

GLOVES OFF

As in Hospitals, So in Homes: Avoiding Coronavirus Infection

BY RICH MCMANUS

The take-home messages—let’s call them stay-at-home messages—came fast and thick during Clinical Center epidemiologist Dr. Tara Palmore’s May 20 lecture on how NIH’s hospital first became aware of a rising threat from a novel coronavirus, then took steps to keep it not quite out of the CC, but away from patients, none of whom, so far, have been infected by staff.

“It is impossible to overstate how crucial Tara Palmore and her staff have been in preventing the spread of Covid-19,” said Dr.

James Gilman, CEO of the Clinical Center. He introduced her detective story—part of a new lecture series by the Covid-19 scientific interest group—on a day when the CC had screened its 100,000th visitor.

“That’s an astonishing number,” he said. “But we followed the playbook written by Tara Palmore. The virus has slipped in once or twice, and we were able to do contact-tracing later [18 contact studies over 9 weeks turned up 4 cases of secondary infection of staff by patients or other staff, some of whom, in mid-March, were not yet wearing masks].” Gilman praised Palmore’s “kindness, understanding and patience, especially with employees who

were worried about bringing the virus home.”

After thanking a Hospital Epidemiology Service (HES) staff she called “amazing” (including its former head, Dr. David Henderson, who semi-retired 5 months ago), Palmore embarked on what she called the CC’s “quirky timeline with Covid-19,” beginning on New Year’s Eve, when “vague news of undiagnosed pneumonia in Wuhan reached us, involving a few dozen people.”

Ten days later, the new virus’s sequence was posted, and on Jan. 22, the Clinical Center began screening patients by travel history, with recent sojourns in China being of particular concern.

SEE PALMORE, PAGE 4



Dr. Tara Palmore



Birx, Kushner visit VRC. See story on p. 2.

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HISTORY COMES ALIVE Students Learn Lessons from Previous Pandemic

BY DANA TALESNIK

Last fall, when Virginia Tech professor Dr. E. Thomas Ewing assigned his history class a research project on the 1918 Spanish flu, he never imagined the country would be in the middle of another global pandemic by the spring semester. Now, their project has taken on new meaning.

SEE SPANISH FLU, PAGE 6

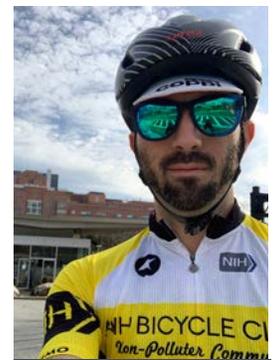


Dr. E. Thomas Ewing, in front of a pylon listing Virginia Tech students and alumni killed in World War I, including several who died in the 1918 flu pandemic

Velez’s Lightbulb Moment Leads to Efficient Employee Triage

Back in early March, an NIH-wide email went out advising staff to call the Occupational Medical Service if they had concerns about exposure to Covid-19.

“When I read this, I imagined a phone-based system would be quickly overwhelmed, so I contacted [NIH Deputy Director for Management] Colleen [McGowan],” said Frank Velez, clinical



Frank Velez normally rides his bicycle to campus, and admits to missing it: “I still do a virtual bike commute each day.”

SEE VELEZ, PAGE 8

NIMH Strategic Plan Paves Way for Advances

On May 20, the National Institute of Mental Health released its Strategic Plan for Research. The new plan provides a framework for advancing research priorities that support the institute's mission: To transform the understanding and treatment of mental illnesses through basic and clinical research, paving the way for prevention, recovery and cure.

"Mental illnesses are common in the United States, affecting tens of millions of people each year," said NIMH director Dr. Joshua Gordon. "Improving treatment for people with mental illnesses will depend on continued research to define the biological underpinnings of these disorders, as well as ongoing translational and clinical research to turn that knowledge into new or improved treatment options."



Over the past 5 years, NIMH-supported research has revealed hundreds of places in the genome linked to mental illnesses; fostered the development of new tools and resources that have dramatically increased the ability to study the brain; played a role in the development of two novel antidepressants; and proved the utility of coordinated specialty care for first-episode psychosis—resulting in nationwide implementation through state-supported mental health clinics.

The new plan builds on the successes of previous NIMH strategic plans and provides a framework for scientific research and exploration to address challenges in mental health over the next 5 years and beyond. It will be updated regularly to keep pace with ever-evolving scientific approaches and research priorities that may lead to new discoveries.

NIMH developed the plan with input from a variety of stakeholders, including the National Advisory Mental Health Council, federal and private partners, feedback from organizations, advocacy groups and people with lived experiences and their families, and NIMH and NIH leadership and staff.

"Over the last decade, we've seen incredible scientific advances that have rapidly transformed neuroscience and mental health care," said Gordon. "While there is still more work to do and challenges ahead, the future is bright."

The plan is available at www.nimh.nih.gov/strategicplan.



Birx, Kushner, Smith Visit VRC

On June 9, NIH hosted a visit by (top, from l) Brad Smith, Dr. Deborah Birx and Jared Kushner, who toured the Vaccine Research Center and received an update on NIH response to the global Covid-19 pandemic. Birx is White House coronavirus response coordinator. Kushner is senior advisor to the President. Smith is director of the Center for Medicare and Medicaid Innovation at the Centers for Medicare and Medicaid Services. They were greeted by NIH director Dr. Francis Collins (r) and NIAID director Dr. Anthony Fauci. The briefing included NCI director Dr. Ned Sharpless, who discussed SARS-CoV-2 serology, and NIBIB director Dr. Bruce Tromberg, who outlined the RADx program, along with Collins and Dr. Tara Schwetz, NIH associate deputy director. Below, in a VRC lab are (from l) VRC director Dr. John Mascola, Birx, Kushner, Fauci, Smith, Collins, VRC deputy director Dr. Barney Graham and vaccine researcher Dr. Kizzmekia Corbett.

PHOTOS: CHIA-CHI CHARLIE CHANG



NIH Safety Officer Serves on Multiple Missions

BY DANA TALESNIK

On a normal day, hundreds of officers from the Public Health Service Commissioned Corps go about their regular duties at NIH. But these have not been normal days.

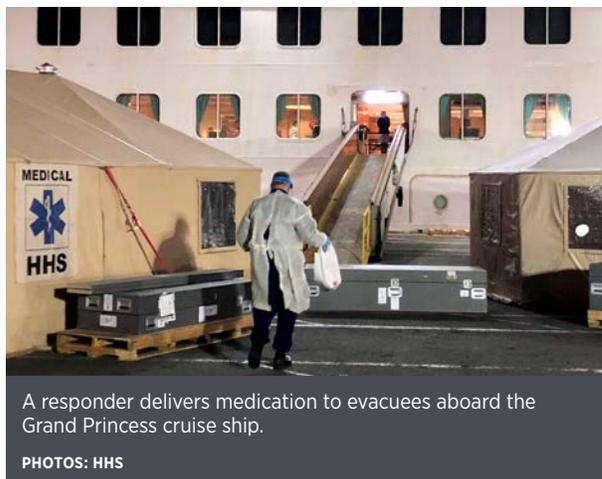
Most of these uniformed health professionals—there are more than 6,100 working across government agencies—become emergency responders when crisis hits.

One of these is Lcdr. Brian Czarnecki, who normally works as an industrial hygienist at NIH's Division of Occupational Health and Safety (DOHS). Starting in early February, he was deployed as a safety officer and process engineer assisting on multiple missions in the Covid-19 response.

In early February, Czarnecki headed to Miramar Marine Corps Air Station in San Diego, to receive and quarantine hundreds of Americans traveling home from Wuhan, China. Two weeks later, he traveled to Yokohama, Japan, where he helped disembark 360 Americans from the Diamond Princess cruise ship and escort them onto U.S.-bound planes for quarantine. He also assisted with swabbing to test all first responders on that mission.

In early March, Czarnecki returned to NIH and, on his off-hours, worked on a team that developed a covid testing concept-of-operations for occupants of the Grand Princess cruise ship off the coast of California.

Later that month, Czarnecki headed to Washington, D.C., to help develop a model for community-based testing sites. He then went north to a private partner location in Shrewsbury, Mass., to help launch the pilot, which became the first federal drive-through testing facility.



A responder delivers medication to evacuees aboard the Grand Princess cruise ship.

PHOTOS: HHS

“Our team processed about 30 tests per hour, for the better part of each day, focusing on health care workers, first responders and the elderly with symptoms,” said Czarnecki.

Further working to safeguard Americans, he served on a task force to evaluate the specifications of

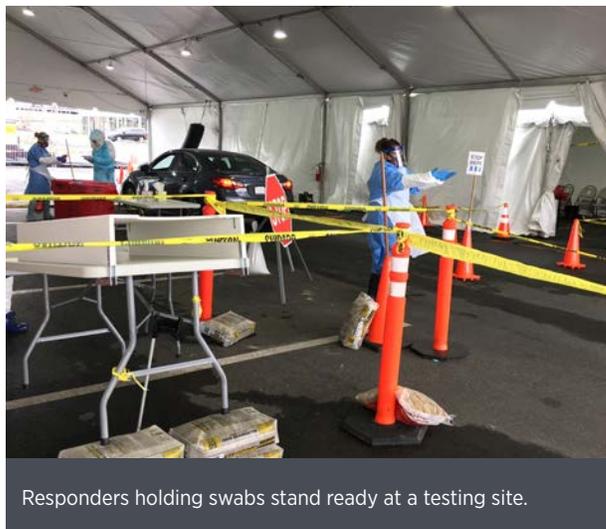


People wait in line at the information-gathering area at the community-based testing site in Massachusetts.

personal protective equipment being procured by the federal government. Throughout his missions, safety was a priority as responders monitored the burn rate of PPE, to maximize supplies.

“Promoting safety as the most important priority helped ensure the team was protected during their missions in California, Japan and Boston,” said Czarnecki. As a testament to their vigilance, despite being near people who tested positive for covid, he and his fellow responders were able to serve safely.

“Modifying our own behaviors during the early stages of the outbreak—avoiding shaking hands and sharing common items, regularly wearing a mask and maintaining a social distance—were perceived as odd before it became a norm in our society,” he said. Now, it seems awkward to shake hands, not wear a mask or encroach on someone's personal space, he noted.



Responders holding swabs stand ready at a testing site.

Czarnecki's day job at NIH involves anticipating, evaluating and mitigating occupational hazards, everything from biological and chemical agents to physical hazards.

“Because NIH is such a diverse place, I get a lot of different experiences here that allow me to have a well-rounded approach and prepare for various contingencies on a deployment,” he said.

Now back at NIH, Czarnecki has returned to Bldg. 13, sharing his frontline experiences with his NIH team. He expressed gratitude to both family and colleagues who assumed the burden of duties in his absence.

“I am forever grateful for the full support of NIH leadership that adjusted workflows as needed in my absence, for the full support of my NIH co-workers who backfilled my position, and the full support of my bride and children that assumed all household responsibilities,” said Czarnecki. “These people are truly unsung heroes.” **R**



ON THE COVER: Ebola Virus Particle. This scanning electron micrograph shows a single filamentous Ebola virus particle. Scientists supported by NIH have discovered a set of powerful, broadly neutralizing antibodies in the blood of Ebola survivors.

IMAGE: NIAID

The NIH Record

Since 1949, the *NIH Record* has been published biweekly by the Editorial Operations Branch, Office of Communications and Public Liaison, National Institutes of Health, Department of Health and Human Services. For editorial policies, email editor or phone (301) 496-2125.

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NIH National Institutes of Health
Turning Discovery Into Health

Palmore

CONTINUED FROM PAGE 1

“Each day seemed like an eternity,” she said, as employees screened all patients either in clinic or by phone.

On Jan. 27, posters went up throughout the CC, warning of signs and symptoms. That day, a call came in that produced alarm. Down in the nuclear medicine department, a 56-year-old cancer patient, who had already been injected with a radionuclide for her procedure, began coughing. She also had a fever and difficulty breathing.

A translator on hand confirmed that she was from Wuhan and was suffering symptoms not flagged earlier by staff.

“There had been one or two travel-related cases” in the United States of a suspected disease not yet called covid, Palmore said, but no cases at the Clinical Center.

“We raced down to nuclear medicine and found the chief technician there, calm as a cucumber,” she said. They had brought personal protective equipment (PPE) for both the technician and the translator and had already “garbed up” themselves.

A nasopharyngeal swab from the patient was taken to the CC microbiology lab, where it tested positive for respiratory syncytial virus (RSV). Palmore sought advice from the Maryland health department. The queue to reach the CDC by phone was 6 hours long. The health department advised that, given the positive RSV test, the patient be sent home in a mask to self-isolate without further testing.

“The patient did just fine, and recovered from her RSV,” recounted Palmore. “We wiped the sweat off our brows and continued our work, but [the episode] galvanized us into action. From that point on, we began holding weekly, then daily, then thrice daily meetings.”

On Mar. 5, the first cases of Covid-19 were reported in Maryland. On Mar. 14, the first known NIH employee was diagnosed. On Mar. 24, the first patient was admitted to the CC, on an NIAID protocol involving the antiviral remdesivir.

As of May 20, 8 patients had been transferred to the CC for Covid-19 clinical trials. Some 292 tests on 199 patients had been conducted, 10 of which came back positive. The Occupational Medical Service counted 171 cases among employees, 14 percent of

whom were clinical personnel. More than 1.5 million cases had been reported in the U.S., with more than 90,000 deaths. “Both numbers are probably low,” said Palmore.

“We’re gonna be in this for months,” she said. “We have to be prepared for the current level of risk for the long haul.”

Palmore paused to point out that studies of epidemiology curves of Covid-19 infection in Italy and China, as well as data from earlier coronavirus outbreaks due to



“Living with a husband and three teenage boys, I did not need a scientific study to know that sneezes can travel [17 feet],” Palmore quipped.

SARS-CoV and MERS-CoV, have reported occupational infection rates for health care workers of about 20 percent.

“So there is significant occupational risk,” she said. “Every day, we are confronted with new scientific findings...[that] make us not want to leave our house, or our bedroom.”

For example, NIDDK scientists showed that speech itself produces droplets that can

★ ★ ★

“We’re gonna be in this for months. We have to be prepared for the current level of risk for the long haul.”

—DR. TARA PALMORE

★ ★ ★

persist for 8-14 minutes in the air of a closed space, as demonstrated through tracking with a green laser. The very smallest particles, called an aerosol, can persist longer. “That’s unsettling,” said Palmore.

At an MIT lab, researchers showed that the gas cloud produced by sneezing can travel 7-8 meters almost instantly.

“Living with a husband and three teenage boys, I did not need a scientific study to know that sneezes can travel that far,” Palmore quipped.

Researchers at NIAID’s Rocky Mountain Laboratories showed that SARS-CoV-2 can survive for up to 72 hours on stainless steel and plastic.

“The headlines, too, can be unsettling,” added Palmore, offering as examples: Do masks work? Is hoarding them wrong? Should people wear them in public?

HES, too, got inquiries: Who is really protected by surgical masks?

Originally made of cotton, surgical masks were invented more than a century ago, said Palmore. While cotton is still used in some parts of the world, most masks nowadays are made of a fluid-resistant polypropylene fabric. Their job was originally to protect patients from the oral flora of surgeons. Studies going back to hospital care in 1918 showed they could prevent spread of diphtheria, meningitis and pneumonia to health care personnel.

Today, masks mainly protect others from whatever bug the mask-wearer may be carrying. They can also protect the wearer from other peoples’ pathogens, Palmore explained. But when particles can range in size from droplets (5-10 micrometers) to less than 5 micrometers (aerosols), how fine a mask is appropriate in which setting?

The CDC currently recommends N95 masks for health care workers encountering Covid-19 patients, and for any medical procedure likely to generate aerosols. In the absence of such masks, surgical masks are used, which is the case in many parts of the country lacking adequate PPE.

Caregivers at the CC use N95 masks, fitted tightly, and sometimes PAPR—powered air-purifying respirators, which are battery-powered generators of positive air pressure, fitted with HEPA filters, for care of patients with Covid-19. “They’re uncomfortable, but they work,” noted Palmore.

“Eye protection is also important for any respiratory viral infection,” she said, though “face shields are not a substitute” for masks in avoiding such infections.

“This is a cruel virus,” she reminded the audience. “It is unforgiving and it wreaks havoc in the human body.”

Fortunately, SARS-CoV-2 is an enveloped virus and is easily inactivated in the



CORONAVIRUS

TO OUR PATIENTS AND VISITORS
There is an evolving outbreak of a novel Coronavirus in Wuhan, China.

Have you traveled to China in the last 28 days?

If 'yes' to travel, do you have any of these symptoms?

- Fever
- Cough
- Difficulty breathing

• 56-year-old woman followed on a solid tumor protocol presented for a routine followup nuclear medicine scan

• New phone screening and reception desk screening did not flag her cough and congestion

• Injected with radionuclide ligand

• Translator → she is from Wuhan and coughing

“We are continually re-evaluating and improving our methods, based on new science and on feedback,” Palmore said.

environment by soap and water, Palmore said. Viruses such as norovirus, which have no envelope, require stronger measures for environmental disinfection, such as bleach.

“A bottle of 409 from under the kitchen counter will take care of [SARS-CoV-2], or disinfectant wipes,” said Palmore, emphasizing that “hand hygiene is critical for all viruses.”

It may come as a surprise to learn that wearing gloves—“often seen around the Clinical Center, and on campus, the Metro and in stores—is not a solution to the problem of environmental contamination,” said Palmore. “It makes it worse. All it does is act as a dirty layer of skin over your own skin. It just takes an environmental contaminant and moves it around. It makes everything dirtier for everyone else.”

When barrier protection and hand-washing fail and a person becomes infected, contact-tracing begins, of anyone an infected individual encountered 2-3 days before noticing symptoms. It is thought that peak viral load occurs in the upper respiratory tract at the time of symptom onset.

This scenario unfolded as Apr. 30 became May 1 in the CC. A woman, 47, in remission from a blood cancer, who had swabbed negative for Covid-19 9 days prior to admission, had fever on admission, a high heart rate, low oxygen (93 percent, when it should have been over 95) and looked ill. She coughed incessantly and seemed tired.

Second and third swabs were negative. A chest X-ray revealed bilateral pneumonia. A CT scan also was “very bad looking.”

A bronchoscopy was scheduled and a

bronchoalveolar lavage later revealed Covid-19 infection.

“That prompted a massive contact study of more than 75 people,” said Palmore, including staff who had merely been in contact with bed linens. Thirty had high-risk exposures and were immediately home-quarantined. Thirty-eight had low-risk exposures and continued to work with masks on. After 14 days, none turned out to be infected, “which was

really a miracle,” said Palmore. “We learned a lot of lessons from that incident and we made some improvements to our infection control as a result.”

The day after Palmore’s talk, the Clinical Center instituted testing of asymptomatic staff who have patient contact.

Infection prevention involves a hierarchy of controls, she concluded, including administrative (symptom screening, social distancing, rotating care teams and testing), engineering (negative-pressure wards, a special operating room for procedures that generate aerosols) and PPE.

“We are continually re-evaluating and improving our methods, based on new science and on feedback,” she said.

During a Q&A session, Palmore clarified a number of issues.

- Asked if people should wipe down all packages that enter their homes, she said, “I don’t do that myself. I wash my hands and try to use common sense. People are worried about cardboard, mail, grocery items. I don’t believe the virus lasts long enough for special concern on any of these.”

- If you use cloth masks, “the more layers, the more useful it’s likely to be...The thicker, the better, so double up.”

- If you use hand sanitizer, cover all surfaces and let the gel evaporate. “That’s very important,” said Palmore. “Don’t wipe it off on anything.”

- The same goes for disinfectant wipes. “Don’t dry surfaces afterward with a paper towel. Allow dwell time. Leave it wet and allow it to air dry.”

The full lecture is available at <https://videocast.nih.gov/watch=37499>.

Royal Society Honors Two from NIH

Two NIH scientists are among the more than 60 scientists from around the world elected as fellows and foreign members of Britain’s Royal Society who were selected for their outstanding contributions to scientific understanding.



Dr. G. Marius Clore

Elected fellow was Dr. G. Marius Clore, NIH distinguished investigator and chief of the protein nuclear magnetic resonance section, Laboratory of Chemical Physics, National Institute of Diabetes and Digestive and Kidney Diseases.

Elected as a new foreign member

was NIH director Dr. Francis Collins, who was cited “for his contributions to human genetics over four decades, including identifying the genetic mutation that causes cystic fibrosis and leading the landmark Human Genome Project.”

Past fellows and foreign members of the Royal Society, which began in 1660, have included Isaac Newton, Charles Darwin, Albert Einstein, Dorothy Hodgkin and Stephen Hawking.



Dr. Francis Collins

The society’s motto *Nullius in verba* is

taken to mean “take nobody’s word for it.” It is an expression, according to the society, of the determination of fellows to withstand the domination of authority and to verify all statements by an appeal to facts determined by experiment.

Spanish Flu

CONTINUED FROM PAGE 1

After the Covid-19 outbreak closed their campus in March, Ewing's 12 undergraduates became geographically dispersed and thrust into other unexpected situations.

"What these students have gone through in some ways is a microcosm of what the whole country is going through," said Ewing at an Apr. 29 NLM History of Medicine virtual research symposium that was part of the ongoing NLM/National Endowment for the Humanities partnership to collaborate on research, education and career initiatives.

Despite the challenges, these students—six of whom discussed their findings that afternoon—continued their research with renewed vigor, searching for clues from a century ago to inform their understanding of the current pandemic.

"I was trying to do something different in this course," said Ewing, "which is to ask how we can use numbers, statistics and data to cultivate a sense of empathetic understanding in history."

For example, he displayed an archival photo of women at their desks wearing masks. Probing a bit deeper, the photo tells a rich story about conditions at that time.

The young women were office clerks, among the highest casualties of the Spanish flu by occupation. Published in a New York newspaper, the photo appeared at a time when more than 10,000 Americans were dying daily. And, unusual for a flu, the mortality rate was high among people in their 20s and 30s.

"If you were in New York City on Oct. 16, 1918, you were in the midst of a very frightening increase in the number of people

around you dying from this disease," noted Ewing.

More stories and lessons would unfold as his students set to work mining historical data and documents.

Reporting on the Flu

One team of students surveyed U.S. newspapers in 12 cities, exploring the frequency and tone of flu coverage.

Though it competed with coverage of World War I, the Spanish flu dominated the news and made frequent front-page headlines, particularly during the peak month of October 1918.

"Each city had many examples of flashy and alarming headlines that reported tragedies and could create panic in the public," said student Louisa Glazunova. But by late fall 1918, more headlines featured preventive measures and a calmer tone to allay public fears.

"[Some] stories and the word choices really shocked the readers into taking precautions more seriously during the peaks of the influenza," said student Fiona Tran. Later, the tone changed, reassuring the public that their cooperation was effective.

In 1918, the time-frame seemed to dictate the tone of stories, the two students observed, whereas during the current covid crisis, different tones emanate from competing news sources. In both cases, they postulated, when



In this Oct. 16, 1918, photo taken during the height of the Spanish influenza pandemic, office clerks in New York City wear masks at work.

PHOTO: NATIONAL ARCHIVES



Several students referenced Dr. Nancy Bristow's book, *American Pandemic*. Shown above, Bristow, history department chair at the University of Puget Sound and a virtual seminar discussant, told the students: "You discovered flu coverage [which competed with World War I coverage] was robust in the middle of the pandemic. Not all scholars have reached that conclusion and that's an important corrective, I think."

and how news gets released can affect public reaction and compliance with health guidelines.

Recording Outcomes

Even a century ago, such guidelines as social distancing, mask-wearing and school and business closures were recommended—not necessarily enforced—to curb the viral outbreak.

• • •

"I was trying to do something different in this course, which is to ask how we can use numbers, statistics and data to cultivate a sense of empathetic understanding in history."

-DR. E. THOMAS EWING

• • •

Students Jacob Beachley and Yash Joshi examined vital statistics, newspapers and other documents to ascertain whether social-distancing measures had an impact. They focused on Indiana and Missouri, two similarly sized states that had similar outbreak timelines and flu death rates near the national average.

Unexpectedly, in both states, they found that counties with the smallest



Miguel Alvarez
Blacksburg VA



Jacob Beachley
Charlottesville VA



Ian Gardiner
Richmond VA



Louisa Glazunova
Blacksburg VA



Yash Joshi
Ashburn VA



Katie Kromer
Oakton VA



Matthew Mirabella
Boston MA



Connor O'Hanlon
Long Island NY



Emily Swanson
Blacksburg VA



Alessia Scotto
Blacksburg VA



Fiona Tran
Centreville VA



Stephenia Valencic
Christiansburg VA

These Virginia Tech students signed up for History 2624 last fall with no idea what they were getting into, and they stuck with it through difficult circumstances. Six of them presented their team's research at the NLM virtual seminar.

loved ones; the emotional and physical devastation remained. One newspaper in Harrisburg, Pa., reported that the flu left 50,000 children orphaned across the state.

“Even after the flu was gone, it couldn't just be forgotten and things could not go back to normal,” said Scotto, “because life was completely changed for a lot of people due to the pandemic.”

There are echoes of the 1918 flu pandemic in the current crisis.

populations had the highest death rates. Was this anomaly due to lack of medical care, an overburdened medical system, or lax social-distancing implementation? The team plans to further investigate.

Also, although the two states both issued statewide shutdowns early in October 1918, students noted another curious finding.

“Despite Indiana taking statewide action before Missouri, [Indiana] still had massively higher cases and case rates...than Missouri,” said Beachley. What happened? Indiana lifted restrictions too soon.

“The fact that Indiana opened up social distancing too early led to a resurgence in cases,” said Joshi, noting that the state had to reinstitute its public gatherings ban. “This extended Indiana's timeline of the crisis.”

Their research offers a forewarning in the current crisis: Social distancing

resulted in lower infection rates and death tolls in 1918, said Beachley and Joshi, whereas ending countermeasures too soon could spike death rates and lead to reinstituted bans and a longer recovery.

Reopening and Remembering

In November 1918, as Spanish flu cases declined, states cautiously eased restrictions. By late December, 6 weeks after the last cases appeared, all restrictions—mask-wearing, public gathering bans, forced quarantines, limited travel between cities—were lifted and businesses, schools and other public places fully reopened. Many states experienced a second wave in late winter into spring 1919, but the worst was over, reported students Katie Kromer and Alessia Scotto.

Yet, in many ways, the worst wasn't over, they said. Countless people lost

History reminds us that actions and behaviors have consequences. Today, as then, we watch for a steady decline in cases before cautiously reopening society.

Today, though, noted Kromer, technological advances help us track viral spread and identify hotspots in real time, providing almost instant access to data and other urgent information.

Access to historical source materials has also evolved. Not long ago, scholars and students would fumble with microfilm reels. Now, many records are digitized. For these projects, the students relied heavily on *Chronicling America*, an online newspaper repository managed by the Library of Congress and National Endowment for the Humanities. It is available at <https://chroniclingamerica.loc.gov/>.

Today's digital media will be tomorrow's historical record for future scholars, observed Dr. Jeffrey Reznick, chief of NLM's History of Medicine Division, during the symposium.

“A future generation will look back on these [and similar] presentations,” said Reznick, “as examples of historical research at a historic time, reflecting on the past, through the lens of the present and with an eye to the future.” **R**



Providing historical commentary, discussant Dr. David Morens, NIAID senior scientific adviser, said public health leaders in 1918 hadn't seen a serious flu outbreak in 30 years. “A lot of the 1918 public health actions such as social distancing and wearing masks were borrowed from activities that were already in place for tuberculosis,” he said, noting that self-isolation from epidemic disease has been intuitive for people around the world for centuries.



NIDDK's Velez, shown with his new colleagues at home, says his two sons, ages 5 months and 3 years, "don't really fit into the usual office culture, which makes getting work done efficiently difficult. Both my wife and I have increased workloads and they are very excited to have us around full time as typically they were in daycare about 50 hours a week. We do handoffs between virtual meetings and take some meetings with the boys on our laps when things conflict."

folks based on their survey responses in order to provide a more efficient follow-up.

"With lots of teamwork from NIAID, Matt Breymaier in my office, OMS and the Clinical Center's health information management department," Velez continued, "it is turning out to be a fairly successful idea. Once [the pandemic period] passes, I hope this dataset will also allow us to look at our response efforts and the NIH population symptomology in order to be more prepared for the future."

Velez says his daily work has not really changed all that much, even as his normal routine has shifted rather dramatically.

"My work is largely the same as a clinical informatician," he notes. "I'm more busy than usual helping our NIDDK clinicians and a few other [institutes/centers] prepare new protocols and data collection instruments to capture the progression of Covid-19 in their unique populations. There is also a high level of urgency supporting OMS in the triage project I volunteered for after realizing our systems could work to augment their efforts."

"The days are long but very fulfilling both personally and professionally," he concluded.

"I still do a virtual bike commute each day. That ride, being outside, and eating lunch with my colleagues are what I miss the most. Overall, I'm thankful my wife and I can both work remotely, that my family is healthy and that I'm able to contribute to the NIH mission in these extraordinary times."—Carla Garnett 

Velez

CONTINUED FROM PAGE 1

research informatics analyst in NIDDK's Office of the Clinical Director. "I told her staff about some tools we had available to share that would allow concerned staff to fill out a survey instead of calling. This would then allow us to programmatically triage

'BEHIND THE MASK'

A Call for Real Stories During Covid-19 Pandemic

Since January 2020, Covid-19 has had an impact on the NIH community in many ways—from researching and providing information about the disease, to developing therapeutics and vaccines, to caring for patients in the Clinical Center, to re-configuring the ways we perform our jobs.

To preserve this important period in NIH history, the Office of NIH History and Stetten Museum has initiated "Behind the Mask: Real Stories from NIH Employees and Contractors during the Covid-19 Pandemic." The project is seeking personal reflections about how those who work at NIH have experienced the Covid-19 pandemic and is collecting documents, photos, objects and other types of media that will help narrate the story of Covid-19.

To learn more about the project and to participate, visit <https://history.nih.gov/display/history/Behind+the+Mask>.



ONLINE ONLY

'Feds Feed Families' Gets Underway for Summer 2020

NIH will again participate in the Feds Feed Families summer food drive, now through July 31. Held annually since 2009, the campaign lets federal agencies and staff fight hunger in their communities. NIH donated almost 50,000 pounds of food in the Washington, D.C., metropolitan area and at satellite locations across the country during the 2019 campaign.

Due to Covid-19, the need for food donations is urgent. The campaign has adapted to the social-distancing guidelines and will be run entirely online. NIH'ers have three ways to contribute:

- **Donate Groceries Online:** Purchase food via your favorite online grocer and have it delivered directly to a food bank or pantry of your choosing.
- **Give Money Online:** Make a monetary donation to a food pantry or food bank of your choosing.
- **Combined Federal Campaign (CFC):** Make a monetary donation to a food pantry or food bank via CFC special solicitation through June 30.

Where to donate:

Donate to your choice of food banks or food pantries. Information on several organizations, including the Children's Inn at NIH, Safra Family Lodge, Capital Area Food Bank and Manna Food Center, is provided at <https://www.ors.od.nih.gov/FedsFeedFamilies/Pages/default.aspx>.

Record your contribution:

For your donation to be counted as part of NIH's total, you must record it at <https://bit.ly/2AulxvV>.

Select "U.S. Department of Health and Human Services" as your department, and the "National Institutes of Health" as your agency.

All donations will be tracked by pounds of food. For monetary donations, the site will use a national conversion rate from dollars to pounds.

For more information on the campaign, visit NIH's FFF website. Questions about the campaign? Email FedsFeedFamiliesNIH@nih.gov.

New NIEHS Director Woychik To Lead with Innovation

BY CHRISTINE BRUSKE FLOWERS

Dr. Richard “Rick” Woychik has been named new NIEHS director. He served as acting director of the institute from October 2019 until June 7, the official start of his new role.

“Innovation has been a hallmark of Rick’s scientific career and it’s at the center of his vision for leading NIEHS,” said NIH director Dr. Francis Collins, announcing the appointment. “He will be working to support new technologies and scientific approaches throughout the field of environmental health sciences—applying his proven skills in scientific excellence, creativity and rigor to improving public health.”

As NIEHS director, Woychik takes on additional responsibility as director of the National Toxicology Program (NTP), which reports directly to the Department of Health and Human Services. NTP coordinates toxicology research among NIEHS, the National Center for Toxicological Research at the Food and Drug Administration and the National Institute for Occupational Safety and Health at the Centers for Disease Control and Prevention.

Woychik is highly respected for a long list of accomplishments in environmental epigenetics and mammalian genetics. His laboratory discovered that mutations in a gene that codes for a certain protein, in a class called protocadherins, interfered with mammalian hearing. The latter gene was ultimately linked to hearing loss in Cushing’s disease patients.

Other firsts included identifying a gene associated with polycystic kidney disease, and the first cloning of an obesity-related gene called agouti.

Woychik’s passion for epigenetics and environmental health sciences is rooted in his research group’s discovery that the obesity trait associated with an agouti mutant mouse line was influenced during embryonic development by the epigenome.

Woychik said he will explore opportunities to embrace new technologies and implement state-of-the-art and potentially transformative scientific approaches for the NIEHS research enterprise.

“I am particularly interested in better integrating environmental health sciences into the All of Us Research Program and precision medicine programs at NIH,” he wrote in an email to employees.

He added that achieving insights into the molecular mechanisms involved in toxicity and other physical responses to environmental exposures will be fundamental to improving risk assessments of human health impacts.

“Individuals, with their unique biological make-up, respond to the environment in different ways,” Woychik explained. “Our current research strategies mostly employ a one-size-fits-all approach that does not factor in this critically important variable. One important element of my vision for the

institute is to deal with individual genetic, epigenetic and biological variability when establishing research strategies for studying public health and environmental toxicology.”

Woychik earned his Ph.D. in molecular biology in 1984 from Case Western Reserve University. He moved into the field of molecular genetics during



Dr. Rick Woychik
PHOTO: STEVE MCCAWE

postdoctoral training in the lab of the late Dr. Philip Leder in Harvard Medical School’s department of genetics.

In 2010, he moved to NIEHS as deputy director, bringing basic science expertise in using genetics and epigenetics to study the influence of the environment. In nearly a decade of leadership at NIEHS, he built an in-depth awareness of and appreciation for the broad range of scientific activities—such as toxicology, epidemiology and more—that are necessary to effectively support the environmental health sciences community. That experience contributes to the wealth of knowledge he brings to his new role.

Prior to his affiliation with NIEHS, Woychik served nearly 10 years as president and CEO of the Jackson Laboratory in Bar Harbor, Maine. **R**



Police Officers Parade in Honor of Caregivers

On May 5, the Montgomery County Police and the NIH Police participated in a motor parade to honor health care workers.

Several dozen vehicles first circled Suburban Hospital and then entered the NIH campus from Old Georgetown Rd., passing in front of the Clinical Center around 7:15 that morning.

Salutes to health care workers have become common in cities across the U.S. as the profession deals with a global pandemic.

PHOTOS: ORS



NIH Study Links Cigarette Smoking to Higher Stroke Risk in African Americans

African Americans who smoke are nearly 2.5 times more likely to have a stroke than those who never smoked, while former smokers show a similarly lower risk as never smokers, according to a new study funded by NIH.



African Americans who smoke are nearly 2.5 times more likely to have a stroke than those who never smoked, an NIH-funded study finds.

The findings from the Jackson Heart Study suggests that even after years of smoking, African Americans—who as a group are twice as likely as whites to have a stroke and die from it—could significantly reduce their risk if they kicked the habit.

The study's findings, funded by NHLBI and NIMHD, appeared online in the *Journal of the American Heart Association*.

Numerous studies have shown the link between smoking and stroke, but few have directly assessed the relationship solely in African Americans. This new study did that and also analyzed traditional risk factors for cardiovascular diseases and inflammation.

"This study provides further strong evidence of the link between cigarette smoking and stroke in African Americans," said Dr. David Goff of NHLBI's Division of Cardiovascular Sciences. "We know that quitting smoking is one way to lower the risk for stroke, which is particularly important for the most vulnerable populations during this pandemic."

The study included 4,410 black men and women without a history of stroke who were enrolled in the Jackson Heart Study, the largest study of cardiovascular disease in African Americans.

Researchers classified the participants, who were 54 on average, into three groups based on their self-reported smoking history: current smokers, past smokers who smoked at least 400 cigarettes in their lifetimes, and never smokers.

"The bottom line is the more a person smokes, the greater their chance is of having a stroke," said lead study author Dr. Adebamike Oshunbade, a postdoctoral research fellow at the University of Mississippi Medical Center. "It's important to communicate this risk to vulnerable populations, especially with the growing popularity of new tobacco products."

Lung Development May Explain Why Some Non-Smokers Get COPD and Some Heavy Smokers Don't

According to a new study, people with small airways relative to the size of their lungs may have a lower breathing capacity and, consequently, an increased risk for COPD—even if they don't smoke or have any other risk factors. The study, funded in part by NHLBI, appeared June 9 in the *Journal of the American Medical Association*.

Chronic obstructive pulmonary disease (COPD), a debilitating lung condition, often develops as a result of smoking, but researchers have long puzzled over why nearly a third of cases occur in people who never smoked. Now they may finally have an answer—and it may be linked to how lungs develop in certain people.

"This work, stemming from the careful analysis of lung images of COPD patients, shows that an abnormal lung development may account for a large proportion of COPD risk among older adults," said Dr. James Kiley, director of NHLBI's Division of Lung Diseases. "More research is needed to understand what drives this occurrence and to devise possible interventions."

COPD, the fourth leading cause of death in the United States, causes airflow blockage and breathing-related problems that can severely limit a person's day-to-day activities. Smoking, asthma or air pollution account for many COPD cases, but up to 30 percent of cases occur in people who never smoked, and only a minority of heavy smokers develop the disease, suggesting that there are other risk factors at play.

Previous research offered a clue about a possible cause, finding that about half of older adults with COPD appeared to have low lung function early in life.

The findings may also help explain why some lifelong heavy smokers do not develop COPD. People with larger airways relative to lung size may be able to withstand lung damage from smoking and still have enough breathing reserve to prevent them from developing COPD. Still, given the multiple health problems caused by tobacco, smokers should do their best to quit, researchers noted.



Study says people with small airways relative to the size of their lungs may have lower breathing capacity and, consequently, an increased COPD risk.



Researchers found clues to the possible cause of recurring, non-contagious fevers and sores that affect only children.

NIH Researchers Uncover Genes Linked to Common Recurrent Fever in Children

Researchers at NHGRI have discovered clues to the possible cause of recurring, non-contagious fevers and sores that affect only children. Several genes have been implicated with the syndrome, known as PFAPA syndrome (Periodic Fever, Aphthous Stomatitis, Pharyngitis, Adenitis), which could lead to new treatments.

Results were published June 8 in the journal *PNAS*.

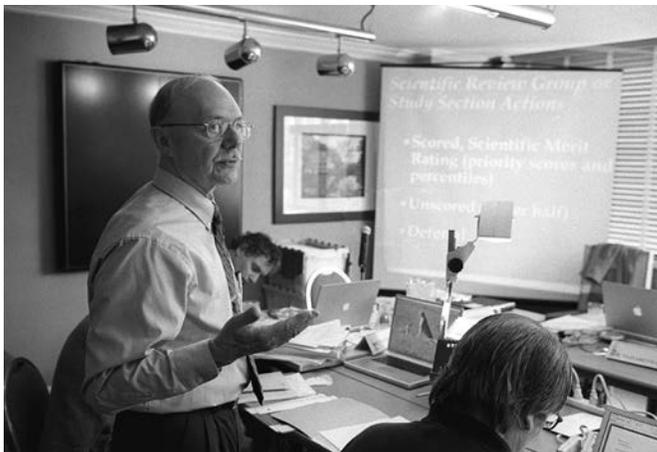
The findings were made possible by the realization of commonalities with other chronic inflammatory conditions that also involved sores on the body, including the common canker sore. The study illustrates how long-standing health mysteries may now be solved when researchers discover new biological connections with the help of increasing amounts of genomic data.

In 1987, researchers first described a syndrome seen in 12 children, which was marked by recurrent fever, painful canker sores, sore throat and inflamed lymph nodes. The condition starts early in life, between the ages of 1 and 5. The first sign is fever, accompanied by sore throat with redness and other symptoms.

"PFAPA syndrome is the most periodic of periodic fevers, with many children having an episode every month lasting 3 to 5 days," said Dr. Kalpana Manthiram, clinical fellow at NHGRI and lead author of the study. "That is an immense burden on families since these kids cannot go to school and may be bedridden for days during flares."

While PFAPA syndrome has become the most common recurring fever syndrome in children from Western countries, diagnosis and treatment methods have remained largely primitive and insufficient. The episodes usually spontaneously stop in pre-adolescence.

Because of the nature of the disease, researchers have long thought that answers may lie in genomics. After ruling out the possibility that the syndrome is caused by mutations in a single gene, they considered the possibility that multiple genes are involved.



Dr. David Remondini in his element, at a grant review meeting in 2004 and in retirement in 2013

B&W PHOTO: MICHAEL LANG



Peer Review Legend Remondini Dies at 88

Dr. David Remondini, a legendary scientific review officer at the Center for Scientific Review and the face of fair peer review for 36 years at NIH, died on May 7 at age 88 following surgery necessitated by an automobile accident a few weeks prior.

Dapper, humble and eternally personable, Remondini led CSR's genetics study section from 1977 to his retirement in 2013. After retirement, he became a volunteer in the Office of NIH History to curate a unique collection of grant reviews gathered from his own tenure and that of his predecessor, Dr. Kay Wilson, dating back to the 1950s and the birth of the field of molecular genetics.

Remondini helped to shape CSR's approach to fair peer review in his insistence, bordering on the ecclesiastical, to deeply analyze data from one's study sections to ensure every application was dealt with equitably. He wanted reviewers to understand all aspects of the field beyond their own subspecialty. At the time of his death, he was writing a paper about what he called the "beautiful scientific review process."

"Dave's knowledge and experience with NIH peer review was legendary, and he pretty much defined the term 'institutional memory,'" said Dr. Cheryl Corsaro, a longtime colleague and retired CSR scientific review officer. "In addition, he was a gracious gentleman, known for his generosity of spirit and willingness to share his knowledge with colleagues."

"If you chatted with him for even a few minutes, you couldn't help but love working with him," said Dr. Mohamed Noor, former chair of CSR's genetic variation and evolution study section and now a professor at Duke University. "He was one of the sweetest, most generous and most thoughtful

gentlemen I've ever known—always taking the time to listen carefully to people's concerns or opinions on proposals or process, and having a wealth of historical knowledge and perspective of not just the NIH but also of our fields of study more generally."

Others at CSR described him as sagacious, kind and having a calming effect on whoever met him. "Whenever the pressure grew for completing summary statements against deadlines, I would visit his office to talk to him," said Dr. Syed Amir, retired CSR scientific review officer. "I came out much less stressed and in an upbeat mood."

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"Dave's knowledge and experience with NIH peer review was legendary, and he pretty much defined the term 'institutional memory.'"

—DR. CHERYL CORSARO

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Remondini was born in Deming, N.M., in 1931. A child of the Great Depression, he described his early life on a homestead as instrumental in preparing for a life in science, from the regimen of daily chores to observing his father's meticulous cattle-breeding records.

After WWII, his family moved to Riverside, Calif., where a high school teacher encouraged him to pursue college. He enrolled in Riverside Community College and graduated from University of California, Santa Barbara, in 1954.

Remondini started his career as a science teacher at rural grade schools, doubling as a school bus driver. But Sputnik soon launched him in a different direction. With a new surge in funding from the National Science Foundation in response to the Soviets' rocketry advances, Remondini pursued an advanced degree in genetics, training first under

George F. Hanks at the University of Utah and using *Drosophila* to study mitotic drive, and then with Eldon J. Gardner at Utah State University, where he earned his Ph.D. in 1968.

Soon after, he became a faculty member at Gonzaga University in Spokane, Wash., where he taught genetics, evolution, histology and history of biology. He was also the first staff geneticist at Sacred Heart Medical Center in Spokane, where he codiscovered the Osebold-Remondini syndrome, a bone dysplasia disease.

Remondini also taught genetics and biology briefly at Michigan Technological University in Houghton before joining CSR

in 1977 as what was then called an executive secretary, now scientific review officer or SRO.

Through this period, Remondini also maintained a parallel military career as a reservist in the California National Guard, the U.S. Army and the U.S. Coast Guard, from which he retired as a commander in 1991. He became a private pilot at age 50. He also volunteered countless hours at St. Patrick's Catholic Church in Rockville, Md.

Through all his accomplishments and adventures, Remondini was a consummate family man. He is survived by his wife of 67 years, Earnestine, his 6 children, 16 grandchildren and 12 great-grandchildren.

In his memory, his family and Utah State University have established the David Joseph Remondini Scholarship Endowment to support scholarships for students studying genetics in the College of Science each year. See <https://www.usu.edu/advancement/drddavidremondini> for more information.—Staff, Office of NIH History 

VOLUNTEERS

Adults with SAA Needed for Study

NHLBI seeks adults with severe aplastic anemia (SAA) for a research study determining viability and safety of early initiation of oral therapy with cyclosporine and eltrombopag in patients with SAA. All patients will receive standard treatment with cyclosporine, eltrombopag and horse anti-thymocyte-globulin (h-ATG), unless there is complete count recovery with oral therapy. Compensation will be provided. Call the Office of Patient Recruitment, 800-411-1222 (TTY for the deaf or hard of hearing 866-411-1010) and refer to study 20-H-0033. Read more at <https://go.usa.gov/xwbDt>.

NCI Quick-Change Scientist Hesse Switches Roles, Pathogens

Earlier this year, infectious disease fellow Dr. Shayla Hesse was conducting research full-time in the developmental genetics section of NCI's Laboratory of Molecular Biology in Bldg. 37.

She and her colleagues were studying ways to fight bacteria that were stubbornly hardy against antibiotics. Then a novel coronavirus struck, Covid-19 emerged and Hesse immediately shifted gears.

"It's surreal to think about how much has changed in a short span of time," she says. "In February, I was focused on

a very different type of virus—bacteriophage—with the goal of addressing a very different infectious disease threat—antibiotic-resistant bacteria. Incubators and centrifuges dominated my workspace. A mask was not part of my work apparel. Fast-forward to now and I, like many staff members, find myself working in a new capacity and in a rapidly evolving environment."

Hesse recalls relying on her clinical training to repurpose herself as a volunteer at a Covid-19 drive-through test site that NIH'ers stood up quickly on campus. Within a few short weeks, she had drafted the site's standard operating procedures. Head and neck anatomy turned out to be a key procedural consideration.

"There I observed hundreds of nasopharyngeal swab samplings," she explains, "and developed a sense of some of the finer aspects of the technique. I never thought I'd find myself carrying on a 20-minute conversation about the best strategy for navigating a flimsy instrument around the nasal turbinates! I have since transitioned to a different role as part of a Covid-19-specific team of medical providers. Although I've amassed only a modest amount of experience on that service so far, I've found the highly variable and, in some cases, rapidly progressive nature of the disease to be both humbling as well as harrowing."

Several of her new coworkers call Hesse's contributions invaluable. And despite the unusual workload, new work environment and unsettling uncertainty the global pandemic has brought, Hesse says she feels a deep sense of pride being in the thick of the agency's crisis response.

"It is a time in which challenges abound, at NIH and



Dr. Shayla Hesse

everywhere," Hesse acknowledges. "Over the past few weeks, I've seen the collaborative spirit that is the hallmark of the Intramural Research Program carry over to new endeavors and non-research-based contexts. I've seen employees across institutes rise to meet incredible demands. I've read research reports by intramural investigators

that materially enhance our understanding of this novel pathogen, and I've watched as our institutional leaders help guide the national pandemic response. I've always felt honored to be part of the NIH community—and now more than ever."—Carla Garnett **R**

NIH'er Adjusts to New Reality After Returning from Deployment

BY ERIC BOCK

"I stepped back into a completely different world." That's how Lcdr. Maggie Kemp described her experience returning to work at NIH after a Public Health Service deployment.

In March, Kemp, acting chief of the ORS Division of Occupational Health and Safety's (DOHS) Safety Operations and Support Branch, was part of the PHS response to support passengers who had returned to the United States on the Grand Princess cruise ship. Nearly 3,000 people quarantined for 14 days at military bases across the country.

Almost 500 people completed their quarantine at Marine Corps Air Station Miramar, a military base near San Diego, where Kemp was deployed. She helped to ensure the safety of patients as well as members of the National Disaster Medical System and PHS responders.

"I wasn't really in touch with staff at NIH while I was gone," she said. "We were working 15-, 16-hour days. It was crazy. I was very isolated from what was happening in the world and in San Diego outside of the base, because we were working such long hours every day."

Before she left, the possibility of shutting down research at NIH was mentioned and her office began drafting potential guidance for closing labs. While she was away, she heard NIH employees were teleworking, but she didn't know the details—she wasn't involved in the decision-making process.

When she came back to campus, all eligible employees were teleworking to the extent possible. The first week back was stressful. It took a few days for Kemp to figure out what had changed and how. Like other parents, she had to balance work, child care and home schooling. Slowly, however, telework has become the "new norm."

For Kemp, teleworking has been a new experience. She has assisted in past natural disaster response for the PHS. During the 2014 Ebola outbreak in West Africa, she stayed at NIH to work in an Ebola lab.

Her branch consists of a team of safety specialists that support the registered lab spaces on campus to ensure that all laboratories follow safety guidelines. Right now, they are only actively supporting labs that are conducting Covid-19 research or those that received exemptions to continue.

Several PHS members and a National Guard reservist work in DOHS. Other employees have gone on detail to other offices to help with NIH's Covid-19 response. Many of Kemp's colleagues have been away much of the time. Those remaining have had to juggle more responsibilities and coordinate who's doing what.

Despite the additional responsibilities, working with the remaining staff "has been really great," she said. "They've been really flexible and very good about the shifting of duties and taking on different tasks...As PHS officers, we're supposed to be there regardless."

During this uncertain time, many employees are concerned about their own health and that of their families and friends, in addition to accomplishing their work and meeting personal responsibilities, Kemp noted.

"I appreciate the flexibility we've been given by NIH leadership and management," she concluded. **R**



Lcdr. Maggie Kemp