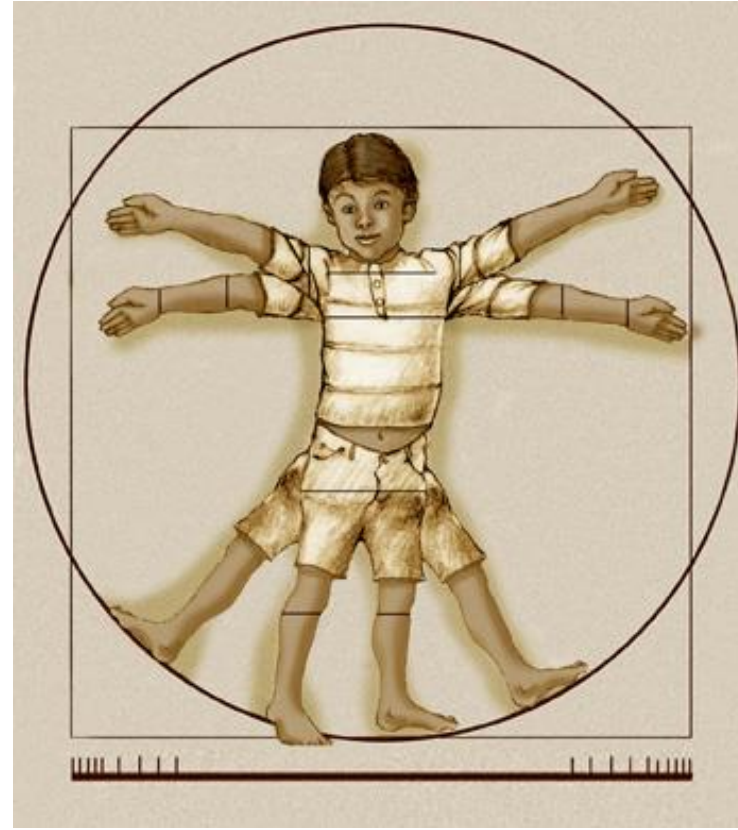


ENVIRONMENTAL HEALTH AT SCHOOL:
NEW SOLUTIONS PUT CHILDREN FIRST



REPORT
NATIONAL CONFERENCE
JUNE 6-7, 2016
GEORGE WASHINGTON UNIVERSITY
WASHINGTON, DC



ENVIRONMENTAL HEALTH AT SCHOOL: NEW SOLUTIONS PUT CHILDREN FIRST

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Environmental Health at School: New Solutions Put Children First
June 6-7, 2016
George Washington University/Marvin Center
Washington, DC

Conference Host:	Healthy Schools Network
Conference Co-Organizers:	Executive Director Claire L. Barnett Consultant Jerome A. Paulson, MD, FAAP
Conference Facilitator:	Maya Breitburg-Smith, RESOLVE
Conference Sponsors:	W.K. Kellogg Foundation The Park Foundation The George Gund Foundation The Wallace Genetic Foundation National Institutes of Environmental Health Office of the Director

The first draft of this summary report was prepared by Mary Beth de Ribeaux of Resolve.

Prior to the meeting, participants were encouraged to read background materials from a previous workshop, “Environmental Health at School: Ignored Too Long,” held in November 2015. A summary report from the workshop can be found at:

http://healthyschools.org/documents/SUMMARY_FINAL.pdf

The full proceedings report from the workshop can be found at:

http://healthyschools.org/documents/Final_full_report.pdf

Note: Apologies for any errors or omissions. Please bring these to the attention of Healthy Schools Network at info@healthyschools.org

Note: General discussion recommendations are from NGO attendees and should not be attributed to the public agency participants.

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CONFERENCE OBJECTIVES

Conference end product: A collaborative plan of action for nongovernmental organizations to advance research, policies, and programs to understand, prevent, or track children at risk or with suspected environmental exposures in child-care facilities and P-12 schools.

The purpose of the conference was for attendees to:

- Review research and policy recommendations and goals identified at the November 2015 “Environmental Health at School: Ignored Too Long” panel and facilitated workshop.
- Hear about risks and exposures at schools and their impact on children.
- Understand the Centers for Disease Control and Prevention (CDC) and U.S. Environmental Protection Agency (EPA) perspectives on the urgency of action and their roles in children’s environmental health protection in school and child-care environments.
- Hear about state and regional perspectives on actions underway and opportunities to address environmental health of children in school.
- Discuss approaches and develop a collaborative plan of action to advance the following research and policy recommendations and goals related to the environmental health of children in schools and child-care facilities:
 - Establishing a National Healthy Children, Healthy Schools Commission;
 - Conducting research and pilot studies of proposed prevention, intervention, and tracking programs;
 - Identifying legislative and regulatory challenges;
 - Commissioning high-level reports to review existing information on children’s environmental health in schools and providing recommendations on actions;
 - Responding to civil rights and disability rights issues children and their families face in child-care facilities and P-12 schools.

INTRODUCTION

Meeting Background

Jerome A. Paulson, MD, FAAP, Consultant

Given that the health of children is influenced by where they spend their time, and that much of that time for children in the U.S. is spent in school or child-care facilities, an Environmental Health at School workshop convened by the Healthy Schools Network in November 2015 examined issues related to environmental health in P-12 and child-care settings. These issues are varied, from indoor air pollution to lead, noise, and other factors. A primary takeaway from the workshop was the recognition that there is no organized ongoing data collection on the health of children in schools—and thus no way to identify potential problems, track or monitor children with health problems related to school facilities, or assess the impact of changes. Further, while adults (outnumbered by children 10:1 in schools) have resources to which they can turn if their health has been affected, such as the Occupational Safety and Health

Administration (OSHA), children do not. No single entity has charge over children's environmental health in schools and child-care facilities. Regulatory authority for children's health and safety in schools does not come from the federal level; yet rarely do states or local entities have the capacity or the expertise to deal with children's environmental health issues.

With these barriers in mind, participants in the November workshop formulated 11 recommendations, which are described in the [summary report](#) from the workshop. Dr. Paulson reported some progress since last November: William Fisk, along with Dr. Paulson and others, recently published an editorial in the *Journal of School Health* (86:483-487) and the Council of State and Territorial Epidemiologists (CSTE) has begun discussions about data collection mechanisms. He urged attendees to be expansive and think without limits as they seek to move forward so that the best set of activities to accomplish the November 2015 recommendations could be advanced. Dr. Paulson's full presentation is available [online](#).

Integrating Policy: Coalition for Healthier Schools' Platform

Claire L. Barnett, MBA—Executive Director, Healthy Schools Network and Coordinator, Coalition for Healthier Schools

A useful framework to discuss issues related to reducing risk for all schoolchildren is to understand that children are not simply "little adults" and schools are not simply "little offices." Children are biologically more vulnerable and have different exposures since they are apt to have more hand-mouth contact and time on the floor, yet they may not be able to identify hazards or articulate exposures or health effects. Children with special health or learning needs may be even more vulnerable. Schools differ from offices in that they are more densely occupied and 95% of the occupants are women and children. Schools also may have multiple chemical uses in the same facility and often have a record of poor facility maintenance. While adults have some recourse through OSHA (state OSHA plans apply to public schools in 24 states) and the CDC's National Institute for Occupational Safety and Health (NIOSH) programs; children do not have a federal agency with similar authorities. Moreover, children are compelled by law to be in those buildings—99% of the 55-million school-age children in the U.S. attend school.

The Healthy Schools Network with the Coalition for Healthier Schools produces triennial reports on the state of environmental health in schools across the nation and shares findings with federal agencies on threats to children's health and learning from poor ventilation, use of polychlorinated biphenyls (PCBs) in building materials, pesticide spraying, disaster damage, and other threats. The last report, *Towards Healthy Schools 2015*, found that all schoolchildren should be considered at elevated risk of health and learning difficulties due solely to the unexamined or unaddressed risks in their schools and the lack of public health services for children, and points out that this is an urgent issue of justice for all children. To address the issue, Coalition partners have collaborated on various activities through workgroups and advocacy efforts, and have seen some successes. Ms. Barnett's full presentation is available [online](#).

REALITY CHECK PANEL

Moderator: Jerome A. Paulson, MD, FAAP

School Environmental Health

Maida Galvez, MD, MPH—Region 2 PEHSU¹

The Region 2 PEHSU team has encountered cases that highlight the range of issues around school environments. One case brought out school siting issues: Kiddie Kollege was a daycare/preschool located in a former mercury thermometer manufacturing facility in New Jersey. Mercury vapor exposure led to the facility's closing and prompted state legislation that now requires assessment for a building's historical use and establishes maximum contaminant levels. The result is that New Jersey has some of the most stringent laws related to siting. Another case in the Bronx also involved a school located in a former manufacturing facility—a lamp factory—in which elevated levels of the chemical degreaser trichloroethylene were found. The school was permanently relocated, but the long-term health effects of the exposure are unknown. The PEHSU team served as an outside voice for the families and organized key messages for them. In a Brooklyn school with dust hazards from ongoing construction, the PEHSU team assisted parents in advocacy efforts to reduce environmental exposures and helped guide them in discussions with their children using a message map. Dr. Galvez suggested special expertise and a partner approach are necessary to address environmental health issues in schools. However, there is a disparity in schools: schools where parents are not strong advocates or well organized, versus others with organized parents. In some instances, greening committees can share lessons learned and assist in working together. Dr. Galvez's full presentation is available [online](#).

Discussion following the presentation brought out several points:

- Urinary mercury levels in the children at Kiddie Kollege decreased over time and no child required treatment, but routine follow-up is warranted. No long-term monitoring is taking place.
- Implementation and enforcement of existing regulations requires ongoing vigilance.
- Some schools in New York City have successfully implemented greening committees, and the PEHSU team has helped them identify ongoing concerns.

Risks and Exposures at School

Luke Gard, BS—Region 7 PEHSU

The Center for Environmental Health (CEH) at Children's Mercy Hospital (Kansas), a component of the Region 7 PEHSU, provides support on complex environmental/medical cases. While primarily focused on asthma, CEH also assesses for other health and safety concerns. Asthma

¹ There are 10 federally designated and supported Pediatric Environmental Health Specialty Units (PEHSUs) in the US. They provide education and consultation about issues involving the impact of environmental hazards on the health of children. For more information see www.pehsu.net.

rates of 15% are routinely found in area schools, so with an EPA grant, CEH is providing training to schools, showing the financial benefit of reducing exposure since increased school attendance translates to increased funding from the state. CEH assesses policies, evaluates school buildings and makes recommendations, provides assistance with health issues, and offers training for parents, students, and staff. These services aim to help schools manage conditions to improve indoor air quality (e.g., air flow, moisture control, cleaning, and allergen control) and to manage chemicals and reduce chemical burdens. The services also address safety and other issues related to the learning environment and encourage smart decisions for safe and healthy schools. Mr. Gard's full presentation is available [online](#).

Discussion following the presentation brought out several points:

- CEH has also assisted child-care facilities in a similar way and hopes to disseminate training through a train-the-trainer program.
- CEH adapted EPA's Tools for Schools checklist and used it along with its own assessment tool. When EPA lost funding for the Tools for Schools conferences, school nurses, who made up about one-third of attendees and can be passionate about healthy schools, were also affected and lost touch with this valuable training, as did other P-12 constituencies.
- CEH could explore mechanisms for expanding training on school inspections among PEHSU staff and others.

PCBs in Schools: An Old Hazard Newly Recognized

David Carpenter, MD—University at Albany

PCBs are chemical compounds manufactured in the U.S. from 1929 to 1976 and commonly used in ballasts for fluorescent lights and as a solvent in caulk and paint. Over time, they volatilize into the air and are absorbed into the body. Remediation is costly, but PCBs can cause serious health effects, including cancer and interference with endocrine function. Moreover, their neurotoxic effects produce cognitive impairment similar to lead (decreased IQ, impulsivity and attention problems, poor school performance/language processing, deficient social behavior, and blurring of gender-specific behavior). EPA considers PCBs to be a widespread problem, particularly in older buildings with leaking fluorescent lights or open sources of PCBs such as caulk/paint, yet often schools are unaware of the issue and do not test for PCBs. If materials contain PCBs in concentrations greater than 50 ppm in open use they must be removed. Ironically, this requirement creates a disincentive for testing; i.e., if the presence of PCBs is unknown, then no action need be taken. EPA has a guidance document on PCBs in schools of 100 ng/m³ for students ages 3-6 and 300 ng/m³ for students ages 6-12, but this is based on cancer prevention; EPA does not have advisories on cognitive effects. Many situations exceed that advisory. In Malibu, California, PCB concentrations in caulk were found as high as 570,000 ppm; six of 55 teachers have thyroid cancer, which has been associated with certain PCB exposures. Schools have been closed because of PCB contamination in Connecticut and Massachusetts, and in New York City, 772 schools were found to have light ballasts containing PCBs, some leaking (even onto a student's head). Many schools and other old buildings which

have not been renovated have not been tested. Dr. Carpenter’s full presentation is available [online](#).

Discussion following the presentation brought out several points:

- A quandary is that most schools don’t have the money to remediate, but are legally required to do so if elevated PCB concentrations are found.
- PCBs don’t remain in caulk, but migrate into surrounding masonry. This makes remediation much more difficult because just removing the caulk is no longer sufficient to protect the health of building occupants.
- High PCB levels in humans can alter menstrual cycles and reduce testosterone.

Parent Perspective

Parent Advocate

A parent advocate and mother of a six-year-old daughter with special needs had to cancel her participation in the meeting. Ms. Barnett deeply moved attendees by recounting the parent’s report: When her daughter began kindergarten last fall, the school was under construction. The mother and other concerned parents asked for fencing or taping to separate the construction hazards from the children and the school entrance, but the district and contractor refused and, after media coverage, the parents were banned from school property. The parent ban was lifted after construction was complete. As of June, the parent advocate’s daughter had still not received the requested special services, yet due to an alleged behavior issue the school would not allow her to sit with her class at the kindergarten graduation ceremony.

ROUNDTABLE 1: Reflections on and Opportunities for Public Health Agencies to Protect the Environmental Health of Children from Environmental Threats in Schools

Moderator: Surili Patel, MPH—American Public Health Association (APHA)

National Association of County and City Health Officials (NACCHO)

Jennifer Li, MHS

NACCHO is a national nonprofit organization based in Washington, DC, representing 2,800 local health departments of various jurisdictional sizes, with a mission to be their leader, partner, catalyst, and voice. Sixty-nine percent of local health departments regulate, inspect, or license schools and child-care facilities. (See comment below explaining the difference between authority to regulate, inspect, or license and the day-to-day reality.) Their regulatory authority can encompass a variety of situations, including asbestos identification and abatement and inspections of food service; safety in classrooms, playgrounds, and art and science rooms; general property maintenance and janitor closets; industrial arts areas, physical education rooms, swimming pools, etc. Local health departments also have an advisory role regarding indoor air quality and lead levels in water and respond to outbreaks ranging from salmonella to head lice. Opportunities for an increased role in protecting children’s health include lead testing

in drinking water, radon testing, performing school environment health assessments, messaging on Zika virus, and work on indoor air quality. Opportunities also exist for working together as a community to protect children's health: NACCHO workgroups have developed policy statements on children's environmental health and a document on how to help reduce risk of exposure to PCBs in older school buildings. Ms. Li's full presentation is available [online](#).

Discussion following the presentation centered on activities of local health departments.

- The group asked if NACCHO could provide more specific detail on precisely what local health agencies do by regulation or in routine practices for local public and private schools and their findings or experiences.

Florida Department of Health/Council of State and Territorial Epidemiologists (CSTE)

Melissa Jordan, MS

CSTE gives epidemiologists a way to come together to improve health—its professional members are from local and state public health agencies, and associate members are from federal agencies and academia. CSTE members develop standards of practice, especially regarding surveillance and indicators of health monitoring and tracking. To move forward on the topic of environmental health in schools, CSTE members could engage by reviewing what data is currently collected and how, and potentially coordinate some pilot studies. An abstract for an upcoming CSTE conference and a roundtable will help members understand the work already underway and gauge interest in establishing a committee focused on children's environmental health at school. A survey of members will also help to illustrate what data collection and analysis practices are already in place that could be built upon, and discussions have taken place about forming a group to develop and test a suite of health indicators for schools. CSTE members can also develop position statements for federal agencies or recommendations. Regarding data sources, CSTE can consider what data local and state departments have, as well as what data is available at the federal level that can be pulled in to support local work on children's environmental health at school.

Directors of Health Promotion and Education (DHPE)

Susan Goekler, PhD

Funding for state health departments, where many DHPE members sit, has been focused on chronic disease and clinical community linkages. However, state health departments vary in what they do—in some cases they function as local health agencies; in others, they give grants or serve convening roles. In health promotion, health departments bring people together to look for intersections and areas of opportunity. In terms of school health, movement to electronic medical records is one area of opportunity (i.e., working with companies developing electronic medical records to improve surveillance). School nurses offer another opportunity to work together, although Health Insurance Portability and Accountability Act (HIPAA) and Family Educational Rights and Privacy Act (FERPA) regulations must be considered. Three additional suggestions for strategies to move forward in advancing school environmental health include: (1) Utilize federal funding as a point of leverage to require schools to produce public reports on

children’s environmental health at school, which can act as an impetus to improve. (2) Engage local advocates, as an Ohio school district did to help get needed renovations funded. (3) Use braided funding, where multiple agencies put in money and negotiate a cooperative agreement.

Discussion following the presentation brought out several points:

- Given the constraints of HIPAA and FERPA, any data from electronic medical records to evaluate child health in schools would have to be aggregated. It may be possible to work with insurers to get aggregate data.
- The National Association of School Nurses (NASN) is trying to develop a national database on school nurse practices through the “Step Up Be Counted” program (e.g., staffing, chronic conditions, how many students went back to class/home/emergency care) and through this program is piloting a first-ever national collection of such data.
- It’s important to consider the factors that drive school district decisions, including academic achievement, absenteeism, or cost savings, and where they overlap with environmental health issues. One successful example of a win-win solution addressing both school district interests and environmental health issues was a school district that reduced school bus idling, which reduced both fuel costs (saving money) and air pollution (improving health).
- Many state agencies have a role in schools (health, education, agriculture, energy, environment, etc.), and where there are clusters of problems in buildings, many agencies may be interacting. In terms of tracking, consider what a given agency is doing that others can’t.
- Regulations are being written now for the new education law, Every Student Succeeds Act (ESSA). Look for opportunities to influence how they are written so that interests of environmental health are advanced.

KEYNOTE ADDRESS: School Environments and Children’s Health: An Urgent Call to Action

Patrick Breyse, PhD—Director, CDC National Center for Environmental Health/Agency for Toxic Substances and Disease Registry (NCEH/ATSDR)

National Center for Environmental Health” (NCEH) strategic priorities of protecting children’s health, reducing asthma morbidity/mortality, and ensuring safe water all have a component in schools. Dr. Breyse’s keynote focused on five school-related areas: indoor air quality, the physical environment, failing infrastructure, school siting, and a conceptual model.

- Indoor air quality: Given that people, particularly children, spend 80-90% of their time indoors, indoor air quality is paramount and affects not only health, but also academic performance. Any air pollutant will build up without adequate air exchange rates, and improved ventilation is associated with better test scores, reduced respiratory symptoms, and decreased absences. This kind of evidence drives policy.
- Physical environment: Temperature affects student productivity. Noisy environments cause students to fall behind and can be related to asthma. (Noise increases stress

hormones, which in turn increase inflammation.) Natural lighting has benefits that non-natural lighting does not; evidence suggests artificial lighting may disrupt melatonin cycles, which affects children's alertness during school.

- Aging infrastructure: The average date of school construction across the United States is 1959, and the American Society of Civil Engineers grades school infrastructure as a D. However, because there is no national data on school facilities, trends in infrastructure condition cannot be demonstrated. Lead and other contaminants in drinking water are associated with failing infrastructure.
- School siting: Ambient air quality problems become indoor air quality problems. EPA has voluntary school siting guidelines, and Agency for Toxic Substances and Disease Registry (ATSDR) is also working to prevent harmful exposure by developing a national initiative to ensure that child-care facilities are safely sited.
- Conceptual model: Both indoor and outdoor variables impact the school environment and can lead to a host of changes and negative outcomes. The complexity of the system as a whole is profound and not well understood. Furthermore, because disadvantaged neighborhoods often have poorer schools, many of these issues are in fact environmental justice issues.
- NCEH/ATSDR is engaged in a range of activities to promote environmental health in schools, but bringing interested groups together at meetings like this will create the social impetus to advance the issue.

Dr. Breysse's full presentation is available [online](#).

Discussion following Dr. Breysse's keynote address brought out several points:

- The logical place to center a children's environmental task force may be in or between EPA and CDC, with engagement from other federal agencies. However, one entity needs to be in charge.
- Putting schools in a national-level tracking network for school performance indicators as well as health indicators would allow questions like "how does x relate to y" to be addressed.
- Hospitals are required to conduct community health assessments, which could be an opportunity to elevate the issue.

ROUNDTABLE 2: State and Local Agency Experiences and Challenges in Advancing Healthy Schools and Healthy Children

Moderator: Ronald White, MS, Environmental Health Consultant

In 2012, the EPA published [Voluntary Guidelines for States: Development and Implementation of a School Environmental Health Program](#), designed to help states develop, implement, and maintain state programs to address environmental health issues in schools. EPA awarded grants to five states across the country to use the guidelines to develop and implement statewide programs. The three presenters in Roundtable 2 represent three of the five states awarded

these grants; the presentations speak to their experiences developing the state programs and lessons learned.

Connecticut Department of Public Health (CTDPH)

Kenny Foscue, MPH

The Connecticut School Indoor Environment Resource Team (CSIERT) is the CTDPH state-based, multiagency strategy for school indoor environmental quality (IEQ). While many state health departments address IAQ/IEQ issues, most lack resources; long-term ongoing funding from federal sources is needed. The CTDPH has received funding support for CSIERT from CDC-ATSDR and EPA's Region 1 *Tools for Schools*, Healthy Community, and Office of Children's Health Protection grants, and all major stakeholders have representation on the consortium team and regularly message on the importance of the issue. With EPA IAQ *Tools for Schools* as its base, the consortium relies on a steering committee to guide its work, which includes a district-based outreach and training program, local health department involvement, and helping districts sustain programs. CSIERT promotes ongoing training as a key component of its success in sustaining school programs and has provided training for more than 8,500 staff and parents and advanced training for custodians in more than 900 schools. Connecticut law requires schools to have an IEQ program, and *Tools for Schools* is the top choice; nearly all school districts have now adopted *Tools for Schools*. Recent laws on school indoor air quality, green cleaning products, and high performance schools all show the impact of such programs on state policy. Mr. Foscue's full presentation is available [online](#).

Discussion following the presentation brought out the following points:

- Participation in training is impressive. Connecticut law stimulated participation in training as well as messaging about the connection between facility conditions and academic performance. Some occupant-driven changes don't require resources for infrastructure change; the sense is that sustaining teams of school administrators, school nurses, parents, custodians, and even students will prevent incidents.
- Refresher training addresses turnover and ensures that concepts are sustained in schools.
- For a school environmental health program to be sustainable, it is important for parents to participate in school teams, and the CSIERT has encouraged schools to recruit parent participants. Mr. Foscue reported that despite these efforts, parent involvement has been lower than anticipated. It has also been challenging to engage parents and advocacy organizations on the state steering committee. Community outreach is needed to engage parents to participate and CSIERT would like to expand that outreach.
- Bringing together a strong base of stakeholders required a great deal of outreach and persistence, including attending organization board meetings and encouraging the organizations to spread the word to their members and sister groups.
- Support to sustain the program is critical and doesn't cost a great deal, but it has not come from state government. Parent groups and child health advocacy groups may be helpful, but so far they have not been active on the committee.

Ohio Department of Health (ODH): Creating Sustainable School Environmental Health in Ohio
Mandy Burkett, BS, and Chris Alexander, MS

ODH developed guidance on inspections for school environmental health in 1977, but with the advent of EPA's *IAQ Tools for Schools* in the 1990s, schools wanted more comprehensive guidance. In response, ODH brought together a group of stakeholders and developed a manual with 20 sections that was pilot tested. A school survey that followed indicated high ratings for usefulness, and trainings began in 2006. Shortly after, legislation ("Jarod's Law") took effect; it expanded health and safety inspections and rules and required use of ODH forms, wider report distribution, notices about dangerous products, and more. However, the legislature revoked the law in 2009 and stripped the school environmental health program. According to Ms. Burkett, the lesson learned from the revocation was to implement a statewide inspection program more gradually. Since then, local health departments and public health organizations have continued to provide education on school environmental health, and an EPA grant to build state capacity for school environmental health has provided an opportunity to build consensus on what's important for children's health and safety. In addition, through the EPA grant, ODH established a statewide advisory panel, which was charged with developing new tiered, step-by-step voluntary guidelines (now available) as well as creating a baseline assessment of school environmental health in Ohio and a school environmental health communication network, which provides webinars and other communications.

Discussion following the presentation brought out several points:

- One of the requirements of "Jarod's Law," repealed in 2009, was to require a school inspection report to be distributed to school administrators, the facilities manager, and the school board.
- Under the EPA's Voluntary Guidelines and with support from the EPA grant, Ohio organized an advisory panel that produced the new voluntary guidelines for the state. The advisory panel did not include advocacy groups. It is intended to continue to meet and offer ongoing recommendations.
- The advisory panel's creation was prompted by the EPA grant and the need for new guidelines, despite initial apprehension stemming from the repeal of Jarod's Law.

New York State Department of Health—New York State Clean, Green, and Healthy Schools Program

Michele Herdt-Losavio, MPH

New York had a variety of scattered programs in place related to schools and children's environmental health; to address identified gaps, the New York State Department of Health created Clean Green Healthy Schools with the EPA grant program.

Representatives from about 60 stakeholder organizations (state agencies, advocacy groups, and schools) met as a steering committee to form a strategic plan that set priorities for

infrastructure (which includes the five main elements² identified by EPA that should be included in all statewide environmental health programs), communication and education, and organizational partnerships. The strategic plan also was designed to create a framework to track program outcomes and evaluate program sustainability. Now wrapping up the development phase, the steering committee is creating voluntary guidelines and a report for schools, and moving on to implementation. Training is considered very important. Laws exist in New York for schools on green cleaning and health and safety committees and against idling, among others. However, annual visual inspections for schools have been discontinued, which is of concern. Discussions are underway to see what can be incorporated into the guidelines to compensate.

Discussion following the presentation brought out several points:

- At a statewide conference, government and school employees were shown financial benefits of improving school environmental health (e.g., proper maintenance can help put off costly future repairs; reducing absenteeism is also linked to funding).
- There is support within the broader state administration for continuing the effort now that EPA funding is completed. A Child and School Health Section was created. Partnerships are key to moving forward.
- Although annual visual inspections of public school facilities are no longer done, building condition surveys conducted by a licensed architect or engineer occur every five years. Moving from state-level to school-based teams is a future goal.
- Communication among partners is another key component. Although there is no state support for another statewide conference, perhaps smaller presentations could be made on a regional level.

EPA PANEL: EPA's Roles in Children's Health and in School/Child Care

Healthy Schools: The Future of Healthy Children

Latisha P. Mapp, MPH, EPA Office of Children's Health Protection (OCHP—on behalf of Office Director Ruth Etzel, MD)

Latisha Mapp presented on the OCHP program. Protecting children's health and environmental justice issues are EPA priorities. In interactions with schools, EPA develops voluntary guidance on preventive measures that save costs in the long term. OCHP's response includes offering regional help through regional coordinators who act as contacts for schools and help spread the word about what EPA does; they also work with PEHSUs. In response to the 2007 Energy Independence and Security Act, EPA has provided school siting guidelines, as well as [voluntary guidelines](#) to help states create or improve environmental health programs for schools. As a companion to the guidelines, EPA developed a model environmental health program resource that school systems can use to develop a program customized according to their needs. The model covers five key components (cleaning and maintenance, mold/moisture control,

² These elements include policies and standards; guidance and technical assistance; resources; communication and outreach; and emergency management.

chemical/contaminant hazards, ventilation, and pest management). OCHP has also offered grants for building the capacities of NGOs; it also awarded grants to five states to implement guidelines developed by EPA. Most of the grants have been completed, and the lessons learned can help other states. (Presentations from Connecticut, Ohio, and New York on their programs and lessons learned are summarized above.) EPA has published a compilation of lessons learned and best practices as an addendum to the guidelines. OCHP also works closely with other program offices (e.g., with the Office of Water to provide schools with guidance on lead). The website www.epa.gov/schools is a helpful resource. Ms. Mapp's full presentation is available [online](#).

Discussion following the presentation brought out the following points:

- Guidance that resulted from the work of the five grantee states is also available on the EPA [website](#).
- People who ask about EPA's response to the lead issue should understand that there are many levels of authority before EPA is able to react at a local or state level; however, EPA cares very much about the issue.

Achieving Indoor Air Quality, Health, and Academic Performance in Schools

Michele Curreri, EPA Office of Air and Radiation/Indoor Environments

EPA's Indoor Environments Division develops policy and guidelines and educates the public about health risks associated with mold, radon, secondhand smoke, and environmental asthma triggers and has been working with schools to help them implement comprehensive indoor air quality (IAQ) programs. Children spend more time indoors at school than anywhere else except home, and indoor air may be up to 100 times more polluted than outdoor air from a variety of sources in schools. Poor IAQ, which EPA considers one of the top five environmental threats to public health, can exacerbate health problems (e.g., asthma, which afflicts more than 6 million children) and increase absenteeism, costing schools money. Improved air quality, on the other hand, has been shown to improve performance for both children and adults. About 50% of schools today have an IAQ program, and about 80% use EPA's tools and resources, particularly the [Tools for Schools Action Kit](#). The kit, which includes checklists, reference guides, a framework for effective school IAQ management, and technical solutions, is also available as a free mobile app. In addition, EPA developed a ten-part on-demand professional training webinar series, which has been used in nearly 600 school districts so far, and a guide to ensure that repairs and renovations maximize energy efficiency while protecting IAQ. Schools can improve IAQ with all of these resources and more found on EPA's IAQ in schools website (epa.gov/iaq-schools). Ms. Curreri's full presentation is available [online](#).

Discussion following the presentation brought out the following points:

- Related to labeling, EPA should consider that products labeled under the Safer Choice program are consumer products, not products schools buy on the large scale they need.
- EPA measures effectiveness of state grants by checking that goals established for the project were met; voluntary programs are more difficult to measure. For example,

registrants for EPA's webinar series are asked about their baseline knowledge and then about whether their knowledge increased, as well as actions they intend to pursue-- (which are more difficult to track).

- EPA's statutory authority is limited.
- School symposiums were discontinued because of budget cuts, and instead webinars were developed to deliver the content. However, working with regional school coordinators may offer an opportunity for some training on a local basis.
- A revised, more user-friendly version of the Office of Water's guidance on lead in water is being developed collaboratively to help schools and parents understand the issue and how to test the water. A webinar training is also under discussion.
 - EPA does not have authority to require states to test water.
 - Healthy Babies and Brighter Futures (www.hbbf.org) is a resource on lead testing for parents.
 - The Environmental Law Institute's website (www.eli.org) is another resource.
- EPA still has opportunities to fill gaps by developing guidance for ways that pediatric health experts can work with agencies and with schools in onsite investigations, and by asking states using its grants and guidelines to track children's health outcomes in the process of improving school environments.
- One participant suggested that EPA could develop a mentorship program to help increase uptake of voluntary standards modeled on a continuous quality improvement program used by the U.S. Food and Drug Administration for food safety.

Action

- EPA will share resources related to its Lead and Copper Rule with conference organizer Claire Barnett to circulate to participants.

BREAKOUT SESSIONS³

BREAKOUT 1: Prevention/Intervention Systems and Pilots

Meeting attendees who participated in Breakout 1 discussed public health prevention/intervention systems for children at risk or with suspected exposures at child-care or at P-12 school settings, as well as potential pilot studies. The discussion focused on examining ways existing public health agencies might coordinate logging, tracking, and following up on public health complaints from parents and personnel; considering what public health agencies and health care providers need to know about risks to children and children with suspected exposures; and identifying opportunities for public health and health care providers to work together to develop prevention and intervention systems.

A summary of the ideas, actions, and next steps that emerged from their discussion follows, along with key points from additional discussion from the whole group related to this topic.

Ideas and Comments

³ Attendees self-selected into open breakouts; each had an assigned lead discussant and a note taker.

- **Tracking Health Complaints:** Participants discussed some approaches to developing systems for tracking complaints related to environmental health in schools from parents and teachers at the local, state, regional, and national levels. Highlighting the challenges with developing a national system, participants noted that different states have different organizational models for public health and education systems, which may be a limitation for developing centralized or national systems. Participants also discussed the relationship between complaint-based, reactionary approaches and prevention approaches.

While prevention systems might be preferable, it can be better to have a complaint-based approach rather than no system at all, which is the case at present. In addition, preventive activities can be focused on schools or areas where a tracking system has identified issues. Additional suggestions related to complaint tracking system included:

- Identify an agency or organization responsible for aggregating or developing a system to track complaints. Participants noted that in some states, local health departments could fill this role. For local health departments to fill this role, a relationship between local health departments and school medical directors would be needed.
- Create a central point to collect complaints, such as a phone hotline. One participant suggested setting up a 1-800-SCHOOLS hotline (open to all schools) connected with resources like PEHSUs and epidemiologists.
- Consider whether there is a future model where PEHSUs collect and track complaints.
- A complaint tracking system could be modeled on real-time systems that log public complaints in workplaces, such as one used by NIOSH.
- **Information Sharing:** Some localities (e.g., California, Boston, New York City) are overlaying or collecting health and environmental data. Not all of these programs are effectively linking environmental data with health outcomes yet, certainly not regarding school or child care based risks and exposures. However, components of the programs could serve as models for school districts and states across the country. There are opportunities to improve information sharing and networks to support information sharing.
- **National-Level Efforts:** National organizations could help create linkages, which could then trickle down to the district level. Possible opportunities include:
 - NACCHO could query its members on what they actually do with local schools and why.
 - School health councils could advocate as district-level independent bodies.
 - The Internal Revenue Service requires hospitals to perform community health assessments; advocates might engage with hospital systems to urge them to include the needs of children in schools/child care in those community health assessments.
- **Piloting Data Collection:** Participants discussed a number of options for pilot projects to test different models for data collection. Discussing the ability to scale successful data collection systems, participants noted that states organize their health and public health

systems differently; however, each state system should be uniform for all types of incidents in schools (injuries, diabetes, etc.). Other suggestions for pilot studies included:

- Alerting systems: develop an alerting system using data systems that are automated or could be periodically queried
 - Health departments with surveillance in place get near-real-time data.
 - Syndrome classifications; defining school districts by zip code or using other unique identifiers for schools.
 - Focus on acute (not chronic) events.
- Look at the impact of unconventional natural gas extraction in Pennsylvania—for example, look for new diagnoses of asthma and use medical review to tease out more information.
- Use asthma as an entry point to help create stronger links between education, health, and environmental conditions and move forward.
 - Tease out absenteeism related to asthma.
 - Syndromic surveillance systems could be a valuable tool to show fluctuation in incidence.
- **Risk-Based Approach:** Identify high-risk populations, then target their school buildings for intervention/prevention.
 - Identification: National insurers could help identify high-risk populations. They could perform a spatial analysis to identify areas facing multiple environmental hazards; schools in these areas would be high-risk schools.
 - Use inspections to set priorities and prioritize persistently underperforming schools.
 - A high percentage of students with special needs could draw attention to stricter code enforcement for their school.

In addition to the data collection, sharing, and pilot ideas above, participants noted the following:

- The opportunity exists to influence regulations now being written for the Every Student Succeeds Act so that environmental assessments will be required for persistently underperforming schools.
- Explore use of the Medicaid Free Care Rule; explore the expanded use of the Affordable Care Act for environmental health prevention services for school children.
- Involve students in discussions.
- Challenges to prevention/intervention systems and pilots include:
 - FERPA rules
 - Data, when collected, is not aggregated by distributed data collection systems
 - Health care professionals may not record the specific types of information needed

Short-Term Next Steps:

- Coordinate with CSTE regarding pilots around data collection.

- Work with PEHSUs to understand what data they collect and what can be learned from that data.

BREAKOUT 2: Advancing the Rights of Children at School/Child Care

Meeting attendees who participated in Breakout 2 discussed advancing the rights of children at school/child care using laws such as the Americans with Disabilities Act (ADA), Individuals with Disabilities Education Act (IDEA), and Section 504 of the Rehabilitation Act of 1973 as a mechanism for educational or facility accommodations for individuals with disabilities, including asthma. Kickoff speaker Rebecca Shore, director of litigation at Advocates for Children of New York, gave a brief overview of the three relevant laws and their impact on students' rights to Free and Appropriate Public Education (FAPE) in the Least Restrictive Environment (LRE). She also explained what parents can do and how the litigation process works, and described some scenarios before the group discussion began. A spring 2016 presentation providing an overview of the laws and key issues is available [online](#).

A summary of the ideas, actions, and next steps that emerged from the breakout session follows.

Ideas and Comments

Participants highlighted the following points and questions related to applicability and potential effectiveness of using disability rights and civil rights law:

- **Test Cases:** Develop a legal test case to set a precedent for accommodations for environmental factors that impede attendance and learning.
 - Choose a region that's most favorable.
 - Need good examples or precedents to address environmental health through current laws. Consider precedent set by previous case related to public housing.
 - Encourage Office of Civil Rights (OCR) to identify good test cases for class-action lawsuits (state and federal).
- **Resources:** Participants discussed a variety of resources that could support the use of disability rights and civil rights laws.
- **Limitations:** Section 504 qualifications must involve a "substantial reaction" and schools must provide "reasonable accommodations"— in some cases, this may not be what a parent wants.
- **Training:** Education and training on special education rights can encourage increased use of these laws to protect the environmental health of children at school.
- **Information Needs:**
 - Conference attendees indicated they would benefit from a more detailed understanding of and clarification on environmental accommodations; a separate workshop would be helpful and should include more disability access groups and advocates and agency program offices.
- **Office of Civil Rights (OCR) Cases:**
 - Assess OCR history of decisions of appeals for environmental accommodations.

- **Consider Asthma as an Entry Point:** Participants suggested that the political interest in pediatric asthma and absenteeism, and schools with asthma triggers, could serve as an entry point for work on accommodations in school issues.

PLENARY DISCUSSION: Establishing a National Commission

Meeting participants engaged in a dialog about the establishment of a national Healthy Children, Healthy Schools Commission. During the November 2015 meeting, participants suggested that given the complexity of the issues and the need to prioritize children long term, a national commission could be responsible for following up on recommendations from special reports on key topics and could be a public-private partnership. Participants were asked to think more about a national commission and reflect on the following guiding questions:

- Who would establish such a commission?
- How would it be funded?
- How would it be structured?
- Where would its “home” be?
- How would it be staffed?
- What would it do?

A summary of the ideas, actions, and next steps that came from this discussion follows.

Ideas and Comments

- **Potential Models:** Consider the Maryland Children’s Environmental Health and Protection Advisory Council (CEHPAC) as a structural model for a national commission.
- **Steering Committee:** Participants suggested that a small steering committee should be organized to identify the commission goals.
- **Potential Goals:** During the plenary discussion, participants identified the following potential goals for the commission:
 - As an immediate short-term goal, write a presidential transition team white paper.
 - This could also be a task for the steering committee or a separate working group.
 - Guide the development of a variety of high-level reports and needs assessment evidence to support further activity to address environmental health risks for children in schools.
- **Term:** Participants considered the question of whether the commission should be time limited (e.g., 2-5 years) with specific objectives or ongoing. Some suggested that an ongoing body could be valuable because issues of environmental health in schools are complex and the solutions need to be sustainable.
- **Resources:**
- **Short-Term Next Steps**
 - Form a steering committee or working group to develop an administration transition paper and refine goals for national commission.

PLENARY DISCUSSION: High-Level Reports

Meeting participants engaged in a dialog regarding high-level reports or documents that could be generated to provide overarching guidance for the field. There was particular interest from the group in collecting personal narratives from students and families affected by environmental health impacts, a National Academy of Medicine report on the environmental health of children at schools, an analysis of school nurse data, and a transition paper for the new presidential administration. A summary reflecting the variety of ideas, actions, and next steps that came from this discussion follows.

Ideas and Comments:

- Potential reports and activities to support efforts around environmental health in schools could cover a full range of topics, from assessing various federal guidance programs for effectiveness to generating new tracking systems for facilities and for children.

In considering whether a transition paper should be a joint release or come directly from the Healthy Schools Network, participants suggested that a jointly drafted and released paper could have more impact; however, there should also be key points for other organizations not associated with the joint release to incorporate into their communications. This approach models one taken by the Network to develop a jointly drafted and released transition paper at the start of President Obama's administration.

Short-Term Next Steps

- Develop draft report/white paper (to include commission and suggestions on Institute of Medicine (IOM) report) for the transition team of the incoming administration by early November; circulate it to the group for organizations to sign on; finalize transition document after election and circulate to new administration.
 - *Luke Gard* will explore developing training materials
 - *Linda Mendonça* will provide feedback on outcomes from a June 2016 steering committee meeting for the school nurse survey, "Step Up, Be Counted."
 - *Kimberly Voss* and *Linda Mendonça* will explore approaches to compiling personal narratives.
- Possible collaboration of ASTHO, NACCHO, and CSTE on surveys of their members' environmental health practices in states and localities.

ADDITIONAL DISCUSSION

Meeting participants further discussed opportunities and activities to move forward and advance their goals. A summary of the ideas, actions, and next steps follows.

Ideas and Comments

- Develop a collaborative grant proposal to support continuing work.

Short-Term Next Steps

- *Claire Barnett* will inform current funders of conference outcomes and collaborative interests.
- Meeting participants who have information on additional gaps and needs are invited to add comments to this draft prior to publication of a final summary report.
- All meeting participants are cordially invited to apprise Healthy Schools Network and Dr. Paulson of their interest in continuing collaborations.
- *Linda Mendonça* will share the issue of *Journal of School Nurses* focused on the importance of documentation.
- *Mark Mitchell* will educate physicians and other health professionals via webinar regarding school environmental health and legal options to help patients get accommodations (summer 2016).
- *Luke Gard* will develop materials for health care providers about school-based exposures.
- An educational toolkit will be developed for parents, summarizing tools available to help, where to go for help under what conditions, opportunities, limitations, challenges, and warnings.
- HS Network will publish its fourth national in August, elevating some of the conference recommendations from November 2015 and June 2016.
- HS Network will circulate the successful collaborative 2008 transition team white paper, which led to new guidelines and new grants for states at CSTE's annual meeting in Anchorage later this month.
- HS Network is re-editing a draft policy statement for APHA on a commission and on expanding environmental public health services for children at risk or with exposures in schools.
- *Jerome Paulson* will continue to work with the American Academy of Pediatrics (AAP) and PEHSUs.

CONCLUSION

Meeting co-organizer Claire Barnett concluded by expressing the desire to refine and map a plan of action based on the short-term and longer-term ideas generated at this meeting. She also noted that HS Network wants to support others' work in the field of children's environmental health as well as its own, and to that end, she reiterated the intent of HS Network to put together collaborative grant requests to move forward and invited participants to share their interests in collaborative projects. Meeting co-organizer Jerome Paulson echoed that meeting participants need to work together to be successful in protecting the health of children from environmental threats at school and promised to keep meeting participants informed of progress. Both co-organizers thanked meeting participants for their presence and contributions.

APPENDIX 1: LIST OF PARTICIPANTS

Name	Organization
Trina Anglin, MD	National Coordinating Committee on School Health and Safety
Claire Barnett, MBA	Healthy Schools Network
Alison Baxter, MA	Healthy Schools Network
Kara Belle, MPA	EPA
Tobie Bernstein, JD	Environmental Law Institute
Maya Breitburg-Smith, MEM	RESOLVE
Patrick Breyse, PhD	Centers for Disease Control and Prevention
Veronika Carella	Maryland Children's Environmental Health Coalition
David Carpenter, MD	University at Albany
Michele Curreri	EPA Indoor Environments
Mary Filardo, MA	21 st Century School Fund
Luke Gard, BS	PEHSU – EPA Region 7
Susan Goekler, PhD	Directors of Health Promotion and Education
Chip Halverson, ND	National Education Association Healthy Schools Caucus
Michele Herdt, MPH	NYS Department of Health
Jeff Jones	Healthy Schools Network
Melissa Jordan, MS	Florida Department of Health/Council of State and Territorial Epidemiologists
Jen Li, MHS	National Association of County and City Health Officials
Khalila Lomax	HEFN intern
Latisha Mapp, MPH	EPA
Leyla McCurdy, MPhil	Health and Environment Consulting
Shawn McIntosh	American Public Health Association
Linda Mendonca, RN	National Association of School Nurses
Mark Mitchell, MD	National Medical Association
Sally Parker	District of Columbia Public Schools
Surili Patel, MS	APHA
Jerome Paulson, MD	PEHSU – East Coordinator
Janet Phoenix, MD	George Washington University
Mary Beth de Ribeaux	RESOLVE

John Schlitt, MSW	School-Based Health Alliance
Heidi Schumacher, MD	District of Columbia Public Schools
Rebecca Shaw	AASA, The School Superintendents Association
Andrea Shore, MPH	School-Based Health Alliance
Rebecca Shore, JD	Advocates for Children of NYC
Carolyn Smith-Evans, MS	National Education Association Healthy Schools Caucus
Alisha Thomas, MD	Breathe DC
Janiella Thompson	Breathe DC
Kate Topalis	Healthy Schools Network
Kristie Trousdale, MPH	Children's Environmental Health Network
Kimberly Voss, PhD	Parent advocate
Ron White	Environmental Health Consultant
Mae Wu, JD	Natural Resources Defense Council
Joe Zogby, PhD	US DHHS / HRSA / Maternal and Child Health Bureau

APPENDIX 2: ACTIVITIES UNDERWAY as of September 30, 2016

This section provides a brief update on relevant activities underway since the June 6-7, 2016 facilitated conference and new resources that may be of interest to conference participants.

POLICY

Healthy Schools Network submitted a draft policy to APHA in spring 2016 regarding expanded environmental public health services for children at risk or with exposures in February 2016, co-authored with CEHN and NACCHO; APHA requested a title change and other edits. The draft will be updated and re-submitted in 2017 with continuing support expected from several APHA sections.

Healthy Schools Network circulated a collaborative white paper prepared for the 2008 Obama transition team to interested NGOs in late June. The Network has hosted two calls and a face-to-face meeting on this topic. Attendees interested should contact Claire Barnett.

HS Network published *Towards Healthy Schools: Reducing Risks to Children*, its fourth triennial data and policy report in August 2016 in collaboration with the Coalition for Healthier Schools. The report documents new risks and worsening conditions for all children in public schools, climate threats, and the lack of health services for children at risk of school exposures. Joining in the release were Jerome Paulson, MD; APHA: Learning Disabilities of America: Collaborative for High Performance Schools; NEA's Healthy Schools Caucus; School Based Health Alliance; and NGOs in Illinois, Indiana, and Massachusetts. Follow-up presentations are invited and being scheduled.

WEBINARS

On January 12, 2016, under the auspices of the PEHSU program, Dr. Jerome Paulson presented "Grand Rounds: Environmental Health in Childcare Settings and Schools." The presentation qualified for continuing education for physicians, nurses, certified health education specialists, and other professionals provided by the Centers for Disease Control and its partners. This presentation will continue to be available on a for-credit basis at <http://www.pehsuclassroom.net/lms/index.php?r=course/details&id=28> until February 16, 2018.

On September 13, 2016, Paulson presented "Lead in School Drinking Water," hosted by the Education Facilities Clearinghouse, in collaboration with Healthy Schools Network.

See: [LeadInDrinkingWater.mp4](#)

On September 22, 2016, Barnett presented "Towards Healthy Schools: Reducing Risks to Children," hosted by the Education Facilities Clearinghouse. See

[Towards Healthy Schools- Reducing Risk to Children-20160922 2001-1.mp4](#)

October webinars (TBA)

Luke Gard, Region 7 PEHSU, will present “School Environmental Health: Why It Matters” for the PEHSU National Classroom.

October 12, 2016, Barnett presented “Towards Healthy Schools: Reducing Risks to Children” for the Federal Interagency Council on Indoor Air Quality (CIAQ), coordinated by US EPA.

CONFERENCE PRESENTATIONS

The Council of State and Territorial Epidemiologists (CSTE) hosted a roundtable on children’s environmental health at its annual convention in Anchorage in June 2016, with a discussion led by Melissa Jordan and Claire Barnett. It has since convened a voluntary work group on the topic; the group had its first conference call in late September.

Claire Barnett will present on “Getting Ahead on Prevention” (with a focus on lead in water) for the National Association of State Boards of Education, at the NASBE annual meeting in Kansas City, Missouri, in late October.

Conference presentation TBA: Paulson, for the National Association of School Nurses at its annual convention, June 2017.

ARTICLES

“Significance of the School Physical Environment – A Commentary,” (pages 483–487) William J. Fisk, Jerome A. Paulson, Lloyd J. Kolbe and Claire L. Barnett, *Journal of School Health* June 2016.

“Public Health Stops at the School House Door, Jerome A. Paulson and Claire L. Barnett, *Environmental Health Perspectives*, October 2016, doi:10.1289/EHP530.



Pictured clockwise from top left: HS Network consultant Jerome Paulson, MD; Keynoter Patrick Breyse, PhD, CDC NCEH-ATSDR; Public Health Panel: Moderator, Surili Patel/APHA, Speakers Susan Goekler/DHPE, Melissa Jordan/CSTE, JenLi/NACCHO; attendees Janet Phoenix, MD, Linda Mendonca, RN, Carolyn Smith-Evans, standing J Li; Moderators Ron White and Leyla McCurdy, Speaker David Carpenter, MD.