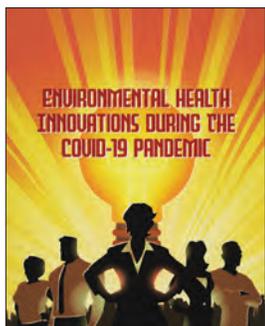


▶ FEATURE STORY



Environmental Health Innovations During the COVID-19 Pandemic

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National Environmental Health Association

Throughout the COVID-19 pandemic, environmental health professionals have worked tirelessly to protect the health and well-being of their communities. A COVID-19 environmental health workforce needs assessment conducted by the National Environmental Health Association (NEHA, 2020) in July and August 2020 found that all sectors of the workforce—local, state, federal, tribal, and territorial health departments as well as the private sector—were actively involved in the COVID-19 response. According to the report, environmental health department staff took on numerous responsibilities outside their typical scope of work, including contact tracing, emergency communications, logistics, infection prevention roles, and administrative duties. Many employees, however, reported a lack of adequate guidance, training, supplies, and staff to fulfill these responsibilities and faced difficulties managing their workload as a result. For example, 13% of assessment respondents said that their departments had paused conducting regular inspections. Workers also cited problems working from home and a lack of work–life balance as additional challenges. They also reported feeling extremely stressed, overworked, and burnt out (NEHA, 2020).

Nevertheless, environmental health professionals in local health departments and environmental health programs across the nation quickly adapted to these unprecedented circumstances. Many came up with innovative approaches or entirely new approaches for addressing challenges impacting environmental health services delivery as well as helping support effective response and recovery efforts. NEHA, in partnership with the

Centers for Disease Control and Prevention’s (CDC) National Center for Environmental Health (NCEH) and the Agency for Toxic Substances and Disease Registry (ATSDR), sought to recognize some of the innovative programs, activities, or strategies that were developed by state, tribal, local, and territorial health departments to deliver essential environmental health services during the pandemic. This partnership led to the development of the NEHA Environmental Health Innovation Awards that served to recognize and award environmental health programs with both monetary awards and workforce development resources. Four different levels of awards were given: Gold, Silver, Bronze, and Honorable Mention.

Innovation award submissions were solicited for approximately one month starting the second week of April 2021. The submissions received were related to a variety of different environmental health services such as implementing virtual facility inspection programs, creating safe business reopening procedures, and developing a novel testing method for COVID-19 in wastewater, to name a few. Submissions were evaluated based on how well their innovation addressed health equity, enhanced workforce capacity, reached new populations, and employed cross-sector partnerships with other agencies and organizations, among other criteria. Ultimately, one Gold, two Silver, three Bronze, and five Honorable Mention Award winners were selected.

During Part 3 of the NEHA 2021 Annual Educational Conference & Exhibition Three-Part Virtual Series on July 15, 2021, Dr. Patrick Breyse, director of CDC’s NCEH and ATSDR, hosted a panel discussion featuring three of

the Innovation Award winners. “Even amidst the stress and uncertainty of the pandemic, environmental health professionals across the nation have found innovative and creative methods to ensure essential environmental health functions continue,” Breyse stated during his opening remarks. “The purpose of these awards is to both celebrate the success of these resilient environmental health heroes, as well as to share their innovations with the broader public health community.”

Gold Award Winner

Louisiana Department of Health: Virtual Asthma Home Visit Program

In January 2020, the Louisiana Department of Health (LDH) began to develop the Bringing Respiratory Health Equity for Asthmatics Through Healthier Environments (BREATHE) initiative to provide asthma services and resources to patients (Figure 1). During the COVID-19 pandemic, LDH conducted virtual home visits for asthmatics and partnered with COVID-19 contact tracers to receive referrals of COVID-19 patients affected by asthma.

Although BREATHE launched during a period of uncertainty and shifting priorities, Dr. Arundhati Bakshi, program monitor for the environmental epidemiology and toxicology section at LDH, felt that the pandemic highlighted existing health disparities and emphasized the need for an asthma program. “Asthma is a condition that often affects African Americans, low-income populations, and people who do not have access to healthy housing,” Bakshi said. “COVID-19 shone a spotlight on the fact that there are all these

FIGURE 1

Excerpt From a Flyer Promoting Enrollment in the BREATHE Initiative Offered by the Louisiana Department of Health

What can I expect if I enroll?

The program lasts approximately **3-4 months long** for participants. The process is as follows:



- Participants not eligible for virtual visits get
- Two Asthma Control Tests (3 months apart)
 - One phone check-in with LDH (at ~3-4 weeks)

Note. BREATHE = Bringing Respiratory Health Equity for Asthmatics Through Healthier Environments. Figure courtesy of Arundhati Bakshi, Louisiana Department of Health.

health disparities out there that were affecting COVID-19 outcomes, but really, it's a much bigger problem that's been going on for a long time."

BREATHE relies on partnerships with the Green and Healthy Homes Initiative, a national nonprofit organization that provides LDH with technical assistance and expertise, as well as Our Lady of the Lake Children's Hospital (OLOLCH) that refers patients to the program. OLOLCH already had experience providing telehealth services before the pandemic, so BREATHE was able to quickly pivot from an in-person home visiting program to a virtual program. Bakshi noted that telehealth services are often more convenient for patients who may have limited time to schedule healthcare appointments in person. LDH also works with 24-hr translation services to conduct virtual visits in the language with which the patients are most comfortable.

The virtual home visits are focused mainly on asthma and healthy homes education, and allow LDH staff to assess homes for health hazards that can exacerbate asthma. "We have a pretty extensive questionnaire that we take people through and we encourage them to show us things they're concerned about," Bakshi explained. "A lot of times people will say, 'There's this black spot on the wall. Is it mold? Can you help me with that?'"

Before BREATHE launched, there was no statewide asthma program that brought

together managed care organizations, Medicaid services, LDH, and private and community groups. Bakshi hopes that this new program will help people better manage their own asthma and in the long term, reduce emergency department visits due to asthma. So far, she feels participants appreciate the materials and resources BREATHE has provided.

"Several people told us that their asthma was a lot worse after they had COVID-19. So we developed materials that tell people what they can do after COVID-19 to bring their asthma down to the baseline," Bakshi stated. When BREATHE representatives conducted follow-up visits with these individuals, they all reported that their asthma had returned to where it was pre-COVID-19.

LDH found that communities most heavily affected by COVID-19 are also those with the highest burden of asthma. Based on that finding, LDH intentionally targeted BREATHE interventions within those communities. Recognizing that asthma is exacerbated by indoor and outdoor environmental concerns, LDH staff seek to provide additional services, such as HEPA air purifiers, to address these issues.

One challenge that LDH has faced is establishing asthma as a priority amid so many other public health issues. "People don't always recognize the impact of asthma, especially the long-term impact of asthma when you're talking about children," Bakshi explained. "Those missed school days and

the missed workdays for the parent all add up and it really affects their quality of life."

Bakshi stressed the importance of forming partnerships and collaborating with other organizations, which she feels have been invaluable to the success of the BREATHE initiative. She also hopes that BREATHE will eventually no longer have to rely on grants, although she wishes LDH had started laying the groundwork for the program's long-term sustainability earlier on. "We always knew that it would have to start with grants and show that the program works before people are willing to put their own money into it. We're just now starting to build those stepping-stones to get ourselves up to that point where we are a sustainable source of asthma services," Bakshi said.

Silver Award Winners

Public Health—Seattle & King County: Homeless Shelter Indoor Air Quality

After receiving American Rescue Plan congressional relief funding, Public Health—Seattle & King County (PHSKC) undertook a massive effort to distribute nearly 3,000 HEPA air cleaners to homeless service providers across the county. Throughout the COVID-19 pandemic, PHSKC staff had been following the latest research on airborne SARS-CoV-2 transmission, so when they learned they had received the funding they applied for, they quickly mobilized to procure the HEPA filters. They initially decided to focus on facilities serving homeless populations as many of these facilities are located in older buildings that lack proper ventilation. PHSKC staff traveled to homeless shelters and met with providers to discuss their ventilation needs. They then worked to coordinate transportation and installation of the HEPA units.

PHSKC used an equity tool to determine which homeless shelter sites were at highest risk of COVID-19 transmission and provided filters to the most vulnerable sites first. A staff member would first visit the site to determine how many filters were needed in the space, then arrange transport with the warehouses where the filters were stored. PHSKC partnered with Amazon, who provided transportation services between warehouses and shelter sites. For smaller sites that required fewer units, PHSKC staff members were able

to transport the filters themselves. After the filters were installed, staff followed up with providers to ensure the filters were functioning correctly and provided additional site visits or phone consultations as needed (Figure 2). They continue to hold a weekly call with providers to share new information and address any concerns.

Marta Lema, homelessness response coordinator for PHSKC, described the impact that this project has had on the community. “We’ve heard from so many providers the benefits that the air purifiers have provided for their spaces and for their clients, just in terms of even psychologically being able to feel a little safer in this space,” she said. “We’ve also heard stories of people feeling that their asthma symptoms have really gone down.”

Shirlee Tan, toxicologist for the Environmental Health Division at PHSKC, added that her team has begun monitoring air quality at some of the sites. While they are still collecting and analyzing data to assess the long-term impact of the units on air quality, initial data have shown that particulate matter decreased up to 70% in some spaces.

Lema explained how this project allowed PHSKC to provide increased education and support to homeless service providers and address a portion of the population often neglected by public health services. “We don’t have health standards for our homeless service sites so it was really important that we had public health support available to meet with folks in person and answer all of their questions,” she stated. “And the fact that we were able to team up and bring in clinical expertise along with environmental health expertise was really a huge advantage to homeless service sites.”

Leah Helms, supervisor for the solid waste, rodent, and disease programs at PHSKC, hopes to use this project to expand other homeless services throughout the county. Recently, PHSKC held a training program for homeless service providers to educate them on indoor air quality. “We’re looking at creating training resources for our homeless service providers that they can access on a more regular basis, so not only COVID-19 response but also infection control and prevention,” she stated.

PHSKC staff found it challenging to create guidance for homeless service providers as well as their own team members on how to use

FIGURE 2
HEPA Air Purifier Setup Instructions

Public Health
 Seattle & King County

Health Engagement Action and Resource Team (HEART)
 HEPA Air Purifier Setup

Note. Public Health—Seattle & King County (PHSKC) created a number of resources, such as this flyer demonstrating how to set up a HEPA air purifier, to be distributed to homeless service providers along with the HEPA units. Figure courtesy of Shirlee Tan, PHSKC.

the air filters, especially as it required communicating technical and scientific subject matter. Tan stressed the importance of developing education and outreach tools ahead of time since most people don’t have prior knowledge around HVAC and air filtration systems or why indoor air quality is important.

Another challenge was coordinating the logistics of distribution, including finding warehouse space and arranging transportation with Amazon and PHSKC staff. Gursharn Bedi, administrator for the Health, Engagement, Action, and Resource Team at PHSKC,

developed a system to track deliveries and ensure that filters were distributed correctly.

In the future, PHSKC hopes to provide filters to schools, childcare facilities, restaurants, and other indoor spaces. This work will also inform their response to wildfire smoke and other extreme weather events, especially in terms of providing air filters for emergency shelters. “Having a structure around how you’re going to triage requests is really important,” Tan said. “Right now, we’re expecting a lot of questions and inquiries as offices and schools reopen because air is one of the

FIGURE 3

Example of the ALX Promise Gold Training Record

ALEXANDRIA HEALTH DEPARTMENT
ALX Promise Gold Training Record

The following employees will be the point of contact for any contact tracing requirements and program updates. If the information listed below needs to be updated, notify the ALX Promise Program team.

Primary Contact
Name:
Phone number:
Email:
Secondary Contact
Name:
Phone Number:
Email:

Note. Businesses participating in ALX Promise Gold offered by the Alexandria Health Department are required to provide contact information for COVID-19 contact tracers. Figure courtesy of Rachel Stradling, Alexandria Health Department.

interventions where you can still have some control around COVID-19 transmission when vaccination status is unknown and you have mixed groups of vulnerable people. I think it's going to be even more important as we move into this next phase of the pandemic."

South Carolina Department of Health and Environmental Control: Food Service Facility Inspections and Lead Risk Assessment

Like many state and local health departments, the South Carolina Department of Health and Environmental Control (DHEC) pivoted to virtual activities when stay-at-home orders were first issued at the beginning of the COVID-19 pandemic. DHEC developed a way to provide lead risk assessments in private homes while minimizing in-person contact.

Mary Ramirez, training coordinator at DHEC, explained how the state's lead inspection program quickly pivoted to a virtual format. Assessors conducted lead risk assessments by phone and completed virtual home walk-throughs using FaceTime, Microsoft Teams, and Zoom. Inspectors were also able to collect water samples and conduct in-person visits while complying with restrictions. "The lead program said, 'Hey, there's nothing that says the water sample has to be collected by a certified assessor. Can we not mail

those out to folks with instructions on how to make the sample collections?'" Ramirez stated. "So, we moved on to that and then as things progressed, we started to work with folks to say, 'Hey, if you can leave your home for this period of time, we can come and we can do your assessment while you're out of the house.'"

Children with elevated lead levels tend to be from lower-income families and live in poor quality housing. As such, DHEC took extra care to ensure that these populations continued to receive lead assessment services throughout the pandemic. "Rural areas really struggle a lot more than the urban ones because there are plenty of areas without any cell phone reception in South Carolina. So, learning how to do video conferencing with families that don't even have internet was a huge learning curve for us," Ramirez said.

Virtual inspections significantly reduced transportation time and costs throughout the state as inspectors no longer had to travel to homes or food service facilities in person. This change allowed DHEC employees to have longer, more meaningful conversations with clients.

According to Ramirez, it was initially difficult for DHEC to adapt to social distancing regulations. Developing written guidance that both staff and community members could understand took longer than antici-

pated and lead inspectors faced delays in educating families about the new protocol and scheduling inspections for when families were out of the home.

The department plans to continue developing new innovations, such as making changes to their email and data management system, as well as a mobile application for those that don't have access to a computer. They are also focusing on providing more education and resources to rural communities. Finally, Ramirez stressed the importance of collaboration and seeking advice from partner agencies when developing and implementing new programs.

Bronze Award Winners

Virginia Department of Health (Alexandria): ALX Promise Program

When the tourism industry in Alexandria, Virginia, came to an abrupt halt due to the COVID-19 pandemic, the Alexandria Health Department (AHD) started developing a way to help businesses reopen and reassure the community that they were taking all possible safety precautions. This development led to the ALX Promise program, which requires participating businesses to comply with executive orders and other COVID-19-related standards set by AHD. In exchange, businesses receive a decal they can display in their window and are recognized on the Visit Alexandria website.

Rachel Stradling, environmental health manager for AHD, explained that when the ALX Promise program was first launched, it was mainly focused on complying with state-issued executive orders (e.g., requiring all staff to wear masks). The program also included cleaning and social distancing measures as well as training provided by AHD. As executive orders were lifted, the program was relaunched as ALX Promise Gold, which is aimed at helping businesses transition out of the pandemic (Figure 3). "The program is 100% focused on encouraging vaccinations and reporting cases," Stradling stated. "We're requiring businesses to give staff paid time off to get vaccinated or tested, and to allow employees time during work to book a vaccination appointment."

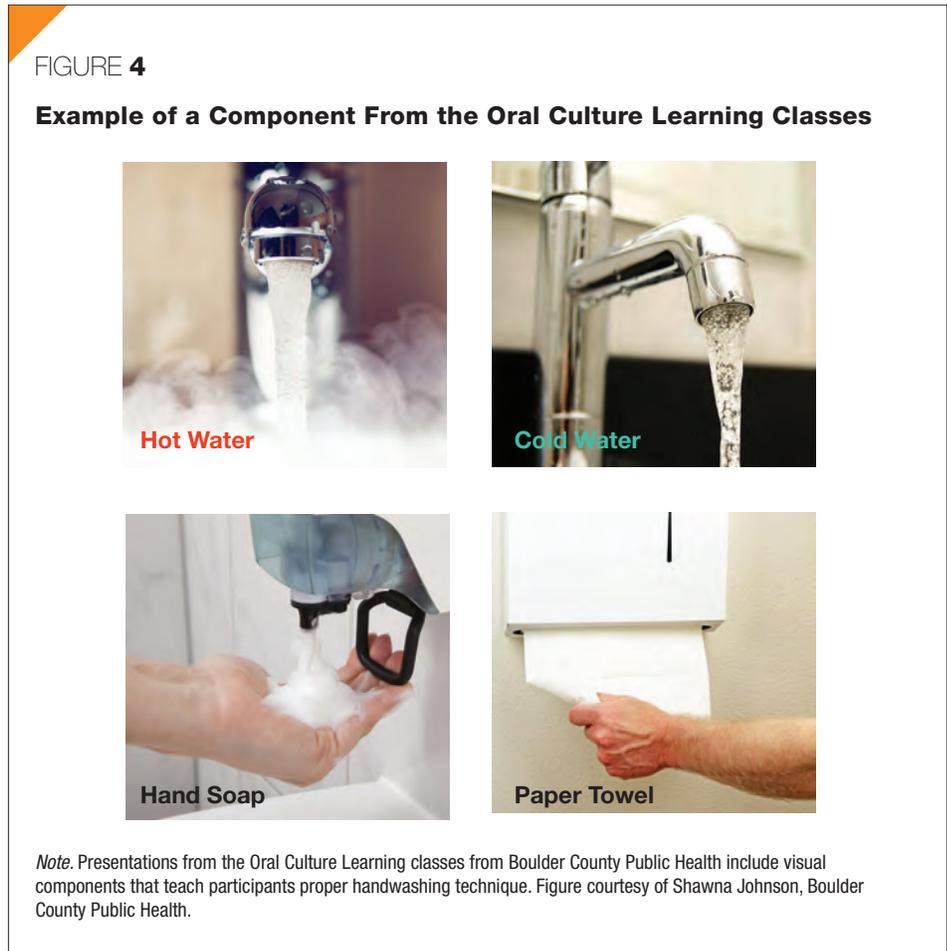
According to Stradling, the program has had an enormous impact on the Alexandria community, even helping to prevent some

businesses from closing altogether. It also created networks between businesses and allowed them to share resources with each other. “One of the high points for me was when there was a shortage of hand sanitizer and other items. The ALX Promise participants grouped together and said, ‘Well, right now, there’s some at BJ’s, there’s some at Costco,’” she said. “There was this lovely collaboration at the start because all of the businesses were in it together.”

To get the word out about the program, AHD sent an email blast with information about ALX Promise to every business in its database and promoted the program through online publications and television news channels. Larger businesses were easy to contact and usually quick to participate; however, smaller, less tech-savvy businesses were more difficult to reach. AHD also found that these businesses tended to be in ethnically diverse communities with higher numbers of COVID-19 cases. “In the communities where outbreaks were much higher, we actually sent volunteers to go door-to-door and encourage participation,” Stradling explained. “We then reviewed our data and were able to actually provide a direct correlation between the businesses coming on board and cases going down, which was fantastic.”

The ALX Promise program has received numerous recognitions for innovation, as well as overwhelmingly positive feedback from Alexandria’s business community. Stradling noted that the businesses advocated heavily for the new ALX Promise Gold program. “It was actually our businesses that said, ‘Hey, we want to do something as we transition out. Can we have a new program so that we can encourage the community to understand that we’re not just literally ripping off the face masks then going back to normal? That we’re taking it seriously,’” she said.

For Stradling, one of the biggest challenges when implementing the ALX Promise program was getting the window decals printed and distributed to the hundreds of businesses who signed up to participate. With the ALX Promise Gold program, AHD made sure to print decals and training materials before the launch of the program. They also have a full-time staff member dedicated to the program. Stradling also stressed the importance of promoting the program as a good news story—especially during such a stressful, confusing



time—to restore faith within the community. “It’s so important for our community to really believe and trust in our businesses,” she said. “There was a lot of talk about businesses putting profit before safety and I think this type of program really shows that our businesses do care and they do the right thing.”

Boulder County Public Health: Oral Culture Train-the-Trainer Program

Before the COVID-19 pandemic, the Food Safety Program within Boulder County Public Health (BCPH) adopted an Oral Culture Learning Program that largely replaced BCPH’s traditional text-based presentations with interactive, image-based classes. The original goal of the program was to address disparities in food safety exam scores between English- and Spanish-speaking restaurant staff. During the COVID-19 pandemic, when in-person trainings were paused, the program then began developing an Oral Culture Train-the-Trainer Program that restaurant managers could use to train new staff themselves

rather than attend an on-site class taught by BCPH inspectors.

Prior to the pandemic, the Oral Culture Learning classes would take place in the restaurants rather than in BCPH offices. The presentations were offered in English, Spanish, and Mandarin, and included a Food and Drug Administration video, a case study of a foodborne illness outbreak, and an interactive demonstrations (Figure 4). “It’s not just us talking, it’s making them think and then give us an answer. And obviously if they don’t know the answer, we are there to explain it to them,” stated Rosa Stillwell, an environmental health specialist with BCPH. “We take them to the kitchen and start opening refrigerators. We pull out an item and I’ll say, ‘Is this potentially hazardous or not?’ And they have to answer. That way they learn more.”

In addition to improved exam scores, BCPH has received positive feedback from restaurants. Participants reported that the Oral Culture Learning classes are much more interesting than the old classroom-style train-



Photo 1. During virtual inspections, childcare providers test the strength of their sanitizing solution using test strips. Photo courtesy of Amy Gammel, Colorado Department of Public Health and Environment.

ing and that they are learning more relevant information, which BCPH believes will have a significant impact on restaurants' approach to food safety. Shawna Johnson, food safety lead at BCPH, noted that the new train-the-trainer program also helps reduce disparities and eliminate barriers, especially among Spanish-speaking and lower-literacy restaurant staff.

Stillwell and Johnson added that they have received feedback on the Oral Culture Train-the-Trainer Program from other inspectors and plan to launch a pilot program at a limited number of restaurant facilities, as well as a school district, so they can gather additional data and make any necessary changes. Johnson also hopes that this model can be adapted for other jurisdictions and situations in the future.

Oneida Nation of Wisconsin: Safe Business Certification

The Oneida Nation in Wisconsin has used its status as a sovereign tribe throughout the COVID-19 pandemic to implement laws and regulations in the best interests of the community. One of these regulations required businesses to have an approved safety plan in place before they were permitted to reopen. Oneida Nation Sanitarian Vanessa Miller and Community Public Health Officer Michelle Myers helped each business create a plan to reopen while keeping public health a priority.

Miller and Myers created an electronic form that businesses could use to submit their plans. Once the plan was approved, the

business would need to sign a form attesting that they would follow the practices outlined in the plan and a safe reopening certificate was sent to the business electronically. "We really laid it out in a way where businesses were seeing a benefit to this plan because now they have something they can put on their wall to show their customers that they can have confidence in dining there and shopping there—that they are a safer business," Miller stated.

As an Indigenous population, the Oneida Nation experiences considerable health disparities and is at disproportionately high risk for many diseases and illnesses. Miller and Myers felt it was important to use their sovereign status to create rules and regulations that best served their community, regardless of what other jurisdictions were doing. "I do believe that there is often a misconception that tribal sovereignty is used to, for lack of a better term, get out of something or take the easy way out," Miller said. "I think Oneida and so many other nations have shown that it is the opposite. It is because we know that by having things be locally controlled by our own government and our own public health teams that we can best address the unique set of needs that exist here."

The program has gotten positive feedback from other jurisdictions that Oneida Nation has collaborated with, as well as from the businesses. "We definitely have heard from external nontribal community members that they just felt so much safer in tribally owned and operated businesses. A quote that really stuck out to me is, 'Oh my gosh, Oneida is

doing so much more,'" Miller stated. "So that was a win-win to our businesses because they were then seeing that positive word of mouth directly impacts their business."

To explain to businesses why creating a reopening plan is important, Miller and Myers stressed the need for safety measures to protect the elders of the tribe, as well as to preserve their language and way of life for future generations. "You really need people to be personally invested in efforts like this one," Miller commented. "You can't just tell them what to do and expect there to be this widespread behavior change. So, we've definitely learned to listen to the community and see what is important to them and make sure that is directly tied into why this effort is important."

Miller and Myers have documented everything they learned throughout the process so they can be prepared in the event of a future public health emergency. Their team has also learned how to rapidly communicate and collaborate with businesses and other organizations. "We always had good relationships and they are much better because we are connecting and meeting with each other much more often. We're utilizing technology to do some of that collaboration," Myers said.

Honorable Mention

Colorado Department of Public Health and Environment: Virtual Childcare Inspection Program

During the first few months of the pandemic, childcare facilities in Colorado remained closed and health departments paused on-site inspections. When facilities began to reopen in June 2020, the Colorado Department of Public Health and Environment (CDPHE) started conducting virtual inspections. CDPHE emailed each childcare provider to let them know they were due for an inspection and that it would be conducted virtually. The emails included a list of required documents and materials needed to complete the inspection, such as test strips and a thermometer (Photo 1).

CDPHE varied the format of the inspection based on what worked best for each provider and worked with local health departments to meet the specific needs of providers. Ultimately, conducting virtual inspections resulted in significant travel time and cost savings, and although it could be challenging

to conduct inspections at facilities with poor internet connection, feedback from providers on the new virtual format has been overwhelmingly positive.

Bucks County Department of Corrections: Environmental Health Controls During COVID-19

The Department of Corrections in Bucks County, Pennsylvania, took steps to combat COVID-19 in January 2020, months before it was declared a national emergency. As the county correctional facility was largely unable to enforce social distancing or masking, Forensic Sanitarian Dr. Robert Powitz implemented procedures for screening, isolation of anyone who exhibited symptoms, improved ventilation, and increased sanitation.

Facility staff used infrared thermometers to screen everyone coming into the jail and tested anyone suspected of having COVID-19. Positive cases were quarantined in designated cells with ventilation systems providing negative airflow. The correctional facility also created additional medical examination rooms with increased lighting and handwashing stations. Although the facility recorded a small number of COVID-19 cases, it did not experience a major outbreak during the pandemic. Powitz believes the facility's success is largely due to preventative work and procedures implemented early on.

Wisconsin Department of Health Services: Remote Lead Risk Assessment Staff Training

In September 2020, the Lead and Asbestos Accreditation Unit within the Wisconsin Department of Health Services (DHS) began offering virtual refresher courses over Zoom for lead paint risk assessor certifications. DHS also recorded the sessions so that assessors could receive certification even if they aren't able to attend a live training. The virtual classes were found to be much more convenient for attendees, allowing them to have more one-on-one time with instructors and giving assessors from different regions a chance to share ideas and techniques with each other.

The DHS team made sure to have all materials prepared in advance and tried to include a variety of engaging, interactive activities to keep participants occupied throughout the 8-hr session, such as a model of a house that



Photo 2. University of Wisconsin–Eau Claire students wore hazmat suits to take composite wastewater samples. Photo courtesy of Crispin Pierce, University of Wisconsin–Eau Claire.

assessors could look at and determine where samples should be taken. Although DHS staff plan to hold in-person courses again in the future, they believe most assessors will continue to attend virtual sessions. They also hope to incorporate breakout rooms so that participants can interact with each other in smaller groups.

University of Wisconsin–Eau Claire: Wastewater Sampling Program

In February 2021, University of Wisconsin–Eau Claire Professor Dr. Crispin Pierce and his team began taking 24-hr composite wastewater samples from the local wastewater treatment plant, as well as from dormitories and other university buildings, to monitor for COVID-19 outbreaks in the community (Photo 2). Wastewater samples provide an additional form of COVID-19 surveillance that can be used alongside other prevention measures such as testing and quarantining.

Wastewater sampling allows health professionals to perform an initial screening to

narrow down a population of concern (e.g., a specific floor of a dormitory). It can also help reach members of the community that might not have access to other COVID-19 services. The team is also working to construct a mathematical model that illustrates how soon the community can expect to see an outbreak after detecting COVID-19 RNA in wastewater. So far, Pierce has found that different towns and cities in Wisconsin seem to differ in terms of when they see RNA peaks in wastewater versus peaks in COVID-19 cases.

Santa Clara County Department of Environmental Health: Virtual Plan Review Program

Prior to the onset of the COVID-19 pandemic, the Santa Clara County Department of Environmental Health (DEH) required that plan reviews for food facilities and construction projects be submitted to inspectors in person. When DEH staff began working from home, they developed a way for these projects to be submitted electroni-

cally using existing software. DEH inspectors also worked to ensure that the system was accessible to those with limited English proficiency and those without access to the internet, using the Government Alliance on Race and Equity Toolkit to help implement the program equitably.

The digital submittal process saves applicants time and money as they no longer have to print out physical copies of blueprints. This system has also increased overall efficiency at DEH and has prevented any delays in the business approval process throughout the pandemic. Although there were a few instances where their software would slow down or crash, overall inspectors are satisfied with how well the system has worked for them.

Conclusion

Despite the challenges, setbacks, and losses that environmental health professionals experienced over the course of the pandemic, creativity and innovation has flourished. State, local, tribal, and territorial health departments developed programs and initiatives that allowed staff to continue to provide services and in many cases, will improve their efficiency going forward. Many departments plan to continue implementing these programs even as the world returns to normal and will use them to prepare for future public health emergencies. Tools and resources provided by the award winners, including presentations, flyers, templates, and guides used to implement these innovations, can be

found on the NEHA website at www.neha.org/eh-innovation-award. 🐼

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Email: gbare@neha.org.

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Donna K. Heran
Gwendolyn R. Johnson
T. Stephen Jones
Sharon L. Kline
Sandra Long
Robert A. Maglievaz
John A. Marcello
Wendell A. Moore
Priscilla Oliver
James E. Pierce
Matthew Reighter
Joseph W. Russell
Michèle Samarya-Timm
Vickie Schleuning
John H. Shrader
Jill M. Shugart
Jacqueline Taylor
Sandra Whitehead

21st CENTURY CLUB

(\$500–999)

Name submitted in drawing for a free 1-year NEHA membership and name in the Journal for 1 year.

Thomas J. Butts
Amer El-Ahraf
Ned Therien

SUSTAINING MEMBERS CLUB

(\$1,000–2,499)

Name submitted in drawing for a free 2-year NEHA membership and name in the Journal for 1 year.

James J. Balsamo, Jr.
Brian K. Collins
Harry E. Grenawitzke
George A. Morris
Peter H. Sansone
Walter P. Saraniecki
Peter M. Schmitt
James M. Speckhart

AFFILIATES CLUB

(\$2,500–4,999)

Name submitted in drawing for a free AEC registration and name in the Journal for 1 year.

Robert W. Custard
David T. Dyjack
Timothy N. Hatch

EXECUTIVE CLUB AND ABOVE

(>\$5,000)

Special invitation to the AEC President's Reception and name in the Journal for 1 year.

Vincent J. Radke