

CC Exhibit Honors Career of Nobel Laureate Alter

BY ERIC BOCK

NIH celebrated a new Clinical Center (CC) exhibit that commemorates the distinguished career of Nobel Laureate Dr. Harvey Alter.

“We are so proud to claim Dr. Alter as our own,” said NIH Director Dr. Monica Bertagnoli, at the exhibition’s official opening on Feb. 14. “Harvey’s brilliant and dedicated research led to several advances that have transformed the safety of the blood supply.”

Alter won the 2020 Nobel Prize in Physiology or Medicine for his contributions to the discovery of the hepatitis C virus. He is one of six Nobelists who conducted the

entirety of their award-winning research at NIH and the sole NIH Nobelist to conduct clinical research.

“I never expected a ribbon-cutting and or to see my face on these hallowed walls,” said Alter, now a senior scholar in the CC department of transfusion medicine. Alter’s work contributed to development of blood tests for not just hepatitis C, but also hepatitis B. The tests have improved the safety of blood transfusions, noted CC CEO Dr. James Gilman. Now, the likelihood of experiencing

side effects related to transfusion is extremely low.

“Transfusions around the world are safer for millions thanks to Dr. Alter and his colleagues,” said Gilman.

SEE ALTER, PAGE 4



NIH leaders gather at the recent dedication of a CC exhibit about the career of NIH Nobelist Dr. Harvey Alter (third from l).

PHOTO: CHIA-CHI CHARLIE CHANG



Music by Howard University students and alumni caps Black History Month. See p. 12.

Women’s History Month

One more spotlight, this one on an NIH research fellow, concludes our salute to Women’s History Month. Look for more coverage of NIH’s talented and inspiring women throughout the year.

FOCUS PARAMOUNT TO SUCCESS

Say Yes Until You Can Say No, Says NCATS’s Ryu

BY ERIC BOCK

When Dr. Seungmi Ryu of the National Center for Advancing Translational Sciences (NCATS) was just starting her scientific career, she said “yes” to every opportunity.

“It’s important to expose yourself to as much as possible,”



Dr. Seungmi Ryu

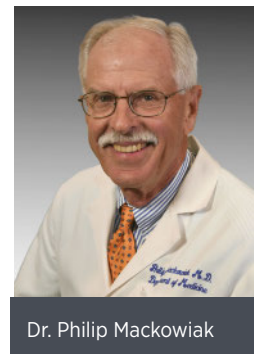
SEE RYU, PAGE 6

‘HAUNTED AND TAUNTED’ ‘Plague of Athens’ Cause Remains a Mystery

BY ERIC BOCK

More than 2,500 years ago, a mysterious plague raged through Athens. As much as a quarter of the city’s population died, said Dr. Philip Mackowiak during a recent Contemporary Clinical Medicine/ Great Teachers Grand Rounds in Lipsett Amphitheater.

“The mysterious outbreak was one of the first well-described pandemics. Despite 2,000 years of speculation, it’s yet to be diagnosed,” said Mackowiak, emeritus professor of medicine and the Carolyn Frenkil



Dr. Philip Mackowiak

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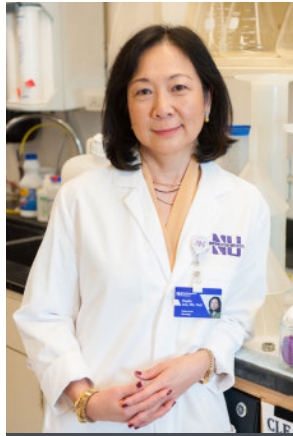
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SCIENCE OF SLEEP

Northwestern's Zee To Give NIH Director's Lecture, Apr. 3

Does the recent jump to daylight savings time have you feeling out of sorts? Learn how sleep and circadian rhythms are key regulators of biological processes.



Dr. Phyllis C. Zee

Dr. Phyllis C. Zee of Northwestern University Feinberg School of Medicine will deliver the next NIH Director's Lecture, part of the Wednesday Afternoon Lecture Series (WALS), on Apr. 3 from 2 to 3 p.m. ET. The title of the lecture is

“Dynamic Interplay of Circadian Rhythms and Sleep on Health.” The presentation will be held in Lipsett Amphitheater, Bldg. 10, and videocast at <https://videocast.nih.gov/watch=52619>.

Zee is professor of neurobiology, the Benjamin and Virginia T. Boshes professor in neurology, and chief of the Division of Sleep Medicine at Northwestern Medicine. She also serves as director of the Center for Circadian and Sleep Medicine, where she oversees an interdisciplinary program in basic and translational sleep and circadian rhythm research. Findings from her team have paved the way for innovative approaches to improve sleep and circadian health.

A central theme of Zee's research is understanding the role of circadian-sleep interactions on the expression and development of cardiometabolic and neurologic disorders. Zee has focused on the effects of age and neurodegeneration on sleep and circadian rhythms and pathophysiology of circadian sleep-wake disorders.

During her WALS talk, she will discuss the implications of circadian-sleep disruption for human health, focusing on cardio-metabolic and neurodegenerative disorders, and the promise of circadian-sleep-based interventions such as timed light exposure and time-restricted feeding to improve health outcomes by enhancing the crosstalk between central and peripheral clock-sleep mechanisms.

More information about WALS is posted at <https://oir.nih.gov/wals>. — **Diana Gomez**

Nominations Open for Champions of Equity, Diversity, Inclusion, Accessibility

The Office of Equity, Diversity and Inclusion (EDI) is accepting award nominations that recognize NIH staff who champion the ideals of equity, diversity, inclusion and accessibility. Categories include:



Food trucks operate on the 10H parking lot, right outside the Clinical Center south lobby.

PHOTO: ERIC BOCK

Food Trucks Return to NIH

Spring is here and that means the NIH community once again has a variety of rotating food trucks on the Bethesda campus.

Weather permitting, food trucks will operate in the 10H parking lot initially on Tuesdays through Thursdays from 11 a.m. to 2 p.m., or until the food runs out. In May, truck presence will expand to include Mondays and Fridays. Continued operation of the food trucks depends on demand by the NIH community. Find a full list of trucks and menus at <https://govemployee.com/nih/food-trucks/>.

The NIH Community Market will remain in the Clinical Center's south lobby from 10 a.m. until 2 p.m. on Tuesdays until April when it moves outdoors to the south lawn of Bldg. 10. See the list of vendors at <https://govemployee.com/nih/rw-services-membership/farmers-market/>.

The NIH Food Trucks and Community Markets are sponsored by the Office of Research Services and the NIH Recreation and Welfare Association. Direct any comments and/or concerns to the Food Services Team at (301) 827-3248 or ORSWEPB@ors.od.nih.gov.

- Harvey J. Bullock Jr., Award, which honors a non-supervisory employee or group of general schedule (GS) employees at grade 12 and below, or equivalent who champions the ideals of DEIA.

- Yvonne Thompson Maddox Award for Equity, Diversity and Inclusion, which honors a non-supervisory employee or group of GS employees at grade 13 and above or equivalent.

- NIH Equity, Diversity and Inclusion Award of the Year, which honors an executive, manager or supervisor.

- NIH Award for Accessibility, which honors GS employees (group or individuals) at any grade who have made significant contributions toward promoting and/or furthering NIH's accessibility efforts.

For more information about these awards or how to submit nominations, visit EDI's awards webpage (<https://bit.ly/3T1iKzG>) and download the nomination form. Visit <https://bit.ly/3lp96ls> to see past awardees.

Honorees will be recognized during the 2024 NIH Director's Awards Ceremony. Nominations must be submitted to EDI by close of business on Friday, Apr. 19.

Contact your institute/center award coordinator (<https://bit.ly/3InCFUz>) for IC-specific deadlines and guidance on how to submit a nomination. All nominations should be submitted through your IC.

Contact Allyson Browne at Allyson.Browne@nih.gov or (301) 827-1332 for more information.

Blood Bank in Critical Need of Donors

The NIH Blood Bank urgently needs life-saving blood and platelet donations for patients at the Clinical Center (CC).

Currently, there is an acute need for donors with group O, group A and B negative blood types. Additionally, platelet donations are in high demand to address urgent medical situations.

To make an appointment, visit www.cc.nih.gov/blooddonor or call the NIH Blood Bank in Bldg. 10 at (301) 496-1048 or the Platelet Center at Fishers Lane at (301) 496-4321.

Walk-ins can drop by and donate at the location on the first floor of the CC in Rm. 1C713.

New Long Covid Trials Open

Two phase-2 clinical trials have begun to test the safety and effectiveness of three treatments for adults with autonomic nervous system dysfunction from Long Covid.

The autonomic nervous system acts largely unconsciously and regulates bodily functions such as heart rate, digestion and respiratory rate. Symptoms associated with autonomic nervous system dysfunction have been among those that patients with Long Covid say are most burdensome.

The trials are part of NIH's Researching Covid to Enhance Recovery (RECOVER) Initiative, a nationwide research program to fully understand, diagnose and treat Long Covid. Other RECOVER phase-2 clinical trials testing treatments to address viral persistence and neurological symptoms, including cognitive dysfunction (like brain fog), launched in July 2023.

"As a Long Covid patient, I know firsthand how disruptive and frightening symptoms including rapid heart rate, dizziness and fatigue can be," said Heather Marti, co-chair of the RECOVER National Community Engagement Group. "Patient representatives across RECOVER have also shared that these symptoms are some of the most debilitating symptoms of Long Covid."

The two trials, collectively known as RECOVER-AUTONOMIC, are testing three potential treatments in adults who, following Covid-19, now have postural orthostatic tachycardia syndrome (POTS). An autonomic nervous system disorder, POTS is characterized by unexpected fast heart rate, dizziness, fatigue or a combination of these symptoms when a person stands up from sitting or lying down.

"The trials were developed with input



Duke's Dr. Christopher Granger (l) and NIH's Dr. Gary Gibbons (r)

from people living with Long Covid, caregivers, community representatives, clinicians and scientists all with unique expertise in the field," said RECOVER co-chair Dr. Gary Gibbons, director of the National Heart, Lung and Blood Institute.

The trials will initially examine three potential treatments:

- Gamunex-C, a form of intravenous immunoglobulin, contains antibodies to help the body protect itself against infection from various diseases and is given by intravenous infusion
- Ivabradine, an oral medication that reduces heart rate
- Coordinator-guided, non-drug care, such as wearing a compression belt and eating a

high-salt diet, which are recommended for patients with POTS to counteract excessive loss of fluids

"Patients who develop POTS after having Covid-19 are often severely limited by their symptoms, and there are no proven effective treatments," said Dr. Christopher Granger

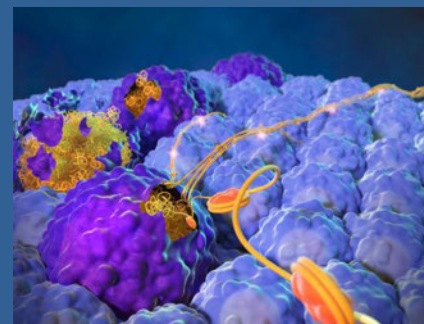
of Duke University Medical Center, who co-leads RECOVER-AUTONOMIC. "These interventions were selected because they have shown potential benefit in treating symptoms for POTS. The theory we're testing is that they might also help individuals with long Covid."

RECOVER-AUTONOMIC is an adaptive clinical trial, meaning if additional potential

interventions emerge, they can quickly be added and studied in the trial.

Researchers plan to enroll 380 total participants at 50 sites across the country. Teams at the trial sites will recruit participants from their health systems and surrounding communities. The current list of sites for the trials can be found on ClinicalTrials.gov; additional sites will be added as they begin enrolling participants.

With the launch of the RECOVER-AUTONOMIC trials, RECOVER is currently testing seven treatments across four clinical trials and continues to enroll participants. To learn more about RECOVER clinical trials visit trials.recovercovid.org. **R**



ON THE COVER: Cancer cells that die via apoptosis (larger dark purple structures) expel their nuclear contents (orange and yellow stringy structures) to spur metastasis and growth of living cancer cells (smaller light blue structures).

IMAGE: YANG LAB/NCI

The NIH Record

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Above, during the exhibit's dedication, Nobel Laureate and senior scholar in the CC department of transfusion medicine Dr. Harvey Alter reads a poem he wrote about his career. At left, discussing features of the exhibit are (from l) Dr. Anthony Fauci, former NIAID director; Diane Dowling, Alter's wife; the honoree; Dr. James Gilman, chief executive officer of the Clinical Center; Dr. Monica Bertagnolli, NIH director; and Dr. Lawrence Tabak, NIH principal deputy director.

Alter Exhibit

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Alter first arrived at NIH as a clinical associate in November 1961. Had he not joined NIH, he would've joined the army. He had been drafted and told to report to Fort Dix, N.J. His appointment at NIH superseded his draft notice.

"Had I been drafted my life would've been completely different," he said. "I would've certainly wound up in a clinical practice. That had been my goal all along. I didn't intend to be a researcher."

At NIH, he joined the Blood Bank. There, he began collaborating with Dr. Baruch Blumberg. Together, they discovered the Australian antigen.

"In those days, you could go to somebody and say, 'let's collaborate,'" Alter recalled. "There were no protocols, no [institutional review boards] IRBs or oversight. We just did what we thought was interesting."

Subsequently, Blumberg went on to discover that the antigen was the surface coating of the hepatitis B virus. He later won a Nobel Prize for his discovery.

"I got the satisfaction and reward that the first project I ever did turned out to be very important," Alter said.

He left NIH to complete a hematology fellowship at Georgetown University, where he "got hooked on academic medicine." Four years later, he was offered the chance to return to the Blood Bank to study transfusion-associated hepatitis.

"The exhibit gives you a glimpse of a brilliant and generous poet, who is also one of NIH's great physician-scientists," said NIH Principal Deputy Director Dr. Lawrence Tabak.

Also speaking at the exhibit opening, Dr. Anthony Fauci, former director of the National Institute of Allergy and Infectious Diseases, said Alter's work was one of the

most important things that happened in the CC. "The CC is the crown jewel of NIH. Harvey has really promoted and validated the concept of how important this particular component of NIH is."

Alter thanked his wife, Diane Dowling, for making "him a better researcher because I could come to work at ease and I would come home to a loving and supportive wife." Alter also referred to the many colleagues, mentors and leaders who have supported him over the course of his career. Several attended the exhibit ribbon-cutting.

"The permanent exhibit in the busy halls of the Clinical Center is a wonderful reminder to the many passersby of why we do what we do," Bertagnolli concluded. "It can take long hours and many years. But we make a significant impact in clinical care when we try to understand the root causes of illness."

Michele Lyons, Devon Valera and Mark



Riewestahl of the Office of NIH History and Stetten Museum designed the exhibit, which is located in the central corridor of the CC's Magnuson Bldg., between the FAES bookstore & coffee shop and Masur Auditorium. **R**

At left, Alter joins colleagues from the CC's department of transfusion medicine. At right, one of several exhibit designers, Mark Riewestahl of the Office of NIH History and Stetten Museum attended the ribbon-cutting.

PHOTOS: CHIA-CHI CHARLIE CHANG



NIH Director Dr. Monica Bertagnolli recently visited the UAB Marnix E. Heersink School of Medicine to deliver its department of surgery's Grand Rounds.

PHOTOS: UAB

Bertagnolli Visits UAB, Delivers Surgery Grand Rounds

BY EMME STEWART

NIH Director Dr. Monica Bertagnolli recently visited the University of Alabama-Birmingham (UAB) Marnix E. Heersink School of Medicine and was guest speaker for its department of surgery's annual Kirby I. Bland, M.D., Endowed Lectureship.

The lecture was established to honor the distinguished career of Bland, who served as chair of the surgery department for nearly 16 years and mentored countless medical students and residents, while also setting the bar for patient care and surgical research.

While at UAB, Bertagnolli delivered the morning's Grand Rounds address and discussed how NIH is strategically prioritizing translation of clinical research into tactical application in primary care.



Bertagnolli is greeted at UAB by surgery department chair Chen.

"Our work is not finished when we deliver scientific discoveries," she said. "Our work is finished when all people are living long and healthy lives."

A surgical oncologist by training, Bertagnolli also mentioned the importance of mentors for trainees and thanked Bland for his guidance in her career, as well.

Later, she met with clinician-scientists to hear more about the groundbreaking research happening on campus and visited with UAB leadership to discuss the continued impact of UAB applied science in patient populations across the state and beyond.

"Dr. Bertagnolli's insight into our research as a medical institution is absolutely invaluable," said Dr. Anupam Agarwal, senior vice president for medicine and Heersink dean. "I am so thankful that our faculty and researchers have had the opportunity to connect with and learn from her during her visit to campus."

A dedicated mentor herself, Bertagnolli met with trainees from UAB's General Surgery Residency Program and students from Heersink's Medical Scientist Training Program to discuss the future of research and what it looks like to be both a practicing physician and a committed researcher.

Throughout the day, Bertagnolli reiterated the importance of owning your authentic voice and approach: "You don't have to be like everyone else.

It is the very best way to bring benefit to where you are." The words derive from lived experience—Bertagnolli is the first surgeon to lead NIH and the second woman of 17 directors to helm the organization.

"It has truly been an honor to welcome our colleague and friend of the department, Dr. Monica Bertagnolli, for her first visit to Birmingham and UAB," said Dr. Herbert Chen, Fay Fletcher Kerner endowed chair of surgery. "She brings invaluable wisdom and insight that has inspired our faculty



At UAB are (from l) Dr. Herbert Chen, Fay Fletcher Kerner endowed chair of surgery; Dr. Anupam Agarwal, dean and senior vice president for medicine at the Heersink School of Medicine; Bertagnolli; Grand Rounds lecture namesake Dr. Kirby Bland, Kerner endowed chair emeritus; and Kate Klimczak, NIH associate director for legislative policy and analysis. For many years, Bland was principal investigator/program leader of the UAB Cancer Center's NIH Specialized Program of Research Excellence and served as PI on UAB's NIH T-32 training grant in surgical oncology.

and trainees to continue seeking the answers to hard questions that can change the way we practice medicine and perform surgery for the better."

To watch Bertagnolli's lecture, go to <https://www.youtube.com/watch?v=SkRy8Vvk9iYs>.

**The writer is communications manager for UAB Medicine's department of surgery.*



Bertagnolli (fourth from l) meets with research leaders at the University of Alabama at Birmingham (from l) Drs. Sunil Sudarshan, Karin Hardiman, Andrea Gillis, Vikas Dudeja, Nicole Bentley, Daniel Chu and Jan Jansen.



While at UAB, Bertagnolli visited with clinician-scientists and UAB leadership, and (at right) met with research residents of the University of Alabama at Birmingham General Surgery Residency Program, along with Chen (front, r) and Dean Agarwal (r).

• • •

“There will always be questions to answer out there in the world. In science, you’ll fail a lot. If you want a deeper understanding, you must focus.”

Ryu

CONTINUED FROM PAGE 1

said Ryu, a research fellow in the Stem Cell Translation Laboratory of NCATS’s Division of Preclinical Innovation. “Innovation occurs at the intersection of academic disciplines, culture and ideas.”

The more she learned, however, the more she realized she didn’t know. Soon, there came a time when she had to say “no” if she was to focus on a specific research area.

“There will always be questions to answer out there in the world,” she said. “In science, you’ll fail a lot. If you want a deeper understanding, you must focus. It’s really important.”

That’s what led Ryu to NCATS, where she develops 3-D models representing the central and peripheral nervous systems of human pluripotent stem cells using bioengineering techniques such as organoid and tissue bioprinting.

Last year, Ryu received the Women’s Science Advisors (WSA) Scholar Award for “outstanding scientific research performed by intramural postdoctoral fellows.” A panel of WSA institute representatives selected her from a pool of all female fellows.

Her award-winning research focused on building ‘brain-in-a-dish’ models called organoids to study potential therapeutics for Friedreich ataxia, a rare disease that damages parts of the nervous system involved in balance and movement.

Around the time she received the award, she recently had returned from maternity leave.

“I had this imposter syndrome,” Ryu recalled. “I kept thinking, ‘Do I deserve to be here? Should I stay home with my newborn?’ I felt like I wasn’t a good enough scientist or mother. When I got the award, I felt supported by the senior women scientists on the committee. I knew I could keep going if I believed in myself.”

Young scientists who want to pursue research and start a family still face challenges, she noted. In 2019, a study published in *Nature* found that 23 percent of men and 43 percent of women leave the lab for good when they have children. When new parents leave the scientific workforce, it reinforces the perception that dedicated professionals are not expected to have a personal life.

Slowly, the landscape is changing.

—DR. SEUNGMI RYU

• • •

Recently, NIH fellows organized into a union, the first fellow union ever within the U.S. federal government. NIH Fellows United-UAW comprises more than 5,000 early-career fellows including postbaccalaureate, predoctoral and postdoctoral researchers and clinical fellows.

As a child, “I was a science girl,” Ryu explained. “I liked physics and chemistry, but I loved biology.” In college, she studied chemical and biological engineering. She pursued a career in research because she could be at the forefront of discovery. She received her Ph.D. in stem-cell based tissue engineering from Seoul National University in Korea.

Upon graduation, Ryu received a scholarship from the National Research Foundation of Korea to pursue research abroad. She completed a postdoctoral fellowship in a biophotonics laboratory at Harvard Medical School.

Ryu first came to NCATS in 2018 to be closer to her husband, who had a postdoctoral fellowship in Baltimore at Johns Hopkins University. She first learned about NIH after searching for stem cell jobs in Maryland.

“I was really lucky,” she concluded. “After I came here, I wondered how did I end up here? This is a great opportunity.” **R**

DID YOU RECOGNIZE THEM ALL?

Women at NIH Who Made History

In the Mar. 15 issue, the *Record* published an image featuring eight history-making NIH women. How many were you able to identify?

Shown (clockwise from top l): **Dr. Marilyn Gaston**, at the National Heart, Lung and Blood Institute, led research team that found it crucial to screen (and subsequently treat) newborns at birth for sickle cell disease;

Dr. Monica Bertagnoli, in 2023 became the first surgeon to be appointed NIH director and, in 2022, the first woman to lead the National Cancer Institute (NCI); **Dr. Bernadine Healy**, first woman to be appointed

director of the National Institutes of Health; **Dr. Ruth Kirschstein**, first woman to be named director of an NIH institute—the National Institute of General Medical Sciences; **Dr. Margaret Pittman**, became in 1957 the first woman to hold the position of lab chief at NIH—Laboratory of Bacterial Products, Division of Biologics and Standards; at NCI, **Dr. Flossie Wong-Staal** was the first scientist to clone human immunodeficiency virus (HIV) and determine the function of its genes; former deputy director at the National Institute of Child Health and Human Development, **Dr. Antonia Novello** became the first woman and first Hispanic to serve as U.S. surgeon general; and at the then-National Heart Institute, **Dr. Nina Starr Braunwald**, in the early 1960s, one of few women in the United States to perform open heart surgery and the first to be certified by the American Board of Thoracic Surgery.



NCCIH Analysis Sees Rise in Use of Complementary Health Approaches

An analysis conducted by the National Center for Complementary and Integrative Health (NCCIH) reveals a substantial increase in the overall

use of complementary health approaches by American adults from 2002 to 2022. Published in the *Journal of the American Medical Association*, the study highlights a surge in adoption of complementary health approaches for pain management over the same period.

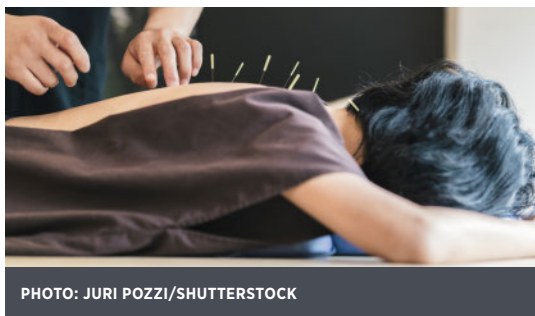


PHOTO: JURI POZZI/SHUTTERSTOCK

Researchers used data from the 2002, 2012 and 2022 National Health Interview Survey (NHIS) to evaluate changes in the use of seven complementary health approaches, including yoga, meditation, massage therapy, chiropractic care, acupuncture, naturopathy and guided imagery/progressive muscle relaxation.

Key findings include:

- The percentage of individuals who reported using at least one of the seven approaches increased from 19.2% in 2002 to 36.7% in 2022.
- The use of yoga, meditation and massage therapy experienced the most significant growth from 2002 to 2022.

- Use of yoga increased from 5% in 2002 to 15.8% in 2022.

- Meditation became the most-used approach in 2022, with an increase from 7.5% in 2002 to 17.3% in 2022.

- Acupuncture, increasingly covered by insurance, saw an increase from 1% in 2002 to 2.2% in 2022.

Additionally, the analysis showed a notable rise in the proportion of U.S. adults using complementary health approaches specifically for pain management. Among participants using any of the complementary health approaches, the percentage reporting use for pain management increased from 42.3% in 2002 to 49.2% in 2022.

Despite the findings, the authors acknowledge study limitations, including decreasing NHIS response rates over time, possible recall bias, cross-sectional data and differences in survey wording.

The study also highlights the role of factors such as higher quality research supporting efficacy of complementary health approaches, inclusion of these approaches in clinical practice guidelines for pain and the expanded insurance coverage for approaches such as acupuncture, which has contributed to increased patient access. **R**

NIBIB Launches DEBUT Competition

The National Institute of Biomedical Imaging and Bioengineering (NIBIB) and VentureWell, with support from several other NIH institutes and centers, have launched the 2024 Design by Biomedical Undergraduate Teams (DEBUT) Challenge, a competition that recognizes undergraduate excellence in biomedical design and innovation.

The annual challenge encourages student teams to develop medical technology to address unmet needs in any area of health care. Strong DEBUT submissions will demonstrate a mastery of analytical and design skills and capabilities; the ability to manage the product development process; the ability to work effectively in teams; and technical communication skills.

Submissions will be judged on these criteria:

- Significance of the problem being addressed
- Impact of proposed solution on potential users and clinical care
- Innovative design
- Working prototype

Additional prizes will be awarded to entries that also demonstrate:

- Market potential and economic feasibility
- Patentability

Deadline for submission is Friday, May 31. All applications must be submitted online. Winners will be announced on Aug. 26. To see submission guidelines, visit: <https://venturewell.org/guidelines/>.



ORS Introduces 'Nourish,' Six-Week Healthy Eating Program

The Office of Research Services has announced Nourish, a spring 2024 well-being challenge that helps turn healthy eating intentions into lifelong habits. Wrapped in a garden theme, Nourish lets you choose the activities most meaningful and motivating to you.

What's in it for me? Grow virtual veggies, fruits and grains from around the world by recording health activities. Then try delicious recipes with ingredients from your garden—seven new recipes each week. A mobile app is also available to track on the go.

Who can participate? Available to all federal employees and anyone in your household ages 18 and over. Read the Nourish letter to all federal agencies for details at <https://go.nih.gov/ikesn7R>.

To register, go to the Feds Get Fit website at <https://fedsgetfitmas.thenourishgarden.com/welcome>. Logging begins Monday, Apr. 1. Registration ends Monday, Apr. 8. Last Day to Track Activity: May 14.

Work together. Team participation is optional, but when groups of four band together toward a shared goal, they greatly improve their chance of success—and have more fun along the way! After registering, go to the "Team" page.

Learn how you can increase energy, lift mood and sharpen focus by eating more nutrient-rich food and less nutrient-deficient food in Nourish.

VOLUNTEERS

AI Study Needs Volunteers

Scientists at the Clinical Center are improving artificial intelligence (AI)-driven diagnostics with a research study on voice data. Healthy volunteers and people with a suspected diagnosis are invited to use a web-based application to take a brief questionnaire and submit voice samples. Play a vital role in developing new AI models that are safe and unbiased for health care. Take the brief voice survey now <https://bit.ly/nihhearai>. For questions, contact the CC Office of Patient Recruitment (866) 444-2214 (TTY users dial 711) or ccopr@nih.gov. Refer to study #IRB001596.

Plague

CONTINUED FROM PAGE 1

and Selvin Passen history of medicine scholar-in-residence at the University of Maryland School of Medicine.

The plague swept away the “Golden Age of Athens.” The time preceding the pandemic was an “an amazingly productive time” for ancient Greece’s most famous and influential thinkers, he noted. Playwrights Aeschylus, Sophocles, Aristophanes and Euripides wrote some of Greece’s most famous dramas. Herodotus and Thucydides established history as an academic discipline. And Hippocrates laid the foundation for modern medicine.

This time period is sometimes called the “Age of Pericles,” a reference to the prominent Athenian politician, orator and military general. Under his leadership, Athens became an educational and cultural center and naval power. Pericles was responsible for construction of the Parthenon, a large, marbled temple on the Acropolis.

The growth of Athens alarmed Sparta, a rival city-state. When Spartans could no longer tolerate being a subject of Athens, they invaded the land surrounding Athens, noted Mackowiak. In 431 BCE, the Peloponnesian War began.

Athenians abandoned their farmland and retreated behind the walls of their city. Long walls connected Athens to the port city of Piraeus, so Pericles didn’t have to worry about running out of supplies. He also knew that Spartans had the stronger army, so he directed the Athenian navy to launch attacks against the Spartan army from the sea.

Almost immediately after the onset of the Peloponnesian War, the plague descended. It first arrived in Athens’ port and spread through the crowded city, Mackowiak said. At first, Athenians thought the Spartans poisoned their drinking water because it struck so suddenly.

A survivor of the disease, Thucydides described its clinical characteristics in his historical account of the war. The illness began suddenly with headache and



PHOTO: THEASTOCK/SHUTTERSTOCK



The “Golden Age of Athens” is sometimes referred as the “Age of Pericles.” The politician (a statue of whom is shown below) was responsible for the construction of the Parthenon (shown above).

PHOTO: KAVALENKAVA/SHUTTERSTOCK

inflammation of the eyes and throat. These symptoms were followed by sneezing, hoarseness and violent coughing. Vomiting and a generalized rash came next.

“There was fever, restlessness, sleeplessness and extreme thirst,” Mackowiak said. “There was also an aversion to covers and clothing. Victims had a desire to submerge themselves in water.”

In the disease’s final stages, people had diarrhea and, sometimes, blindness and necrosis. Those who survived developed immunity; however, they sometimes reported “profound amnesia,” upon recovery, Mackowiak added.

According to Thucydides, the pandemic originated in Africa and then worked its way through the Mediterranean. Case fatality rate was around 25%. The pandemic was most severe during the first year, before disappearing gradually. It’s believed Pericles died from it, “but we don’t know for certain,” Mackowiak clarified.

Throughout history, medical historians have speculated on the plague’s cause. They have suggested influenza with toxic shock, bubonic plague, measles, ergotism, epidemic typhus or smallpox.

“Most of the signs and symptoms Thucydides described are non-specific and could be seen in almost any disorder you want to mention,” Mackowiak said.

The key to diagnosis is the blistering rash Thucydides described. Based on that evidence, epidemic typhus and smallpox are the most likely causes of the plague.

Several symptoms victims experienced resembled typhus symptoms. The mortality rate for untreated typhus is 20 percent. However, the disease is caused by a bacteria called *Rickettsia prowazekii*. Typhus is

spread to people through contact with body lice infected with the bacteria. Typhus is responsible for epidemics, not pandemics.

“It’s hard to imagine the entire eastern Mediterranean was infested with lice,” Mackowiak argued.

There’s more evidence against typhus, he said. Necrosis of the hands and feet would have occurred only in the winter months had typhus been the culprit. The plague ravaged Athens through the summer, when typhus infections typically wane. While typhus causes rashes, they are not the same type as the Athens cases the historian described.

Rather, Mackowiak believes the evidence, although not perfect, points to smallpox. A highly contagious infectious disease, smallpox killed, on average, three out of 10 people who contracted it. It has an incubation period of a week to 17 days, suggesting “that smallpox could’ve popped up very quickly in Piraeus during the war.”

Those who contract smallpox experience a severe headache, backache and fever for the first two to three days, followed by inflammation of the tongue, mouth and throat. Then, a rash appears. It first starts as small red spots before progressing to a blistering rash.

“The most damning evidence against smallpox is the absence of a backache, which is extremely common during the initial phase of smallpox,” Mackowiak said. “And Thucydides failed to describe pockmarks on the faces, which he couldn’t possibly have missed on the faces of patients who survived.”

It’s possible that the historian was one of the few patients who didn’t get a backache or pockmarks, so he didn’t think it was a problem. Also, physicians at the time were more interested in a disease’s prognosis rather than its outcome.

Modern medicine might one day reveal the mystery of the plague. Until then, “we’ll continue to be haunted and taunted,” Mackowiak concluded. **R**

Electric Vehicle Charging at NIH

The composition of vehicles at NIH, both employee and fleet, is transitioning to include more hybrid and electric vehicles (EV). NIH is committed to support this transition to reduce greenhouse gas (GHG) emissions and associated health effects.

To address the increasing demand, NIH is working to add new charging stations at each of its owned campuses and leased facilities. The number of charging stations for fleet vehicles is growing relative to the increase in electric fleet vehicles. Installing charging stations for employee vehicles is complex due to federal requirements. Below is a summary of the NIH EV charging program, EV charging requirements and restrictions to charging employee vehicles at NIH.

Elements of Transition

Executive order (EO) 14008 and EO 14057 require federal agencies to transition to a zero-emission vehicle (ZEV) fleet to reduce GHG emissions. The General Services Administration (GSA) defines ZEV as battery electric vehicles, plug-in hybrid-electric vehicles (PHEV) and fuel cell electric vehicles that are powered by hydrogen.

For details on GAO definitions, go to <https://bit.ly/49Y7hZa>.

The transition to ZEV is to be accomplished through new vehicle acquisitions with acquisition targets by vehicle class.

For all new light-duty vehicle acquisitions, agencies are to purchase 100% ZEV by 2027. NIH has exceeded all ZEV acquisition targets and continues to add fleet charging stations.

In 2024, NIH will add new charging stations for fleet vehicles at the Lot 34 fuel station in Bethesda and Bldg. 101 in Research Triangle Park, N.C. NIH will continue to expand fleet charging stations to meet the growing need.

Government vs. Personal Vehicles

While the government has taken a strong stance to require additional charging stations for fleet vehicles, there are no federal requirements to install charging stations for employee vehicles.

Agencies are asked to consider employee EV charging as part of a comprehensive ZEV plan, however installing and operating EV charging stations at federal facilities for employee-owned vehicles is regulated by the Fixing America's Surface Transportation (FAST) Act.

The FAST Act requires the government to recover all costs from

employee charging. To meet these requirements, agencies must track all costs, collect fees and reimburse the government.

To read FAST Act details, visit <https://bit.ly/3vi2imH>.

Installing charging stations for fleet vehicles is largely a one-time project. For employees' personal vehicles, station installation is just the beginning; they require ongoing monitoring that grows as more stations are added.

Meeting the Need

The number of staff and visitors who are using EV and PHEV to commute to NIH campuses continues to increase. NIH recognizes the need and is committed to expanding charging stations for personal vehicles to support that need.

Charging stations will be added as part of construction and renovation projects, and in locations that don't require extensive infrastructure upgrades.

There are plans to install infrastructure to support employee EV charging at each of the NIH-owned campuses: Multi-level parking lot (MLP)-12 in Bethesda, Md.; Bldg. 102 in Poolesville, Md.; Bldg.

101 in Research Triangle Park, N.C.; and Bldg. J at Rocky Mountain Laboratories, Mont.

In addition to owned properties, NIH is working to include EV charging options at leased facilities; several already have stations available to NIH'ers. Expansion of EV charging for personal vehicles will continue, however careful planning is required to enable cost reimbursement in accordance with the FAST Act.

Where Can Staff Get Charged?


Currently, there are eight outlets and 13 parking spots on the Bethesda campus designated for employee EV charging. These clearly marked stations are located in MLP-6, MLP-7 and Bldg. 10 Ambulatory Care Research Facility P2 and P3 levels. These are the only outlets available to staff for charging personal EV and PHEV.

The NIH Federal Credit Union sponsors the stations and reimburses the cost in accordance with the FAST Act. The outlets are on a dedicated circuit and were set up for EV and PHEV charging.

Read details on the stations at <https://go.nih.gov/WTbaGFJ>.

Stay tuned for updates on new employee charging stations. By supporting the transition to ZEV, NIH will reduce GHG, help limit the health impacts of climate change and remain a premiere workplace.

To learn more about the health effects of climate change, visit <https://go.nih.gov/9dJ8HwK>.

Read the EOs at <https://bit.ly/3T-g1Ayu> and <https://bit.ly/3PlgAtU>. 



NIH'ers can charge their personal EVs at stations like this one in MLP-7, near the Lister Hill Center on the Bethesda campus.

PHOTO: JAROSLAV SEBEK

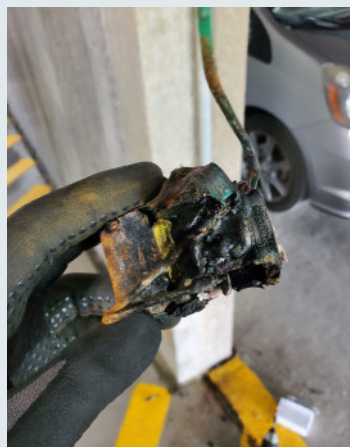
Unauthorized Charging Poses Fire Hazard

Charging at outlets that are not clearly marked for personal use is unauthorized. There have been numerous instances on the Bethesda campus of people charging their vehicles at outlets not designated for personal use in the ACRF, multi-level parking lot (MLP)-7 and MLP-10.

The main concern about unauthorized charging is a fire. Outlets in NIH garages have been burned and some have been completely melted from unauthorized employee EV charging. Each outlet that burned could have caused a fire that spread to vehicles. The risk is significant—especially in parking garages connected to occupied buildings.

In addition to the fire risk, unauthorized charging also puts NIH in violation of the FAST Act. There are no means to meet requirements to track and recoup electricity costs at unauthorized outlets.

NIH is working to educate everyone on campus and, when possible, deactivate outlets in garages. Staff should only charge at stations clearly marked for personal use.



Charging EVs at stations not designated for personal use can lead to melting the outlet (shown above), and potentially, a fire.

PHOTO: JAROSLAV SEBEK

Topical Solution Stops Tooth Decay in Kids

In a large clinical trial, a topical liquid, silver diamine fluoride (SDF), stopped tooth decay in young children. Preliminary results from this NIDCR-funded study, published in *Pediatric Dentistry*, showed that 54% of cavities stopped progressing after SDF treatment, compared to 21% of those treated with a placebo.



A clinical trial participant receives an oral exam at school from a dental clinician on the study.

PHOTO: UNIVERSITY OF MICHIGAN

Tooth decay is the most common chronic disease of childhood. Left untreated, cavities can put children at risk for chronic pain, impaired development and long-term oral and overall health problems.

SDF can be easily, painlessly swabbed onto cavities. It is cleared by the FDA for treating

dental sensitivity and is used off label to treat tooth decay, also known as cavities. Studies suggest that the silver in SDF kills cavity-causing microbes and helps stop destruction of the tooth, while the fluoride helps to rebuild and strengthen the tooth.

Researchers recruited children between ages 1 and 5 with severe tooth decay. Interim analysis of 599 children evaluated the proportion of cavity lesions in which decay progression was stopped six months after a single treatment with SDF or a placebo. To determine effectiveness of SDR, researchers measured the hardness of cavities before and after treatment.

“Current treatments for severe early childhood caries rely on restoration and tooth extraction, which can involve general anesthesia,” said lead investigator Dr. Margherita Fontana of the University of Michigan. “These interventions are expensive, cavities often return and anesthesia can have long-term effects on a developing brain. We didn’t really have any other options until recently. SDF is a game-changer.”

Researchers are now analyzing the final data on more than 800 children, including assessing SDF’s effects on tooth pain and quality of life, as well as potential side effects. One concern is that not every cavity responded to the treatment. Scientists will use future studies to figure out why.

For Childhood Cancer Survivors, Genetics Influence Risk of Cancer Later in Life

Common inherited genetic factors that predict cancer risk in the general population may also predict elevated risk of new cancers among childhood cancer survivors, according to a recent NCI study. The findings, published in *Nature Medicine*, provide additional evidence that genetics may play an important role in the development of subsequent cancers in survivors of childhood cancer.

Childhood cancer survivors are known to have a higher risk of developing a new cancer later in life due to adverse effects of cancer treatment or rare inherited genetic factors. In the new study, researchers evaluated the combined effect of common variants with history of radiation treatment and found the resulting elevated cancer risk was greater than the sum of the individual associations for treatment and genetic factors alone.

Researchers used data from genome-wide association studies (GWAS), conducted in large populations of healthy individuals. They bundled the effects of the large numbers of variants from GWAS into polygenic risk scores. These scores have shown promise for predicting cancer risk in the general population, but it has not been shown whether they are associated with the risk of subsequent cancer among childhood cancer survivors.

The researchers looked at the association between polygenic risk scores and risk of basal cell carcinoma, female breast cancer, thyroid cancer, squamous cell carcinoma, melanoma and colorectal cancer among 11,220 childhood cancer survivors from two large cohort studies.

For all of these cancers except colorectal cancer, the polygenic risk scores in the general population were associated with the risk of these same cancers among childhood cancer survivors.

Moreover, by age 50, survivors with higher polygenic risk scores and higher radiation exposure had a greater cumulative incidence of basal cell carcinoma, breast cancer or thyroid cancer.

Polygenic risk scores are not yet used routinely in the clinic.

Lead investigator Dr. Todd M. Gibson of NCI’s Division of Cancer Epidemiology and Genetics said, “The hope would be that...we can incorporate genetics along with treatment exposures and other risk factors to provide a more complete picture of a survivor’s risk of subsequent cancers to help guide their long-term follow-up care.”



PHOTO: CAVAN-IMAGES/SHUTTERSTOCK

Delta-8-THC Used by 11% of 12th Graders

Approximately 11% of 12th-grade students across the country reported past-year use of delta-8-tetrahydrocannabinol (delta-8-THC, or delta-8 for short), according to an analysis from the 2023 Monitoring the Future survey.

Delta-8 is a psychoactive substance typically derived from hemp, a variety of the *Cannabis sativa* plant. Delta-8 has intoxicating effects similar to delta-9-THC, the primary THC component responsible for the “high” people may experience from using cannabis.



PHOTO: LUCAS PIACESKI/SHUTTERSTOCK

Researchers measured delta-8 use for the first time in 2023 to investigate the drug’s popularity among teens as more hemp-derived THC products enter the market and become more accessible.

Among those who reported delta-8 use, close to 91% also reported marijuana use, contributing to the approximately 30% of 12th graders overall who reported past-year marijuana use. The survey also showed delta-8 use was more common in the South and Midwest regions and in states without cannabis legalization or delta-8 regulations. In contrast, levels of marijuana use did not differ by state-level cannabis policies.

The findings were published as a brief report in *JAMA*. The Monitoring the Future survey is funded by NIDA and conducted by researchers at the University of Michigan, Ann Arbor. Because the survey is taken in school settings and therefore excludes students who were absent, there is likely an underestimation of the percentage of delta-8 use among adolescents.

Numerous studies show adolescent cannabis use is associated with adverse effects on learning, memory and attention; changes in brain development; and the development of cannabis use disorder and other psychiatric disorders, such as depression, psychosis and suicidality.

There is no federal minimum age requirement to purchase delta-8 products, which may be sold online or in gas stations and convenience stores.

In 2022, the FDA issued a consumer warning of serious health risks associated with use of delta-8-THC, including risks of exposure to toxic byproducts.

George Named Deputy Director, Office of Dietary Supplements

NIH's Office of Dietary Supplements (ODS) has named epidemiologist Dr. Stephanie M. George as its new deputy director. She began her new role on Mar. 24.



Dr. Stephanie George

George advises the ODS director on programmatic, personnel, administrative and budgetary issues for the office mission. In addition, she will serve as the vice chair of the NIH dietary supplement research coordinating committee and serve on other related committees and working groups.

"Dr. George's energy and demonstrated success in building effective relationships and leading complex initiatives across NIH are impressive," said ODS Director Dr. Stefan Pasiakos. "I am confident she will help us build the necessary momentum to implement our new strategic vision for ODS."

George comes to ODS from the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) where she served since 2019 as an epidemiologist and program director overseeing NIH's largest investment in physical activity research—the Molecular Transducers of Physical Activity Consortium.

She also serves on many NIH-wide working groups including those focused on nutrition research, dietary supplements, obesity, physical activity, medical rehabilitation, behavioral and social sciences, health disparities, social determinants of health and health communication.

George participated in the federal writing team for the *2023 Physical Activity Guidelines for Americans Midcourse Report: Implementation Strategies for Older Adults* and the *2018 Physical Activity Guidelines for Americans*. She has provided subject matter expertise to both the NIH Community Engagement Alliance and the Rapid Acceleration of Diagnostics Underserved Populations efforts.

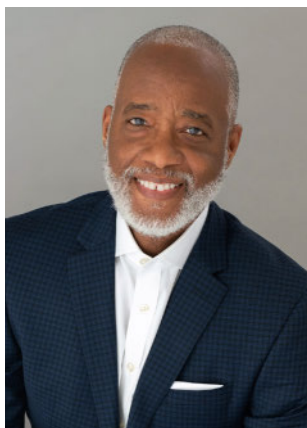
Before her role at NIAMS, George worked as a senior epidemiologist in the NIH Office of Disease Prevention from 2015 to 2019. In that position, she fostered wide-ranging research collaborations to study preventive health topics, especially those related to physical activity, diet and obesity.

George received a B.A. and an M.A. in communication from the University of Maryland as well as an M.P.H. in chronic disease epidemiology and a Ph.D. in epidemiology from Yale University.

First OBSSR Director Anderson Remembered

Dr. Norman B. Anderson, a trailblazer in the field of behavioral and social sciences research who served as inaugural director of NIH's Office of Behavioral and Social Sciences Research (OBSSR) from 1995 to 2000, passed away on Mar. 1 while recovering from unexpected complications after knee surgeries.

A distinguished clinical psychologist, Anderson began his career as an assistant professor in the department of psychiatry at Duke University Medical Center where he studied the intersection of health and behavior, focusing on racial, ethnic and socioeconomic health disparities.



Dr. Norman Anderson

Joining OBSSR in 1995, he fervently championed integrating BSSR across NIH. Under his leadership, the office developed a comprehensive definition of behavioral and social sciences research and established itself as the cornerstone of the field at NIH.

Anderson also oversaw the release of OBSSR's first strategic plan, addressing critical behavioral and social science factors influencing public health.

During his tenure at OBSSR, he facilitated the launch of various funding opportunities that encouraged cross-disciplinary collaboration. He led initiatives to evaluate the effectiveness of interventions for sustained behavior change and drove research efforts to enhance our understanding of the impact of child neglect, to promote youth violence prevention and to improve adherence to long-term medicine regimens.

At a two-day celebration of OBSSR's 10th anniversary in 2006, Anderson "recalled that he was often asked 'why is such an office here?'" according to an *NIH Record* article. "He reminded listeners that, when he headed the office, he was fond of paraphrasing the late President John F. Kennedy: Ask not what NIH can do for behavioral and social sciences research; ask what social and behavioral sciences research can do for NIH.

"Scientific advances could be accelerated by greater attention to behavioral and social sciences factors and their interactions with

biomedical variables...[Anderson] offered three justifications for increased attention: behavioral and social factors are major contributors to health and illness; behavioral and social factors represent important avenues for diagnosis, treatment and prevention; and by focusing more on behavioral and social factors, NIH would be more effective in fulfilling its mission."

A towering figure in behavioral and social science research, Anderson will be remembered as a wise, thoughtful, caring, humorous and supportive leader and mentor.

Survivors include his wife of more than 37 years, Elizabeth, and extended family.

Fountain, Former EEO Officer at NIAID, Is Mourned

Retired NIH staffer Franklin Marshall Fountain passed away on Feb. 7 at age 89.

In 1978, he joined NIH as Equal Employment Opportunity (EEO) coordinator for the National Institute of Allergy and Infectious Diseases (NIAID) until his retirement.

Working with the NIAID scientific director's office, Fountain co-organized an annual 2½-day seminar, "An Introduction to Biomedical Research," that brought dozens of college juniors and seniors to NIH, introducing them to career opportunities in science at NIAID and other institutes. The students came from 20 states, the District of Columbia and Puerto Rico to participate in the seminar that was part of the Minority Biomedical Sciences Program, which helped young people in financially and educationally disadvantaged communities enter biomedical research and health-related professions.

Prior to joining NIAID, Fountain was an EEO/civil rights specialist in the Office of Civil Rights, Economic Development Administration, Department of Commerce. He had an extensive background in human resource management and organizational development, and attended the University of Maryland for a B.S. in human resource management.

Born in Kansas City, Mo., Fountain served 20 years in the Navy before joining NIH. He was an Equal Opportunity Program manager in the Human Resource Management Division, Office of the Chief of Naval Personnel.

Survivors include three children Sonia, Le Anna and Wayne Fountain. **R**



Frank Fountain



Afro Blue soloists Lazarus Brown (front, l) and KayaZhanna Donaldson lead the finale, *Ain't Gonna Let Nobody Turn Me 'Round*.

Musicians in the school's Chadwick A. Boseman College of Fine Arts, the student and alumni artists assembled into a few different ensembles, including a classical choir; the HU Jazz Singers; SAASy (soprano, alto, alto, soprano), an all-female jazz group; and Afro Blue, the university's premiere jazz vocal ensemble that in recent years was the subject of an award-winning film.

Accompanied by a pianist, bassist and drummer, vocalists performed traditional favorites such as *Wade in the Water* and *Deep River* as well

as original compositions *The Trauma Express* and *1+1* by HU students.

In one of its most entertaining and informative selections, Afro Blue delivered an *a capella* account of Henry Box Brown, who was born into slavery in 19th-century Virginia and nearly died while escaping to freedom in a wooden crate he arranged to have mailed to Philadelphia.

"Brown laid down the shovel and the hoe | Down in the box he did go | No more slavery for Henry Box Brown | In the box by express he did go"



Donaldson leads the group in *1+1*, an original jazz composition she wrote.



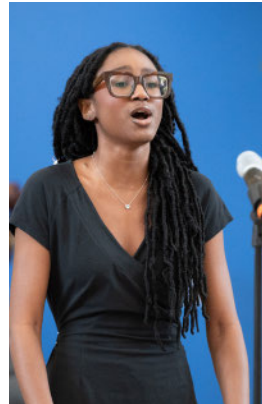
Baritone Khalil Callender renders the classical *Deep River*.

Howard University Brings Music to CC Atrium

PHOTOS: MARLEEN VAN DEN NESTE

In celebration of Black History Month, the Clinical Center (CC) hosted a lunchtime concert, "A Journey Through Song of the Underground Railroad," featuring several groups from the Howard University music department.

The CC north atrium was filled on Feb. 27 with songs representing classical to jazz genres.



The salute to musical Black history included (from l) Tyree Austin leading his composition, *The Trauma Express*; the all-female SAASy singing *Wade in the Water*; soprano Zsana Hoskins performing *When I Get Home*; and Herman Burney Jr., accompanying on bass.



CC Acting Executive Officer Ila Anita Flannigan donned the colors for her alma mater on Feb. 27, as the Howard University music department (shown at right) rendered a lunchtime concert to cap the Clinical Center's Black History Month observance. In welcoming remarks before the concert, Flannigan noted HU's 157th birthday was being celebrated the same week.

