

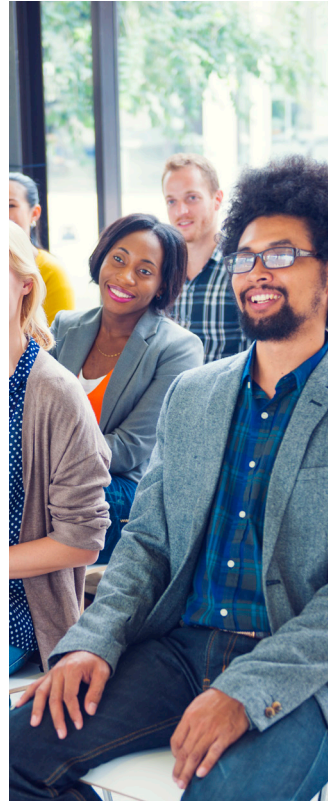


# Putting Communities First



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## ATSDR Annual Report 2020



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# ATSDR 2020: Putting Communities First

*ATSDR works in, with, and for communities to protect them from potential harmful health effects related to exposure to natural and man-made hazardous substances found in the environment.*

The Agency for Toxic Substances and Disease Registry (ATSDR) serves as a science-based public health agency working to address community concerns about hazardous substances. We work in communities to assess human exposure to potentially harmful contaminants in the environment and their effect on health, and we provide expertise to educate and train communities so they can take action to protect their health. ATSDR works with federal, state,

and local governments to identify environmental hazards, respond to environmental health emergencies, recommend actions to reduce environmental exposures and respond to questions about exposures, provide guidance to healthcare providers, conduct research on the health impacts of hazardous substances in the environment, and build capacity of state, tribal, and local health partners.

## ATSDR AT-A-GLANCE:



ATSDR's staff of expert scientists, public health researchers, community engagement and health communication specialists, health educators, emergency responders, and more work tirelessly to prevent and address ongoing environmental exposures and unexpected disasters and to protect the public from related harmful health effects.



Headquartered in Atlanta with 10 regional offices across the United States, ATSDR partners with local communities, taking a science-based, community-first approach to public health.



ATSDR is available 24/7 to respond to environmental health threats from natural disasters, chemical spills, and other emergencies.



# Letter from Our Associate Director



Greetings,

As a trusted public health agency, the Agency for Toxic Substances and Disease Registry (ATSDR) is pleased to announce the release of its 2020 annual report, *Putting Communities First*. During the year of 2020, the coronavirus (COVID-19) pandemic presented unprecedented challenges around the world. Despite these challenges, we maintained our commitment to communities and to the nation to respond to environmental public health concerns and advance science. We fulfilled our congressionally mandated mission to protect the health of the American people.

I am proud of the work of our dedicated, resilient staff and our funded partners who persevered through challenging times and circumstances. In addition to our continued work with communities, including tribal nations, ATSDR staff worked hand in hand to support our sister agency, the Centers for Disease Control and Prevention (CDC), on COVID-19 emergency response efforts. In this report, you will learn how we put communities first and how our scientists remain at the forefront of new science-based research to advance environmental public health research about exposure to contaminants such as per- and polyfluoroalkyl substances (PFAS). This report focuses on our public health assessments, health surveillance and registries, emergency response efforts, health education and training, environmental justice work, and other activities — in 2020 and looking ahead to the future.

It is my pleasure to share some of ATSDR's many achievements in this annual report. We are excited about the work we do with our ongoing collaborations and partnerships as we continue to protect the health of the American public.

Sincerely,

**Christopher M. Reh, Ph.D.**

Associate Director

Agency for Toxic Substances and Disease Registry (ATSDR)





# Raising Awareness, Engaging, and Helping Communities

ATSDR works with communities across the country to protect public health and improve the understanding of potential health effects related to hazardous substance exposure.

In 2020, to protect the health of communities and staff during the pandemic, ATSDR paused most of our fieldwork, adjusted site-related activities, and developed new ways to collaborate remotely. In addition, many ATSDR staff were called on to support the COVID-19 response. Learn here how our professionals rose to the challenges posed by the pandemic to complete many vital projects, assessments, and trainings.

# Per- and Polyfluoroalkyl Substances (PFAS)

*ATSDR adopts new community engagement strategies and sample collection procedures to complete PFAS exposure assessments in 2020.*



Despite having to temporarily halt data collection and fieldwork, ATSDR completed the collection of biological samples (blood and urine) for all [PFAS exposure assessment](#)<sup>1</sup> sites in 2020. We started work in 2019 after selecting these communities near current or former military bases known to have had PFAS in their drinking water.

## What are PFAS?

PFAS are manufactured chemicals that have been used since the 1950s. Some products, such as food packaging materials, water- and stain-repellent fabrics and carpets, firefighting foam, and some cosmetics, may still contain PFAS. PFAS are a public health concern because they can stay in people's bodies for a long time and have been linked to harmful health effects in humans.

[Learn more about possible health effects of PFAS exposure.](#)<sup>2</sup>

Adaptation was crucial for completing the PFAS exposure assessments in 2020. In-person community meetings became online information sessions. In-person interviews became telephone

questionnaires. When in-person events were possible, we followed the CDC COVID-19 safety guidelines — including physical distancing and temperature and symptom checks — to hold small-group, outdoor discussions where community members could schedule a time to meet with the PFAS exposure assessment team. As the pandemic progressed, we followed CDC guidelines for safely collecting and analyzing individual blood and urine samples. Individual lab results were mailed to participants in six of the participating communities in 2020 and to participants in the final two communities during the first half of 2021. [Read more here about ATSDR's community-level exposure assessment findings.](#)<sup>3</sup> We also provided local healthcare providers with information on the exposure assessment and [PFAS clinician guidance.](#)<sup>4</sup>

ATSDR's work on PFAS does not only include exposure assessments. ATSDR and local health partners are investigating PFAS issues in communities near more than 30 sites in the United States. Learn more [here.](#)<sup>5</sup> Findings from this work are already protecting people from harmful exposures and shaping future studies that will evaluate the effect of PFAS exposure on human health.

<sup>1</sup> <https://www.atsdr.cdc.gov/pfas/activities/assessments/sites.html>

<sup>2</sup> <https://www.atsdr.cdc.gov/pfas/index.html>

<sup>3</sup> <https://www.atsdr.cdc.gov/pfas/activities/assessments.html>

<sup>4</sup> <https://www.atsdr.cdc.gov/pfas/docs/clinical-guidance-12-20-2019.pdf>

<sup>5</sup> <https://www.atsdr.cdc.gov/pfas/activities/map.html>

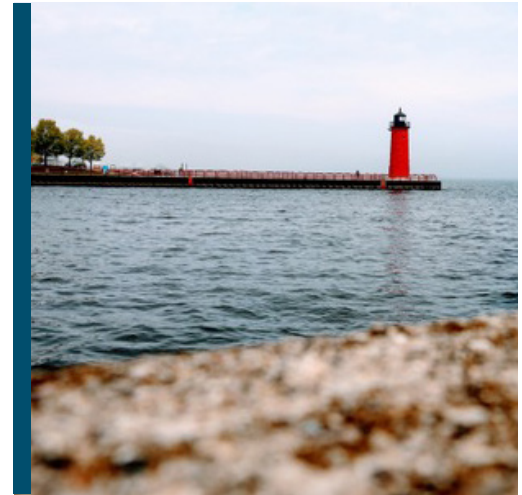
# Biomonitoring of Great Lakes Populations (BGLP-III)

*Phase III of ATSDR's BGLP-III Populations program works with anglers at increased risk of consuming contaminated fish in the Milwaukee area.*

ATSDR concluded the third phase of its [BGLP-III Populations](#)<sup>1</sup> program in 2020. Known locally as the Milwaukee Angler Study, BGLPP-III sought to evaluate the body burden levels of legacy and emerging contaminants in two previously unreached populations: licensed anglers and Burmese refugees. Previous research showed that these local groups had insufficient knowledge of advisories warning them not to eat contaminated fish.

Through a cooperative agreement with ATSDR, the Wisconsin Department of Health Services (WIDHS) recruited 398 licensed anglers and 107 Burmese refugees for the study. Participants submitted blood and urine samples and completed a questionnaire that focused on locally caught fish consumption. The biological samples were analyzed for 5 metals, 26 polychlorinated biphenyls, 10 brominated flame retardants, 9 PFAS, and 8 urinary polyaromatic hydrocarbons.

The program conducted extensive outreach on safe fish-eating practices to both populations at increased risk and anglers at large. WIDHS distributed materials regarding safe fish-eating practices and local advisories at fishing expositions and worked with partners to produce local fishing and consumption advisories and an educational video for Burmese participants. Materials were also translated into Burmese and Karen, two common languages among Burmese refugees. WIDHS also held an educational seminar at the Milwaukee Consortium for Hmong Health.



Because COVID-19 prevented an in-person community gathering, WIDHS conducted an online meeting for licensed anglers in June 2020. For more details, see ATSDR's [article](#)<sup>2</sup> on BGLPP-III in the *Journal of Environmental Health*.

## **The Great Lakes: Home to 1/10th of the U.S. Population**

The Great Lakes and their connecting waters, the world's most extensive surface freshwater system, are home to approximately one-tenth of the U.S. population. The area's ecosystem has long been contaminated by industrial, agricultural, and other human activities, leading to possible health risks for local populations that may eat more local fish, aquatic plants, and wildlife than others in the area.

[Learn more about the importance of biomonitoring in the Great Lakes.](#)<sup>3</sup>

<sup>1</sup> [https://www.atsdr.cdc.gov/sites/great\\_lakes\\_biomonitoring](https://www.atsdr.cdc.gov/sites/great_lakes_biomonitoring)

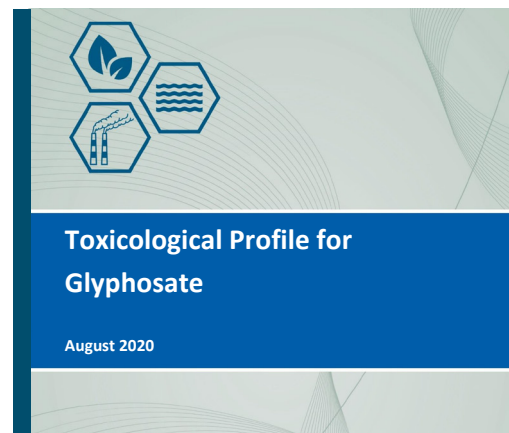
<sup>2</sup> <https://www.neha.org/sites/default/files/jeh/JEH1-2.21-Column-Direct-From-ATSDR.pdf>

<sup>3</sup> [https://www.atsdr.cdc.gov/sites/great\\_lakes\\_biomonitoring](https://www.atsdr.cdc.gov/sites/great_lakes_biomonitoring)



# Toxicological Profiles (Tox Profiles)

*Communities show a strong interest in ATSDR's 2020 Tox Profiles on substances such as glyphosate, ethylene oxide, and lead. Public comments are important to ATSDR.*



ATSDR's [Tox Profiles](#)<sup>1</sup> are peer-reviewed reference guides on hazardous substances developed using cutting-edge research. Each profile offers information on a substance's physical and chemical properties, sources and routes of exposure, minimal risk levels, children's health and general health effects, and environmental interaction. Tox Profiles empower people in the community to identify and address potential concerns about harmful substances in their environment.

In 2020, ATSDR released 17 Tox Profiles on substances potentially harmful to human health, including [glyphosate](#)<sup>2</sup> (an active ingredient in some weed killers) and [lead](#)<sup>3</sup> (a long-term public health concern because of its wide distribution and inclusion in paint, gas, and other everyday substances), and a public comment version on [ethylene oxide](#)<sup>4</sup> (a carcinogen used to sterilize medical equipment). Our agency received more than 370 comments and considered this feedback when revising and finalizing these profiles.

## What are Minimal Risk Levels (MRLs)?

An essential part of Tox Profile development involves interagency collaboration on [MRLs](#).<sup>5</sup> An MRL is an estimate of how much a person can eat, drink, or breathe of a chemical each day, over a specific duration of exposure, without appreciable risk of harmful noncancer health effects. Proposed MRLs undergo a [rigorous review process](#).<sup>6</sup> This begins with ATSDR's internal Health Effects/MRL Workgroup and extends to an interagency MRL Workgroup, followed by an official subject matter expert peer review. ATSDR maintains 184 Tox Profiles containing scientific data and public health information and, to date, has developed 459 MRLs.

<sup>1</sup> <https://wwwn.cdc.gov/TSP/index.aspx>

<sup>2</sup> <https://wwwn.cdc.gov/TSP/ToxFAQs/ToxFAQsDetails.aspx?faqid=1489&toxid=293>

<sup>3</sup> <https://wwwn.cdc.gov/TSP/substances/ToxSubstance.aspx?toxid=22>

<sup>4</sup> <https://wwwn.cdc.gov/TSP/ToxProfiles/ToxProfiles.aspx?id=734&tid=133>

<sup>5</sup> <https://www.atsdr.cdc.gov/minimalrisklevels/>

<sup>6</sup> <https://www.atsdr.cdc.gov/mrls/index.html>

# Simulation Science

*ATSDR develops new approaches using computer simulation models to better understand how the human body processes and eliminates chemicals related to environmental exposures.*



ATSDR uses simulation science to design computer models to evaluate and reduce exposures to toxic chemicals. This work provides ATSDR's scientists with information about exposures and estimates of toxicity to protect communities. In 2020, ATSDR's simulation science work contributed the following to improve toxicological knowledge:

- Integrated genetics and exposure science to enhance our understanding of how human organ systems work to detoxify various components of gasoline
- Used existing and newly developed computer models to study human elimination of persistent chemicals such as PFAS
- Advanced the ability to predict harmful levels of chemicals released in industrial accidents

These scientific achievements utilize both commercially available software and programming developed by ATSDR scientists to make toxicity estimates

- Faster, of particular importance for emergencies
- Possible, when very limited information is available, as is often the case for “new chemicals”
- More cost efficient, by reducing the need for laboratory testing materials and animal testing, leaving only the cost of computer time and person hours

These scientific achievements have enhanced the agency's ability to respond to requests from various local and state public health agencies and have contributed to the federal government's efforts to respond to the environmental health needs of communities across the United States.

# Environmental Public Health Training

*ATSDR educational opportunities transitions online with new public health assessment trainings and virtual field projects for college interns in Navajo Nation.*

Although in-person trainings and internships were not possible this year, ATSDR education continued through innovative online remote learning. We developed two new web-based accredited trainings on the fundamentals of ATSDR's public health assessment (PHA) process and environmental health and land reuse.



The [Public Health Assessment training](#)<sup>1</sup> empowers participants to evaluate community exposures to hazardous substances in the environment, following the PHA process. Based on a realistic environmental health case study, these eight modules include problem-solving exercises and comprehensive resources and references for conducting PHAs. Participants can take all eight modules or choose individual modules to suit their needs. To date, more than 500 learners have completed this online training.



ATSDR created the [Environmental Health and Land Reuse \(EHLR\)](#)<sup>2</sup> classroom training to supplement the online EHLR certificate program hosted by the National Environmental Health Association (NEHA). ATSDR hosts the downloadable EHLR classroom training, and NEHA hosts the EHLR online training. The ten hours of training modules are designed to increase the skills of environmental health professionals and partners. More than 800 people have already taken the training, and both EHLR online and classroom versions have the potential to instruct thousands of scientists, engineers, public health planners, cooperative agreement partners, students in environmental and public health disciplines, and tribal environmental staff.

## Integrating Native and Western Science: A Virtual Field Project

In Spring 2020, Diné College, a public tribal land-grant college serving Arizona's Navajo Nation, grew concerned that its summer internship program would have to be canceled due to COVID-19. The faculty asked ATSDR for help, and our [Land Reuse Health Program](#)<sup>3</sup> stepped in to create a virtual field project focused on integrating Native and Western Science. ATSDR staff collaborated with NEHA to develop and teach a six-week environmental health and land reuse curriculum. After completing the curriculum and fieldwork, all eight students received environmental health and land reuse certificates.

<sup>1</sup> <https://www.atsdr.cdc.gov/training/pha-training-section1.html>

<sup>2</sup> [https://www.atsdr.cdc.gov/sites/brownfields/classroom\\_training.html](https://www.atsdr.cdc.gov/sites/brownfields/classroom_training.html)

<sup>3</sup> <https://www.atsdr.cdc.gov/sites/brownfields/index.html>





# From the Perspective of Our Communities

## *In Their Own Words*

*To hear firsthand from communities, tribal nations, pediatric environmental health volunteers, and community outreach partners about how they have collaborated with ATSDR, [watch this video](#).<sup>1</sup> You can also read the video's transcript below.*

### **PATRICK BREYSSE**

ATSDR works very closely with communities across the country. We try and understand what exposures are occurring in those communities, what health risk might be associated with those exposures and ultimately if we think those health risks are unreasonable, what steps can be taken to minimize those risks?

It's a public health agency that was established to address community health concerns about exposures to chemicals and other hazardous agents in their environment.

### **CHRISTOPHER M. REH**

In the upcoming segments, we're going to have community members speak specifically about work ATSDR is doing in their community and how we work together to help them understand the environmental health hazards and the impact of environmental contamination on their specific community and really how ATSDR partners with both local governments and people in the community to help them understand the risk.

<sup>1</sup> <https://atsdr.cdc.gov/2020-report/video/>

### **REBECCA JIM**

My name's Rebecca Jim, and I'm the executive director for a LEAD Agency and that is Local Environmental Action Demanded.

I'm a member of the Cherokee Nation, I live in the Cherokee Reservation.

One of the reasons we formed LEAD Agency was the fact that people kept wondering why are we so sick. So we looked up all of the known toxins we had and everything that our people could be exposed to and we used the ATSDR tox profiles. Without ATSDR alerting EPA that we had a real problem here with too many children being lead poisoned, we would not be having the clean up we're having.

We've got children now that can think clearly, that can concentrate, that can have a future. I think that's pretty important.

### **JOHN MELLOW**

My name is John Mellow, I'm a resident of Lackawanna County, Pennsylvania. I'm working

with Pennsylvania Department of Environmental Protection.

This landfill is one of the largest in Pennsylvania. You know, the citizens are very concerned about what kind of health effects are going to be generated currently and in the future.

ATSDR has changed our area for the better because what it's done is it made some recommendations for the regulatory agency to actually collect additional data. ATSDR, with their partner, Pennsylvania Department of Health, has done a great job in helping out the community, and resolved some of the concerns.

### **SAUL HORACE AGUILLAR**

Hello my name is Saul Horace Aguillar. I am the manager at the Community Outreach Department of ProHealth Care. I become involved with ATSDR because we've heard that there was a toxic leakage in our communities and this leakage was caused by one of the old foundries here. There was a spill that leached into the soil and the vapors reached out into community basements.

This was a collaboration between the ATSDR team, the Wisconsin Department of Health Services and our staff to reach out specifically to Spanish speaking neighbors in our community.

There is a lot of information that we were not familiar with and they were able to explain that information to us in a very simplistic way for us as medical providers as education to us, and then also to kind of decode that information so that we can put it in very simple words to our community and deliver one single message that the families needed to take action.

If it were not for ATSDR to facilitate this information and to bring this information to them, it would have caused probably some health issues in the long run.

### **STEPHANIE HOLM**

I'm Stephanie Holm, I'm an environmental pediatrician, I am the co-director of the Western States PEHSU. The mission of the PE-SUs is to improve dissemination of information about the health of children and, and how an exposure to environmental toxicants can affect kids' health.

The PEHSU partnership with ATSDR has really allowed us to address really important gaps in knowledge and in resources, both for health

professionals and for families and that, you know, really, by addressing environmental concerns early in a child's life, starting from pre-conception all the way through childhood, there's this really great potential for improving quality of life, both during childhood, but really through the entire life course.

Each case addressed by the PEHSUs has the potential to positively affect thousands of children and families, and so if you multiply that by all 10 PEHSUs around the country, the impact is really incredible.

### **CHRISTOPHER M. REH**

Our vision is to be the most trusted agency for communities in helping them understand the risk and the hazards of environmental contamination in their environment. We, we really believe it's important that we connect with the communities on a regular basis in everything that we do so that we can work with them as partners to help what at times can be very complicated issues and help them understand the risks associated with contamination in their environment.



# 2020 In Review

## Putting Communities First

Despite unique challenges throughout 2020, ATSDR adapted and continued to fulfill its mission to protect communities from health effects related to exposure to harmful substances. ATSDR harnessed the power of data, mapping, and technology to identify and support areas at increased risk during emergencies, track cancer clusters and site-specific environmental activities, improve the safety of early childcare sites, and connect ALS patients to research opportunities.



# Pediatric Environmental Health Specialty Units (PEHSUs)

*ATSDR supports PEHSUs to help protect the health and well-being of children and families who live or work in settings that put them at higher risk of exposure to hazardous substances.*



## What Are PEHSUs?

PEHSUs are a national network of experts who focus on environmental conditions affecting pregnant women, children, and adolescents. PEHSUs respond to requests for information and create materials and classes for healthcare professionals, parents, schools, and community groups. They also recommend prevention, diagnosis, and treatment options to pediatricians and other healthcare providers, families, and the general public. PEHSUs work with government agencies at all levels to address environmental health issues in homes, schools, and communities. ATSDR supports PEHSUs through funding and programmatic leadership for direction of PEHSUs and PEHSU activities.

[PEHSUs](#)<sup>1</sup> operate in all 10 ATSDR regions. Here are some ATSDR-funded PEHSU partner highlights from 2020:



**In Atlanta, GA**, the Southeast PEHSU partnered with the Center for Black Women's Wellness (CBWW) to increase environmental health literacy and decrease environmental exposures among Black children and their families. Over 500 CBWW patients and 30 partners participated in these activities.



**In Seattle, WA**, the Northwest PEHSU continued to support and provide specialty intensive pediatric environmental health training opportunities within established training programs in the University of Washington School of Medicine. This includes the Medical Student Research Training Program, Pediatric Residency Training Program noon conferences, and the Pediatric Environmental Medicine elective trainings School of Public Health Pediatric Environmental Health practicum and course.



**In 2020, the PEHSU's nationwide network** continued to educate health professionals about per- and polyfluoroalkyl substances (PFAS). PEHSUs conducted two continuing education webinars for health professionals on PFAS and added [PFAS resources](#)<sup>2</sup> to the PEHSU website.

PEHSUs also offered tremendous support to the COVID-19 response. [Click here to learn more.](#)<sup>3</sup>

<sup>1</sup> <https://www.pehsu.net/>

<sup>2</sup> [https://www.pehsu.net/PFAS\\_Resources.html](https://www.pehsu.net/PFAS_Resources.html)

<sup>3</sup> [https://www.pehsu.net/PFAS\\_Resources.html](https://www.pehsu.net/PFAS_Resources.html)

# Geospatial Research, Analysis, and Services Program (GRASP)

*GRASP launched a new website to showcase its work at the intersection of geospatial research, social vulnerability, and emergency preparedness and response.*

ATSDR's GRASP launched the [Place and Health](https://www.atsdr.cdc.gov/placeandhealth/index.html)<sup>1</sup> website in 2020. Place and Health features a portfolio of collaborative projects, a timeline of key ATSDR milestones in geospatial science, and evidence of why “the places of our lives affect the quality of our health.”

GRASP's origins are in ATSDR's mandate to examine environmental exposure at hazardous waste sites. GRASP continues to provide cutting-edge geospatial visualization and analysis support for ATSDR site work. In addition, GRASP's mission has expanded through the years to connect the places of our lives — homes, workplaces, schools, places of worship, and more — to our health and well-being. To this end, GRASP professionals have

## What is Geospatial Determinants of Health?

The [Geospatial Determinants of Health](https://www.atsdr.cdc.gov/placeandhealth/howdoesPlaceaffectHealth.html)<sup>2</sup> (GDOH) is a framework using numerous geographic data points to show the influence of disease and assist with public health response. The emerging purpose of the GDOH is to

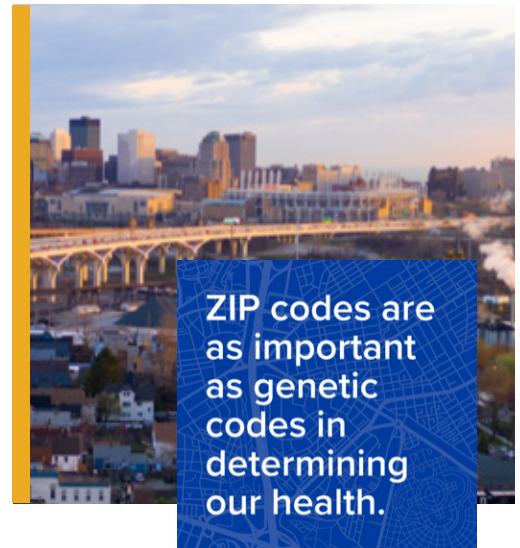
- Define the geospatial drivers of health with an emphasis on factors that vary by place
- Serve as a catalyst to define, promote, and advance the use of place in research and practice across the public health community
- Shape the nation's public health curriculum to advance geospatial analysis, statistics, and technology in the study of public health

been shaping the Geospatial Determinants of Health (GDOH).

As GDOH and GRASP expand, partnerships have been extended throughout the public sector and technology, research and analysis, and visualization industries. Working on over 500 projects a year, these programs are continuously evolving.

Another key tool GRASP updated this year is the [CDC/ATSDR Social Vulnerability Index](https://www.atsdr.cdc.gov/placeandhealth/svi/index.html)<sup>3</sup> (SVI). The CDC/ATSDR SVI helps public health officials identify and characterize populations more likely to need support before, during, and after a hazardous event or public health emergency. The CDC/ATSDR SVI has played an instrumental role in the COVID-19 response and other public health emergency responses. GRASP also used the CDC/ATSDR SVI to identify communities in Georgia with a greater likelihood of heat-related emergency department visits—visits that are likely to increase with heat events related to climate change. The CDC/ATSDR SVI can be used to estimate groups disproportionately affected by heat such as children and people aged 65 and over living in specific areas. In turn, this data could connect more education, public health intervention, and financial resources to these groups before and during extreme heat events.

Learn more about how GRASP SVI team members collaborated with CDC on the COVID-19 Data Tracker and how CDC and partners used the CDC/ATSDR SVI for COVID-19 vaccine coordination and distribution on page 26.



<sup>1</sup> <https://www.atsdr.cdc.gov/placeandhealth/index.html>

<sup>2</sup> <https://www.atsdr.cdc.gov/placeandhealth/howdoesPlaceaffectHealth.html>

<sup>3</sup> <https://www.atsdr.cdc.gov/placeandhealth/svi/index.html>

# ATSDR's Partnership to Promote Local Efforts to Reduce Environmental Exposure (APPLETREE)

*APPLETREE grows its investments in programs that encourage careful, informed site selection for early care and education (ECE) sites.*



In 2020, [APPLETREE's cooperative agreement program](#)<sup>1</sup> worked with state health departments to address environmental issues in communities nationwide, encourage thoughtful selection of sites for ECE facilities, and provide support for COVID-19 response activities.

## What is ATSDR's Choose Safe Places for Early Care and Education (CSPECE) Program?

The [CSPECE](#)<sup>2</sup> program offers towns, cities, and states a framework to adopt practices to ensure early care and education (ECE) centers are located away from potential environmental chemical hazards.

For example, in October 2020, Wisconsin's Choose Safe Places program identified a site with a leaking underground storage tank near a proposed childcare facility. APPLETREE staff conducted a thorough search for available information and resources to investigate the potential risk for petroleum volatile organic compound contamination affecting the proposed property. As a result of APPLETREE's efforts, the state added this location to its list of priority sites for vapor intrusion investigation.

After a gasoline spill in Canyonville (Douglas County), Oregon, that affected several nearby residential and commercial properties, APPLETREE staff assisted the Oregon Department of Environmental Quality. Staff provided information about the health effects of gasoline and helped explain environmental data to a local business whose building had been affected by contamination from the spill.

APPLETREE staff also provided significant support to the COVID-19 response. Learn more about their unique contributions on page 28.

<sup>1</sup> <https://www.atsdr.cdc.gov/states/index.html>

<sup>2</sup> <https://www.atsdr.cdc.gov/safeplacesforECE/index.html>



# National Amyotrophic Lateral Sclerosis (ALS) Registry and Biorepository

*ATSDR's National ALS Registry and Biorepository connect patients with clinical trials and advances research on risk factors, genetics, biomarkers, and etiologies.*

As ALS is a non-notifiable disease (a disease that does not have to be reported to public health authorities), the congressionally mandated [National ALS Registry](https://www.cdc.gov/als/Default.html)<sup>1</sup> uses a novel approach to collect and analyze data about people living with ALS in the United States. The Registry includes data from existing national databases (for example, Center for Medicare and Medicaid Services, Veteran's Administration) and information provided by people with ALS who choose to participate via an online portal.

The Registry team has strengthened its collaborations and partnerships with institutions by helping recruit patients for dozens of clinical trials and epidemiologic studies. The team has connected thousands of patients directly to ALS research being conducted all around the United States. These studies range from Phase 2 and Phase 3 clinical trials for pharmaceutical companies to self-administered surveys on how patients adapt and cope with their diagnosis. [View a complete list of active and completed ALS clinical trials and studies.](https://www.cdc.gov/als/ALSExternalResearchfundedbyRegistry.html)<sup>2</sup>

Part of the Registry's mission is to invest in and amplify the efforts of its academic partners. In 2020, researchers at Harvard University were funded to measure the levels of persistent organic pollutants in blood samples of people with ALS, as well as conduct serological profiling of the human virome (the collection of all viruses

<sup>1</sup> <https://www.cdc.gov/als/Default.html>

<sup>2</sup> [https://www.cdc.gov/als/ALSResearchNotificationClinicalTrialsStudies\\_Active.html](https://www.cdc.gov/als/ALSResearchNotificationClinicalTrialsStudies_Active.html)

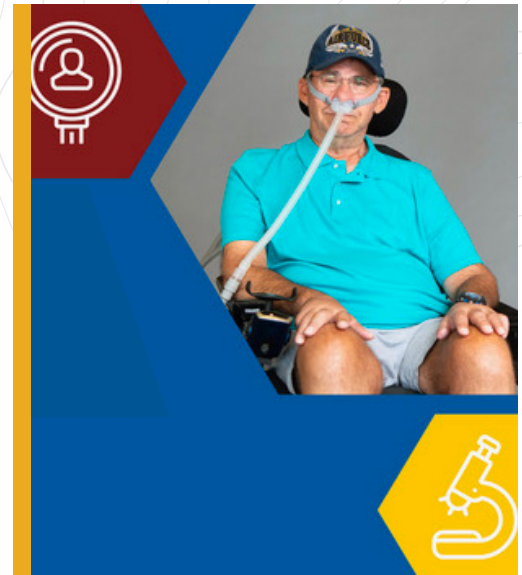
<sup>3</sup> <https://www.cdc.gov/als/ALSExternalResearchfundedbyRegistry.html>

found in or on humans, including bacterial and eukaryotic viruses) and ALS risk in a military population. To date, the Registry has funded 19 academic institutions ([View a complete list of funded partners here](https://www.cdc.gov/als/ALSPapers.html)).<sup>3</sup> In addition, the Registry collaborated with Dartmouth College to co-author publications discussing the risk of mercury exposures and examining risk factors such as electrical burns and head trauma for ALS patients. [View a full list of publications from the National ALS Registry, including seven journal articles published in 2020–2021.](https://www.cdc.gov/als/NationalALSBiorepository.html)<sup>4</sup>

To ensure patient and caregiver safety during the COVID-19 pandemic, ATSDR's National ALS Registry temporarily suspended some of its research activities. Specifically, the [National ALS Biorepository](https://www.cdc.gov/als/NationalALSBiorepository.html)<sup>5</sup> paused all in-home blood and saliva collections. However, the Biorepository was able to continue post-mortem collections and distribute previously collected samples to researchers nationwide. There are nearly 17,000 participants in the Registry diagnosed with the disease, and professionals have collected samples from more than 1,500 ALS patients and funded 19 research grants. In 2021, the National ALS Biorepository will collaborate with the Johns Hopkins University's Postmortem ALS Tissue Repository to advance research on genetics and biomarkers.

<sup>4</sup> <https://www.cdc.gov/als/ALSPapers.html>

<sup>5</sup> <https://www.cdc.gov/als/NationalALSBiorepository.html>



# Cancer Cluster and Regional Activity Tracker Project (CCARAT)

*Geographic information system (GIS) technology helps ATSDR identify and track cancer cluster data.*

A cancer cluster is a greater-than-expected number of cancer cases within a group of people in a geographic area over a set period. [Learn more about cancer clusters here.](https://www.cdc.gov/nceh/clusters/about.htm)<sup>1</sup> Cancer is complex, often making it difficult to identify, interpret, and address disease clusters. Trevor's Law, part of the 2016 Frank Lautenberg Chemical Safety for the 21st Century Act, was partially designed to strengthen federal agency coordination and accountability when investigating cancer clusters. Until now, there was no way to geospatially display cancer cluster data, which meant that ATSDR was unable to track cluster data year to year or determine if known hazardous material contamination could contribute to an increase in cancer clusters.

Unveiled for beta-testing in 2020, ATSDR's Cancer Cluster and Regional Activity Tracker (CCARAT)

is an innovative internal platform to geospatially track cancer cluster inquiries and site-specific environmental and public health activities. Combining new processes and technology, CCARAT allows ATSDR to piece together information from historical and current public health assessments, letter health consultations, exposure investigations, health consultations, and new cancer cluster inquiries.

For CDC and ATSDR staff, CCARAT will accelerate the process of responding to hazardous materials exposures and sharing priority environmental health information. CCARAT will continue to improve as ATSDR staff spend more time using and providing feedback for this dynamic tool during testing.



<sup>1</sup> <https://www.cdc.gov/nceh/clusters/about.htm>

# NCEH/ATSDR Emergency Response

*Office of Emergency Management (OEM) coordinates over 130 activities in the U.S. and U.S. territories in 2020.*



When a natural or technological disaster or emergency strikes, CDC's National Center for Environmental Health (NCEH)/ATSDR [Office of Emergency Management](#)<sup>1</sup> (OEM) works as a central coordination point for responding. By triaging and coordinating NCEH/ATSDR's emergency response assets and unique expertise, OEM helps federal, state, and local entities respond to environmental health emergencies and addresses environmental public health consequences of natural and technological emergencies, terrorist events, and hazardous substance releases. OEM functions to further science, policy, and practice of emergency management in support of CDC, the U.S. Department of Health and Human Services (HHS), and state, local, tribal, territorial, and global partners. Site-specific consultation teams can be convened to provide support 24 hours a day, usually within 30 minutes. OEM can provide an on-site response team anywhere in the continental United States, usually in an average of eight hours after a request.

## Office of Emergency Management 2020 (Non-COVID) Activities

OEM was involved in over 130 activities in 2020, most of which were unrelated to the COVID-19 pandemic:

- 7 acute emergency responses
- 74 technical assists to state and local health departments and other federal agencies
- 45 preparedness activities
- 9 actions related to ATSDR's role as the representative of HHS on the National Response Team
- 2 written consultations
- 2 non-COVID deployments

OEM led several significant projects in the United States and Puerto Rico, including air monitoring and responding to several earthquakes and a pesticide spill. After powerful earthquakes struck in January 2020, OEM led a team of CDC staff to support the Puerto Rico State Agency for Emergency and Disaster Management, the Puerto Rico Department of Health, the Federal Emergency Management Agency, and HHS. These teams conducted assessments of the public health needs of displaced persons in improvised camps and government shelters. The team also assisted with health and risk communication to inform the public about issues associated with the earthquakes.

Other OEM work involved collaboration with federal, tribal, state, and local agencies on emergency responses to pollution incidents under the National Response System. ATSDR Region 7 requested assistance in responding to a pesticide spill into the Neosho River, which is the primary drinking water supply for several communities downstream near Iola, Kansas.

In addition, the U.S. Coast Guard in Houston/Galveston, Texas, requested OEM assistance in developing a community air monitoring plan based on a commodity survey of the ports. The Coast Guard also asked for assistance in developing protective measures on the most commonly transported hazardous substances. OEM provided information on the toxicity of the substances and recommendations for establishing incident specific air monitoring and sampling plans. Subsequent to this work, the Coast Guard amended all 51 Area Contingency Plans across the country to include recommendations for consultations with CDC/ATSDR.

<sup>1</sup> <https://www.atsdr.cdc.gov/emergencyresponse/index.html>





# COVID-19 Collaboration: Taking Action to Address Communities' Needs

In 2020, communities around the world came together to reduce the effects of the pandemic. Using COVID-related supplemental funding, ATSDR collaborated with state, local, tribal, and community organizations to address new and ongoing needs in the face of this unexpected challenge. A large portion of the funding supported safe cleaning and disinfection in schools and childcare facilities. From ensuring the safe use of alcohol-based hand sanitizers, to developing a continuously updating, state-of-the-art COVID-19 Data Tracker, to setting up a COVID-19 testing site on the Blackfoot Indian reservation in Montana, community health and well-being throughout the COVID-19 pandemic and beyond has been at the forefront of ATSDR's work.

# Staff in Action: COVID-19 Deployments

*ATSDR's exemplary staff deploy to pandemic front lines across the nation in essential, lifesaving roles.*



OEM emergency coordinators collaborated with CDC's Emergency Operations Center to facilitate hundreds of ATSDR staff deployments to support the COVID-19 response at the local, state, tribal, and federal levels. During this time, the professionalism, flexibility, and exceptional dedication of ATSDR staff continued to protect public safety and health. Staff worked in vaccine and clinical support, infection control support, as members of CDC's Emergency Response Team, and more. ATSDR staff served across the spectrum of support and across the nation throughout the pandemic, including

- Screening international visitors for COVID-19 before they entered the country in Seattle
- Coordinating and facilitating inter-agency collaborations in Washington, D.C.
- Building sustainable communication networks for health information distribution in Oklahoma
- Conducting wellness checks on deployed CDC and ATSDR staff

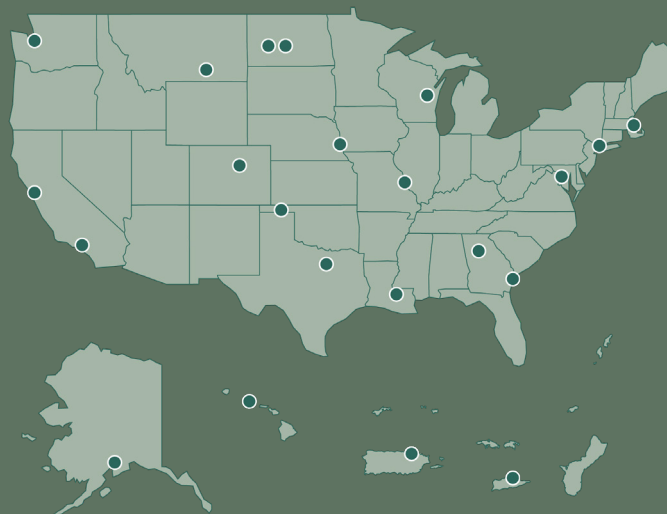
ATSDR played an essential role in the COVID-19 response, working with CDC to protect our nation's health and ensure that state and local public health partners and tribal nations have resources, guidance, and scientific expertise to respond. In 2020, to support the response, ATSDR staff

- Engaged in over 200 deployments to 20 states, territories, and tribal communities, helping communities at the local, state, tribal, and federal levels



View this information as an infographic on [ATSDR's website](#).<sup>1</sup>

## ATSDR staff deployed across U.S. and U.S. territories, providing critical assistance from multiple locations:



- Anchorage, AK
- Atlanta, GA
- Baton Rouge, LA
- Boston, MA
- Crow Nation, MT
- Dallas, TX
- Denver, CO
- Honolulu, HI
- Los Angeles, CA
- Montgomery, GA
- New York, NY
- Bismarck, ND
- Dickenson, ND
- Omaha, NE
- Guymon, OK
- San Juan, PR
- San Francisco, CA
- Seattle WA
- St. Louis, MO
- Washington, D.C.
- Oshkosh, Wisconsin
- Christiansted, USVI

<sup>1</sup> <https://atsdr.cdc.gov/2020--report/COVID-19-Collaboration>

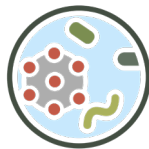
## ATSDR staff shared their expertise to support a wide range of activities:



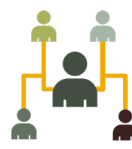
Epidemiology and surveillance



Worker health and safety



Infection control



Response leadership



Health communication and community outreach



Vaccine coordination



Medical investigations



Clinical support to deploying staff



Data analytics and modeling



Maritime support



Tribal support



International Task Force support

## ATSDR staff provided support at a wide range of locations:

- Local and state health departments and laboratories
- Quarantine stations and COVID-19 screening sites at airports
- COVID-19 testing and vaccination sites
- Pork processing plants
- CDC's Emergency Operations Center
- CDC's Occupational Health Clinic

ATSDR awarded \$12.5M in COVID-19 supplemental funding. This supported state, local, and emergency response efforts, including



Safe cleaning and disinfection in schools and early care and education programs



Geospatial data and analysis work such as the COVID-19 data tracker

*All of these roles were important.*

### This support helped to

- Determine rate and spread of disease
- Identify areas at greater risk of infection
- Investigate outbreaks and control spread of disease
- Build response capacity at the local, state, territorial, and tribal level
- Support vaccine coordination and distribution
- Support CDC/ATSDR staff well-being in the field
- Support safe maritime operations

### Interested in learning more about CDC's COVID-19 response efforts?

Visit <https://www.cdc.gov/about/24-7/response-to-covid-19.html>.



# Emergency Response and Environmental Health

*ATSDR's Office of Emergency Management (OEM) provides lifesaving guidance for emergency responders, schools, and businesses during the pandemic.*



OEM served as a central coordination point for center-led emergency responses and represented environmental health issues for CDC-wide emergency activations. OEM leads the COVID-19 Environmental Health Task Force, which provides technical expertise including the following:



Guidance on reopening schools and businesses related to cleaning and disinfecting



Recommendations for disaster relief operations based on best practices for limiting the spread of COVID-19



Guidance on emerging issues such as unsafe alternative therapies and overexposure to chemical disinfectants

OEM has developed numerous environmental health guidance, health communications, and other products for the COVID-19 response. Throughout the 2020 hurricane season, OEM led the CDC Hurricane Planning Work Group within the COVID-19 response structure to adapt CDC disaster plans and response activities as needed. OEM assessed and implemented disaster shelter guidance, incorporating new best practices to address the spread of COVID-19. OEM also faced and overcame similar challenges to provide updated emergency response direction and relief after natural disasters such as hurricanes and earthquakes.

# Safe Sanitation and Disinfection Practices

*ATSDR guides safe sanitation and disinfection practices in homes, schools, and daycares during the COVID-19 pandemic.*



As information and best practices emerged for preventing the spread of COVID-19, ATSDR led the effort to provide guidance on recommended safe sanitation and disinfection practices for homes, schools, and daycare facilities. With funding from the Coronavirus Aid, Relief, and Economic Security Act (CARES) Act, ATSDR supported Pediatric Environmental Health Specialty Units (PEHSUs) and state health departments to provide this guidance and outreach to facilities that had experienced or were actively working to prevent outbreaks of COVID-19 and other emerging infectious diseases.

Within two months of receiving the CARES funds, ATSDR, with coordination from the National Environmental Health Association (NEHA), established the [COVID-19 Early Care and Education Collaborative](#).<sup>1</sup> Consisting of five national partner organizations — NEHA, the Children’s Environmental Health Network (CEHN), the National Association of County and City Health Officials (NACCHO), the National Center for Healthy Homes (NCHH), and the Association of State and Territorial Health Officials—the Collaborative’s stakeholders also include



Environmental health professionals



Early care education owners and interest groups



Healthy housing officials



Local/city/county health officials



State environmental health directors

Collaborative partners have met monthly since September 2020 to share activities, ideas, best practices, and needs from their membership related to COVID-19 in Early Care and Education (ECE) facilities. The organizations plan to continue meeting, even without future funding, because the collaborative structure successfully brings partners together to work on joint activities.

The Collaborative has developed resources to mitigate COVID-19 in ECE facilities and to guide professionals on safe cleaning and disinfection practices. The following are other notable achievements of the Collaborative:

- CEHN supported 16 APPLETREE recipients through three series of peer-to-peer networking and sharing best practices for COVID-19 safe cleaning and disinfection resources.
- NCHH developed a [Safe Sanitation and Disinfection Guide](#)<sup>2</sup> in English and Spanish for healthy housing officials and homeowners/building owners.
- NEHA developed an ECE assessment form and ECE owner’s checklist, both available on their [COVID-19 ECE website](#).<sup>3</sup>
- NACCHO developed a comprehensive [Environmental Health COVID-19 Resource Library](#).<sup>4</sup> The COVID-19 ECE Collaborative supports the education and childcare section.
- CEHN developed three fact sheets to synthesize best practice information about cleaning, disinfecting, and indoor air quality for ECE facilities in the context of COVID-19:
  - [Safer Cleaning and Disinfecting in Child Care Facilities: COVID-19 \(Part I - General Guidance\)](#)<sup>5</sup>
  - [Safer Disinfection in Child Care Facilities: COVID-19 \(Part 2\)](#)<sup>6</sup>
  - [COVID-19: Healthy Indoor Air Quality in Child Care Facilities](#)<sup>7</sup>

(Continued)

ATSDR funded the Association of State Public Health Nutritionists (ASPHN) to develop the [Clean Away COVID-19](#)<sup>8</sup> campaign, which provides information on disinfecting homes and protecting loved ones against COVID-19. The primary audience for the PEHSU-endorsed campaign was Women, Infants, and Children program participants and the general public. ASPHN and PEHSUs have actively promoted it to partners and on social media platforms: to date, the site has garnered over 14,000-page views and over 8,800 unique visits, and the [Clean Away COVID-19 music video](#)<sup>9</sup> on YouTube has had over 2,500 views in English and over 150 views in Spanish. The campaign was also shared with the Nutrition Council of Oregon, and other state colleagues, and presented to the NACCHO Maternal Child Adolescent Health Workgroup. The Department of Health from Washington State's Environment Health Program has used the campaign materials to promote safe cleaning practices in childcare education centers.

<sup>1</sup> <https://www.neha.org/eh-topic/covid-ece-collaborative>

<sup>2</sup> <https://nchh.org/information-and-evidence/learn-about-healthy-housing/safe-cleaning-and-disinfection/healthy-homes-guide/>

<sup>3</sup> <https://www.neha.org/eh-topic/covid-ece-collaborative>

<sup>4</sup> <https://www.naccho.org/programs/our-covid-19-response/environmental-health-and-covid-19-resource-library#Education-Childcare>

<sup>5</sup> <https://cehn.org/download/ehcc-covid-19-general-guidance-cleaning-and-disinfecting/>

<sup>6</sup> <https://cehn.org/download/ehcc-covid-19-disinfecting/>

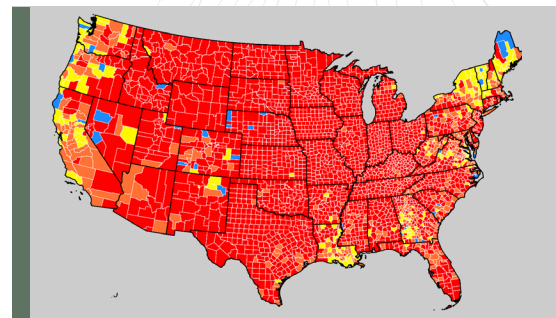
<sup>7</sup> <https://cehn.org/download/ehcc-covid-19-indoor-air-quality/>

<sup>8</sup> <http://www.cleanawaycovid.org>

<sup>9</sup> [https://www.youtube.com/watch?v=8jdOFclo\\_Ug](https://www.youtube.com/watch?v=8jdOFclo_Ug)



# Geospatial Research, Analysis, and Services Program (GRASP) Collaborations



*GRASP provides CDC with the expertise to develop, update, and power the COVID-19 Data Tracker, as well as a CDC/ATSDR Social Vulnerability Index to identify areas where people may be at higher risk of COVID-19 infection.*

The [Geospatial Research, Analysis, and Services Program](#)<sup>1</sup> (GRASP) collaborated and engaged with multiple stakeholders across CDC, ATSDR, and beyond to empower national and local COVID-19 response efforts. One example of this work is the CDC's central dashboard of publicly available COVID-19 data, the CDC COVID-19 Data Tracker, created and deployed by GRASP. Since March 2020, GRASP has provided geospatial expertise to design, develop, and manage this dashboard of key, daily updated COVID-19 data and related visualizations including cases, deaths, testing numbers, demographics, and vaccination and hospitalization

trends. New data tabs have been added every week to address the ongoing needs of CDC's COVID-19 response team.

GRASP also has leveraged the CDC/ATSDR Social Vulnerability Index (CDC/ATSDR SVI) to help communities at higher risk of COVID-19 infection access vaccination and testing.

Throughout the pandemic, scientists and public health officials have used the CDC/ATSDR SVI to identify and support communities across the country disproportionately affected by COVID-19. The CDC/ATSDR SVI has been used to

## What is the CDC/ATSDR Social Vulnerability Index (CDC/ATSDR SVI)?

A community's social vulnerability plays a vital role in its preparedness for, response to, and recovery from hazardous events like a disaster or disease outbreak. Social vulnerability refers to the demographic and socioeconomic factors contributing to specific communities being harmed and affected more by public health emergencies than others. The [CDC/ATSDR SVI](#)<sup>2</sup> helps officials identify the locations of the most socially vulnerable populations in the United States. The CDC/ATSDR SVI comprises Census Bureau data on variables like poverty status, unemployment rates, age, disability status, racial/ethnic minority status, and more.

To learn more about how the CDC/ATSDR SVI was used this year to support other emergency responses and programs, see page 15.



Collaborate with the Massachusetts Department of Public Health to identify COVID-19 testing disparities



Partner with the HHS Office of Minority Health to explore and characterize the disproportionate effects of the COVID-19 pandemic on racial/ethnic minority communities. This preliminary work resulted in a 3-year, \$3M collaborative partnership to use geospatial science and technology to examine and quantify COVID-19 health effects on minority communities across the United States



Publish the MMWR [Association between Social Vulnerability and a County's Risk for Becoming a COVID-19 Hotspot - United States, June 1- July 25, 2020](#)<sup>3</sup>

(Continued)



Collaborate with the Office of the Surgeon General to identify communities at increased risk for COVID-19 that were candidates for drive-through, community-based testing locations. This effort helped establish an additional 240 COVID-19 testing locations in 33 states, 69% of which were placed in communities with moderate to high social vulnerability, as measured by CDC/ATSDR SVI

The National Academies of Science, Engineering, and Medicine recommended that local and federal public health officials rely on the CDC/ATSDR SVI databases to inform efforts to allocate, distribute, and administer the COVID-19 vaccine in communities at increased risk for COVID-19. In addition, scientists from the National Institute of Environmental Health Sciences, North Carolina State University, and Texas A&M University developed the COVID-19 Pandemic Vulnerability Index, including several CDC/ATSDR SVI components.

<sup>1</sup> [https://www.atsdr.cdc.gov/placeandhealth/getting\\_to\\_know\\_grasp.html](https://www.atsdr.cdc.gov/placeandhealth/getting_to_know_grasp.html)

<sup>2</sup> <https://www.atsdr.cdc.gov/placeandhealth/svi/index.html>

<sup>3</sup> <https://www.cdc.gov/mmwr/volumes/69/wr/mm6942a3.htm>

# APPLETREE and PEHSUs Collaborations

*PEHSUs and APPLETREE grantees pivot to COVID-related community care and education.*



[ATSDR's Partnership to Promote Local Efforts to Reduce Environmental Exposure](#)<sup>1</sup> (APPLETREE) grantees have played a critical role around the country in helping their states and communities respond to the pandemic. In Michigan, APPLETREE program staff provided guidance and answered questions related to COVID-19 disinfection protocols. In New Jersey, staff developed and distributed a fact sheet to guide safe disinfectant usage, including choosing appropriate application methods to avoid potential hazardous substance exposure in school settings.

ATSDR-supported [Pediatric Environmental Health Specialty Units](#)<sup>2</sup> (PEHSUs) in all 10 regions are dedicated to improving environmental health education. Although in-person educational events could not be held, PEHSUs quickly adjusted to offer virtual education events. They provided outreach through social media, websites, videos, and adaptive events. For example, Region 8 converted its [soilSHOP program](#)<sup>3</sup> into a socially distanced, drive-up event. SoilSHOP is a free community event that helps community members determine whether dangerous lead levels are in their soil. Through the Healthy Environments Consortium, PEHSUs organized stakeholder collaboration on initiatives related to safer disinfectant use to streamline activities, ensure consistent messaging, and increase the effect disinfectants can have in stopping the spread of COVID-19.

PEHSUs were awarded funding through the Coronavirus Aid, Relief, and Economic Security (CARES) Act for activities related to safe disinfectant use. In collaboration and partnership with the American College of Medical Toxicology

and ATSDR-allocated funding, a series of webinars were hosted, and fact sheets were developed for the public about the use of disinfectants. To increase knowledge about the use of safe disinfectants and COVID-19 risk reduction practices, PEHSU offices created an Extension for Community Healthcare Outcomes curriculum for healthcare professionals about providing guidance on safer disinfectant use and COVID-19 risk reduction practices to families. For additional examples of PEHSUs COVID-19 collaborations, see the "Safe Sanitation and Disinfection Collaborations" section on page 24. PEHSUs also endorsed the Association of State Public Health Nutritionists' Clean Away COVID-19 campaign.

In Region 6, the ATSDR-funded PEHSU for the Southwestern states saw a need and developed the Pediatric Environmental Health Grand Rounds Series during the COVID-19 pandemic to continue healthcare professional education. The series was held twice a month, from June to December in 2020, then transitioned to once a month beginning in 2021. Several regional collaborators and core faculty at the Southwestern Center for Pediatric Environmental Health presented various environmental health topics affecting children and nearly 900 healthcare professionals have received education through this series.

To learn more about APPLETREE's work this year unrelated to the COVID-19 response, see page 16.

To learn more about PEHSU's work this year outside of the COVID-19 response, see page 14.

<sup>1</sup> <https://www.atsdr.cdc.gov/states/index.html>

<sup>2</sup> <https://www.pehsu.net/>

<sup>3</sup> <https://www.atsdr.cdc.gov/soilshop/index.html>





# What's Next?

ATSDR's recently initiated and upcoming projects will come to fruition over the next year, the next five years, and the next decade. The iterative, ever-growing work done by ATSDR and its partners changes the lives of Americans across the nation and people around the world each day. New projects will push this work further, engaging more people in more communities concerned about exposure to hazardous substances in the environment.



## Strategic Alignment

2021 will be a year of strategic alignment. With a new 2021–2026 strategic plan in place, ATSDR is focusing on three priority areas developed with the communities and the nation we serve in mind:

- Strengthening our response to environmental health hazards and toxic exposures
- Expanding our scope and reach
- Sustaining the “One ATSDR” culture through operational excellence

# Environmental Justice and Health Equity

*ATSDR continues its commitment to environmental justice and health equity, working with economically and socially marginalized communities to evaluate and address environmental exposures*



ATSDR has a long history of working with environmental justice communities to address environmental concerns. ATSDR's staff in headquarters and regional offices have worked with communities that have been economically and socially marginalized since the agency's creation in 1980. These communities — which include low-income communities, communities of color, and Indigenous and Native American communities — are at a higher risk of living in areas affected by environmental exposures. In addition to conducting public health evaluations, ATSDR provides resources and tools for communities to take action to protect their health and makes actionable recommendations to state and local health partners to address environmental justice concerns.

ATSDR collaborates with federal, state, and local partners, including the U.S. Environmental Protection Agency, to assist communities in revitalizing land impacted by contamination. ATSDR's efforts support the safe reuse of environmentally contaminated land to improve community health and reduce health and social inequities. ATSDR also tracks unique public health indicators associated with land reuse and redevelopment to maximize health outcomes through focused community revitalization projects.

In collaboration with CDC, ATSDR continues to use and update tools such as the [CDC/ATSDR Social Vulnerability Index](https://www.atsdr.cdc.gov/placeandhealth/svi/index.html)<sup>1</sup> — developed by ATSDR's Geospatial Research, Analysis, and Services Program (GRASP) — to help identify groups disproportionately affected by environmental contamination.

ATSDR's ongoing partnership with the Community Outreach Network, formed in 2015 by federal

agencies and Navajo Nation tribal government, works with Navajo communities to educate residents about the legacy of uranium contamination on Navajo Nation tribal lands. This collaboration ensures information sharing to increase general understanding of uranium exposure, potential health issues related to exposure, how communities can be engaged in the ATSDR public health assessment process, and agency partner clean-up projects at abandoned uranium mines and former uranium mills.

ATSDR also is involved in several partnerships aimed at reducing health disparities to promote children's environmental health and safety.

- ATSDR's PEHSU network provides instructional content and guidance to educate health professionals and families on safer disinfectant use and COVID-19 risk reduction practices. These activities include engaging families and healthcare providers in under-resourced areas.
- ATSDR's Choose Safe Places for Early Care and Education (CSPECE) Program prevents childcare facilities from opening in locations where environmental hazards might be present due to previous uses of the space, building, or nearby properties. Such properties are often located in economically under-developed or former industrial/commercial zones. CSPECE provides education to stakeholders nationwide to promote new policies and processes at the state and local level, sustains program through effective evaluation, and coordinates technical assistance from across ATSDR to ensure chemical hazards are identified, evaluated, and addressed to best protect children's health.

<sup>1</sup> <https://www.atsdr.cdc.gov/placeandhealth/svi/index.html>

(Continued)



Moving forward, as a core function of our work, ATSDR is committed to environmental justice and will continue a comprehensive approach to defining environmental justice communities and assessing gaps in services to these communities through public health activities, products, and decision-making processes. This will lay the foundation for identifying actions to address environmental justice and health inequities in ATSDR engagements and for informing future approaches.

## Community Engagement

*ATSDR's Community Engagement Playbook guides professionals to engage communities in meaningful, impactful ways throughout an environmental public health response.*



The Community Engagement Playbook (Playbook) outlines a new framework for guiding the four phases of community engagement (CE) that unfold during an environmental public health response. Public health professionals will find questions and context in the Playbook to help them identify critical local considerations and a list of CE activities that can be tailored to the community's specific needs.

The Playbook also includes tools to support professionals conducting community and tribal engagement: a tip sheet, a CE planning tool,

and links to additional tools and resources from ATSDR, other government agencies, and both academic and non-governmental organizations. The glossary and resource sections introduce advanced practice topics.

The Playbook reconfirms ATSDR's commitment to improving how we build relationships and effectively engage with communities, including tribal nations, during environmental public health responses. For more information, visit <https://www.atsdr.cdc.gov/ceplaybook/index.html>.

## Community Stress Related to Environmental Contamination Hazards

*ATSDR's Community Stress Resource Center helps public health professionals address stress as part of public health responses to environmental contamination.*



Life in a community experiencing long-term environmental contamination can be stressful for many reasons, including uncertainty, health and financial concerns, and feelings of powerlessness. Environmental contamination can cause

chronically elevated psychological and social stress in some people and across families and communities. While it is normal for community members to feel stress in these situations, chronic or sustained stress can pose health risks on top



of those related to environmental exposures. In addition, lower income and communities of color often face disproportionate effects from multiple social and environmental stressors.

ATSDR has been working to better understand and develop resources to address the psychological and social effects associated with living in a community affected by long-term environmental contamination. In 2020, ATSDR developed and tested a new [Community Stress Resource Center](#)<sup>1</sup>, released in 2021.

The Resource Center helps public health professionals reduce community stress and build resilience through work with community members, community-based organizations, and clinicians facing environmental contamination. It contains a new 3 Keys Framework — Recognize, Prepare, and Partner — and over 40 diverse resources for achieving the framework’s objectives. It builds on decades of ATSDR experience working with communities and includes a contemporary, fresh

look at the psychological and social effects of long-term environmental contamination. The Resource Center offers guidance to understand, prevent, and address problems that cause stress, but is not a specific intervention.

Public health professionals can use the Resource Center to

- Learn the science about the connection between environmental contamination and stress-related health risks
- Take action by recognizing, preparing, and partnering to reduce community stress and build resilience as part of public health responses to environmental contamination
- Find resources to help achieve the objectives of the 3 Keys framework

A [self-guided introductory training](#)<sup>2</sup> for public health professionals on chronic stress and environmental contamination is also available on the Resource Center.

## Navajo Nation Ten-Year Plan

*ATSDR fosters collaboration between multiple agencies to protect the Navajo Nation from the effects of uranium contamination.*

ATSDR collaborated with the Navajo Nation and federal agencies in 2020 to continue to address the effect of uranium contamination on the Navajo Nation. The [Ten-Year Plan](#)<sup>3</sup>, released in January 2021, builds on two previous Five-Year Plans (2008–2013, 2014–2019) to address legacy contamination of uranium mining and milling operations on the Navajo Nation. During the years spanning the new ten-year plan, ATSDR will

- Work with the Indian Health Service to provide training to clinicians and other healthcare providers about the health effects of non-occupational exposure to uranium

- Work with the Navajo Nation Department of Health to develop outreach and health education materials and to provide training to community health representatives
- Participate in the Community Outreach Network

This year, the COVID-19 pandemic made it necessary for ATSDR to pause in-person community engagement, including the Community Outreach Network’s Uranium 101 community health education events at Chapter Houses. ATSDR remains committed to working with Navajo Nation tribal communities.



<sup>1</sup> <https://www.atsdr.cdc.gov/stress/>

<sup>2</sup> [https://www.atsdr.cdc.gov/stress/stress\\_training\\_module.html](https://www.atsdr.cdc.gov/stress/stress_training_module.html)

<sup>3</sup> <https://www.epa.gov/navajo-nation-uranium-cleanup/federal-plans-related-documents>

# Microplastics

*ATSDR and CDC's National Center for Environmental Health (NCEH) work to define human health risks regarding exposure to and toxicity from microplastics.*



Microplastics (MPs) are plastic particles measuring less than 5 mm. MPs and nanoplastics (NPs), which measure less than .001 mm, have been intentionally placed in cleaning products, coatings, cosmetics, and medical applications. They are also created when items such as bottles, clothing, tires, and packaging break down in the environment. MPs and NPs can be transported into streams and seas, carried into the air, and fall with the rain. MPs also attract pollutants that may already exist in the environment at trace levels, accumulating toxins and delivering them to the wildlife that eats them, leading to bioaccumulation through the food chain. MPs and NPs are being found in fish, crab meat, and even table salt. MPs and NPs have been repeatedly found in human waste and some human organs, which has led to concern regarding the effect these pollutants may have on human health.

Because MPs and NPs are emerging pollutants, it was necessary to examine the scope of MP and NP contamination, as well as their potential short- and long-term effects on public health. ATSDR formed the microplastic workgroup in partnership with NCEH in 2020. Together, the workgroup members have undertaken a massive literature review to define human health risks from MPs and NPs. [Early results on human exposures and health effects have been published here.](#)<sup>1,2</sup> When the full results are published, ATSDR will hold a symposium with scientists and academic institutions to share the findings and to encourage scientists to focus on the necessary data gaps.

<sup>1</sup> Zarus GM, Muianga C, Hunter CM, Pappas RM, A review of data for quantifying human exposures to micro and nanoplastics and potential health risks. *Science of the Total Environment* 2021;756: <https://doi.org/10.1016/j.scitotenv.2020.144010>

<sup>2</sup> <https://www.sciencedirect.com/science/article/abs/pii/S0048969720375410>



[atsdr.cdc.gov](https://atsdr.cdc.gov)