

PRIORITY: LIMIT WORKPLACE SPREAD 7th Town Hall Announces Staff Vaccination Plan

BY CARLA GARNETT

On Jan. 15, NIH director Dr. Francis Collins hosted the 7th virtual town hall on NIH's coronavirus response. He was joined by NIH principal deputy director Dr. Lawrence Tabak, Office of Research Services Director Colleen McGowan and Clinical Center CEO Dr. James Gilman, to announce further details of the plan to vaccinate NIH staff.

"Keep in mind that the goal of the vaccination program here at NIH is to minimize workplace transmission," said Tabak, who gave an overview of the plan. "Because the vaccine is in short supply, NIH frontline staff

who work onsite at NIH facilities in clinical or other operational positions are prioritized to receive the vaccine first."

Development of the 4-phased program, Tabak explained, was guided by Centers for Disease Control and Prevention recommendations, which were adapted and applied to NIH's unique 40,000-person workforce—staffers located not only in Bethesda and other parts of Maryland, but also in Montana, North Carolina, Arizona and at NIH facilities in other regions across the country.

In addition, the planning team considered staff members' position and work environment, nature of responsibilities, return-to-workplace designation as well as exposure risk, underlying medical conditions and age.

McGowan detailed how the phases will work. Gilman provided an update on vaccinations of NIH's health care staff.

SEE **VACCINATION**, PAGE 4



Dr. Michael Parker of the Wellcome Centre for Ethics and Humanities at the University of Oxford speaks from his home in England.

PRIVACY IN A PANDEMIC? Oxford Professor Explores Ethics of Contact Tracing

BY DANA TALESNIK

New technology forms the backbone of several leading Covid-19 vaccines, enabling their development at unprecedented speed. Enhanced technology also has accelerated another important Covid-fighting tool,

SEE **ETHICS**, PAGE 6



Cy Wakeman

REDIRECT THE ENERGY Good Leaders Help People Through Tough Times, Wakeman Says

BY ERIC BOCK

The Covid-19 pandemic has disrupted our daily lives and slowed down the economy. More than 400,000 people have died in the U.S. alone and millions more have been infected.

"These are tough times, but these are our times," said Cy Wakeman, drama

SEE **COPING**, PAGE 10

BRAIN STUDY TOOL Harvard's Brown Rethinks General Anesthesia

BY RICH MCMANUS



Dr. Emery Brown

Harvard's Dr. Emery Brown thinks general anesthesia should be considered a sub-discipline of neuroscience, not a sub-discipline of pharmacology, and he has the science—and art—to prove it.

At a virtual version of the annual DeWitt Stetten Jr. Lecture, he focused mainly on propofol, which induces loss of consciousness, and how its administration—in micrograms per kilogram per minute—and effects can be tracked via electroencephalogram (EEG).

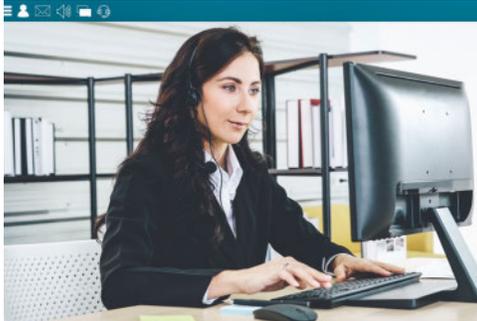
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Archives project examines stories 'Behind the Mask.' See p. 12.

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Training Center offers women leaders course.

PHOTO: BLUE PLANET STUDIO/GETTY IMAGES

Women Leaders Connect in Training Center Course

If you are a GS-13 or equivalent leader at NIH and seek to meet, connect and learn with and from other leaders, the NIH Training Center's Women in Leadership: Strategies for Success series offers an opportunity.

Launched in 2016, the program is designed to help women leaders develop their own vision, voice, leadership presence and resilience. The program includes a DiSC assessment, which offers insights on current leadership styles and behaviors as a foundation for self-awareness and future skills enhancement.

A unique course component features women executives providing mentoring, guidance and support to participants.

The 2021 panel includes moderator Capt. Antoinette Jones, patient representative, Clinical Center; Dr. L. Michelle Bennett, director, NCI Center for Research Strategy; Darla Hayes, associate director for management, NIH Office of the Director; Camille Hoover, NIDDK executive officer and associate director for management; Dr. Maryland Pao, NIMH clinical director; and Dr. Karen Parker, director of NIH's Sexual & Gender Minority Research Office.

Here's what women have shared about their experience in the course:

- ▼ I loved the opportunity to engage with women genuinely and honestly from a diverse range of offices across NIH.
- ▼ I enjoyed that it was a program by women and for women and the unique challenges we face.
- ▼ I appreciate the wealth of experiences the panelists brought to the meeting and their willingness to be candid made this one of the best events I've attended in a long time.
- ▼ The interactions made me take a deeper look at myself as a leader and a person.

More than 250 women have experienced this program. Start 2021 off with an investment in your leadership skills and join the cohort that begins Feb. 25. Register soon; the course is

limited to 25 participants. For tuition, details about the course and to register, visit <https://hr.nih.gov/training-center/course-catalog/women-leadership-strategies-success>.

Li To Give NCI CURE Seminar, Feb. 17

Dr. Christopher Li will give the next lecture in the NCI Center to Reduce Cancer Health Disparities' Continuing Umbrella of Research Experiences (CURE) Distinguished Scholars Seminars on Wednesday, Feb. 17 from 1 to 2:30 p.m., via Webex. His talk is titled "Epidemiologic Approaches to Improve Cancer Early Detection and Prognosis."

A former CURE K01 recipient, Li is professor, public health sciences division, and faculty director of diversity, equity and inclusion at the Fred Hutchinson Cancer Research Center, as well as research associate professor of epidemiology at the University of Washington School of Public Health and Community Medicine.



Dr. Christopher Li

Li is an epidemiologist specializing in identifying risk factors for breast cancer, having helped to detect connections between breast cancer and lifestyle factors, including obesity, physical activity and consuming alcohol and certain medications. He researches the causes of disparities in cancer outcomes and focuses on ensuring cancer research benefits all patients, irrespective of race, ethnicity, age, gender, income, education or geography.

Li studies breast cancer risk in young women and led the world's largest study of risk factors for developing and surviving triple-negative breast cancer. Using laboratory research and big data, he finds patterns that predict whether a patient's breast cancer is likely to recur.

In addition, Li works to identify blood-based biomarkers that signal early stages of different breast cancer subtypes and co-leads Fred Hutch's cancer registry—the Cancer Surveillance System database—that tracks cancer incidence and survival in 13 Washington counties.

To register for the seminar, visit <https://cbit.webex.com/cbit/onstage/g.php?M-TID=ed7e58e151c040ebba0709f8c26707dc9>. Those who need reasonable accommodation to participate should contact Victoria Coan at (240) 276-7659 and/or the Federal Relay Service (1-800-877-8339) at least 2 days before the meeting.

Morgan To Speak at DDM Seminar, Feb. 11

The second event of the 2020-2021 Deputy Director for Management Seminar Series will

feature Dr. Nick Morgan, a communications coach and theorist, author and blogger. Morgan will present "Connecting in a Virtual World" on Thursday, Feb. 11 at 11 a.m. via <https://videocast.nih.gov/>.

In his interactive speeches, Morgan reveals the mysteries of communication, body language and storytelling. He shows how recent brain research confirms ancient wisdom and together adds up to a revolutionary new approach to communication that will have you capturing and holding an audience's attention—whether it's a one-on-one conversation, an essential telework meeting or a presentation to a thousand listeners.



Dr. Nick Morgan

The annual DDM series hosts dynamic, experienced public speakers known for delivering meaningful insights into workplace concepts, challenges and solutions. Seminars provide staff the opportunity to advance their knowledge of best practices in a variety of leadership and management issues. This year's topics will cover empowerment, meaningful connections and thriving during challenging times.



Campus Construction Sighted

Bldg. 49 is seen in the distance from the now fenced-in yard of Bldg. 60, also known as the Cloisters. Infrastructure improvements, addition of a new utility vault, and construction of a new Clinical Center patient parking lot are all underway in the northwest area of campus, requiring closure of several sidewalks in the area between Bldg. 60, the Safra Family Lodge, and the west side of the Clinical Center. For details about the projects, see <https://nihrecord.nih.gov/2021/01/08/construction-work-strengthens-hospital-infrastructure>.

PHOTO: MICHELE LYONS

Aging, Cancer Interplay Explored at NIH Workshop

BY ARIF RAHMAN

The population of older individuals is increasing globally, and most cancers arise as people age, according to experts at a recent NIH conference titled Age-Dependent Changes in Cancer Biology. Speakers discussed common ground in the biology of cancer and aging and identified areas for further research efforts.

Cancer is rare among people younger than 45. There is a sharp rise after that, peaking between 65 to 74 years, according to NCI director Dr. Ned Sharpless. Among the possible explanations for this association, one factor stands out. “It is becoming increasingly clear that time itself is a potent mutagen,” he said. Mutagens promote errors in DNA replication that can lead to cancer. Sharpless discussed key causes of age-related cancers, including:



NCI director Dr. Ned Sharpless also spoke at NIEHS in 2017 on the connections between cancer and aging.

PHOTO: NCI

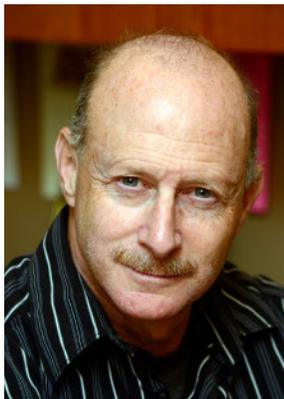
- Abnormal length of telomeres, the protective caps of DNA at the ends of each chromosome. They shorten with each cell division, until they are so short the cell can no longer divide. In cancer cells, telomeres fail to shorten, so the cells can grow quickly and replicate indefinitely.
- Stem cell dysfunction
- Weakened immune systems
- Changes in cellular microenvironments that promote cancer.

He pointed to two critical areas that need more attention from researchers in basic science. “The first issue is that many cancer drugs contribute to aging directly,” he said. “Secondly, therapies that are beneficial in young adults can be difficult to use in older adults because of the age-associated reduced resilience of the host.”

NIA scientific director Dr. Luigi Ferrucci echoed Sharpless during his own keynote talk. “Nearly half of the cancer risk factors are unknown to this day,” he said. He suggested that studying the role of aging

in cancer development would significantly fill that knowledge gap.

Dr. Les Reinlib, from the NIEHS Exposure, Response and Technology Branch, moderated a session on the overlap between environmental carcinogens and gerontogens, or agents that quicken the aging process. Studies suggest that gerontogens—such as air pollutants, cigarette smoke and arsenic—may cause cancer by promoting cellular senescence, or cell death. Although senescence gets rid of old or damaged cells, it also promotes cancer development by changing the cellular microenvironment.

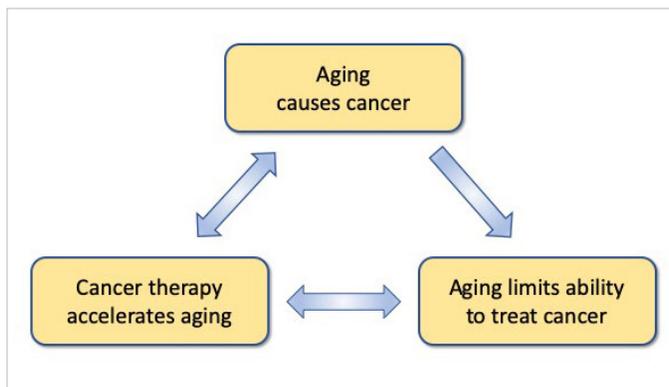


Dr. Les Reinlib develops and administers grant programs involving environmental influences on breast cancer, experimental carcinogenesis, genome integrity, stem cells and developmental biology.

PHOTO: STEVE MCCAWE

Dr. Susan Neuhausen, from the City of Hope Comprehensive Cancer Center in California, noted that the Environmental Protection Agency has registered approximately 85,000 synthetic chemicals for commercial use, only 10 percent of which have been tested for effects on human health. She emphasized the need for more human-relevant testing of these chemicals.

A unifying theme among the talks was that aging and cancer share common biological mechanisms. By slowing down the aging process, it should be possible to reduce cancer incidence. One way to do that is to promote a healthy cellular microenvironment via proper nutrition, according to Dr.



Sharpless and Ferrucci both emphasized the synergistic effect of aging and cancer, especially in older populations.

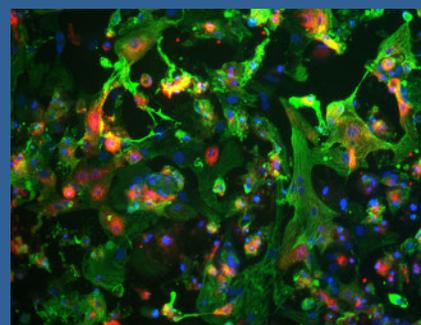
IMAGE: NIEHS

Trygve Tollefsbol, from the University of Alabama at Birmingham. He said that certain dietary guidelines could help curb the high prevalence of cancer, as well as obesity, in developed countries. These include:

- Caloric restriction via intermittent fasting
- Reduced sugar intake
- Increased consumption of cruciferous vegetables (such as broccoli and cabbage), genistein from soybeans, grapes and green tea.

Due to the rapid global rise in the population of older adults, experts at the meeting expressed the belief that it is more cost-effective to prevent diseases such as cancer in the elderly population than to manage them.

NIEHS, NCI and NIA jointly organized the meeting. **R**



ON THE COVER: Researchers supported by NHLBI recently demonstrated that the virus that causes Covid-19 can directly infect heart cells and may contribute to Covid-related heart disease. The study could lead to new medications that directly target virus-infected heart cells. Shown are stem-cell derived human heart cells (green and blue) infected by the novel coronavirus SARS-CoV-2 (red). February is American Heart Month.

IMAGE: ARUN SHARMA, CEDARS-SINAI MEDICAL CENTER

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Vaccination

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“Please, NIH family,” Collins emphasized, “give the hardworking team that is implementing these plans your support and the benefit of the doubt. Be patient and we will get through this.”

Uneasy Atmosphere Addressed

Collins began the live broadcast by reflecting on “the terrible consequences of [the Jan. 6 riot] at the U.S. Capitol as well as the continued tragic toll that Covid-19 is taking on our nation...Along with all Americans who believe in democracy, I was outraged and sickened by last week’s violent insurrection by an angry mob that aimed to overthrow the results of a fair election...My anguish runs very deep and has been hard to shake.”

He encouraged employees to use the various workplace resources and counselors available to cope with the myriad emotions and mental stress NIH’ers may be experiencing.

“Against this deeply troubling backdrop,” Collins acknowledged, “our nation is also reeling from the unprecedented surge of Covid-19 and a personal and economic devastation that goes along with that. This week, levels of new infections and hospitalizations have reached the highest levels since the pandemic began and deaths have climbed to more than 4,000 per day—that’s 3 Americans dying every minute. So, it’s more important than ever that NIH continue to move forward swiftly to protect its frontline workers.”

Pandemic Answer Man Makes Cameo

NIAID director and the nation’s go-to pandemic authority Dr. Anthony Fauci made a cameo appearance during the first half hour of the meeting.

“When your time comes to get vaccinated, please show up and be on time,” he stressed. “It is going to be very important as we get the vaccine [doses] that have been made available to us administered. [Keeping to the appointment schedule] will hasten and facilitate the next round of doses coming in.” There’s a concern that all scheduled appointments are kept and that no amount of vaccine goes unused, given the limited supply.

Nationwide, we’re pushing to reach “herd immunity” for coronavirus, Fauci said. CDC

describes community or herd immunity as when “a sufficient proportion of a population is immune to an infectious disease (through vaccination and/or prior illness) to make its spread from person to person unlikely. Even individuals not vaccinated (such as newborns and those with chronic illnesses) are offered some protection

because the disease has little opportunity to spread within the community.”

“We need about 70 to 85 percent of the population of the country vaccinated in order to get a degree of herd immunity,” Fauci pointed out. “[At NIH] we would like to get as many people protected as we can in our own community, so we can get to our own mini herd immunity.”

Before departing the video conference, he also answered a few questions that were emailed in advance—about getting the second vaccine shot on time, about children being vaccinated, about coronavirus variants and about the versatility of NIH’s mRNA vaccinology approach.

In addition to adhering to scheduled appointments at NIH, employees can make the immunization program succeed by getting vaccinated as soon as they become eligible, no matter where vaccine doses become available. Staff were urged to let OMS know if they get vaccinated in the community, so the next eligible employee in the queue may move immediately into the available NIH slot. Also, it will be important to take both doses at the same location, for accountability purposes.



Participating in a 7th town hall meeting about coronavirus are (clockwise, from top l) NIH director Dr. Francis Collins, principal deputy director Dr. Lawrence Tabak, sign language interpreter Ester Fass, NIAID director Dr. Anthony Fauci, Clinical Center CEO Dr. James Gilman and ORS Director Colleen McGowan.

‘Lifesaving Hope’

In opening remarks, Collins had alluded to the tremendous value of extraordinary efforts across the entire agency in extraordinary times.

“We deeply appreciate all the sacrifices that NIH staff have been making to protect safety while still trying to keep our mission going,” he said.

The vaccines are here, Collins noted. NIH played a central role in new therapeutics and new diagnostic technologies as well. Thanks to efforts by NIH’s own Intramural Research Program and partners, two vaccines to prevent serious Covid infection are now available, he continued, with a third hopefully on the way soon.

“To have [research] data in less than a year showing 95 percent efficacy and an excellent safety record is simply astounding!” Collins enthused. “You should feel very proud, NIH’ers, to be part of an institution that is playing an absolutely central role in providing this lifesaving hope to the nation and to the whole world...Contrasting with all the things that have been terrible about 2020, the scientific response has been nothing short of amazing, and you did that!”



Leading by Example. PHS Cdr. Ick-Ho Kim of NHLBI administers second doses of the Moderna Covid-19 vaccine to (from l) Collins, Fauci and McGowan on Jan. 19 in the B-1 cafeteria of the Clinical Center. First doses were given Dec. 22. In addition, all of the health care workers who were scheduled to receive their second shot also completed the vaccination process Jan. 19. As Fauci pointed out at a recent virtual town hall, showing up for both vaccination appointments is vital to success of the immunization effort.

The town hall was held on the same day that then President-Elect Joe Biden announced that Collins would stay on as NIH director. Also, longtime friend of NIH, geneticist Dr. Eric Lander, president and founding director of the Broad Institute of MIT and Harvard, was named presidential science advisor-designate (with a cabinet-level position for the first time) and nominee for director of the Office of Science and Technology Policy at the White House.

“I was deeply honored and humbled that [Biden] asked me to remain as the NIH director to lead this great agency, especially at a time when NIH’s role in fighting this pandemic is so critical,” Collins wrote later in a message emailed to all staff. “...NIH will be here, bringing the best science to bear on these biomedical challenges, and seeking to live up to our reputation as the National Institutes of Hope. I will consider it an enormous privilege to serve the new president and the NIH community.”

For details about the vaccination plan, NIH’ers can visit <https://employees.nih.gov/pages/coronavirus/vaccination-plan-nih-staff.aspx>. To watch the entire town hall recording, go to <https://videocast.nih.gov/watch=41396>. **R**

CC Continues to Offer NIH Staff Asymptomatic Testing for SARS-CoV-2

The Clinical Center continues to offer asymptomatic testing for SARS-CoV-2 to all staff, including those who are not yet eligible to return to their physical workspaces.

Although the program is voluntary, employees are strongly encouraged to participate. Asymptomatic testing helps identify people who have Covid-19 but aren’t presenting symptoms.

Testing for SARS-CoV-2 involves a traditional nasopharyngeal swab, which looks like a 6-inch Q-tip. The swab is inserted through the nose to the back of the throat, rotated

several times and left in place for 10-15 seconds. The hospital also offers Covid-19 saliva tests.

To sign up for asymptomatic testing, NIH’ers can visit <https://clinweb.cc.nih.gov/cct>.



A test tube with viral transport media that contains a sample to be tested for the presence of SARS-CoV-2, the virus that causes Covid-19

PHOTO: CDC/JAMES GATHANY

Four Special Talks Featured in February

The Wednesday Afternoon Lecture Series (WALS) presents four special lectures in February: The annual Gordon, Pittman, and Nirenberg lectures and one Tuesday lecture just added to the schedule. All talks will be 3 to 4 p.m. and viewable remote-only via NIH videocast.

First up is that Tuesday WALS on Feb. 9 by Dr. David A. Sinclair, professor of genetics, Blavatnik Institute, and co-director of the Paul F. Glenn Center for Biology of Aging Research, Harvard Medical School.

His lecture, arranged by the National Institute on Aging, is titled “Three (Formerly) Blind Mice: Reprogramming Tissues to Be Young Again” and concerns his laboratory’s very recent research on mice providing intriguing evidence that innovative gene therapy techniques could someday roll back the biological clock of age-related vision loss.

Next, the annual Robert S. Gordon Jr. Lecture is Wednesday, Feb. 10. Dr. Kristine Yaffe, professor of psychiatry, neurology and epidemiology at the UCSF Weill Institute, will deliver a talk titled “Epidemiology of Cognitive Aging: Why Observational Studies Still Matter.” Sponsored by the NIH Office of Disease Prevention, the Gordon lecture honors the former assistant surgeon general of the Public Health Service and special assistant to former NIH director Dr. James Wyngaarden.

Yaffe is an internationally recognized expert in the epidemiology of dementia and cognitive aging. As the principal investigator on almost a dozen grants from NIH, Department of Defense and several foundations, she is the foremost leader in identifying modifiable risk factors for dementia. With more than 500 peer-reviewed articles dedicated to improving population brain health, her transformative research has formed the cornerstone for dementia prevention trials worldwide.



Dr. Eve Higginbotham

The Annual Margaret Pittman Lecture is Feb. 17 by Dr. Eve Higginbotham, professor of ophthalmology and vice dean for inclusion and diversity, University of Pennsylvania. The Pittman Lecture is given by a researcher dedicated to advancing and improving the careers of women scientists—exemplifying the intelligence, scientific excellence, and drive that made Pittman a leader as NIH’s first female laboratory chief.

Higginbotham’s lecture is titled “Peering Beyond the Blindspot Seeking Authentic Risk Factors: A Case Study.” She will discuss arguments about “race” and why the topic is important for its impact on care and care delivery. She will review a central corneal thickness case study and what the future may be for the discussion of risk factors.



Dr. Rachel Green

Lastly, the Annual Marshall W. Nirenberg Lecture is Feb. 24, “Colliding Ribosomes Function as a Sentinel for Cellular Distress,” by Dr. Rachel Green, Bloomberg distinguished professor at Johns Hopkins School of Medicine. This annual lecture honors the legacy of Nirenberg’s Nobel Prize-winning work to decipher the genetic code. Green’s research focuses on diverse aspects of translation and its regulation in bacteria, yeast and higher eukaryotic systems, with a recent focus on defining the molecular mechanisms that specify the high fidelity of protein synthesis during translation.

Email WALSoffice@od.nih.gov for details about any of the lectures or the series.

WALS SCHEDULING NOTES



Dr. David A. Sinclair



Dr. Kristine Yaffe



“We’re familiar with these kinds of public health interventions that aim at population benefit but have impact on individual choice,” such as wearing a seatbelt or which side of the road to drive on, said Parker. For notifiable diseases, irrespective of public choice, he advocates for information to be shared with public health authorities during a pandemic. .

Ethics

CONTINUED FROM PAGE 1

contact tracing, which notifies people of potential infectious exposure so they can take necessary precautions—self-isolating and testing—to slow disease spread. Digital contact tracing can warn people fast. Using it, though, comes with a personal tradeoff—the risk to privacy.

Speaking from his home in England on the day the Pfizer-BioNtech vaccine was approved in his country, Dr. Michael Parker discussed the ethical merits and drawbacks of digital contact tracing during a pandemic. A bioethics professor and director of the Ethox Centre and the Wellcome Centre for Ethics and Humanities at the University of Oxford, he argued that, during a global health emergency, everyone with a cell phone has a moral obligation to participate in digital contact tracing.

Dr. David Wendler, who heads the Clinical Center department of bioethics’ research ethics section and introduced Parker’s CC Grand Rounds talk, said, “Contact tracing is one of the most important public health measures for addressing infectious disease outbreaks and epidemics.”

Tracing technology, however, hasn’t completely replaced human effort. One method still widely used today is manual contact tracing, in which someone calls the infected person to identify possible exposures; health officials then follow up to warn those contacts. But this method can be slow and unreliable.

Manual tracing “relies on the cooperation and also the recall of the people who are infected,” said Wendler. There’s also a significant delay, since contacts aren’t collected until after the infected person tests positive.

With digital tracing, information is collected in real time using Bluetooth

technology on the user’s phone, “so we’re not waiting until [someone] gets symptomatic,” Wendler said. “That information is being collected just as I go about my daily life.”

Both manual and digital contact tracing involve personal data collection that would be inappropriate outside of a public health emergency, said Parker. Most people accept this intrusion during a pandemic, but others refuse to cooperate or evade the system because it infringes on their privacy.

“Anyone demanding absolute privacy in the context of a public health emergency is unethical,” asserted Parker.

In normal times, patient choice and personal autonomy often reign supreme. But during a pandemic, said Parker, clinical bioethics get replaced by public health rules.



“Anyone demanding absolute privacy in the context of a public health emergency is unethical.”

-DR. MICHAEL PARKER



“The aim is targeting the benefit of populations as a whole,” he said, “and often those kinds of interventions, for example mandatory vaccination, involve a trade-off between individual freedoms and overall population health benefits.”

One public health intervention used globally during Covid-19 has been the lockdown. At one point in April 2020, nearly 4 billion people worldwide were ordered to stay home. Lockdowns do slow disease spread, but they come at enormous financial, social and personal cost.

“These [sacrifices] seem justified when there are no other tools available,” said Parker. “But those justifications seem much weaker in situations when there might be other ways of managing physical distancing in a way that’s more evidence-based, more targeted and more risk-adjusted.”

Tools such as contact tracing and mass testing, he said, “inform self-isolation and the identification of clusters for targeted public health measures rather than general measures, which affect everyone and cause great harm.”

There are two basic models of digital contact tracing. With the individual patient model, cell phones record proximity and, if someone tests positive for Covid-19, his or her cell phone anonymously pings contacts to alert them of potential exposure.

The other, the public health model, is more centralized. If someone tests positive, the contacts recently in that person’s radius get uploaded to a public health system, which alerts them. The more extreme version of this model would be compulsory and centrally organized. A weaker version links to a centralized public health system, but users voluntarily participate.

“A weakly centralized approach—a weak version of the public health model—is one that is ethical and, more than that,” said Parker, “I want to argue that we have an obligation to have such a system and participate in it.”

The individual patient model has minimal privacy risks, since all data remains on the user’s phone, and that may motivate more people to download the app and use it. On the other hand, while the public health model poses a privacy risk, it can have a faster, wider impact on disease spread. Involving the public health system also allows officials to analyze data, identify clusters and better target public health responses locally.

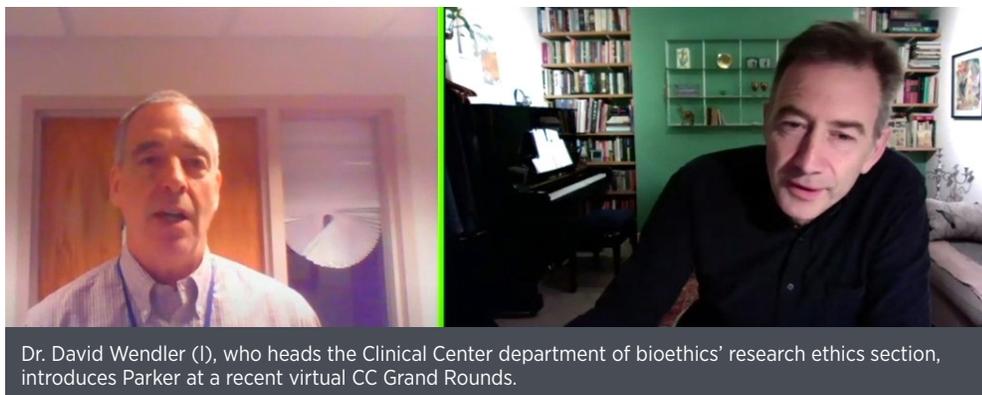
“If there are protections in place, there’s a very strong obligation to download and use a contact tracing app that’s a public health system-based approach,” said Parker.

Those protections, he added, should include independent oversight and transparency of how data will be used and when data collection would stop. Parker also urged a commitment to inclusion, equity and social justice, namely social protections for those disproportionately affected by the pandemic.

“There’s a strong disincentive for some people to self-isolate,” he said during Q&A. Low-income, frontline workers, for example, need compensation if forced to spend weeks quarantining without income.

Parker emphasized that downloading the app should be voluntary. “I think the broader success of our fight against Covid depends on well-established and justified public trust and confidence,” he said, which could be undermined if participation were compulsory. He does, however, argue that as people in a community with others, we have a moral obligation to download an effective app, given appropriate safeguards.

Digital contract tracing can provide



Dr. David Wendler (l), who heads the Clinical Center department of bioethics’ research ethics section, introduces Parker at a recent virtual CC Grand Rounds.

fast, reliable, life-saving data during a pandemic. Technologic advances—from digital contact tracing, to new vaccine

platforms, to rapid testing—have the potential to move us beyond Covid-19 and guide us through future pandemics. **R**

TIME, EXPERTISE ACKNOWLEDGED

Optimize NIH Event Celebrates Volunteers

More than 300 NIH professionals from 27 institutes, centers and components were honored Feb. 1 for volunteering their time and expertise to the Optimize NIH initiative.

Led by NIH principal deputy director Dr. Lawrence Tabak and deputy director for management Dr. Alfred Johnson, the virtual event celebrated the members of committees and work groups, subject matter experts, advisors and co-chairs for creating efficiencies and effectiveness in acquisitions, IT security, property, Title 42(f) processing and travel.

The executive leads of the five teams commended the volunteers for their dedication and contributions since 2019 that continued during the Covid-19 pandemic to benefit NIH through more effective administrative support.

Diane Frasier, director of NIH’s Office of Acquisition and Logistics Management, and Jill Harper, NIAID deputy director for science management and executive officer, thanked volunteers for their ongoing work to improve acquisition data analytics, quality and standards and to identify technology platforms and organizational structures that will serve NIH’s acquisition needs more effectively.

Stacie Alboum, CIT deputy director, and Patrick Shirdon, NIA executive officer, lauded those promoting cyber safety through an award-winning awareness campaign, improving IT network and asset management, acquisitions and workforce recruitment strategies, and ensuring consistent policies through the active involvement of institutes and centers in the IT policy lifecycle.

Elizabeth Van Absher, director of logistics services in NIH’s Office of Acquisition and Logistics

Management; Brian Trent, NEI executive officer; and Ellen Rolfes, NHGRI executive officer, recognized ongoing efforts to streamline the property management process for more than 180,000 assets, automate paper-based processes and expand the NIH Property Management Portal for greater accuracy of records.

Julie Berko, director of NIH’s Office of Human Resources, and Donna Siegle, NCI executive officer, thanked volunteers for ongoing efforts to standardize Title 42(f) recruitment processes, data tracking and reporting that will expedite hiring of staff in critical leadership positions. Work to build a future enterprise-wide system that will inform, automate, track and report on the overall Title 42(f) process was also saluted.

Glenda Conroy, director of NIH’s Office of Financial Management; Ann Huston, NIMH executive officer; and Vicki Buckley, NIAAA executive officer, thanked volunteers for improving the efficiency of conference travel reporting and approvals through a new dashboard in the nVision Business Intelligence Solution, proposing changes in policies and practices and identifying tools for automating travel processes.

Janet Shorback, director of NIH’s Office of Strategic Planning and Management Operations, closed the event, highlighting the value of involving staff from across NIH for diverse perspectives that informed community-driven improvements and strengthened partnerships, all of which are critical to successful strategic planning.

During 2021, teams in acquisitions, property and Title 42(f) processing will continue while IT security and travel will transition to components in the NIH Office of the Director.

Learn more about Optimize NIH at <https://employees.nih.gov/pages/optimize-nih/>.—**Martha Randazzo**

NINR Holds Workshop on Reducing Inequities in Maternal Health

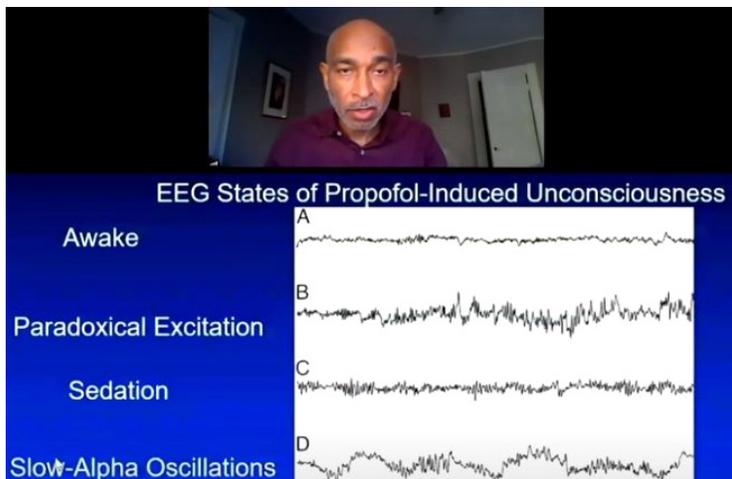
NINR recently convened a workshop on innovative models of care for reducing inequities in maternal health. The workshop, co-sponsored by NICHD, NIMHD, ORWH and the Tribal Health Research Office, explored how nurses, midwives and birth companions can improve maternal and infant health for women in U.S. communities affected by racial discrimination, socioeconomic inequities and other system-level factors that contribute to maternal health inequities.

Among the key points:

- Research is needed that focuses on understanding the structural inequalities and system-level factors affecting childbearing women in health disparity communities, including policies that result in decreased access to health care, lower quality care and disparate outcomes.
- Successful, innovative programs that are using person-centered, team-based approaches must be made sustainable and scalable.
- Respectful incorporation of community-generated knowledge and community members into models of care and maternal health research teams is important.
- The needs of pregnant women are met by respecting, listening to and supporting them, as well as communities and the health care workforce.
- A team-based approach that involves midwives, doulas or community health workers provides valuable person-centered care that results in positive maternal and infant outcomes, especially during the Covid-19 pandemic.

In the discussion sessions, participants shared lessons learned and identified research opportunities to improve maternal health care in underserved communities.

More than 500 viewers tuned in. An archived recording of the workshop is available at <https://videocast.nih.gov/watch=38172>.



By comparing EEG signatures in patients who are asleep, or in a coma, to anesthetized patients, Brown and his colleagues are teasing out what neighborhoods propofol affects in the great city of the brain.

Anesthesia

CONTINUED FROM PAGE 1

Brain waves tracked by EEG produce a colorful spectrogram, or video. It is a visual representation of the spectrum of frequencies of a signal as it changes over time. Brown likens it to abstract art: It can be both beautiful—especially in young patients ages 6-8, who tend to produce the most robust images—and scientifically informative.

He showed multiple videos that demonstrated graphically how oscillations in neural activity change as a patient proceeds from consciousness, to the sudden pinprick (and slight sting) of propofol—infused through a vein in the hand—to unconsciousness.

But it's not enough that a patient is simply unconscious. After all, as Brown points out, "You need anesthesia because it hurts—surgery hurts." Added goals of general anesthesia include analgesia or anti-nociception (pain relief), amnesia, akinesia (loss of movement) and physiological stability. And the patient has to wake up—preferably with a fairly clear head—when it's all over.

"It's not true that we don't know how anesthesia works," said Brown, who proceeded to demonstrate, via EEG videos, "the rich temporal and spatial dynamic" as propofol, in a classic pattern—especially in patients ages 18-35—induces brain stem inactivation in patients. "We can see a large number of circuits in the brain, all doing the same thing."

The most common pattern, he has written in past journal articles, is a

progressive increase in low-frequency, high-amplitude activity as the level of general anesthesia deepens.

Anesthesia provides "the strongest use of an EEG signal," he said. "It also provides the most information about the brain state, but most anesthesiologists don't use it."

Only about a quarter of the field employs the technique, "and those

using it aren't using it the way we are here," said Brown, who is the Warren M. Zapol professor of anaesthesia at Harvard Medical School and Massachusetts General Hospital (MGH), the Edward Hood Taplin professor of medical engineering and of computational neuroscience at Massachusetts Institute of Technology and a practicing MGH anesthesiologist.

His team is gaining insights into the cortical dynamics of the anesthetized state by studying patients with epilepsy who have implants that allow recording of neuron spiking, and the measure of field potentials. Why care about how propofol affects spike rates in this population? "So we can understand what happens in the human brain under anesthesia, because [patients'] awareness should never happen now during surgery," said Brown.

Different anesthetics have different EEG signatures, he explained. "It has to do with where the receptors are that they target, and subsequent circuit dynamics they induce."

And the brain's response to anesthesia changes dramatically with age.

"There are much weaker oscillations with advanced age," Brown said. "Circuits start to break down, myelin breaks down, mitochondria, too...We get a diminished signal. How well we take care of ourselves is also important."

Kids, he disclosed, "have really gorgeous spectrograms—almost like abstract art."

Brown and his colleagues are now taking a multi-modal approach to general anesthesia, employing up to 10 drugs—including a

multi-drug regimen for anti-nociception—for a procedure as routine as appendectomy.

"We can wake people up on a dime, and with a much clearer head, if well-managed," he said. "We have better control of both nociception and unconsciousness."

Another population Brown has found it advantageous to study are patients in a medically induced coma, which can be used therapeutically to treat refractory epileptic seizures, or to reduce intracranial pressure in people with a brain injury.

"Burst suppression, a profound state of anesthesia, is the target for these patients," he explained. Because the patient often needs to be maintained in this state for several days, it is a perfect opportunity to develop a computer-guided control system that monitors the EEG and controls the infusion of propofol on a second-to-second basis to maintain a therapeutic state of burst suppression. "Precise control of the brain state is our goal."

Use of multiple different anesthetics to control nociception is "an obvious way to move away from the use of opioids... Furthermore, we can learn a lot about the brain by studying anesthesia," Brown concluded.

During a brief Q&A, Brown was able to make a few more points:

- A patient's history of drug use affects dramatically an anesthesiologist's decision-making. "It takes very little to anesthetize an acutely intoxicated patient," said Brown. Those with compromised livers may have prolonged effect of anesthesia. Cocaine use is important to know, as is marijuana use. "We're trying to sort that [marijuana] out now—there's not a clear picture of it. We're going to sort that out in the next few years."

- While treating a rugby player in his 30s, Brown noted that he had the EEG of a 70-year-old. Brown called it a "tantalizing possibility" to use EEG diagnostically to determine a patient's brain age.

- Brown no longer uses anesthetic gases—a variety of ethers—because they are both pollutants and are not as effective as propofol. "I stopped using gases 4 years ago," he said. "I can titrate much more effectively with propofol."

The full talk is available at <https://videocast.nih.gov/watch=40044>. **R**

Full-Dose Blood Thinners Improve Outcomes in Hospitalized Covid Patients

In large clinical trials, full-dose anticoagulation (blood thinner) treatments given to moderately ill patients hospitalized for Covid-19 reduced the need for vital organ support, such as ventilation. A trend in reduced mortality was also observed and is under further study. With large numbers of Covid-19 patients requiring hospitalization, these outcomes could also help reduce the overload on intensive care units around the world.



Full-dose blood thinner may decrease need for life support in moderately ill Covid patients.

PHOTO: TEMPURA/GETTY

Early in the pandemic, physicians observed increased rates of blood clots and inflammation, which affected multiple organs and led to such complications as lung failure, heart attack and stroke. Low-dose blood thinners are routinely administered to these patients but it was unknown whether larger doses would be safe and effective.

Three clinical trial platforms spanning 5 continents in more than 300 hospitals have been collaborating to test the possible benefit of giving full doses of the blood thinner heparin to moderately ill hospitalized adults with Covid-19.

Based on interim results of more than 1,000 moderately ill patients, full doses of blood thinners were safe and superior to the doses normally given to prevent blood clots in hospitalized patients. These trial results complement the group's findings announced in December that routine use of full-dose anticoagulation, when started in the ICU in critically ill Covid-19 patients, was not beneficial and may have been harmful in some patients.

The three international trials are REMAP-CAP, ACTIV-4 and ATTACC. In the United States, the ACTIV-4 trial is an NIH-led collaborative effort with several universities.

NIH Scientists Identify Nutrient that Helps Prevent Infection

Scientists studying the body's natural defenses against bacterial infection have identified a

nutrient—taurine—that helps the gut recall prior infections and kill invading bacteria, such as *Klebsiella pneumoniae* (*Kpn*). The finding, published in *Cell* by investigators from five NIH institutes, could aid efforts seeking alternatives to antibiotics.

Microbiota—the trillions of beneficial microbes living harmoniously inside our gut—provide some defense against bacterial infections. Scientists have been searching for natural treatments to replace antibiotics, which harm microbiota and become less effective as bacteria develop drug resistance.

The scientists observed that microbiota that had experienced prior infection and transferred to germ-free mice helped prevent infection with *Kpn*. They identified a class of bacteria—*Deltaproteobacteria*—involved in fighting these infections, and found taurine triggered *Deltaproteobacteria* activity.

Taurine, found naturally in bile acids in the gut, helps the body digest fats and oils. The scientists believe that low levels of taurine allow pathogens to colonize the gut, but high levels produce enough hydrogen sulfide—a poisonous gas byproduct of taurine—to prevent colonization.



Colorized scanning electron micrograph shows *Klebsiella pneumoniae* interacting with a human neutrophil.

PHOTO: NIAID

During the study, the researchers realized that a single mild infection can prepare the microbiota to resist subsequent infection, and that the liver and gallbladder—which synthesize and store bile acids containing taurine—can develop long-term infection protection.

The study, led by NIAID, was a collaboration with researchers from NIGMS, NCI, NIDDK and NHGRI.

Meth Overdose Deaths Rise Sharply Nationwide

Methamphetamine overdose deaths surged in an 8-year period in the U.S., according to a new NIDA study published in *JAMA Psychiatry*. The analysis revealed rapid rises across all racial and ethnic groups, but American Indians and Alaska Natives had the highest death rates overall.

Deaths involving methamphetamines more than quadrupled among non-Hispanic American Indians and Alaska Natives from 2011 to 2018 overall, with sharp increases for men and women

in that group. The findings highlight the urgent need to develop culturally tailored, gender-specific prevention and treatment strategies for methamphetamine use disorder to meet the unique needs of those who are most vulnerable to the growing overdose crisis.



Meth overdose deaths have surged among American Indians in recent years.

PHOTO: EYECRAVE/GETTY

Long-term decreased access to education, high rates of poverty and discrimination in the delivery of health services are among factors thought to contribute to health disparities for American Indians and Alaska Natives.

“While much attention is focused on the opioid crisis, a methamphetamine crisis has been quietly, but actively, gaining steam—particularly among American Indians and Alaska Natives, who are disproportionately affected by a number of health conditions,” said NIDA director Dr. Nora Volkow, a senior author of the study. “American Indian and Alaska Native populations experience structural disadvantages but have cultural strengths that can be leveraged to prevent methamphetamine use and improve health outcomes for those living with addiction.”

There are currently no FDA-approved medications for treating methamphetamine use disorder or reversing overdoses. In hopeful news, a recent clinical trial reported significant therapeutic benefits with the combination of naltrexone with bupropion in these patients. Some behavioral therapies also can reduce harms associated with use of methamphetamine.

Given that holistic approaches are deeply rooted in some American Indian and Alaska Native groups, leveraging traditions may offer a unique, culturally resonant way to promote resilience to help prevent drug use among young people.

Traditional practices, such as talking circles, in which all members of a group can provide an uninterrupted perspective, and ceremonies, such as smudging, have been integrated into the health practices of many Tribal communities. Implementing culturally appropriate, community-based prevention; targeting youth and families with early intervention strategies; and improving provider and community education may also aid prevention efforts among Tribal communities.

Coping

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researcher, global thought leader and author, during a recent virtual Deputy Director for Management Seminar Series talk.

Wakeman observed how interactions changed when more people started teleworking regularly and virtual meetings became the only way to gather. At first, people asked each other how they were doing and offered help to each other. Over time, interactions became more negative. They began complaining or wishing for a different future as the going got tough.

She advised leaders to direct “energy away from why we can’t or shouldn’t have to” to “what if we could and how do we do that.”

Many people aren’t aware of how their minds work and, as a result, are played by their ego, she explained. To handle stress, the ego oversimplifies things. It prefers certainty over accuracy. People ruminate on their feelings and turn them into grievances.

When she begins virtual meetings, Wakeman asks participants “what are you feeling?” That question “anchors people in a human connection and opens up hearts and minds and innovation.” She wants to show them that there’s space for all kinds of feelings, whether that’s excitement or devastation.



“Your job as a leader is not to focus on stress futures, but brilliant futures. We can be the connectors and bridge.”

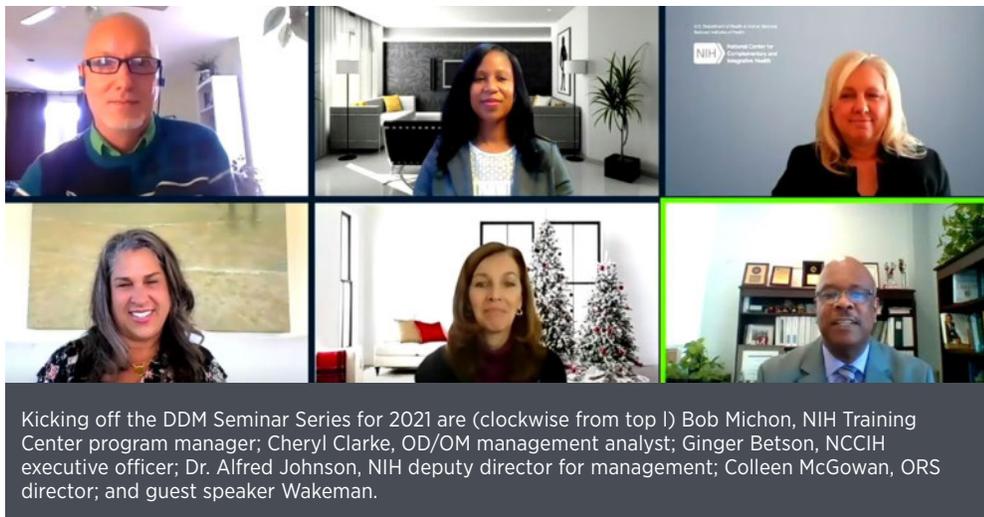
-CY WAKEMAN



“I want to remind people that many things are true right now,” she said. “We need both-and thinking.”

Pain, or what people temporarily feel when they suffer a loss, is inevitable, she noted. Pain tends to go away after a short time. Suffering, or “what comes from the story you add to your pain,” does not. People suffer because they apply outdated approaches to new realities and resist change.

Leaders must understand the theory of post-traumatic growth, which posits that people can see positive change following a stressful event in life. Resilient people can



Kicking off the DDM Seminar Series for 2021 are (clockwise from top l) Bob Michon, NIH Training Center program manager; Cheryl Clarke, OD/OM management analyst; Ginger Betson, NCCIH executive officer; Dr. Alfred Johnson, NIH deputy director for management; Colleen McGowan, ORS director; and guest speaker Wakeman.

envision multiple hopeful futures. She said it’s possible to acknowledge profound loss and also grow from the experience.

At the appropriate time, leaders must provide hope by stepping in and encouraging others to think about various optimistic possibilities.

“Your job as a leader is not to focus on stress futures, but brilliant futures,” Wakeman explained. “We can be the connectors and bridge.”

Leaders cannot ignore reality, but they can focus discussions around questions such as “how can we?” she suggested. “That’s just where innovation blossoms.” This approach helps groups identify constraints and then figure out how to work within them.

During times of crisis, Wakeman advised, leaders must not show fear, but check in on their employees and connect with them as human beings. “The whole message is, ‘We got you; we’ll figure this out.’”

At the beginning of the pandemic, Wakeman reached out individually to every one of her employees and learned how to help them. She cautioned, however, that effective leaders can’t keep doing favors because it doesn’t foster resiliency. Instead, devise a plan to help workers become self-sufficient and grow. Help people connect with others, she said.

“You can’t let people get stuck here, but we will go back as even more crazy stuff happens,” Wakeman explained.

Finally, she advised people to radically simplify their life during tough times by getting rid of anything that isn’t vital work, so they can devote time to figuring out what’s most essential. Nothing gets added back

without questioning why and finding a way to sustain it for the long haul.

“Our circumstances aren’t the reasons we can’t succeed,” Wakeman said. “They are simply the reality in which we must succeed.”

Wakeman’s talk was the first installment of the FY2021 DDM Seminar Series. To view the full schedule, visit <http://ddmseries.od.nih.gov/>. **R**

New NLM Exhibit Reflects on History of Environmental Pollution Activism

NLM launched its latest online exhibit, “Fifty Years Ago: The Darkening Day,” celebrating the golden anniversary of an NLM exhibition on the health aspects of environmental pollution. The original exhibit was reviewed on page 11 of the Sept. 29, 1970 issue of the *NIH Record*.

The new exhibit (www.nlm.nih.gov/exhibition/fiftyyearsago) looks back on research, programs and policies, public messaging and action taken by the then-U.S. Department of Health, Education and Welfare and federal scientists from the Public Health Service, as awareness of pollution’s detrimental impacts on health grew in the years preceding 1970. That same year, millions of Americans took to the streets in observance of the first Earth Day, on Apr. 22.



clean air
for your community

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service

This 1966 pamphlet encouraged everyday citizens to make a healthier environment for their community.

PHOTO: NLM



Joining the NIDDK advisory council are (from l) Dr. Mark Nelson, Dr. David Penson, Ceciel Rooker, Dr. Kathleen Sakamoto and Dr. Michael Snyder.

Five Named to NIDDK Advisory Council

The advisory council of the National Institute of Diabetes and Digestive and Kidney Diseases added five new members:

Dr. Mark Nelson, University of Vermont College of Medicine distinguished professor and chair in the department of pharmacology, joined

the council's kidney, urologic and hematologic diseases subcommittee.

Dr. David Penson, the Hamilton and Howd chair of urologic oncology, chair of and professor in the department of urologic surgery, medicine and health policy, and director of the Center for Surgical Quality and Outcomes Research at Vanderbilt University, joined the kidney, urologic and hematologic diseases subcommittee.

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Dr. Michael Snyder, Stanford B. Ascherman professor, chair of the department of genetics and director of the Center for Genomics and Personalized Medicine at Stanford University School of Medicine, joined the diabetes, endocrinology and metabolic diseases subcommittee. 

Ceciel Rooker, president and executive director of the International Foundation for Gastrointestinal Disorders, joined the digestive diseases and nutrition subcommittee.

Dr. Kathleen Sakamoto, Shelagh Galligan professor within the division of hematology, oncology and stem cell transplantation at Stanford University School of Medicine

Nature—For the Birds

The Record asked readers for images of nature. Dr. Michael Bender, program director in NIGMS's Division of Genetics and Molecular, Cellular, and Developmental Biology, sent in several bird photos shown here. He takes pictures in Rock Creek Park, at Hains Point and at Lyndon Baines Johnson Memorial Grove on the Potomac, located on Columbia Island.



Of a Feather. Shown this past fall are (clockwise from top, l) a palm warbler, red-eyed vireo, great crested flycatcher, magnolia warbler and Northern parula.

PHOTOS: MICHAEL BENDER



VOLUNTEERS

Volunteers Needed for Asthma Study

People of African ancestry have a higher incidence of asthma and allergic diseases compared to other population groups. Researchers at NHGRI are investigating whether there is a genetic cause for this. Understanding the role that genes play may someday lead to better treatments for these conditions. Consider volunteering, if you are at least 18 years of age and self-identify as Black, African, African American or African Caribbean—both healthy volunteers and adults diagnosed with asthma are needed. For more information, contact the Office of Patient Recruitment at (866) 444-2214, (800) 877-8339 TTY/ASII or prpl@cc.nih.gov, or visit online <https://go.usa.gov/x7RXQ>. Refer to study #19-HG-0092.



Clinical Center staff gather for their morning huddle.

'Behind the Mask' Seeks Your Pandemic Story

BY GABRIELLE BARR

In June 2020, the Office of NIH History and Stetten Museum launched a project called "Behind the Mask: Real Stories from NIH Staff About Life During the Covid-19 Pandemic" to capture in-depth and personal views of what it has been like for NIH employees, contractors, fellows and volunteers during the worst pandemic in over a century. The project has since recorded the efforts of dozens of staff, as well as the daily inconveniences of Covid, the hobbies that NIH'ers have pursued, the personal and professional opportunities that have arisen and predictions on how the pandemic will change NIH.

More than 35 NIH scientists—whose research ranges from developing 3D cellular lung models for antiviral testing to studying how interferon-stimulated genes antagonize the S-protein of coronaviruses—have been interviewed.

NIDA director Dr. Nora Volkow and NIAAA senior investigator Dr. Vijay Ramchandani relayed what their institutes are doing to address Covid's effect on people with substance-use disorders.

NHLBI senior advisor Dr. George Mensah and NIMHD deputy director Dr. Monica Webb Hooper spoke of how NIH is handling health inequities. Clinical Center nurse practitioner Therese Kent recalled what it has been like caring for patients with Covid-19.

Accounts from program officers, grant reviewers, human resource specialists, communication professionals, IT technicians and information specialists exemplify how it takes the labor and expertise of countless individuals to execute the details of NIH's battle plan against the pandemic. Unsurprisingly,

the challenge of teleworking was a major topic of conversation, too.

The project also has revealed how staff have been touched by this devastating disease personally. Some employees have been infected by the virus themselves while others have witnessed their loved ones suffer or die. IT specialist Janice Solomon, whose uncle died from Covid-19, said, "Only 8 family members could attend the funeral in person, and 56 of us attended online. [N]one of us could grieve together."

Feelings of anxiety, stress and depression have affected many NIH staff members as they struggle to cope with isolation, increased responsibilities on the home front, changed routines and shifting priorities at work, the inability to perform their jobs, and distressing events occurring across the country and abroad.

Contributions to Behind the Mask will be the primary source material that historians will use to understand this critical time and will be invaluable for capturing the grit, imagination, collaboration and humanity of the NIH workforce.

To learn how you can submit your story or donate artifacts such as scientific or clinical instruments or personal creations, go to <https://history.nih.gov/display/history/Behind+the+Mask>. You can see examples of several interviews conducted thus far at <https://go.usa.gov/xAd5H>.

For more information, contact archivist Gabrielle Barr at gabrielle.barr@nih.gov.

At right, "Unmasked" image by Franda Liu of NLM, who has enjoyed creatively capturing the pandemic with her camera since March



Above, nurses at the Clinical Center help each other don their many layers of PPE to care for Covid patients. Below, Caroline Goon of the Office of the Director discusses how she and her family are surviving the pandemic in her home-recorded video.

