National Institute of Environmental Health Sciences

Superfund Research Program

e-Posted Notes

November 5, 2021 (Issue 214)

HEADLINES

SRP Releases Data Management and Integration Website and White Paper

SRP is excited to announce that information about the SRP Data Management and Integration Use Cases is now available on the SRP website. SRP supported 19 collaborative projects focused on data management and integration to advance the interoperability and reuse of diverse and complex SRP data streams. Collaborators worked across SRP-funded centers and projects to utilize more than 50 datasets, giving them unique insight into current challenges in data sharing as well as opportunities to inform best practices moving forward.

You can also read more about these collaborative projects, along with challenges encountered and recommendations for integrating SRP data, in the newly published White Paper: Enhancing the Integration, Interoperability, and Reuse of SRP-Generated Data Through External Use Cases.

Virtual SRP Annual Meeting

Please mark your calendars for **December 16, 1:00-5:00 p.m. EST** for a virtual SRP annual meeting. Although we are delaying the full in-person meeting, we are still holding a shorter virtual meeting, which will include remarks from NIEHS leadership and talks from SRP trainees, including the 2021 Wetterhahn winner and K.C. Donnelly awardees. More information, including a link to register for the Zoom meeting and the agenda, will be coming soon.

SRP Risk e-Learning Webinar Series Archives Available

In October, SRP wrapped up a four-part Risk e-Learning webinar series showcasing effective risk communication strategies and how they have been tailored to the needs of diverse communities. Presentations highlighted first-hand experiences in designing risk communication messages and campaigns, evaluating impact, and adapting strategies for different populations. For an overview of the main themes and lessons learned covered during these webinars, see the Risk e-Learning Environmental Factor article.

If you missed any of the sessions, recordings are now available. See the Risk e-Learning webinar series webpage for more information about specific sessions, including presentation summaries.

EMPLOYMENT OPPORTUNITIES

APHL-CDC Fellowship and Internship Programs

The Association of Public Health Laboratories (APHL) and the US Centers for Disease Control and Prevention (CDC) partnered to offer a variety of laboratory fellowship programs to train and prepare scientists for careers in public health laboratories and support public health initiatives. Applications are due **February 28, 2022**, with an expected start date of July 2022. See the program page for more information and to apply.

CURRENT RESEARCH BRIEF

SRP Research Brief 323: New Passive Sampling Device for PFAS (Robert Hurt, Brown University)

Past Research Briefs are available on the SRP website. To receive the monthly Research Briefs or to submit ideas, email Michelle Heacock (heacockm@niehs.nih.gov).

Video summaries of the SRP Research Briefs are available on the NIEHS Social Media Shorts YouTube page.

EVENTS

FRTR Fall 2021 Meeting
November 8 and 15, 2021, 1:00 - 3:00 p.m. EST
Virtual

Closer to Zero Action Plan: Impacts of Toxic Element Exposure and

- Session I: Designing and Tailoring Messages
- Session II: Combatting Misinformation and Mistrust When Communicating Health Risks
- Session III: Engaging Communities and Tailoring Messages to Advance Equity and Justice
- Session IV: Communication Toolkits to Communicate Environmental Risks

Register Now: FRTR Fall 2021 Meeting

The fall 2021 meeting of the Federal Remediation Technologies Roundtable (FRTR) will be held as a two-part public webinar and will focus on remedy protectiveness and climate resilience in site cleanups. The meetings will include presentation from senior leaders of federal and state agencies who will discuss the steps their facilities and operations are taking to bolster adaptation and increase resilience to the impacts of climate change.

The first session will be held **November 8, 1:00-3:00 p.m. EST** and will feature a presentation from SRP Health Scientist Administrator Heather Henry. The second session will be **November 15, 1:00-3:00 p.m. EST**.

IN THE NEWS

NIEHS SRP News Stories

Take a moment to read about some of our colleagues' latest activities in this month's Environmental Factor, the NIEHS newsletter:

- Artist Uses Tribal Symbolism, Traditions to Communicate Science: Artist Mallery Quetawki and University of New Mexico SRP Center scientists are turning complex environmental health concepts into meaningful images for Native American communities.
- Health Policy Changes in Germany Informed by Trainee Research: Research by the University of Iowa SRP Center informed the amendment of a policy in Germany to require stricter controls for facilities using 2,4 -DCBP, a chemical found to emit polychlorinated biphenyls during rubber production.
- Scientists Design Risk Communication Strategies to Improve Health: An SRP-sponsored event, drew hundreds to learn about tailoring messages for target audiences in the pursuit of healthier communities.
- Arsenic, Uranium Mix May Increase Diabetes Risk in American Indians: The toxic metals arsenic and uranium may interact to contribute to the development of diabetes in American Indians, according to NIEHS-funded research.
- Karletta Chief Named Director of New Indigenous Resilience Center: SRP grantee Karletta Chief, Ph.D., from the University of Arizona, has been named director of the school's new Indigenous Resilience Center.
- Extramural Paper of the Month: Tool Quantifies Differences in DNA Repair Among Individuals: The CometChip, a tool developed with NIEHS funding, can be used to quantify differences in the human body's capacity to repair DNA

Nutrition at Different Crucial Developmental Stages
November 18, 2021
Virtual

Big Data in Environmental Science and Toxicology: Session 6
Sponsored by the Texas A&M SRP Center
December 1, 2021, 2:00 PM-4:00 PM EST
Virtual

The Role of Companion Animals as Sentinels for Predicting Environmental Exposure Effects on Aging and Cancer Susceptibility in Humans
December 1-3, 2021
Virtual

Telomeres & Telomerase
December 14-17, 2021
Virtual

Virtual SRP Annual Meeting
December 16, 2021, 1:00-5:00 p.m. EST
Virtual

International Data Week
June 20-23, 2022
Seoul, South Korea and Virtual

SETAC 8th World Congress
September 4-8, 2022
Singapore

11th Conference on Metal Toxicity and Carcinogenesis
October 16-19, 2022
Montreal, Canada

GET UPDATES FROM OTHER SRP GRANTEES

To see the latest SRP grantee publications, visit the SRP Grantee Publications page.

Visit the SRP Materials for Grantees page for helpful information, such as SRP administrative supplements information, SRP best practices, guidelines for NIEHS logo use, and the Data Collection Form.

See the SRP Science Digest to read more about recent SRP research highlights and activities.

damage among individuals, according to a recent study.

Visit the SRP page for more stories about the program:

- Community-Engaged Research Addresses Health Concerns on Tribal Lands: To celebrate Native American Heritage Month, this article recognizes how some SRP researchers address community concerns in Tribal lands.
- Dartmouth SRP Center Helps Young Citizen Scientists Continue Work: Researchers at the Dartmouth College SRP Center and collaborators quickly identified challenges and realistic solutions for their citizen science project, All About Arsenic, during the COVID-19 pandemic.

NCSU Interviewed by PBS

North Carolina State University (NCSU) SRP Center researchers Erin Baker and Scott Belcher and SRP-funded trainee MaKayla Foster were interviewed by PBS about their research to analyze alligators' exposure to per- and polyfluoroalkyl substances (PFAS). According to the researchers, alligators downriver from a PFAS point source are experiencing adverse health effects, such as wounds not healing properly.

Lohman Quoted About PFAS

University of Rhode Island SRP Center Director Rainer Lohman was quoted in an Environmental Health News article about PFAS concentrations in food packaging. According to Lohman, food packaging could be a direct pathway of exposure to harmful contaminants, such as PFAS, and novel PFAS-free food packaging could help protect human health.

Cardona Appears on Radio Show

Northeastern University SRP Center trainee Nancy Cardona made weekly appearances on the Puerto Rican radio show Radar Noticioso as part of a Community Engagement Core (CEC) social media campaign, #PROTECTResponde. Cardona discussed environmental contamination in Puerto Rico and strategies for reducing exposure.

TAMU Trainees Narrate Videos About Research

Several Texas A&M University (TAMU) SRP Center trainees created short videos to explain their research and its significance. Trainees Meichen Wang, Noor Aly, Lucie Ford, Alan Valdiviezo, Burcu Beykal, and Leanne Fawkes narrated videos on analytical chemistry, studies in human cells, methods for remediating chemical contamination, data analysis, and community engagement.

Coronell Interviewed by UNC Media Hub

University of North Carolina at Chapel Hill (UNC) SRP Center project leader Orlando Coronell was recently interviewed for a story by UNC Media Hub about using various technologies to remove organic contaminants from water. The story focused on PFAS contamination of drinking water in Wilmington, North Carolina, and included a short video, PFAS in the Waters of North

The SRP Events page contains information about upcoming meetings, seminars, and webinars.

The SRP website also has Search Tools to help you learn more about projects funded by the program.

JOIN THE @SRP_NIEHS KNOWLEDGE NETWORK ON TWITTER!

NIEHS uses Twitter, a popular social media tool, for information sharing through tweets. Many SRP Centers also have accounts, and it would be great if all participated! Follow us @SRP_NIEHS to instantly hear news about the program, noteworthy publications, events, and job opportunities for trainees.

CONTACT INFORMATION

Need to get in touch with an NIEHS SRP staff member? Check out our Contact Staff page.

Carolina.

Quetawki Featured in Podcasts

University of New Mexico (UNM) SRP Center Artist in Residence Mallery Quetawki was featured on the COVIDCalls Podcast. She discussed how the pandemic has affected the Zuni Pueblo community and how her art played a role in spreading awareness of COVID-19. She also spoke on the Native America Calling podcast about her artwork on display in the Institute of American Indian Arts Museum of Contemporary Native Arts traveling exhibition, Exposure: Native Art and Political Ecology. This exhibition documents international Indigenous artists' responses to the impacts of nuclear testing and uranium contamination on their homelands and communities.

Sedlak Speaks on Strategies to Address Water Needs During Drought

University of California (UC), Berkeley SRP Center researcher David Sedlak was a guest speaker on a forum discussing the environmental and economic costs of treating saltwater to address water shortages during droughts for the San Francisco Bay Area. Sedlak leads an SRP-funded project to develop processes for removing pollutants from water supplies.

TRAINEE SPOTLIGHT

Exploring the Interplay Between the Mother's Diet and Arsenic Exposure

Jeliyah Clark, a doctoral student at the UNC SRP Center, studies the relationship between exposure to environmental contaminants, such as arsenic, and harm to fetal development. Under the mentorship of UNC SRP Center Director Rebecca Fry, she examines how altering prenatal factors, such as maternal diet, may protect developing babies from harmful exposures.

Clark became interested in public health at a young age hearing about her mother's experiences, who worked in an agricultural region and lost her firstborn to childhood cancer. Her mother experiences made Clark determined to study prenatal exposure to chemicals to prevent other families, especially mothers, from experiencing similar tragedies.

In a UNC SRP Center video, Clark described her research using data collected from pregnant women exposed to arsenic-contaminated drinking water to evaluate whether folate protects the developing fetus. B vitamins, like folate, are known to protect against arsenic toxicity in adults, but their effect during pregnancy is less understood. According to Clark, this research could provide evidence that consuming folate during pregnancy protects developing babies from toxic chemicals.

In a recent publication, Clark and the UNC SRP team examined whether a mother's pre-pregnancy weight was associated with the expression of certain genes in the placenta. They found the expression of placenta genes related to growth and nutrient metabolism was altered in male babies whose mothers were underweight pre-pregnancy. Clark explained that these altered genes have previously been associated to low birth weight.

Clark was recently awarded a grant from the Burroughs Wellcome Fund, which recognizes underrepresented minority graduate students doing biomedical research in North Carolina.

Outside of the lab, Clark finds peace spending time with her loved ones, listening to music, exercising, traveling, reading, cooking, and resting outdoors – especially at the beach.

Call for Trainee Video Submissions!

If you are a trainee who has developed a video describing your research, please submit it via the Data Collection Tool so you can be featured in an upcoming e-Posted newsletter!

HOT PUBLICATION

Airborne PM May Increase Risk for Heart Disease

Researchers at the Louisiana State University (LSU) SRP Center revealed new information about how exposure to particulate matter (PM)-containing environmentally persistent free radicals (EPFRs) can damage the heart and lungs in mice.

EPFRs, a relatively recently recognized class of contaminants that are generated when hazardous wastes are combusted or thermally treated, exist in significant concentrations in atmospheric PM. While exposure to PM is known to contribute to heart and lung disease, the specific health effects of EPFRs have not been thoroughly evaluated. Previous studies in animals and cells suggested that EPFRs may trigger changes that increase oxidative stress and inflammation first in the lungs, and then throughout the body, leading to strain on the circulatory system and ultimately the heart.

To better understand the mechanism by which EPFR exposure may cause this type of damage, the team exposed mice to PM containing EPFR and measured inflammation and oxidative stress in the lungs and cardiovascular system. They also analyzed gene expression and assessed lung and circulatory function.

Contrary to previous studies, the team did not find evidence of increased inflammation in the lungs or blood. Instead, they observed oxidative stress and other indicators of vascular dysfunction, as well as reduced circulatory and lung function, occurring simultaneously.

According to the authors, these findings demonstrate for the first time that cardiovascular dysfunction precedes lung inflammation following exposure to PM containing EPFRs, and that the circulatory system may be affected by EPFRs.

AWARD WINNERS

UC Berkeley CEC Team Receives Recognition

The Community Water Center's Drinking Water Vulnerability Tool was recognized with awards in California's 2020 Water Data Challenge. Developed in collaboration with the UC Berkeley SRP CEC team, the tool won the “Most Engaging by Design” category and received special recognition in the “Excellence in Stakeholder Collaboration” category. UC Berkeley SRP CEC researchers Morello-Frosch, Lara Cushing, Carolina Balazs, Clare Pace, Jenny Rempel, and Jessica Goddard, played a key role in data development and stakeholder engagement for this project.

Northeastern SRP Trainees Receive NIH Funding to Study Children’s Health

Northeastern University SRP Center trainee Chieh Wu and former trainee Max Aung received Opportunities and Infrastructure Fund grants from the NIH Environmental influences on Child Health Outcomes program. Aung will investigate how endocrine disrupting chemicals affect infant neurodevelopment, while Wu will focus on developing an algorithm that can predict gestational age during pregnancy.

LSU SRP Team Receives NSF Grant

LSU SRP Center members Slawomir Lomnicki, Phillip Sprunger, and Lavrent Khachatryan received a grant through the National Science Foundation (NSF) Major Research Instrumentation Program. The team will use these funds to acquire a high-frequency electron paramagnetic spectrometer, which will allow the researchers to gain more detailed information about the structure of chemical compounds that play important roles in biological and environmental processes.

Shapiro-Garza Named Director for Community-Engaged Scholarship

Duke University SRP Center CEC leader Elizabeth Shapiro-Garza was named director of the University’s Community-Engaged Scholarship Collaborative. In this role, she will be responsible for developing and administering programs to support faculty, staff, and students in collaborating with community partners in ways that are ethically responsible, mutually productive, and sustainable.

WEBINARS AND TRAININGS

CareerCon 2022

The Society for Advancement of Chicanos/Hispanics and Native Americans in Science is launching CareerCon, an immersive, cohort-based event for those interested in STEM careers, **February 22-24, 2022**. The event will provide students, job seekers, and professionals with innovative tools, practical professional skills, and highly tailored career matching centered in a culture of inclusion and intersectionality. Applications for this free training event are due **November 19**.

FUNDING OPPORTUNITIES

Innovative Approaches for Improving Environmental Health Literacy

NIEHS released two funding opportunities for small businesses to work with environmental health researchers to develop novel tools, activities, or materials to build environmental health literacy and support citizen science. Applicants are encouraged to propose improved approaches for communicating environmental health science concepts for diverse audiences, including K-12 education, undergraduate and graduate education, and health care professionals. Applications are due **November 10.**

- RFA-ES-21-008: Innovative Approaches for Improving Environmental Health Literacy (R43/R44 Clinical Trial Not Allowed)
- RFA-ES-21-009: Innovative Approaches for Improving Environmental Health Literacy (R41/R42 Clinical Trial Not Allowed)

Artisanal Mining Grand Challenge: The Amazon

The Artisanal Mining Grand Challenge seeks innovations that improve the environmental and social outcomes of artisanal and small-scale gold mining in the Amazon region. All proposed innovations should demonstrate a measurable, attributable impact on reducing, mitigating, or eliminating harm to water resources, soil, biodiversity, or human health and well-being. Winners from previous years include SRP-funded small business, Picoyune. Applications are due **November 10**.

Smart Health and Biomedical Research in the Era of Artificial Intelligence and Advanced Data Science

NIH announced a collaboration with the NSF on an interagency funding opportunity, Smart Health and Biomedical Research in the Era of Artificial Intelligence and Advanced Data Science. The solicitation aims to address technological and data science challenges that require fundamental research and development of new tools to address pressing questions in the biomedical and public health communities. Traditional disease-centric medical, clinical, pharmacological, biological, or physiological studies and evaluations are outside the scope of this solicitation. For more information, refer to the NSF Smart Health website. Applications are due **November 10**.

Human Health Exposure Analysis Resource (HHEAR) Program

Applications are being accepted for the HHEAR program, which provides health researchers access to laboratory and data analysis services to expand the assessment of environmental exposures in their existing NIH-funded studies. Past and present SRP grantees with ongoing studies can apply for no-cost targeted and untargeted analysis of environmental and biological samples. The next submission deadline is **November 12**.

For more information and to check your eligibility, visit the

program website or see this SRP news story. To apply, visit the How to Apply page. For questions related to the application process, contact HHEARHelp@Westat.com. If you have any questions about the HHEAR program, please contact Michelle Heacock (heacockm@niehs.nih.gov).

Virtual Consortium for Translational/Transdisciplinary Environmental Research

NIEHS reissued a Funding Opportunity Announcement for the Virtual Consortium for Translational/Transdisciplinary Environmental Research (ViCTER). The ViCTER program fosters and promotes early-stage transdisciplinary collaborations and translational research among fundamental, clinical, and population-based researchers in the environmental health field. Applications are due **February 1, 2022**. For more information about the program, please see the ViCTER webpage or contact Heather Henry (henryh@niehs.nih.gov).

INTERAGENCY NEWS

EPA Seeks Nominations for Board of Scientific Counselors

The U.S. Environmental Protection Agency (EPA) is seeking nominations for experts to serve on the Board of Scientific Counselors (BOSC) for their Executive Committee, Climate Change Subcommittee, and Community Science Subcommittee. BOSC is a federal advisory committee that provides advice and recommendations to EPA's Office of Research and Development on technical and management issues of its research programs. Individuals and organizations can nominate themselves or others via the BOSC website. Nominations will be accepted until **November 12**.

FDA Closer to Zero Action Plan

The U.S. Food and Drug Administration (FDA) is hosting a virtual public meeting, Closer to Zero Action Plan: Impacts of Toxic Element Exposure and Nutrition at Different Crucial Developmental Stages, on **November 18**. The purpose of the meeting is to discuss the scope of the Closer to Zero action plan for reducing exposure to toxic elements from foods for babies and young children. Topics discussed will include the key nutrients in food for growth and development, foods commonly consumed by babies and young children, and exposure risks of toxic elements. After the meeting, the FDA invites the public to submit comments regarding the scope of the action plan by **December 20**.

DATA SCIENCE AND DATA SHARING

TAMU SRP Publishes Data Science Papers

In a recent publication, TAMU SRP Center Director Ivan Rusyn and colleagues proposed a data processing workflow to allow researchers to confidently assign molecular formulas to the chemical features identified by mass spectrometry in petroleum samples. This process can help with hazard classification and product registration of petroleum substances.

Led by project leader Michael Mansini and Data Science Core leader Stratos Pistikopoulos, a team of TAMU SRP scientists combined high-content analysis, big-data analytics, and machine learning algorithms to predict the estrogenic potential of chemicals.

Metrics for Data Repositories and Knowledgebases Working Group Report

The NIH Lifecycle and Metrics Working Group and Metrics for Repositories Working Group released a report, Metrics for Data Repositories and Knowledgebases: A Working Group Report. This report provides insights into the current state of data and the metrics used in the biomedical research community, which can inform future NIH efforts to improve biomedical repositories. For more information, see the NIH Biomedical Data Repositories and Knowledgebases webpage.

NIH Requests Information on Search Capabilities Across the Biomedical Landscape

NIH is soliciting input on use cases, expectations, and capabilities for enabling data and information discovery to enhance NIH-wide data discovery and its reuse. NIH would like to better understand researchers' experiences in finding data and information that would greatly enable their research capabilities. Responses are due **December 3**. For more information, see the request for information.

Reproducible Research Techniques for Synthesis Workshop

On **November 12-13** and **17-18**, the National Center for Ecological Analysis and Synthesis and DataOne will hold an immersion workshop onto widely adopted R-based tools for open science. The workshop will focus on improving researchers' skills to share data with the scientific community effectively and efficiently.

Computational Approaches for Cancer Workshop

The Computational Approaches for Cancer Workshop on **November 14** will bring together professionals with an interest in advancing the use of computational approaches to better diagnose, treat, and prevent cancer. The workshop will focus on sharing insights and challenges to foster collaborations and future innovations to accelerate progress in computationally and data-driven cancer research and clinical applications.

Supercomputing Conference

The International Conference for High Performance Computing, Networking, Storage, and Analysis will be held **November 14-19** in St. Louis, Missouri. The event will focus on learning how high-performance computing is empowering innovations to improve everyday life across the globe.

TAMU Big Data in Environmental Science and Toxicology

The TAMU SRP Center is hosting a free, virtual learning series focused on techniques to analyze and share data for environmental and toxicology research. The sixth and final session will be held **December 1** and will feature online resources to predict chemical hazard and exposure. For more information about specific sessions, please see the course website.

IEEE International Conference on Big Data

The Institute of Electrical and Electronics Engineers (IEEE) is hosting an International Conference on Big Data **December 15-18.** The purpose of the conference is to facilitate innovation, knowledge transfer, and technical progress in addressing the 5 V's - velocity, volume, variety, value, and veracity - of big data. The event will provide a forum for disseminating the latest results in big data research, development, and application. For more information, see this NIH news release.

PHOTO OF THE MONTH

University of Arizona SRP Center trainee Marisa Gonzalez takes a conductivity measurement with Diné College students in Tsaile, Arizona for the Indigenous Food, Energy and Water Security and Sovereignty program. The program, which is led by University of Arizona SRP Center CEC lead Karletta Chief, aims to train the next generation of scientists and engineers to work with and within Indigenous communities to address environmental challenges. (Photo courtesy of the University of Arizona SRP Center)