to help support the research community

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“DR2 was built for just this type of situation—to make us more resilient during a public health emergency or disaster.”

—DR. AUBREY MILLER

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survey items posted, so others can use what already exists instead of creating their own,” he said. Thus the urgency—every day, new studies are being launched and organizers want to make the results as useful as possible.

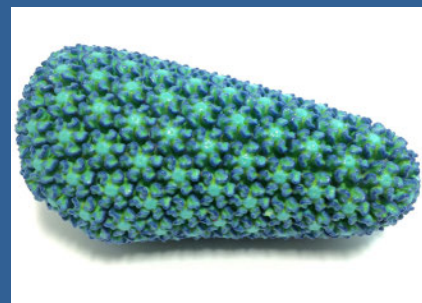
“DR2 was built for just this type of situation—to make us more resilient during a public health emergency or disaster—in response to the 2013 call from NIH director Dr. Francis Collins and others,” Miller said. He was referring to a publication by Collins, Dr. Nicole Lurie, then-assistant secretary for preparedness and response, and colleagues.

Miller noted that the 2009 H1N1 flu pandemic and NIEHS efforts to respond to the 2010 Gulf oil

spill were among the scenarios discussed when designing the program.

The NLM Disaster Lit site serves as a clearinghouse for research tools that are then curated and added to the DR2 repository. “NLM is committed to providing timely access to health information for researchers,” said Stacey Arnesen, deputy chief of the NLM Public Services Division. “Adding the tools to DR2 is a great example of collaboration across NIH to quickly collect, organize and widely disseminate these resources.” The collection evolves quickly as users submit new resources.

OBSSR provides surveys to DR2 with Covid-19-specific questions in topics as diverse as social distancing, cannabis use, prenatal and perinatal experiences, sleep changes and more. NIEHS provides worker training resources in English and Spanish, along with materials targeted for community members as well as clinical and emergency medical workers. **R**



ON THE COVER: *Capsid of HIV*

IMAGE: JANET IWASA, NIH 3D PRINT EXCHANGE

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Editor: Rich McManus
Rich.McManus@nih.gov

Associate Editor: Carla Garnett
Carla.Garnett@nih.gov

Staff Writers:
Eric Bock • Eric.Bock@nih.gov
Dana Talesnik • Dana.Talesnik@nih.gov

Subscribe via email: listserv@list.nih.gov Follow: <http://nihrecord.nih.gov/>



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Telework

CONTINUED FROM PAGE 1

logins? De La Torre and coworkers—responsible for getting folks, systems and software up and running at home safely—would be the first to find out.

“It’s pretty packed,” he said, describing his schedule of late. “Our team burned a lot of hours. I know there were times we had 2,000-something records, and there were times we had like, 3,000 to 4,000, and then there were days where it was just hundreds, and we would just go for it.”

Fortunately throughout his career, De La Torre has become accustomed to big asks. Before arriving at NIH, he worked as division chief for software development, for IT copy-right liaison and for storage management at the Library of Congress. Prior to that, he was in the Department of Defense for 22-plus years on active duty as a medical service corps health IT officer.

Not long after he started here, De La Torre began to reorganize his group to improve efficiency and beef up capacity. Then Covid-19 struck.

“It was one of those things,” he lamented. “We had a lot of plans. We had our roadmap. I was almost done with the whole restructure. I was at the tail end and I had to put all that stuff on hold and start working on this.”

For several weeks, his team had been preparing to upgrade the agency’s global email list—the NIH Enterprise Directory (NED). In fact, the NED release 5.2 development test environments were nearly ready for their trial run. From Mar. 27 to 29, De La Torre and crew successfully tested and deployed the updated NED and trained the NED user advisory group.

In addition, the division led multiple teams for long hours over the past few months to plan, develop, test and establish checklists and coordinate emergency change requests as part of NIH’s Covid-19 response.

Some of his team’s other accomplishments include:

- Conducted bulk uploads for 17,000-plus additional staff for Virtual Private Network (VPN) access.
- Established both single-factor and multi-factor VPN technical processes, which improved cybersecurity and reduced risk.
- Generated an integrated report that

★ ★ ★

“It was one of those things. We had a lot of plans. We had our roadmap. I was almost done with the whole restructure. I was at the tail end and I had to put all that stuff on hold and start working on this.”

-VICTOR DE LA TORRE

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provides VPN, personal identity verification (PIV) and badge status through NED, the active directory (AD) and the Division of Personnel Security and Access Control.

- Created a comprehensive report combining data from NED, nVision and AD so that institutes and centers know which staff have expiring badges and certifications.
- Generated daily ITAS data that the Office of Human Resources is required to report every day to HHS about the number of NIH employees teleworking.
- Generated a daily report that provides the total number of staff authorized for VPN, categorized according to group—federal employees, contractors, fellows, volunteers, tenants and guests, and showing increases by day.

• Established and coordinated an IT incident and problem management disaster-recovery work group to respond to service disruptions and security incidents and analyze root causes.

• Completed a script to revoke single-factor VPN for more than 2,450 staffers. This tool also improved cybersecurity by preventing hackers from accessing those accounts and the NIH network.

• Completed emergency NED bulk updates to give VPN access to several lists of staff including NIAID, CIT, IMOD, OCIO, NCI, NEI and many others, to support Covid-19 working groups.

In addition, De La Torre’s days (as well as some nights and into the wee hours of some mornings) are full of briefings with NIH, IC and CIT leaders about the status of IT systems. About 80 percent of the group’s work can be done remotely, but 20 percent—visiting a storage system or application server at a data center, for instance—requires on-site attention.

De La Torre remains enthused and optimistic despite the pressing demands of IT in the age of a coronavirus pandemic.

“We’re establishing a partner engagement

process as well as a design branch and a program management office that is going to provide all of the governance, change management and joint application development,” he explained. “And then we have another branch that is going to be responsible for the integration and transition of all development security operations.”

In addition, a platform services unit will provide all the service-oriented architecture, a configuration management database as well as “Service Now Platform” to be able to respond to incidents, get root cause analysis and enable network vulnerability response, security incident management, asset management and orchestration.

“These services will enhance NIH’s ability to detect and resolve IT service disruptions and security incidents faster,” De La Torre concluded. “That’s why I’m restructuring our division to be able to support all of that better. Currently, it’s not the way a system development lifecycle is supposed to be...I think that going through all of this [Covid-19 detour] really helps us. I think we’re well prepared.” **R**



Fowl-weather find. “Another item for the never-ending saga of increased wildlife on NIH campus in these Covidian times of less foot traffic,” notes Dr. Bill Flegel, chief of the laboratory services section in the Clinical Center’s department of transfusion medicine, who sent us this photo of a female wild turkey (hen) outside of his office in the NIH Blood Bank.



Collins Wins 2020 Templeton Prize

NIH director Dr. Francis Collins was named winner of the 2020 Templeton Prize on May 20.

“In his scientific leadership, public speaking and popular writing, including his bestselling 2006 book *The Language of God*, Collins has demonstrated how religious faith can motivate and inspire rigorous scientific research,” said the press release from the Templeton philanthropies.

“[Collins’ book] argues that belief in God can be an entirely rational choice and that the principles of faith are, in fact, complementary with the principles of science,” said the citation. “In the book, he endeavors to encourage religious communities to embrace the latest discoveries of genetics and the biomedical sciences as insights to enrich and enlarge their faith.”

Collins, 70, was selected as the 2020 laureate by prize judges late last year, but the announcement was delayed due to the coronavirus pandemic.

The prize, given to 50 people since it began in 1973, includes a cash award of 1.1 million British pounds, or about \$1.3 million.

Sir John Templeton, an investor and philanthropist who died in 2008, created the Templeton Prize to recognize discoveries that yielded new insights about religion, especially through science. He set the award amount above that of the Nobel Prizes in order to recognize the importance of what he called “progress in religion.”

The full citation is available at <https://www.templetonprize.org/laureate-sub/francis-collins-awarded-2020-templeton-prize/>.

PITCHING IN

Inn Staff Steps Up in Time of Need

Staff at the Children’s Inn at NIH’s programs and services department are unsung heroes, says Sonja Luecke, inn spokesperson.

“The Children’s Inn administrative staff are teleworking,” she said. “Only our essential programs and services staff—which includes resident services, our facilities team, family programming as well as volunteer services and community outreach—are working in staggered and rotating shifts to help provide for families. Our staff also have taken on the roles of the more than 200 regularly scheduled volunteers [who work in 4-hour shifts] whom we have temporarily suspended for safety reasons.”

Luecke offered examples of how inn staff help keep families safe, entertained, fed and feeling cared for.

- Staff wear masks and gloves and administer health screening protocols to anyone entering the building.
- They have taken on the duties of volunteers who normally staff the welcome desk: check families in, provide tours upon guests’ arrival, answer phones, call the shuttle.
- Staff also handle other volunteer duties: accepting in-kind donations, restocking the kitchen pantries, organizing grocery gift cards and food deliveries to help families avoid unnecessary trips off-campus (inn-provided grocery runs have been suspended), placing “thoughtful treasures” into children’s mailboxes, so each child has a small gift to brighten every day.
- While volunteers typically provide buffet-style dinners to families, inn staff now order meals and provide only individual, boxed meals to families. Staff also take meals to the Clinical Center for families who are inpatient; nurses distribute the meals to inn families.



Children’s Inn staff Aisha Dubose (l) and Meghan Arbegast sort grocery deliveries before disinfecting and bagging food for individual families.



Families cooking at the inn wear masks and practice physical distancing.

PHOTOS: FERN STONE

- Staff remind families to wear masks and practice physical distancing.
- They make weekly check-in calls to every family staying at the inn to add an extra layer of human connection and protection.
- They disinfect families’ mail and food deliveries.
- Staff provide new educational, recreational and therapeutic activities virtually so children and families can participate from their rooms. Recent examples include a virtual magic show performed by a magician, virtual zoo visits and animal talks, and more. Families receive weekly activity tables and are provided with activity kits. Zoom sessions require multiple hours for research, slide creation, activity kit assembly and hosting of session.

Lastly, an activities resources table provides children and families with arts and crafts supplies, stress balls, markers, paper, games, books and snacks and is restocked daily.



At the event were (from l) Stadtman investigator Dr. Kelvin Choi, NIMHD scientific director Dr. Anna María Nápoles, Stadtman investigator Dr. Sherine El-Toukhy and NIA deputy scientific director Dr. Michele K. Evans.

PHOTOS: MARLEEN VAN DEN NESTE

Anniversary

CONTINUED FROM PAGE 1

versary scientific symposium Innovations to Promote Health Equity, one of several events celebrating 10 years of NIMHD as an NIH institute. In addition to a roomful of attendees at Natcher Conference Center, the recent pre-pandemic event drew more than 2,000 people via videocast.

As NIMHD director Dr. Eliseo Pérez-Stable noted in his keynote, it has only been 35 years since the seminal Heckler Report documented the existence of health disparities among racial and ethnic minorities in the United States. Shortly after, in 1990, the Office of Minority Programs, a predecessor to NIMHD, was created.

What do you do as a new NIH office tasked with a monumental challenge: moving from a reality where your race or ethnicity impacts how long you live toward one where health equity reigns?

You need lots of talented researchers to study and understand the problem, and to innovate. But you also want that workforce to represent the country and the communities that NIH seeks to serve.

Through its Research Centers in Minority Institutions (RCMIs), Loan Repayment Program, Centers of Excellence, Community-based Participatory Research Program and other innovative scientific efforts, NIMHD has made major inroads toward these goals.

For example, R01 grants are the gold-standard NIH grant mechanism that enables investigators to set up and sustain their own research teams. Pérez-Stable highlighted that, NIH-wide, 1.3 percent of R01 grant recipients in 2019 were African

American. For NIMHD, that number was 13.6 percent. And the percentage of Latina or Latino awardees of an R01 grant from NIMHD was about double the number for NIH overall.

“One of the conclusions I can draw from this is that if we had the ability to fund more investigators, there would be more diversity in the workforce, right?” Pérez-Stable said, while recognizing that much work remains to be done.

Understanding the health disparities around us

One researcher attracted to the field of health disparities in those early days was Dr. Michele K. Evans.

In 1992, she moved to Baltimore as an intramural researcher with the National Institute on Aging. She spent her days in the laboratory, studying how our cells repair DNA. But on her drive home she saw the effects of poverty and racial discrimination

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“I consider myself a poster child for NIMHD and health disparities here at NIH.”

—DR. MICHELE K. EVANS

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in the city; the average life expectancy for Baltimore residents was more than 10 years lower than for the surrounding counties.

“I became concerned that my studies on MCF-7 cells and DNA repair were not really going to get to the bottom of what I saw every day,” said Evans. This sparked the idea to follow a range of Baltimore residents as they aged, leading to the Healthy Aging in Neighborhoods of Diversity across the Life Span (HANDLS) study.

“I consider myself a poster child for NIMHD and health disparities here at NIH,” said Evans explaining how funding from NIMHD in the 1990s allowed her to change the direction of her lab and start the study, which continues today. “I just kept coming back for more funding.”

Testing strategies, building the evidence base

Around that same time on the other side of the country, Dr. Spero Manson sought to address the high rates of suicide in Alaska Native communities. Stigma around mental illness prevents many people from getting help, something Manson knows well from his work and experiences as an American Indian (Pembina Chippewa).

But what if doctors didn’t wait for people to reach out for help? With support from NIMHD, then a center, Manson tested having primary care doctors ask each patient a series of questions. Those deemed at risk of suicide would immediately meet with a specially trained doctor who would refer them to mental health services. In the first few years, the clinic screened 18,000 Alaska Native patients; nearly 40 percent were at serious risk of suicide.

The strategy translated not just to lives saved, but also to health care dollars saved, and the data helped convince the state of Alaska to support the program through Medicaid. It has now expanded to 36 clinics across Alaska.

Looking at policies for health equity

Some health problems are so big they may be better addressed by national policies rather than strategies aimed at individuals. This is the focus of Dr. Fang Zhang’s research.

Using mathematical models, she estimated that about 5 percent of cancers in the United States can be attributed to a poor diet. This translates to many deaths that could be prevented.

One culprit is highly processed meats, which can lead to colorectal cancer. African Americans both get and die from colorectal cancer at much higher rates than white Americans.

Zhang looked at possible policies that could make a difference: putting a 10 percent tax on processed meats or requiring a warning label. She found that either policy could prevent around 70,000 cancer deaths over someone’s lifetime. And both would save money in the long run.

“Our results provide strong support that nutrition policies are potentially promising, cost-effective strategies for reducing the cancer burden and cancer disparities in the U.S.,” said Zhang.



Also attending were (from l) Dr. Colter Mitchell, University of Michigan; Dr. Spero Manson, University of Colorado Denver's Anschutz Medical Center; Dr. Marcella Nuñez-Smith, Yale University; and director of NIMHD's Integrative Biological and Behavioral Sciences Division Dr. Michael H. Sayre.

Filling gaps in research

But not all health disparities are so straightforward to address. In many cases, investigators are still working to identify and understand what leads to a disparity—and the answer is often complex.

Take the sobering fact that in New York City, black women are 8 to 12 times more likely than white women to die from complications of pregnancy.

“Maternal mortality is now a crisis in this country,” Dr. Elizabeth Howell said, speaking on the afternoon panel about her research into this disparity.

One reason she found: certain hospitals in New York City have much higher rates of pregnancy complications than others. And black and Latina women are more likely to go to these high-risk hospitals. Howell's team is now working to understand how hospitals can improve their care for pregnant women.

“We're trying to share these results and come up with some best practices to move the needle,” she said.

Looking to the future

Sometimes we don't know how under-informed we are. For a long time, people of color have not been represented equally in genetics studies. This seems to be the case for the related and newer field of epigenomics, which looks at tiny tags on our DNA that turn our genes on and off. So far, studies

have either focused on people of European ancestry (whites) or have not reported the race or ethnicity of their study participants. This means the results may not apply to other populations.

“Into this fray stepped NIMHD,” said Dr. Colter Mitchell. Back in 2016, NIMHD funded Mitchell and others as part of NIH's first social epigenomics program. Social epigenomics looks at how your environment—things like stress, discrimination and nutrition—affect your DNA tags.

“Why would a social scientist care about this?” asked Mitchell. “Epigenomics is a great marker for different exposures and different health statuses and thus, potentially, a great marker for health inequality.”

Three years later, he has amassed the largest epigenomic dataset in the world collected from children of diverse backgrounds. This data will help us understand how our life experiences shape the effects of our DNA.

In closing remarks, Pérez-Stable said the symposium reinforced how race and ethnicity and socioeconomic status affect health. “It's not ancestry, it's not biology, it's a confluence of a variety of factors that includes context and history and behavior and environment,” he said. Through strategies that span from the individual level to national policies, Pérez-Stable hopes that one day this social construct will no longer affect the kind of health Americans enjoy. **R**



Neighbors Thank RML Workers

Employees at NIAID's Rocky Mountain Laboratories in Hamilton, Mont., recently received a kudo from a neighbor, Anthony Witschen. “He made this banner to express the appreciation of the Bitterroot Valley community for our important research efforts,” said Dr. Marshall Bloom, associate director for scientific management at the facility. The banner will be displayed in Bldg. 28 at RML. Bloom said that Witschen will be receiving a thank-you letter. Holding the banner are Roger Laferriere (l), emergency preparedness coordinator at RML, and Colleen Miller, a retired administrative officer.

PHOTO: BRYAN KERCHER

VOLUNTEERS

Study of Fatigue Needs Volunteers

NINR invites cancer survivors or those with chronic illnesses such as myalgic encephalomyelitis (ME), chronic fatigue syndrome (CFS), Sjogren's disease or lupus to participate in a research study on fatigue. Researchers want to test if a one-time dose of the medication ketamine or a similar drug can reduce fatigue. This is not a treatment study for fatigue, cancer, ME, CFS, Sjogren's disease or lupus. For more information about study 20-NR-0003, call 1-866-444-2214 (TTY users call 1-800-877-8339) or visit <https://go.usa.gov/xvum>. Note that NINR employees/staff or their immediate family members are not eligible to participate.

Study of Coronavirus in Saliva Recruits

Researchers at the National Institute of Dental and Craniofacial Research are conducting a study to determine if the SARS-CoV-2 virus is present in saliva in asymptomatic individuals. This research study is seeking NIH employees 18 years and older and/or their family members who live in the same house as an employee who had close contact with someone who has tested positive for Covid-19. Contact the Clinical Center Office of Patient Recruitment at 866-444-2214 (TTY 800-877-8339) or prpl@cc.nih.gov. Refer to study 20-D-0094. Read more at <https://go.usa.gov/xpJ2D>.

Blood

CONTINUED FROM PAGE 1

our understanding, diagnosing and potential treatment of Covid-19.

“To increase our understanding of SARS-CoV-2 and how it causes disease, it is important to conduct blood research,” said Dr. Iman Martin, an epidemiologist and program director in the National Heart, Lung, and Blood Institute’s Blood Epidemiology and Clinical Therapeutics Branch.

The group is evaluating questions about blood safety and availability as well as new research to further our understanding of viruses and their pathogenesis. When a new infectious agent emerges, such as SARS-CoV-2, it becomes part of a longstanding research program created 30 years ago, born of the HIV/AIDS epidemic.

Today, NHLBI’s Recipient Epidemiology & Donor Evaluation Study (REDS) continues to meet its goals by conducting research to evaluate and improve the safety and availability of the blood supply as well as the safety and effectiveness of transfusion therapies. Another core mission: evaluating

whether a new emerging infectious agent represents a threat to blood safety.

“When there is an emergency, NHLBI and its partners can flip a switch and turn the REDS infrastructure into a response asset,” said Martin, underscoring the critical role of public-private partnerships established through the REDS framework. This REDS family of researchers unites HHS partners with blood collection facilities and industry partners across the U.S. to achieve its research objectives.

“This switch was turned on as soon as we realized that we were dealing with a severe emerging infectious threat,” said Dr. Simone Glynn, chief of NHLBI’s Blood Epidemiology and Clinical Therapeutics Branch, who is managing the REDS domestic program at NHLBI and is helping launch a new REDS effort targeted at SARS-CoV-2 called RESPONSE—REDS Epidemiology, Surveillance and Preparedness of the Novel SARS-CoV-2 Epidemic. This project, which is jointly supported by the National Institute of Allergy and Infectious Diseases and

NHLBI, represents a collaboration between REDS investigators and several blood collection organizations including Bloodworks Northwest, New York Blood Center, Vitalant and the American Red Cross.

“RESPONSE will help us answer key questions about theoretical blood safety concerns, seroprevalence in blood donors, and will further our understanding of the SARS-CoV-2 pathogenesis through follow-up studies of previously infected donors and patients,” Glynn said.

REDS is harnessing the nation’s vast network of blood donors. Millions of people donate blood each year; within that pool lies the potential to gauge the extent

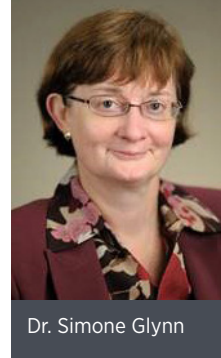
of infections and virus immunity across the country. “We’re sitting on a treasure trove of the potential milieu of antibodies available in the blood supply,” said Martin.

“We’re trying to leverage that large surveillance system of blood donors who are screened across the nation to help gather information on new infections,” said Glynn. For this reason, the RESPONSE program is now focused on testing blood samples in select Covid-19 outbreak regions to help determine how many people may have developed protective antibodies against the virus.

This serology survey to test blood donations for covid antibodies recently launched across 6 major U.S. regions. The effort will help track how many people were exposed to SARS-CoV-2 and developed antibodies against the virus. “These sero-surveys, which will be conducted monthly, will also track the percentage of people who have antibodies over time,” explained Glynn. “We are working closely with CDC on this effort.”

Through REDS, heightened efforts continue to advance blood science while protecting the blood supply from infectious agents. For SARS-CoV-2, RESPONSE researchers will evaluate available tests that could potentially be used to screen the blood supply if evidence of transfusion transmission became apparent.

“This risk is theoretical right now because there are no reported cases of transfusion transmission, but it doesn’t mean we shouldn’t double-check,” Glynn said. The RESPONSE team will collect data to evaluate this question and inform



Dr. Simone Glynn

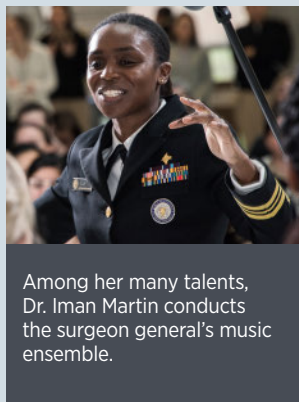
NHLBI’s Martin Finds Her Calling in the PHS

Her bags are packed as she awaits word of her next assignment. NHLBI’s Dr. Iman Martin is an active duty lieutenant commander in the Public Health Service, ready to assist local health authorities during national disasters.

“[I’m part of] an interdisciplinary team of health workers and mental health providers that deploy not only during a catastrophe but also throughout the recovery period of a catastrophe, and we help people reconnect with life after they’ve been through it,” she said.

When she deploys, Martin works on a services access team (SAT). Under the aegis of the HHS National Response Framework’s emergency support function, these teams provide a range of emergency health, social services and medical support.

“We have interdisciplinary rapid deployment assets that swoop in when the emergency is happening,” she said. “I applied to be on this team, in particular, in 2016 because it serves people through all disaster phases: preparatory, rescue and recovery. I felt that was my calling.”



Among her many talents, Dr. Iman Martin conducts the surgeon general’s music ensemble.

Martin has deployed many times in her 5 years in the PHS, including on a SAT supporting the Hurricane Irma and Maria responses and multiple missions to West Africa during the Ebola crisis.

Most recently, she was deployed on a Covid-19-related mission in early February in cooperation with HHS’s Administration for Children and

Families. Stationed in Nebraska, Martin was among a team of officers who oversaw the quarantine of Americans returning from Wuhan, China. She helped attend to their health needs during quarantine and repatriation.

Back at NIH, she supports the efforts of the Blood Division at NHLBI by helping manage a grant and contract portfolio in blood science and may be called at any time for another deployment.

Before coming to NIH, Martin spent more than a decade working

and training in epidemiology in sub-Saharan Africa and remains dedicated to addressing global health issues. She is especially proud to be a PHS officer with the opportunity to serve at NIH.

“It’s something special about our country,” Martin said, “that we have the Public Health Service Commissioned Corps, this more than 200-year-old asset to protect, promote and advance the health and safety of our nation.”—**Dana Talesnik**

the FDA to allow them to take appropriate actions, as necessary.

Another goal is to enroll people who are found to be SARS-CoV-2 positive, or who report a history of covid, into a longitudinal study. Participants will be asked to return at regular intervals throughout the year, allowing investigators to measure the virus itself (if present), the quality and quantity of the antibodies and how long those antibodies appear to last.

“That informs the natural history of this new virus and it’s also quite important to have that information for vaccine research,” Glynn said.

The RESPONSE study will also play a role in vaccine development and better diagnostics: NHLBI is creating a biorepository of blood and tissue specimens that can be accessed and shared among SARS-CoV-2/ Covid-19 investigators.

Still another large initiative underway is to evaluate whether convalescent plasma can be effective against Covid-19. Through donations of convalescent plasma from people who have recovered, researchers will find and characterize covid-specific antibodies that could then be used as therapeutic agents.

“We’re evaluating whether convalescent plasma is a therapy that can be used early on in infection, when someone just starts having symptoms,” said Glynn, “and especially in people who are at high risk of severe infection, to prevent their condition from progressing.”

Blood is the unsung hero that will help us better address the Covid-19 pandemic, these researchers say. Through blood, they will learn more about the trajectory of covid within a person. Another area of interest is to assess how to prevent and/or treat the coagulation defects that seem to cause patients with Covid-19 to develop blood clots in their blood vessels that can cause severe organ damage.

“In terms of preparedness, we couldn’t be luckier with the expertise we have at NIH,” concludes Martin, who works directly with Glynn. “When you combine the institutional, multi-decade wisdom—of [those who worked on] the HIV epidemic, Zika—with the energy of the younger staff working together, I think we’re going to continue to move forward.” **R**

Deputy CIO Charland Retires

Stacy Charland, deputy director of the NIH Office of the Chief Information Officer (OCIO), Office of the Director, and NIH deputy chief information officer, retired at the end of May.



Stacy Charland

She started her career at NIH in 1994 at the National Institute of General Medical Sciences, where she was selected for a 2-year appointment as a database expert. Charland was later hired as the NIGMS CIO and chief of the Information Resources Management Branch in 2001. In 2008, when an organizational change created the NIH Office of the CIO, she became chief of its IT policy and review office and acting NIH deputy CIO. She officially transferred to the deputy CIO position in 2016.

Throughout her career at NIH, Charland has been involved in activities that have helped enhance NIH’s information technology. At NIGMS, she introduced the institute’s first client/server application for grant status reporting. She helped move NIGMS away from reliance on the NIH mainframe system.

As CIO of NIGMS, Charland worked on several high-profile task forces focusing on NIH-wide IT priorities. These efforts included assisting CIT in 2006 to test telework approaches for a potential flu pandemic and working with the Office of the Deputy CIO to plan the deployment of the NIH Project Management Center of Excellence (now called the NIH Project Management Community).

As NIH deputy CIO, Charland helped establish the new OCIO, which supports NIH-wide IT security, policy, enterprise architecture, governance and budget processes. She is well known for her work in a broad range of groups and committees, including the IT management committee, the administrative data council, the IT budget advisory committee, the enterprise systems working group, the Section 508 advisory council and the project management community.

Charland is also recognized for her contributions to NIH accessibility efforts, becoming the NIH Section 508 coordinator in 2008 and establishing an NIH advisory group composed of IC 508 coordinators.

Since February 2019, Charland has been heavily involved in leading NIH’s efforts for the Government Accountability Office (GAO) IT security audit. This included oversight of the process to respond to GAO’s requests for more than 1,000 security-related documents and artifacts and the NIH submission of over 3,000 items to the GAO

audit team.

Most recently, Charland has been instrumental in coordinating and promoting the use of NIH enterprise IT contracts to minimize the cost of acquiring “commodity” information technology, such as mobile devices and laptop computers. She is leaving NIH after the recent successful award of an NIH mobile devices and services contract to consolidate 43 wireless contracts and save NIH millions of dollars each year.

Charland will be joining her husband in retirement on their 11-acre farm in Frederick, where she will pursue her passions for horse training and gardening.—**Robert Waxman**

NIAMS Muscle Biologist Yu Mourned

Dr. Leepo Cheng Yu, a long-time muscle biologist and lab chief in the NIAMS intramural research program, died of cancer on Apr. 28. She was at home, surrounded by family, and with a clear view of her treasured garden.

During her 36 years at NIH, Yu studied the molecular structure, organization, binding and kinetics of muscle proteins. As an expert on the molecular architecture of muscle fibers, she was prized as a collaborator.

In 2009, NIAMS recognized her scientific contributions by hosting a research symposium in her honor titled “Structural Basis of Muscle Contraction.”

Yu was so popular among her peers that a professional rendezvous during a scientific conference could include up to 10 unexpected guests. Close colleagues learned to compensate for this “Leepo Effect” by adding five extra places when making dinner reservations.

Those outside the scientific community know Yu as an accomplished performer of Chinese opera.

Born in China in 1939, Yu moved to the U.S. to advance her education in physics. She earned an undergraduate degree from Brown University and M.S. and Ph.D. degrees from the University of Maryland.

Yu is survived by her husband Victor, son Albert, brother Ta-Pei Cheng and a host of friends and collaborators. **R**



Dr. Leepo Cheng Yu



Above, two foster children walk together in the Plummers' neighborhood. At right, Lois Ngam (next to Jason Plummer) and Jhonny Lagos-Melendez (seated next to Chris Plummer), enjoy a roller coaster ride. No longer in foster care, both have come back "home" to live during the Covid-19 pandemic.

a child is going back to a biological family member and suddenly the kid leaves that day.

"It's hard, even if the kid is with us for only a few weeks," said Jason. "We get attached very quickly."

The Plummers once fostered a child for about 3 weeks. About 6 months later, the 13-year-old girl texted them just to check in, and thanked them for taking care

Plummers

CONTINUED FROM PAGE 1

officer, and his husband Chris, who recently left his job as a project specialist at FDA to become a stay-at-home dad.

Starting a family can be an especially cumbersome process for two married men. Friends had suggested adopting a baby from abroad, but the Plummers wanted to look locally, knowing that many children here in Montgomery County needed help.

There are about 450 children in foster care at any given time in the county and 125 active foster parent homes. Many families, like the Plummers, foster several children at a time, as new kids enter the system weekly.

Three years ago, when the Plummers contacted Montgomery County's department of health and human services to inquire about becoming foster parents, they received a huge packet of paperwork. The recruiter told them it would probably take a few months to fill everything out. They returned all the papers in 2 weeks.

"We were very much energized and ready to do this," recalled Jason.

In October 2017, after a lengthy training class and 3 home studies, the Plummers became licensed to house 3 children. Since then, they've fostered 23 children ranging in age from 3 days to 20 years old and who have lived with them for anywhere from a day to 14 months.

Every child in foster care enters the system for traumatic reasons—from neglect and abuse to mental health problems. Jason says his psychology degree helps him relate

to his foster children on a different level.

"You have to work with them and understand a little bit about their background," he said, "and you have to have a lot of patience."

In December, the Plummers moved to a larger house and within weeks became licensed to take in 6 children at a time, the maximum allowed in the county. Currently, they have 4 foster children, ages 1, 2, 5 and 13.

Now, they're also taking emergency placements during the Covid-19 pandemic. Shelter-in-place orders do not apply to the protection of children, until they arrive in a safe foster environment. Two children recently arrived for a few days, so for a weekend the Plummers had 6 kids plus a 20-year-old, no longer in foster care, who came home from college, all sheltering in place together.

Every night, Jason, Chris and their foster children sit at the dinner table until everyone is done eating. Sometimes, a kid gets frustrated sitting there for so long, said Jason, but they all come to appreciate that time together.

"The most rewarding part of [being a foster parent] is sitting on a couch with all the kids, watching *The Lion King*, and everybody's all snuggled up on each other," he said. "Those are the moments where we say this is what it's all about. We're creating a family and an environment that these kids have never had before."

The hardest part, though, is the unknown. The situation can change at a moment's notice. A foster parent might receive word

of her during her time of need.

"That means we did something to have an impact on this girl and I know that's a lifelong experience she'll never forget," said Jason. "Clearly she looked back on her time with us on a positive note. That's why I do this."

Before a 16-year-old boy arrived to stay with them, the social worker warned the boy was angry and probably would barely talk to them. Within a couple hours of his arrival, Jason said, the two had already developed a tight bond. They talked about everything, he said, and they're still friends on Snapchat.

"My philosophy is: These kids can come here for one day or one year, and they will have a completely different experience than they've had in their lives," Jason said. "They will see what a relatively normal functioning family is supposed to be like."

Jason, who also has a 26-year-old biological son, says being a foster parent is endlessly rewarding. "I think I get more out of it

than the kids do sometimes. Watching Baby J go from 3 days old to now walking around and experiencing everything about life is just absolutely amazing."

In February, the Maryland court system changed Baby J's permanency plan from reunification to adoption by other than kin, paving the way for the Plummers to become the baby's legal parents. They are in the process of filing to adopt him. **R**



"We were very much energized and ready to do this."

Repurposed Drug Helps Obese Mice Lose Weight

An off-label experiment in mice using disulfiram, which has been used to treat alcohol-use disorder for more than 50 years, consistently normalized body weight and reversed metabolic damage in obese middle-age mice of both sexes.

The international study was led by researchers at NIA. Results were published online May 14 in the journal *Cell Metabolism*.

The scientific team studied groups of 9-month-old lab mice who had been fed a high-fat diet for 12 weeks. As expected, this diet made the mice overweight and they started to show signs of pre-diabetes-like metabolic problems, such as insulin resistance and elevated fasting blood sugar levels.



Next, the scientists divided these mice into 4 groups to be fed 4 different diets for an additional 12 weeks: a standard diet alone, a high-fat diet alone, a high-fat diet with a low amount of disulfiram, or a high-fat diet with a higher amount of disulfiram.

As expected, the mice who stayed on the high-fat diet alone continued to gain weight and show metabolic problems. Mice who switched to standard diet alone gradually saw their body weight, fat composition and blood sugar levels return to normal.

The mice in the remaining two groups, with either a low or high dose of disulfiram added to their still-fatty food, showed a dramatic decrease in their weight and related metabolic damage.

Disulfiram treatment, which has few harmful side effects in humans, also appeared to protect the pancreas and liver from damage caused by pre-diabetic type metabolic changes and fat build-up usually caused by eating a high-fat diet.

The NIA scientists, Drs. Michel Bernier and Rafael de Cabo, collaborate frequently with researchers at NIH and beyond on studies into how changes in dietary patterns such as intermittent fasting could lead to cognitive and physical health benefits. They first became interested in disulfiram after reading about the benefits this class of drug has shown in treating type 2 diabetes in rats, coupled with the growing interest in repurposing drugs that may also improve healthy aging.

“When we first went down this path, we did not know what to expect, but once we started to see data showing dramatic weight loss and leaner body mass in the mice, we turned to each other and couldn’t quite believe our eyes,” Bernier said.



Sleep problems among children who have a sibling with autism spectrum disorder may further raise the likelihood of an ASD diagnosis, according to NIH-funded research.

Study Links Early Sleep Problems to Autism Diagnosis Among At-Risk Children

A small study funded by NIH suggests that sleep problems among children who have a sibling with autism spectrum disorder may further raise the likelihood of an ASD diagnosis, compared to at-risk children who do not have difficulty sleeping. Previous research has shown that young children who have a sibling with ASD are at a higher risk for also being diagnosed with the condition. The study appears in the *American Journal of Psychiatry*.

If confirmed by other studies, the findings may give clinicians a tool to identify sleep problems early and provide interventions to reduce their effects on the health and development of children with autism. The findings may also provide insights into the potential role of sleep problems in the development of ASD.

The study was conducted by Dr. Annette Estes of the University of Washington Autism Center in Seattle and colleagues in the NIH Autism Centers of Excellence Infant Brain Imaging Study Network. Funding was provided by NICHD and NIMH.

Very Low-Dose Avastin Effective for Preventing Blindness in Preterm Infants

Babies born prematurely who require treatment to prevent blindness from retinopathy of prematurity (ROP) could be treated with a dose of Avastin (bevacizumab) that is a fraction of the dose commonly used for ROP currently. Results from the dose-finding study were published Apr. 23 in *JAMA Ophthalmology*. The study was conducted by the Pediatric Eye Disease Investigator Group and supported by NEI.

Preterm babies are at high risk of abnormal blood vessel growth in the retina, the light-sensitive tissue in the back of the eye. These abnormal blood vessels are fragile and prone to leaking. If left untreated, vessel growth can lead to scarring

and retinal detachment, the main cause of ROP-related vision loss. ROP is one of the leading causes of blindness in children.

Established ROP treatments include laser therapy and cryotherapy. Both interventions work by causing the abnormal blood vessels to stop growing before they can cause scarring and retinal detachment.

Avastin is one of several available drugs that inhibit abnormal blood vessel growth by suppressing the overproduction of a signal protein called vascular endothelial growth factor.

The FDA approved Avastin in 2004 as a cancer therapy. Since then, ophthalmologists have used it off-label to inhibit abnormal blood vessel growth in ROP, as well as in other ocular disorders.

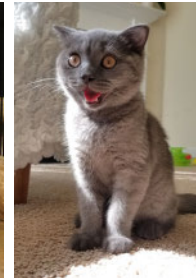
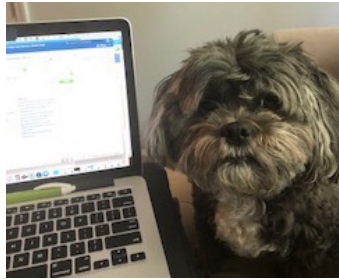
Markers in Blood Can Help Identify Risk for Complications After Mild TBI

Molecules released into the blood following mild traumatic brain injury (TBI) may be indicators of neuronal damage associated with conditions such as post-traumatic stress disorder (PTSD) and depression, researchers from NINR have found. The study included military veterans and servicemembers who were enrolled in the Chronic Effects of Neurotrauma Consortium multicenter observational study of the long-term effects of mild TBI and is published in *Neurology*.

“This study brings us closer to identifying biomarkers to predict risk for PTSD, depression and similar conditions in military personnel and others who have experienced a traumatic brain injury,” said Dr. Jessica Gill, NINR deputy scientific director, acting deputy director and chief of the Tissue Injury Branch, who conducted the study with colleagues.

The researchers analyzed blood samples from former military personnel who had experienced 1 to 2 TBIs, more than 2 TBIs or no TBIs. They screened for molecules released directly into the blood by cells of damaged tissue or inside vesicles called exosomes—bubble-like structures that contain a representative sample of cellular molecules. There was a significant correlation between multiple mild TBIs across the lifespan and higher levels of neurofilament light (NfL), a structural protein found inside neurons, and molecules involved in inflammation, such as tumor necrosis factor-alpha and interleukin 6.

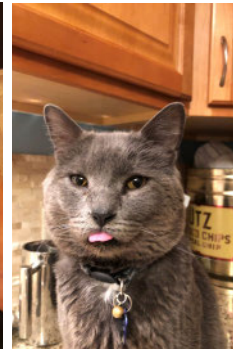
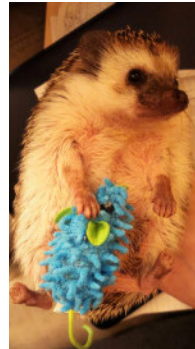
Further analysis revealed associations between increases in plasma and exosome levels of NfL, length of time since the last TBI, multiple TBIs and increased severity of neurological and behavioral symptoms. These findings provide insights into potential mechanisms of TBI-associated neuroinflammatory and neurodegenerative processes correlated with persistent molecular effects of neuronal damage.



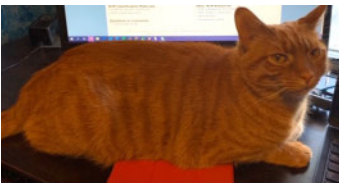
From I: Charley says stay home, rest and play with your toys! He belongs to Doreen Bartlett, senior assurance officer in the Office of Laboratory Animal Welfare. • “What do you mean you’re working? I said I need a bath and a haircut. When, already?” asks Shih Tzu-poodle (Shih-Poo) Lucy Pearl, who is owned by NIEHS’s Dr. Ericka Reid. • WEEK 5 OF TELEWORKING by NLM’s Kevin Gates • “When your co-worker accidentally leaves his or her video on after the Zoom meeting.” Lilikoï shared this look with owner Yeliz Gedik of NCATS. • Hank gives substitute groomer a dirty look before going to bed, according to Audrey Chamberlin, NLM.



Mommy needs to do her work, advises NLM’s Melanie Johnson.



Jennifer Kyte of NHLBI has been detailed back to the ICU to do bedside nursing care during the Covid-19 crisis. She was teleworking full-time before that. These are her German shepherd pups—brothers Major General John Buford (l) and Colonel John Singleton Mosby.



From I: Mona, Lisa and Isabella declare, “We need a larger home office chair!” says owner Laritza Rodriguez of NLM. • Rosie the Hedgehog loves to hug her play mouse, says Cory Upmeyer of the All of Us Research Program. • Capt. Steven J. Beefheart (USAF, ret.) reporting for telework duty, notes Jo-Ann Kriebel of NINR.



Above, Tina Shrader of NLM introduces Boris (top) ensuring scheduled petting breaks while Natasha (bottom) supurrvises from afar.

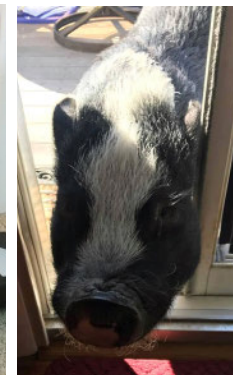
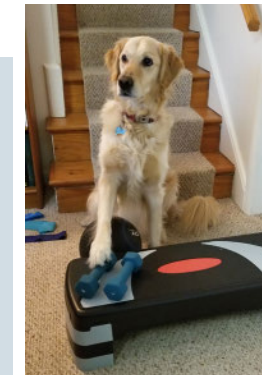
Unsung Heroes Include Our Pets

This page marks the end of our salute to pets who helped us survive pandemic-enforced telework. No one asked for this hiatus from the normal workplace, and most realize that the challenge came with a silver lining or two.

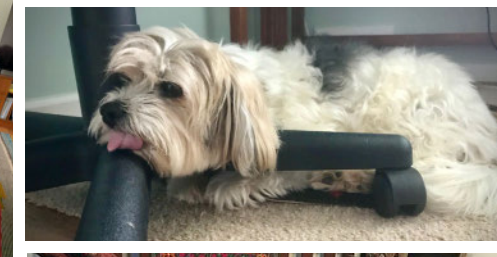
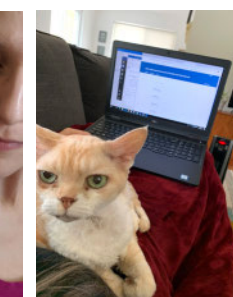
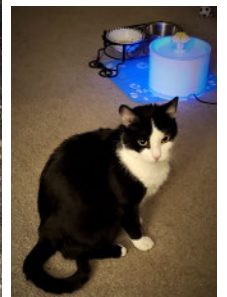
It is likely that hardly anyone missed commuting (except for our bike-loving community and a few others). Also, NIH’ers with pets at home got the bonus of extra time with the animals they love.

If we didn’t get to your pet yet in the PDF version of this series, visit the *NIH Record* online at <https://nihrecord.nih.gov/> and check the slide show accompanying this story.

Thanks to all who shared images of their pets. Now get back to work!



Teddy (l) stays fit with paw-robics. He belongs to Dr. Helen Meissner, director, Tobacco Regulatory Science Program, Office of Disease Prevention. • Says Geno (r) the minipig on day whatever, “Mom, how’s it going working from home? I’ll take my snack outside today, since the sun is out. Cheerios and a fresh carrot would be great.” Geno belongs to Andrea Francesconi of NCI’s Radiation Oncology Branch.



Clockwise, from I: You might think staff at NCATS prefer a feline friend, but they are fans of all pets. Here’s Lupa and Ninja, an unusual pair entertaining NCATS’s deputy director Dr. Joni Rutter. • “Sushi is my emotional support fur baby during this pandemic,” said Francine Hiltbrand, a program analyst at the Clinical Center. “I don’t know how she’ll react when things go back to normal and no one is home to play with her.” • “Garrus, the fuzziest supervisor I have ever had,” notes Samantha Tempchin, NLM. • Gigi is not amused that she must share my lap with the laptop, says Becca Black of NLM. • “Milo, my home office buddy,” notes Stephanie Morrison of NLM. • “I’m currently sharing an office with these two slackers. They keep trying to eat my food too!” writes NLM’s Diane Tuncer.

