

**U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
CENTERS FOR DISEASE CONTROL AND PREVENTION  
National Center for Environmental Health/  
Agency for Toxic Substances and Disease Registry**



**Board of Scientific Counselors Meeting  
May 22-23, 2014  
Atlanta, Georgia**

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**Record of the Proceedings**

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## Executive Summary

The U.S. Department of Health and Human Services and the Centers for Disease Control and Prevention (CDC) National Center for Environmental Health/Agency for Toxic Substances and Disease Registry (NCEH/ATSDR) convened a meeting of the Board of Scientific Counselors (BSC) on May 22-23, 2014 in Atlanta, Georgia.

In accordance with Federal Advisory Committee Act rules and regulations, the Designated Federal Official (DFO) verified that the voting members and Federal Expert members constituted a quorum for the BSC to conduct its business on both days of the meeting. The BSC voting members were reminded of their individual responsibility to identify real or perceived conflicts of interest with any of the agenda items and recuse themselves from participating in or voting on these matters. None of the BSC voting members disclosed any conflicts of interest for the public record.

The participants welcomed five new members to their first BSC meeting. Certificates of appreciation were presented to four outgoing BSC members whose terms would expire in June 2014. The DFO called for public comment at all times noted on the published agenda for the May 22-23, 2014 BSC meeting.

The NCEH/ATSDR Acting Director covered the following topics in the NCEH/ATSDR's Office of Director's (OD) report to the BSC.

### *NCEH/ATSDR OD Highlights*

- Alignment between NCEH/ATSDR's environmental public health (EPH) portfolio and CDC's three strategic directions
- Implementation of the *NCEH/ATSDR 2014-2016 Strategic Plan* and priorities
- Recent briefings to Congressional committees as well as Congressional interaction and interest in NCEH/ATSDR's recent activities
- Internal release of the *NCEH/ATSDR Diverse Workforce in an Inclusive Workplace Strategic Plan (2013-2015)* on the CDC Intranet
- Participation in the Congressionally-mandated Capstone Exercise that is held to test the preparedness and response capabilities of all federal agencies
- The Clear Writing Summit to assist NCEH/ATSDR staff in improving their written skills in a broad range of communication platforms
- Recently published environmental health (EH) articles
- The "Working Effectively with Tribal Governments" training course
- The year 3 accomplishments of the National Tribal Environmental Health Think Tank
- Proposed increases for NCEH and ATSDR in the FY2015 President's budget
- Progress by the CDC Search Committee in selecting a new NCEH/ATSDR Director

### *ATSDR Highlights*

- Recent meetings with the Camp Lejeune, North Carolina Community Assistance Panel to continue to address drinking water contamination at the site
- Outcomes of ATSDR's 167 site investigations in FY2013
- The investigation of the large industrial MCHM chemical spill that contaminated the Elk River in West Virginia
- Recent publications: surveillance data from the Amyotrophic Lateral Sclerosis Registry; the Drywall Report on potential health effects from drywall manufactured in China; and the Birth Defects Study and Retrospective Mortality Cohort Study based on Camp Lejeune data
- Development and dissemination of new EH tools for the public: the "Don't Mess with Mercury" website and the "Social Vulnerability Index" to assist response planners and public health officials in identifying communities that would need the most support before, during and after a hazardous exposure event

### *NCEH Highlights*

- The provision of Healthy Community Design Initiative data to support the *U.S. Bicycling and Walking Benchmarking Report* as well as the provision of technical assistance (TA) for the upcoming "Surgeon General's Call to Action on Walking and Walkability"
- Recent accomplishments by the Vessel Sanitation Program (VSP): VSP's provision of TA outside of the United States to help other countries improve their cruise ship inspector training and outbreak management efforts and CDC's upcoming *Vitalsigns Report* that will feature VSP's outstanding response to a recent norovirus outbreak
- The dramatic increase in the CDC Childhood Lead Poisoning Prevention (CLPP) Program budget from \$2.3 million in FY2013 to \$15.5 million FY2014 that will support ~30 new funding awards to states, cities and counties
- New radiation emergency preparedness (REP) activities: a new SmartPhone application for clinicians to estimate the concentration of radionuclides in urine following internal contamination; new guidance for operating public shelters in a radiation emergency; and development of a new CDC-wide operations plan in the event of a radiation emergency
- New and innovative tools for the public created by the Environmental Public Health Tracking Program
- Release of the new asthma prevention funding opportunity announcement that will fund fewer states than in the past, but an exciting opportunity for NCEH to provide its professional judgment to Congress on necessary resources to expand from a partial program in select states to a National Asthma Prevention Program
- Continued funding to support climate change projects and data collection on related health impacts; the contribution of data to the Third National Climate Assessment; and the release of a new Drought Toolkit
- Recent accomplishments by the NCEH Laboratory: publication of the *Fourth Exposure Report* with updated tables for 201 chemicals and new tables for 49 additional chemicals; new Congressional funding of \$4.2 million to develop standardized chronic disease biomarkers; completion of the largest ever characterization of harmful and addictive substances in cigarettes and cigarette smoke of 50 major U.S. brands; and new funding awarded to three states to conduct severe combined immunodeficiency newborn screening.

NCEH described the role of EPH in CDC's Food Safety Winnable Battle. CDC formed the Environmental Health Specialists Network (EHS-Net) in 2000. EHS-Net grantees are funded to conduct research on the environmental causes of foodborne and waterborne illnesses and translate research into EH practice. CDC launched its new National Voluntary Environmental Assessment Information System for states and localities to use surveillance data to determine underlying environmental factors that cause foodborne outbreaks and take actions to prevent future outbreaks.

CDC launched its new "Environmental Assessment of Foodborne Illness Outbreaks E-Learning Tool" to provide training to state, local, tribal and territorial EH professionals and food safety officials on improving practices related to foodborne outbreaks. A demonstration of the new, interactive e-learning tool was presented to the BSC.

NCEH/ATSDR and the BSC Chair presented a proposal to establish a new BSC CLPP Subcommittee due to two major developments: the \$13 million increase of the CLPP Program budget in FY2014 as well as the expiration and non-renewal of the CDC Advisory Committee on Childhood Lead Poisoning Prevention (ACCLPP) charter in October 2013. ACCLPP's tremendous value to HHS, CDC and the nation over its 34-year history was described to inform the BSC's decision-making process on the proposal.

**Based on a show of hands (with no formal vote), the BSC unanimously agreed that a new "Childhood Lead Poisoning Prevention Subcommittee" should be established.** The next steps to advance the proposal were outlined. A teleconference would be held in August 2014 for the BSC to discuss and take a formal vote on establishing the new CLPP Subcommittee.

NCEH/ATSDR OD presented an overview of new projects that were proposed for all relevant CDC programs to fill critical gaps in REP capabilities across the agency. The CDC Director approved and allocated supplemental funding to support implementation of five REP projects proposed for "immediate" attention and four REP projects proposed for "staged" attention over time as resources become available.

*Immediate Attention REP Projects*

- CDC Emergency Operations Plan for an Improvised Nuclear Device Detonation Response
- Situational Awareness Data Acquisition, Analysis and Dissemination
- Surge Capacity for Radiation and Epidemiology Subject-Matter Experts
- Non-Traditional Communication Systems
- Federal Support for External Monitoring and Decontamination of Individuals

*Staged Attention REP Projects*

- Training
- Clinical Guidance
- Phase-Based Messaging
- Bioassay Capacity for a National Response to a Radiological Incident

The BSC Federal Expert members provided updates on recently completed or ongoing EPH activities of their respective agencies.

- The U.S. Department of Energy reported the findings of its retrospective analysis to determine illness-related absences among workers with beryllium sensitization and/or chronic beryllium disease.
- The U.S. Environmental Protection Agency described activities and research the Office of Research and Development Programs are conducting to meet the themes, goals and objectives of the FY2014-FY2018 Strategic Plan.
- The National Toxicology Program presented a high-level overview of its organizational structure, workforce, budget, mission and goals, key activities, research programs, and process to nominate agents for review and evaluation in a comprehensive toxicology study.

NCEH/ASDR OD presented an update on implementation of the Strategic Plan goals, objectives, and selected actions for four priorities: reduce asthma morbidity and mortality; protect children from the health risks of harmful exposures and conditions; ensure safe drinking water; and use innovative laboratory methods to detect, diagnose and prevent environmental disease. The BSC's input to NCEH/ATSDR over the course of the strategic planning process was highlighted.

The NCEH Division of Environmental Hazards and Health Effects and Division of Emergency and Environmental Health Services described their budgets, resources and activities to address the Strategic Plan priority to ensure safe drinking water.

NCEH/ATSDR staff in multiple divisions responded to the BSC's prior guidance in four areas: logistics and procedures of BSC meetings; public health surveillance following emergency events; site-specific activities and environmental justice issues; and EPH linkages with clinical care. **The BSC agreed by consensus that the "NCEH/ATSDR Response to Prior BSC Guidance" should be a routine agenda item.**

The BSC Business Session covered three key topics. **The BSC's motion to establish a new "Fracking Workgroup" that would focus on hydraulic fracturing and other EPH issues was passed by a majority vote.** The Chair outlined the next steps for the BSC's newly-established workgroup and confirmed the names of the members who volunteered to serve. Instructions were given for the BSC to notify the Chair and DFO of additional new agenda items for future meetings. The process to finalize the date and location of the next BSC meeting was outlined.

The BSC's extensive discussion over the course of the meeting resulted in action items, new agenda items and specific guidance to NCEH/ATSDR.

- Strategies to expand reporting of and increase private sector involvement with foodborne illness outbreaks
- Advice on implementation of the NCEH/ATSDR Strategic Plan, including strategic planning processes of individual divisions and state EH directors
- Suggestions of new projects to fill gaps or address emerging issues in NCEH/ATSDR's water safety activities



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**BOARD OF SCIENTIFIC COUNSELORS  
May 22-23, 2014  
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**Minutes of the Meeting**

The U.S. Department of Health and Human Services (HHS) and the Centers for Disease Control and Prevention (CDC) National Center for Environmental Health/Agency for Toxic Substances and Disease Registry (NCEH/ATSDR) convened a meeting of the Board of Scientific Counselors (BSC). The proceedings were held on May 22-23, 2014 in Building 106 of the CDC Chamblee Campus in Atlanta, Georgia.

The BSC is chartered to provide advice and guidance to the Secretary of HHS, Director of CDC, and Director of NCEH/ATSDR regarding program goals, objectives, strategies and priorities in fulfillment of the agencies' mission to protect and promote persons' health. The BSC shall provide advice and guidance to assist NCEH/ATSDR in ensuring scientific quality, timeliness, utility and dissemination of results. The BSC also shall provide guidance to help NCEH/ATSDR work more efficiently and effectively with its various constituents to fulfill its mission to protect America's health.

**Opening Session: May 22, 2014**

**Vikas ("Vik") Kapil, DO, MPH, FACPOEM**

Chief Medical Officer and Associate Director for Science, NCEH/ATSDR  
Centers for Disease Control and Prevention  
BSC Designated Federal Official (DFO)

Dr. Kapil opened the floor for introductions to determine the BSC voting members and Federal Expert members who were in attendance. He reminded the BSC voting members of their individual responsibility to identify real or perceived conflicts of interest with any of the published

agenda items for May 22, 2014 and recuse themselves from participating in or voting on these matters.

Dr. Kapil announced that the members in attendance constituted a quorum for the BSC to conduct its business on May 22, 2014. He called the proceedings to order at 9:17 a.m. and welcomed the participants to day 1 of the BSC meeting. None of the BSC voting members disclosed any conflicts of interest for the public record.

Dr. Kapil thanked the BSC members for continuing to contribute their time and expertise to provide guidance on NCEH/ATSDR's environmental public health (EPH) portfolio. He pointed out that the meeting packets included biographical sketches and photographs of the entire BSC membership, but he asked the participants to particularly welcome five new members to their first BSC meeting.

- Himanshu Jani, MBA: Director, Quality Safety & Environment Capability and Development, The Coca-Cola Company
- Melissa Perry, ScD, MHS: Professor and Chair, Department of Environmental and Occupational Health, George Washington University School of Public Health and Health Services
- Matthew Strickland, PhD, MPH: Assistant Professor, Department of Environmental Health, Rollins School of Public Health, Emory University
- Phillip Williams, PhD: Dean, College of Public Health, University of Georgia
- Robert Wright, MD, MPH: Professor of Pediatrics and Preventive Medicine Vice Chairman & Director, Division of Environmental Health Icahn School of Medicine at Mount Sinai

Dr. Ikeda presented certificates of appreciation to four BSC members whose terms would expire in June 2014.

- Daniel Kass, MSPH: Deputy Commissioner, Division of Environmental Health New York Department of Health and Mental Hygiene
- Michael Kleinman, PhD: Professor of Occupational and Environmental Medicine Department of Medicine, University of California-Irvine
- Shannon Márquez, PhD, MEng: Academic Dean & Director of Global Health Initiatives Drexel School of Public Health
- Sacoby Wilson, PhD, MS: Assistant Professor, Maryland Institute for Applied Environmental Health & Department of Epidemiology and Biostatistics School of Public Health, University of Maryland-College Park

The participants joined Dr. Kapil in applauding the four outgoing members for their excellent service to NCEH/ATSDR and their outstanding contributions to improve environmental health (EH) for the nation.

Mr. Sanjay Ranchod, a BSC member, requested two revisions to the day 2 meeting agenda. First, only 30 minutes are allotted for the BSC to discuss the NCEH/ATSDR Strategic Plan and priorities. Because one of the BSC's core functions is to provide advice to NCEH/ATSDR on this topic, a longer discussion period for this agenda item is warranted.

Second, NCEH/ATSDR's response to the BSC's previous guidance is scheduled at the end of day 2 with no discussion period. This agenda item should be held earlier in the meeting to inform the BSC's discussion on the NCEH/ATSDR Strategic Plan and priorities. Dr. Kapil confirmed that he and Mr. Daniel Kass, the BSC Chair, would consider whether some of the agenda items could be rearranged to accommodate Mr. Ranchod's request.

## NCEH/ATSDR Office of the Director's Report

### **Robin Ikeda, MD, MPH, USPHS RADM**

Acting Director, NCEH/ATSDR

Deputy Director, Office of Noncommunicable Diseases, Injury and Environmental Health  
Centers for Disease Control and Prevention

Dr. Ikeda covered the following topics in the NCEH/ATSDR Office of the Director's (OD) report to the BSC.

**NCEH/ATSDR OD Highlights.** NCEH/ATSDR closely collaborates with other parts of CDC to ensure that its EPH portfolio is aligned with and embedded into CDC's three strategic directions: (1) improve health security at home and around the world; (2) better prevent the leading causes of illness, injury, disability and death; and (3) strengthen the public health-healthcare collaboration. Most notably, NCEH/ATSDR's food and water safety activities, chemical threats and disaster preparedness efforts, and Health Community Design Initiative play a major role in CDC's Tobacco, Food Safety, and Nutrition/Obesity/Physical Activity Winnable Battles.

The *NCEH/ATSDR 2014-2016 Strategic Plan* was posted on the CDC.gov website and shared with key partners in April 2014. The Strategic Plan outlines NCEH/ATSDR's vision, mission, core values, objectives and three overarching goals: implement effective EH programs and interventions; prepare for and respond to public health emergencies; and identify, characterize and monitor health outcomes and exposures to protect and promote health.

The Strategic Plan also describes short- to medium-term priorities that NCEH/ATSDR will address over the next 1-2 years: reduce asthma morbidity and mortality; protect children from health risks of harmful exposures and conditions; ensure safe drinking water, including a focus on unregulated drinking water sources; and use innovative laboratory methods to detect, diagnose and prevent environmental disease. During the update on the Strategic Plan, NCEH/ATSDR would solicit input from the BSC on effective implementation plans for the four priorities.

NCEH/ATSDR provided briefings to several Congressional committees in March-April 2014. The House Committee on Transportation and Infrastructure was briefed on ATSDR's recent site-specific public health assessments and consultations as well as its ongoing epidemiologic studies. The important role of ATSDR's ToxProfiles™ and Pediatric Environmental Health Specialty Units (PEHSUs) in strengthening the scientific base for assessments in clinical care also was highlighted. Both the Senate and House Appropriations Committees were briefed on NCEH's Environmental Public Health Tracking Program, Asthma Program, and Lead Poisoning Prevention Program. The briefings also included a tour of the NCEH Laboratory.

A number of NCEH/ATSDR's activities recently have generated Congressional interaction and interest: the West Virginia MCHM chemical spill, the Vessel Sanitation Program due to a recent

norovirus outbreak, the Tobacco Program, climate change and health initiatives, ATSDR's site-specific activities, biomonitoring projects, the Asthma Program, and chemical exposures addressed by the Laboratory Response Network.

The *NCEH/ATSDR Diverse Workforce in an Inclusive Workplace Strategic Plan (2013-2015)* was finalized and posted on an internal CDC website. The Strategic Plan outlines all of the steps that are involved in successfully developing and retaining a diverse and inclusive workforce: recruiting personnel from a diverse and qualified applicant pool; cultivating and promoting workplace inclusion based on the principles of respect and collaboration; and ensuring sustainability through strong leadership and management, measurement of results, and refinement of evidence-based approaches over time.

NCEH/ATSDR and the Office of Public Health Preparedness and Response served as CDC's co-leads in the Capstone Exercise that was held on March 27-April 3, 2014. Congress mandates the exercise to test the preparedness and response capabilities of federal agencies nationally, but other participants include state/local health departments (SHDs/LHDs), tribes, communities, the private sector and international entities. The 2014 Capstone Exercise focused on a scenario of a major earthquake in Alaska that resulted in multiple tsunamis and catastrophic damage across several communities, including infrastructure damage, injuries, population displacement and deaths.

NCEH/ATSDR hosted an internal Clear Writing Summit in April 2014 to assist staff in improving their written skills in a broad range of communication platforms, including e-mail, social media and scientific publications. NCEH/ATSDR is increasing its use of social media to engage, communicate with and educate the public on EPH activities. An iPad simulation, "Solve the Outbreak," allows users to become an Epidemic Intelligence Service Officer and investigate an outbreak that is based on an actual lead poisoning investigation in Nigeria.

NCEH/ATSDR recently published several EH articles in the *Morbidity and Mortality Weekly Report (MMWR)*: blood lead levels (BLLs) in children <5 years of age in Nigeria; the dramatic increase in the number of calls to Poison Control Centers regarding exposure to E-cigarettes over the 2010-2014 time period; and Air Quality Week in April 2014 and Asthma Awareness Month in May 2014. NCEH/ATSDR updated its home page to more prominently feature highlights, observances, blog entries and Twitter posts.

NCEH/ATSDR will host the next "Working Effectively with Tribal Governments" training course in September 2014 due to the overwhelmingly positive feedback that staff provided after the 2013 training. The course initially was intended to coach CDC/ATSDR staff on effectively engaging tribal governments, but NCEH/ATSDR has received requests from external partners to offer the training to their staff.

NCEH/ATSDR is extremely proud of the year 3 accomplishments of the National Tribal Environmental Health Think Tank that is funded to engage external partners and organizations. The Think Tank has provided input on the Office of Tribal Affairs Strategic Plan and identified five issues the public health community should prioritize when collaborating with tribes: food, resource extraction, infrastructure and systems development, climate and health, and clean air.

The FY2015 President's budget was released in March 2014 and proposed increases for NCEH and ATSDR over the FY2013 levels: from ~\$142 million in FY2013 to ~\$169 million in FY2015 for NCEH and from \$72 million in FY2013 to ~\$95 million in FY2015 for ATSDR. However, the

FY2015 President's budget for NCEH of ~\$169 million represents a decrease from the FY2014 enacted budget of ~\$180 million.

The job posting for the new NCEH/ATSDR Director will close on May 27, 2014, but >19 applicants already have been determined to be "minimally qualified" for the position based on their subject-matter expertise in EH and/or broad public health experience, leadership and managerial capabilities, and ability to execute NCEH/ATSDR's EH vision. The next steps in the hiring process will be for the CDC Search Committee to conduct an internal evaluation of the applicants' qualifications, hold telephone interviews with the first round of applicants, and conduct in-person interviews with the finalists.

**ATSDR Highlights.** ATSDR's most recent meetings with the Community Assistance Panel (CAP) were held in September 2013 and April 2014 to obtain further input from local residents on its activities to address drinking water contamination at the Camp Lejeune, North Carolina site. ATSDR will convene the next two CAP meetings in June and September 2014 to gather feedback on its site assessment, soil vapor intrusion data collected to date, and strategies to advance the cancer incidence study. Links to transcripts and videos of the CAP meetings are available on the ATSDR website.

ATSDR's 167 site investigations in FY2013 were directly responsive to its core mission to "protect persons in communities across the United States." The site investigations protected >295,000 persons from harmful exposures in drinking water, soil and air. ATSDR also reassured 130,000 persons in other communities about their concerns, fears and worries regarding breathing air, drinking water or playing in yards.

ATSDR responded to West Virginia's request for technical assistance (TA) and expertise. A large industrial MCHM chemical spill that contaminated the Elk River in January 2014 was upstream from the municipal water supply. ATSDR deployed two Epi-Aid Teams to West Virginia to review emergency department and hospital records, assess the health impact of the MCHM chemical spill, conduct a Community Assessment for Public Health Emergency Response (CASPER) to evaluate community needs during the recovery and response periods, and determine a short-term MCHM screening level. ATSDR also deployed an EH advisor to serve as a technical expert and point of contact to the West Virginia site. ATSDR's support and consultation with West Virginia on the MCHM chemical spill are ongoing.

ATSDR has or will soon release several publications of its recent data. ATSDR will publish its first surveillance report with data from the Amyotrophic Lateral Sclerosis (ALS) Registry in the *MMWR* in June or July 2014. The registry identified >12,000 persons who were living with ALS in the United States in the time period of October 2010-December 2011. Additional surveillance reports will be published as more data are submitted to the ALS Registry over time.

ATSDR published its Drywall Report in April 2014 that indicated persons who were exposed to sulfur compounds emitted by drywall manufactured in China might have experienced specific health effects: headache, irritation of the eyes, nose and throat, and worsening of asthma or other respiratory conditions. ATSDR published multiple public health consultations and assessments over the past six months that covered a broad range of geographic locations and hazards, including radiation material in air and volatile organic compounds in air and water.

ATSDR published two studies based on Camp Lejeune data. The Birth Defects Study was released in December 2013 and found an association between trichloroethylene and benzene in

drinking water and neural tube defects in the Camp Lejeune cohort. However, the association between other chemicals (e.g. perchloroethylene and vinyl chloride) and leukemia was weaker. The Retrospective Mortality Cohort Study was released in February 2014 and found that compared to Camp Pendleton service personnel, Camp Lejeune service personnel had higher mortality rates for some cancers and other conditions (e.g., Hodgkin's lymphoma, leukemia, multiple myeloma and multiple sclerosis).

ATSDR recently developed new EH tools for the public. The "Don't Mess with Mercury" website was launched in November 2013 to educate youth and school staff on the hazards of mercury and describe strategies to prevent mercury spills. The tools include sample letters to inform parents and other caregivers of a mercury spill as well as guidance on developing a kit to prepare for a mercury spill. The website has received or was nominated for numerous awards by CDC and the Center for Plain Language.

The "Social Vulnerability Index" was developed to assist response planners and public health officials in identifying communities that would need the most support before, during and after a hazardous exposure event. The tool uses census tract data and information on 14 social factors (e.g., poverty, lack of vehicle access and crowded housing) to target the most vulnerable geographic areas.

**NCEH Highlights.** NCEH provided data from its Healthy Community Design Initiative to support the April 2014 release of the *U.S. Bicycling and Walking Benchmarking Report*. The report is designed to collect and analyze data on biking and walking across the United States. NCEH currently is providing TA for the upcoming "Surgeon General's Call to Action on Walking and Walkability."

The NCEH Vessel Sanitation Program has expanded its activities beyond the United States to help other countries improve their cruise ship inspector training and outbreak management efforts. In the August 2014 *Vitalsigns* Report, CDC will showcase the outstanding response of the Vessel Sanitation Program to a recent norovirus outbreak.

The CDC Childhood Lead Poisoning Prevention (CLPP) Program budget was dramatically reduced from \$29.2 million in FY2011 to \$2 million in FY2012. However, NCEH is extremely pleased with the increase of the CLPP Program budget to \$15.5 million in FY2014. NCEH will release a funding opportunity announcement (FOA) to support state and local CLPP surveillance and target implementation of primary prevention interventions. NCEH anticipates that the new FOA will result in ~30 CLPP awards to states, cities and counties.

NCEH developed a SmartPhone application that allows clinicians to estimate the concentration of radionuclides in urine following internal contamination. Guidance for operating public shelters in a radiation emergency was created as well. Efforts are underway to develop a CDC-wide operations plan in the event of a radiation emergency.

NCEH is continuing its innovation with the Environmental Public Health Tracking Program. New tools are being developed to increase public understanding of the linkage between health and the environment. For example, a new tool was released in 2014 that describes the relationship between particulate matter 2.5 and coronary artery disease.

NCEH released a new asthma prevention FOA, but fewer states will be funded than in the past. In response to a recent Congressional hearing, however, NCEH will provide its professional

judgment and expertise on resources that would be needed to expand from a partial program in select states to a National Asthma Prevention Program. NCEH is continuing to fund 16 states and 2 large cities to conduct climate change projects and collect data on related health impacts. NCEH contributed data to the Third National Climate Assessment and released a new Drought Toolkit in 2014.

The NCEH Laboratory has completed several new and exciting activities since the last BSC meeting was held in June 2013. The *Fourth Exposure Report* was published in September 2013 with updated tables for 201 chemicals and new tables for 49 additional chemicals. New Congressional funding of \$4.2 million was allocated to develop standardized chronic disease biomarkers, including small low-density lipoprotein and lipoprotein B biomarkers.

New funding was awarded to Georgia, Oklahoma and Virginia to conduct severe combined immunodeficiency newborn screening. The largest ever characterization of harmful and addictive substances in cigarettes and cigarette smoke of 50 major U.S. brands was completed to provide baseline data in support of the U.S. Food and Drug Administration's (FDA) tobacco regulations.

The BSC discussed the following topics with Dr. Ikeda and other staff on the NCEH/ATSDR OD report.

- NCEH/ATSDR's plans or next steps to initiate a new strategic planning process at the end of the 2014-2016 Strategic Plan.
- The ability to use the ATSDR Social Vulnerability Index as a research tool in addition to a preparedness tool.
- CDC's approaches or plans to overcome barriers to achieving its strategic direction of strengthening the public health-healthcare collaboration, particularly since hospitals and individual clinicians virtually have no financial incentives, knowledge, training or other resources to address population health.
- Ongoing efforts by the NCEH Tobacco Laboratory to develop and publish new biomarkers for the expanded population of "smokers," including smokers of tobacco cigarettes, cigars/cigarillos, E-cigarettes and/or marijuana.

The BSC was extremely pleased that the CLPP Program budget was increased to \$15.5 million, particularly in light of the historical importance and success of this initiative for EPH and environmental justice (EJ). The BSC also was pleased that NCEH/ATSDR has been given an opportunity to provide its professional judgment to Congress on necessary resources to fund, support and sustain a National Asthma Prevention Program. The members noted that the BSC's expertise in clinical care, healthy homes and other EH issues could help to inform NCEH/ATSDR's response to Congress.

The discussion resulted in the BSC making several suggestions for NCEH/ATSDR OD to consider.

- NCEH/ATSDR should explore the possibility of offering the Clear Writing Summit to external partners and stakeholder organizations. This resource would broadly increase EPH communication skills and capacity in the field beyond internal NCEH/ATSDR staff.
- NCEH/ATSDR should collaborate with its federal partners and non-governmental stakeholders to compile challenges, experiences and lessons learned from the West

Virginia MCHM chemical spill into a case study. The case study should be widely disseminated to assist states, localities and communities in improving future responses to chemical events and more effectively addressing the consequences of these types of EPH events, such as health impacts, financial constraints, and long-term surveillance and monitoring.

- NCEH/ATSDR's lack of involvement in and limited focus on the health impacts of hydraulic fracturing activities are problematic. As the premier EPH agency in the nation, several reasons exist for NCEH/ATSDR to serve as the home and data repository for hydraulic fracturing.
  - The evidence base for hydraulic fracturing health impacts is scarce due to little or no studies on exposure scenarios, cumulative impacts of air and water pollution, noise impacts from compressor stations and psychosocial stress.
  - NCEH/ATSDR's emphasis on hydraulic fracturing health impacts would be aligned and consistent with its Strategic Plan priority to "ensure safe drinking water."
  - NCEH/ATSDR's leadership in hydraulic fracturing health impacts would be extremely beneficial and helpful to states/localities, communities and academic institutions that are addressing EH concerns related to these activities.
  - A recently published EPH paper reported that only two public health experts are represented on all hydraulic fracturing state commissions and federal workgroups.
- CDC should provide national leadership in compiling, evaluating and disseminating population health plans developed by Federally Qualified Health Centers (FQHCs) to all SHDs and LHDs. The Affordable Care Act (ACA) authorizes SHDs to assess and approve FQHC population health plans, but a number of states do not have sufficient capacity or resources to undertake this effort. Moreover, professional associations have initiated activities to assist hospitals in incorporating EPH endpoints into the Community Health Needs Assessment planning process. These initiatives would play an important role in CDC achieving its strategic direction of strengthening the public health-healthcare collaboration.
- The BSC commended NCEH/ATSDR on developing its new Diverse Workforce Strategic Plan. Similar to staff, however, the members noted that the BSC also must retain its diversity in terms of race/ethnicity, gender, areas of scientific expertise and geographic location when new members are recruited.

<b>ACTION ITEMS</b>	
<b>Responsibility</b>	<b>Action Step</b>
BSC DFO	Distribute materials to the BSC for review: <ul style="list-style-type: none"> <li>• NCEH/ATSDR Diverse Workforce Strategic Plan</li> <li>• ATSDR Social Vulnerability Index</li> <li>• Links to the Camp Lejeune Birth Defects Study and Retrospective Mortality Cohort Study</li> </ul>
BSC Chair & DFO	Identify the best mechanism (e.g., a short-term workgroup or informal e-mail communications) for the BSC to advise NCEH/ATSDR on providing its professional judgment to Congress regarding funding of a National Asthma Prevention Program
BSC DFO	Schedule a new agenda item: Presentation on NCEH/ATSDR's EPH role in CDC's strategic direction of strengthening the public health-healthcare collaboration as a part of ACA

## ACTION ITEMS

BSC Chair & Members	Discuss whether the BSC's formal action on the health impacts of hydraulic fracturing is warranted at this time (e.g., submission of a formal resolution to the HHS Secretary, CDC Director and Acting NCEH/ATSDR Director or formation of a new "Fracking Workgroup")
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### Environmental Public Health Practice and CDC's Food Safety Winnable Battle

#### **Sharunda Buchanan, PhD, MS**

Director, NCEH Division of Emergency and Environmental Health Services  
Centers for Disease Control and Prevention

Dr. Buchanan described the role of EPH in CDC's Food Safety Winnable Battle. Contaminated foods consumed in the United States are the cause of ~48 million illnesses, >128,000 hospitalizations and 3,000 deaths annually. Acute foodborne illnesses cost the United States ~\$152 billion each year in healthcare, workplace and other economic losses.

The collection of data to better understand foodborne illness outbreaks nationally led to CDC establishing the reduction of foodborne illness disease as a Winnable Battle and targeting additional efforts and resources to support the development of evidence-based, cost-effective strategies. However, CDC recognized the critical need to also build food safety capacity and provide TA locally. Restaurant inspections and food safety are the top two issues for nearly 80% of LHDs, but local public health is still responsible for an overwhelming number of functions and activities on a daily basis:

- Sewage disposal
- Public health water supply and safety
- Swimming pool inspections
- Food and milk inspections
- Environmental emergencies
- School and daycare center inspections
- Well inspections
- Vector control
- Noise pollution
- EH surveillance
- Food safety education

CDC formed the Environmental Health Specialists Network (EHS-Net) to address food safety concerns at multiple levels, including representation by federal, state and local regulators and state disease control authorities. EHS-Net reflects collaboration between EH at the federal level and the epidemiology and laboratory sectors at state and county levels to identify and prevent underlying factors that contribute to illnesses and outbreaks. Issues addressed by EHS-Net include food handling practices, worker health policies, foodborne outbreak environmental assessments, and food manager certification.

CDC initially awarded EHS-Net funding in 2000 for grantees to identify the environmental causes of foodborne outbreaks. The current EHS-Net grantees include five SHDs, two LHDs and New York City that are funded to conduct research on the environmental causes of foodborne and waterborne illnesses and translate research into EH practice. CDC hopes to fund more SHDs and LHDs in the new 2015-2020 EHS-Net Cooperative Agreement (CoAg), but the small number of grantees has made a tremendous impact in improving food safety practices nationwide.

CDC has enhanced EPH practice in both EHS-Net funded and non-funded states in three major areas. For “surveillance,” CDC launched its new National Voluntary Environmental Assessment Information System (NVEAIS) in April 2014 to help both funded and non-funded SHDs and LHDs determine underlying environmental factors that cause foodborne outbreaks and take actions to prevent future outbreaks. SHDs and LHDs will utilize data collected and maintained by NVEAIS to identify and monitor contributing factors to foodborne outbreaks (e.g., poor food handling practices and non-compliance with worker health polices) and their environmental antecedents.

For “evidence-based practice,” CDC launched a new “Environmental Assessment of Foodborne Illness Outbreaks E-Learning Tool” in April 2014 to provide training to state, local, tribal and territorial EH professionals and food safety officials on improving practices related to foodborne outbreaks. The e-learning tool includes self-paced and interactive multimedia simulations for users to investigate foodborne illness outbreaks as part of an outbreak response team, identify environmental causes of the outbreak and recommend appropriate control measures. CDC expects the e-learning tool to play a role in developing a standardized and uniform process to report and investigate foodborne illness outbreaks as state and local authorities across the country build their skills and competencies in this area.

For “practice-based research,” CDC is the only federal agency that supports data collection to identify the environmental causes of foodborne outbreaks. EHS-Net research findings are translated into improved prevention efforts using a systems-based approach. CDC published four new articles and summaries in the December 2013 edition of the *Journal of Food Protection* that focused on restaurant handling of chicken, ground beef and leafy greens and occupational practices of ill food workers.

All EHS-Net studies include a scientific publication, web content and plain-language summary fact sheets. Upcoming publications from EHS-Net studies will focus on restaurant management practices related to ill workers, the relationship between restaurant manager certification and improved food safety practices, and food cooling practices.

CDC has made several notable accomplishments in translating EHS-NET practice-based research for the food worker industry and the broader public. For example, Yum! Brands, Inc. reviewed the four December 2013 EHS-Net publications and used the findings to incorporate modified practices and polices into a training course for their associates. Because the plain-language summaries were clearly written, multiple reviews with the Food Safety and Regulatory Affairs Division were unnecessary.

Dr. Buchanan concluded her overview by asking the BSC to consider two questions in its discussion.

1. What strategies can be implemented to expand reporting of environmental antecedents that contribute to foodborne outbreaks?
2. What approaches can be taken to broaden the reach of and private sector involvement with EHS-Net?

**Erik Coleman, MPH**

Public Health Informatics Fellow, Environmental Health Services Branch, NCEH  
Centers for Disease Control and Prevention

Mr. Coleman presented a demonstration of CDC's Environmental Assessment of Foodborne Illness Outbreaks E-Learning Tool. The demonstration included an overview, instructions and specific lessons: interviewing a food worker following a norovirus outbreak and conducting a site visit of a restaurant involved in a foodborne illness outbreak.

The e-learning tool is presented in a simulated virtual environment with interactive gaming technology for users to practice their newly acquired skills in conducting environmental assessments of foodborne illness outbreaks. CDC evaluates and compares pre-/post-test knowledge after the user completes all eight lessons. The course can be completed in 8-10 hours. Continuing education units are available. To date, ~400 persons both within and outside of the United States have participated in the e-learning tool.

The BSC discussed the following topics with Dr. Buchanan and other staff on the role of EPH in CDC's Food Safety Winnable Battle.

- The ability for SHDs and LHDs to use findings from food illness outbreak investigations as formal after-action reports for tracking and monitoring.
- CDC's plans to conduct other types of assessments with the e-learning tool, such as a long-term evaluation of user knowledge beyond the pre-/post-tests and a comparison of the e-learning tool with other learning modalities.
- Strategies for CDC to effectively utilize and disseminate data reported to NVEAIS, particularly since SHDs and LHDs have different methods and protocols to conduct food inspections and investigate foodborne outbreaks.
- CDC's ongoing efforts to link its National Outbreak Reporting System with NVEAIS to better understand diseases caused by environmental sources.
- CDC's collaboration with FDA and other federal partners on routine Market Basket surveys of contaminants in food.

The BSC was extremely impressed by CDC's Environmental Assessment of Foodborne Illness Outbreaks E-Learning Tool. The members found the interactive gaming technology to be an exciting and fun modality to offer training on foodborne outbreak investigations. The BSC also commended CDC on filling important gaps in evidence-based practice tools and providing valuable learning opportunities for food safety.

The BSC made several suggestions in response to the two questions posed by Dr. Buchanan.

*Question 1: Expanded Reporting*

- CDC should increase its focus on the relationship between extreme weather events and/or water restrictions and foodborne illness outbreaks.

- NVEAIS is designed to collect, maintain and report state and local surveillance data on environmental factors that contribute to foodborne outbreaks. However, CDC should administer a survey to determine interest by the private sector in participating in NVEAIS. During the routine inspection process, for example, LHDs could give higher scores to restaurants that participate in NVEAIS and managers who complete the e-learning tool.

*Question 2: Broader Reach*

- CDC should collaborate with the National Environmental Health Association and food safety professional organizations to widely publicize and promote its new food safety tools.
- CDC should translate and offer the e-learning tool in languages other than English to increase private sector involvement both within and outside of the United States.
- The full 8- to 10-hour training course is necessary for EPH professionals to maintain their certification. However, CDC should offer a “mini-course” or shorter standalone components of the e-learning tool for food service industry workers and other personnel in the private sector to improve their food safety skills and competencies.
- CDC should utilize social media to identify and prevent potential foodborne outbreaks prior to their occurrence. For example, blog entries and other social media platforms could be regularly scanned with certain keywords to identify persons who reported becoming ill after eating at a specific restaurant. CDC could then notify the SHD or LHD to conduct a food safety inspection of the establishment.

ACTION ITEM	
Responsibility	Action Step
BSC DFO	Provide the BSC with the link to the Environmental Assessment of Foodborne Illness Outbreaks E-Learning Tool

**Proposal for a New BSC Childhood Lead Poisoning Prevention Subcommittee**

**Vikas (“Vik”) Kapil, DO, MPH, FACPOEM**

Chief Medical Officer and Associate Director for Science, NCEH/ATSDR  
Centers for Disease Control and Prevention  
BSC Designated Federal Official

Dr. Kapil announced that this item was placed on the agenda in response to two significant developments. First, the CLPP Program budget increased from \$2.3 million in FY2013 to \$15.5 million in FY2014. Second, the charter of the CDC Advisory Committee on Childhood Lead Poisoning Prevention (ACCLPP) expired in October 2013 and was not renewed. Due to the budget increase and ACCLPP’s tremendous value to HHS, CDC and the nation, the BSC is now being asked to consider a formal mechanism for CDC to continue to solicit external expertise, scientific guidance and technical advice regarding its CLPP activities.

**Mary Jean Brown, ScD**

Lead Scientist, Healthy Homes/Lead Poisoning Prevention Program  
Centers for Disease Control and Prevention

Dr. Brown described ACCLPP's background and key accomplishments to assist the BSC in its decision-making process on the proposal. ACCLPP was an extremely productive Federal Advisory Committee over its 34-year history and was the only advisory body that provided external guidance on CLPP science and policy to the federal government. ACCLPP's diverse membership included federal, state, local and community partners, CLPP and laboratory experts, pediatricians, academia, industry, national professional associations, and parents of lead-poisoned children. ACCLPP published several important guidelines prior to its dissolution.

- Recommendations on the identification and treatment of women exposed to lead during pregnancy
- Recommendations on the use of handheld blood lead testing instruments in clinical offices
- Primary prevention recommendations that replaced the "BLL of concern  $\geq 10 \mu\text{g/dL}$ " with a "reference value BLL (RVBLL)  $\geq 5 \mu\text{g/dL}$ "

Dr. Brown announced that prior to its dissolution, ACCLPP formed the Educational Intervention Workgroup to draft guidelines on the intersection between lead and educational interventions in early childhood. The guidance document will describe the compelling body of evidence that shows children with BLLs who experienced behavioral and academic performance issues as toddlers will continue to be affected in the third grade and later in life. These findings will have significant implications at both individual and population levels. CDC expects to release the Educational Intervention Report in the fall of 2014.

Dr. Brown hoped the BSC voted to approve a new subcommittee in order for CDC to continue to obtain external advice and expertise on CLPP, particularly in light of ACCLPP's importance and value over the past 34 years. She reiterated that ACCLPP was established as an HHS/CDC Federal Advisory Committee, but its guidance had a much broader reach.

Most notably, the National Institute of Environmental Health Sciences (NIEHS), U.S. Consumer Product Safety Commission (CPSC), U.S. Department of Housing and Urban Development (HUD), U.S. Environmental Protection Agency (EPA) and other federal agencies changed their CLPP policies or took other actions as a result of ACCLPP's published recommendations and guidelines. Dr. Brown noted that the ACCLPP web page is still available on the CDC.gov/nceh website for the BSC to obtain additional information.

**Daniel Kass, MSPH, BSC Chair**

Deputy Commissioner, Division of Environmental Health  
New York City Department of Health and Mental Hygiene

Mr. Kass provided additional details for the BSC to consider in its discussion of the proposal. Because the BSC would be the parent committee, at least one BSC voting member must serve on the new CLPP Subcommittee. The subcommittee would be charged with formulating recommendations and reporting its findings to the BSC for consideration, deliberation and a formal vote.

Mr. Kass was aware that some BSC members were uncomfortable in endorsing the proposal at this time because CDC had not specified the role, function and overarching purpose of the new subcommittee. He described a potential process to address the BSC's concerns. For example, the BSC would charge the subcommittee with providing guidance on CDC's CLPP portfolio in the areas of epidemiology and science, research, national surveillance, programmatic activities and policy. The duration of the subcommittee would depend on its ability to complete tasks outlined in the BSC's charge.

Activities of the subcommittee would be timely because CDC is positioned to award a new FOA to support state and local CLPP surveillance and target implementation of primary prevention interventions. All of the subcommittee's findings and recommendations would be presented to the BSC for discussion and a formal vote. Items approved by the BSC would be forwarded to the HHS Secretary, CDC Director and/or NCEH/ATSDR Director for action.

The BSC considered the comments made by Dr. Kapil, Dr. Brown and Mr. Kass to weigh the pros and cons of establishing a new CLPP Subcommittee.

#### *Cons*

- Despite the tremendous \$13 million increase in FY2014, CDC's CLPP budget is still severely under-funded. Funding, staff time and other resources that would be needed to support meetings and other activities of the new subcommittee might hinder CDC's ability to fund CLPP projects and research in the field.
- The BSC should not support the formation of an entirely new CLPP Subcommittee for CDC. ACCLPP was highly regarded and respected at the highest levels of government, including HHS/CDC, CPSC, EPA, HUD and NIEHS. Most notably, these and other federal agencies took action on ACCLPP's advice due to its impeccable credibility and outstanding expertise in CLPP science and policy over the past 34 years. An entirely new CLPP Subcommittee of the BSC would not have the same history and prominence as ACCLPP and its recommendations likely would have less weight and importance at the federal level.

#### *Pros*

- The BSC should vote to approve the formation of an "ACCLPP-like" subcommittee that would replicate, build on and expand ACCLPP to the extent possible in terms of its diverse membership, types of expertise, areas of focus and activities. Adverse impacts at national, state and local levels would be enormous if CDC has no formal mechanism for the first time in 34 years to obtain external expertise, advocacy and guidance on its CLPP science, policy and programmatic activities. Based on Dr. Brown's comments, CDC's federal partners and their grantees, academic institutions, industry, laboratories, professional organizations and clinicians would be affected as well.
- CDC and other groups have a long history of depending on and utilizing ACCLPP's published recommendations to guide their CLPP surveillance, policy changes, tracking of lead exposures, implementation of primary prevention interventions, clinical care, research and other activities. For example, New York City, other localities and states are now applying ACCLPP's guidance to identify, track and monitor children based on an RVBLL  $\geq 5$   $\mu\text{g}/\text{dL}$  rather than CDC's traditional BLL of concern  $\geq 10$   $\mu\text{g}/\text{dL}$ . The contributions and value of ACCLPP's advice in these areas have been immeasurable.

**Based on a show of hands (with no formal vote), the BSC unanimously agreed that a new “Childhood Lead Poisoning Prevention Subcommittee” should be established.**

The next steps to advance the proposal were outlined. Mr. Kass, Dr. Kapil and the relevant CDC programs would coordinate efforts to draft a document to clearly define the mission, charge, scope, potential membership, activities, specific products and responsibilities of the new CLPP Subcommittee. The BSC’s strong recommendation to replicate ACCLPP’s core function, purpose and composition as much as possible would be reflected in the draft document.

The draft document would be circulated to the BSC for review and comment. Based on the BSC’s suggestions, the draft would be revised, the final document would be presented to the BSC for a formal vote during a teleconference prior to the next meeting, and the new CLPP Subcommittee would be officially established.

Dr. Kapil highlighted the Federal Advisory Committee Act (FACA) rules and regulations that would apply to the new CLPP Subcommittee.

- A *Federal Register* notice must be published to provide the public with advance notice of any subcommittee meeting. The public must be given opportunities to submit oral or written comments.
- A BSC voting member is not required to chair the subcommittee. *Ex-officio* members and liaison representatives are welcome to serve on the subcommittee.
- The parent committee (BSC) and/or sponsoring center/institute/office (NCEH/ATSDR) will determine the need for the subcommittee to perform certain projects or tasks.
- The parent committee chair (Mr. Kass) will consult with the DFO (Dr. Kapil) to develop a description of the new subcommittee’s duties, scope, objectives, deliverables and expected outcomes.
- Members of the parent committee will discuss, deliberate and revise the proposed scope and objectives of the subcommittee as needed and also must vote on the final document of the subcommittee.

ACTION ITEM	
Responsibility	Action Step
BSC DFO	Convene a teleconference in August 2014 for the BSC to discuss and take a formal vote on establishing the new Childhood Lead Poisoning Prevention Subcommittee

### Overview of CDC’s New Radiation Emergency Preparedness Projects

**RADM Scott Deitchman, MD, MPH**

Associate Director for Environmental Health Emergencies  
NCEH/ATSDR Office of the Director  
Centers for Disease Control and Prevention

Dr. Deitchman presented an overview of CDC's new radiation emergency preparedness (REP) projects. The Fukushima Daiichi Nuclear Power Plant disaster occurred on March 11, 2011 following an earthquake of 9.0-magnitude and a tsunami. Flooding of the electrical system resulted in a loss of power and overheating of cooling pumps at the nuclear power plant, hydrogen explosions in three of the four reactor units, and core meltdowns. Airborne contamination in Japan and a plume of radioactive particulates that crossed the Pacific Ocean into the United States were detected.

CDC prioritized several activities during the response to this major radiation emergency. The CDC Emergency Operations Center was activated. Guidance was developed for U.S. Customs and Border Patrol Protection to screen travelers and cargo en route from Japan to the United States. Monitoring results and other information were interpreted and disseminated to the White House, HHS leadership, public health officials and the general public. Environment, Food and Health Advisory Teams were activated to provide further TA.

CDC found the Fukushima response to be much more difficult and challenging than the H1N1 influenza pandemic because a radiation emergency is rare. Due to its lack of capacity and inexperience in responding to a major radiation event, CDC performed an assessment to identify critical gaps in its REP capabilities.

CDC agreed that terrorist use of an improvised nuclear device detonation (INDD) would be the best scenario to determine gaps in its capacity to respond to a radiation emergency. Although the mass INDD scenario would be demanding, CDC acknowledged that its newly acquired skills and capabilities could be broadly applied to smaller radiation emergencies, earthquakes and other non-radiological catastrophic events. CDC also was aware that its INDD scenario could have implications for national security. During the Nuclear Security Summit in March 2014, for example, President Obama expressed his concerns about the potential detonation of a nuclear weapon in Manhattan.

CDC incorporated several assumptions into the INDD scenario. The 10kT yield of the INDD (or 10,000 tons of TNT) would have brightness equivalent to the light of 1,000 suns even at one mile away from the detonation. The INDD would occur at ground level in Washington, DC in close proximity to the White House. Fallout would be predicted based on weather conditions on February 14, 2009 at 12:00 noon. The Washington, DC daytime population of ~800,000 persons would be used to estimate the number of casualties and injuries.

Destruction from the INDD event would be categorized into three different zones. The severe damage zone would include major damage and the collapse of buildings up to a 0.5-mile radius from the detonation. Fatalities would occur from the blast, heat and/or radiation exposure. The moderate damage zone would include significant structural damage at a 0.5- to 1-mile radius from the detonation. Collapsed buildings, blown-out building interiors, fallen utility poles, fires and overturned vehicles would be observed in this zone.

The light damage zone would include significant injuries from broken windows and shattered glass at a 3- to 5-mile radius from the detonation. Motorists who were temporarily blinded by the blast would be involved in traffic accidents and injured up to 10 miles from the detonation. The electromagnetic pulse generated by the detonation might permanently or temporarily damage communications and other electronic equipment.

Fallout from the heat of the explosion would cause thousands of tons of excavated debris and radioactive fission products to rise up to a distance of 5 miles. After the radioactive particles fell back to earth, surfaces would be contaminated and harmful radiation would be emitted. However, radioactive particles from fallout rapidly decay and would be most dangerous in the initial hours of the event. Areas of contamination in the fallout zone would change over the time of the event.

Radiation injuries from fallout exposures would be based on the first two hours spent outside post-event and various distances from the detonation. At the furthest distance and mid-point from the detonation, persons who did not take shelter would be highly exposed and experience immediate health effects (e.g., nausea and vomiting) within four hours. In healthy adults, fatalities would be unlikely at the furthest distance, but likely would occur at the mid-point without medical treatment.

At the closest proximity to the detonation, persons who did not take shelter likely would die with or without medical treatment. Based on estimates of major trauma, mild trauma or radiation exposure only, 175,270 persons would be expected to recover; 102,689 persons would be at risk, but could be saved with adequate medical care; and 45,047 persons likely would die even with medical treatment.

CDC completed the gap assessment and then addressed the charge by Dr. Thomas Frieden, Director of CDC, to propose new projects to fill these gaps. From November 2013 to March 2014, all CDC programs with a role in public health emergency preparedness were engaged in the effort to facilitate brainstorming in proposing new REP projects. The CDC programs reviewed outcomes of the INDD scenario, identified gaps in CDC's radiation response capacity, highlighted specific challenges, and formed teams to propose, review and revise new projects.

The CDC teams ranked each of the proposed REP projects based on staging needs and specific evaluation criteria: (1) Would CDC's new capabilities reduce morbidity and mortality in the exposed population? (2) Could CDC control the project and its outcomes alone? (3) Would CDC require collaboration to complete the project? (4) What resources would be needed to support the project?

CDC recommended five REP projects for initial attention.

**“CDC Emergency Operations Plan for an INDD Response”**

- *Gaps addressed:* CDC has no operational plan that is specific to an INDD response.
- *Purpose/function:* Implement an agency-wide process for all relevant programs across CDC to explicitly identify response activities and commit resources for their individual response tasks.
- *Expected outcomes:* A CDC-wide emergency operations plan for an INDD response, broad consensus on the needs of and commitments by each CDC program, and identification of additional gaps.

**“Situational Awareness Data Acquisition, Analysis and Dissemination”**

- *Gaps addressed:* CDC typically does not use non-traditional data for public health decision-making or integrate data across HHS agencies, states and non-governmental organizations.

- *Purpose/function:* Build CDC capacity to receive and utilize data in an INDD response, including traditional surveillance data, novel disaster surveillance data and radiation monitoring data.
- *Expected outcomes:* Stronger capacity to make public health decisions with a broader range of data.

#### **“Surge Capacity for Radiation and Epidemiology Subject-Matter Experts” (SMEs)**

- *Gaps addressed:* The national workforce of radiation SMEs, health physicists and epidemiologists with adequate knowledge of radiation health effects is not sufficient to support a major INDD response.
- *Purpose/function:* Develop a plan and process to rapidly increase CDC’s technical expertise when an INDD event occurs.
- *Expected outcomes:* Retention of an internal group of CDC epidemiologists who are trained in radiation emergency response; retention of an external group of radiation SMEs and epidemiologists who can be rapidly contracted and assigned to an INDD response; and establishment and maintenance of a process to rapidly acquire radiation and epidemiology SMEs.

#### **“Non-Traditional Communication Systems”**

- *Gaps addressed:* The Internet, telephones/mobile networks and other communication systems CDC uses to rapidly disseminate health messages to public health partners and the general public will be permanently damaged or temporarily unavailable following an INDD event.
- *Purpose/function:* Prepare to use alternative methods for health messaging.
- *Expected outcomes:* Coordinated efforts with the Federal Emergency Management Agency (FEMA), Federal Communications Commission and other agencies to identify alternative messaging systems for disasters; and creation of CDC’s emergency health messages in compatible formats for federal partners to rapidly transmit information through these systems.

#### **“Federal Support for External Monitoring and Decontamination of Individuals”**

- *Gaps addressed:* Current federal plans assign responsibility to HHS for screening, monitoring, decontamination and follow-up of individuals after an event, but specific resources and implementation plans are not included.
- *Purpose/function:* Collaborate with the HHS Assistant Secretary for Preparedness and Response to develop a plan for external monitoring and decontamination of individuals, including the identification of available federal support, roles and responsibilities of coordinating agencies, and needs of state and local partners.
- *Expected outcomes:* A federal coordination plan and resource commitments to support state and local partners.

CDC recommended four REP projects for staged attention.

#### **“Training”**

- *Gaps addressed:* CDC leadership, field responders and other personnel generally are unfamiliar with or lack understanding of radiation emergencies, radiation health issues, response challenges and CDC’s response plans.

- *Purpose/function:* Enhance CDC's preparedness and response capacity by offering an INDD response exercise program and providing radiation safety training to CDC's emergency responders.
- *Staging Rationale:* Completed operational plan design exercises are needed. The availability of radiation health experts for this project will depend on the completion of other tasks.

#### **“Clinical Guidance”**

- *Gaps addressed:* Guidance on the radiation-specific use of relevant pharmaceuticals maintained in the Strategic National Stockpile (SNS) is incomplete. No guidance has been developed to address pregnancy and breastfeeding concerns during a radiation emergency.
- *Purpose/function:* Develop radiation-specific clinical guidance: use of SNS medical countermeasures and guidelines for pregnant and breastfeeding women.
- *Staging Rationale:* The availability of radiation health experts for this project will depend on the completion of other tasks.

#### **“Phase-Based Messaging”**

- *Gaps addressed:* CDC has not developed radiation-specific messages and guidance for the public that address specific aspects of an emergency, such as different time intervals post-event and various distances from an INDD.
- *Purpose/function:* Develop and maintain an inventory of phase-based messages and guidance to deliver to the public, including information for different times and various regions during the response and recovery periods.
- *Staging Rationale:* The availability of radiation health experts and communications experts for this project will depend on the completion of other tasks.

#### **“Bioassay Capacity for a National Response to a Radiological Incident”**

- *Gaps addressed:* Federal preparedness plans assume that expertise in the use of biological specimens to determine internal radiation contamination of individuals is widely available. However, this capacity is limited and unique to the NCEH Division of Laboratory Sciences in Atlanta.
- *Purpose/function:* Build national bioassay surge capacity for federal and state laboratory partners to improve their laboratory detection methods and measurement of internal contamination from radionuclides with urine samples.
- *Staging Rationale:* Operational plans are needed to build national bioassay surge capacity, but estimated funding of \$11 million annually is not available at this time to support the project.

Dr. Deitchman announced that Dr. Frieden approved implementation of the nine immediate and staged REP projects in April 2014. However, individual programs will bear most of the implementation costs because CDC OD allocated very little supplemental funding to support the projects. CDC initially will target funding to three priority areas: creating an agency-wide emergency operations plan for an INDD response, addressing resource needs, and increasing the availability of staff with radiation expertise.

Dr. Deitchman noted that CDC's next steps will be to overcome challenges and take advantage of key opportunities to successfully implement the REP projects. Most notably, CDC's limited staff of radiation SMEs will be responsible for multiple activities, such as supporting the public

health needs of non-emergency radiation events, ongoing preparedness efforts, and the new REP projects.

The ability to obtain CDC-wide engagement, support and endorsement of the REP projects will be difficult. CDC's non-radiation programs historically have had no interest in or provided support to REP efforts. New initiatives will be needed to educate CDC's non-radiation programs on the role and responsibility of all parts of public health in REP. Federal response plans for INDD and other radiation emergencies are currently being revised. These changes might alter CDC's role in REP, but also could offer new and wider collaborative opportunities for CDC to participate in federal planning processes.

The BSC discussed the following topics with Dr. Deitchman on the next steps in implementing the new REP projects.

- CDC's efforts to disseminate pre-event health messaging to the public prior to a radiation emergency.
- CDC's outreach to and collaboration with federal agencies, the private sector and other external stakeholders to broadly implement the new REP projects: Nuclear Regulatory Commission, Lawrence Livermore National Laboratory, and Radiation Emergency Assistance Center/Training Site funded by the U.S. Department of Energy (DOE) and the Institute of Nuclear Power Operations.
- CDC's efforts to replenish and re-populate the retiring radiation workforce, particularly since radiation is not covered in environmental health or occupational health curricula at this time.
- CDC's outreach and education to eliminate traditional misconceptions, fears and myths about nuclear energy and radiation in the medical community and general public.
- CDC's efforts to generalize the low probability of radiation exposure from a mass INDD scenario to a more feasible event, such as a severe earthquake or detonation of an explosive device.
- CDC's ongoing activities with global partners to apply its REP expertise internationally.
- CDC's assurance that its collaboration and coordination with federal partners will be sufficient to address health effects from an INDD event.

The discussion resulted in the BSC making two key suggestions for CDC to consider in implementing the new REP projects.

- CDC should engage psychologists, psychiatrists and other mental health professionals in addressing the long-term psychological impacts after persons are exposed to a mass radiation event.
- CDC has prioritized training of epidemiologists in its REP projects to build a wider pool of radiation SMEs. However, initial efforts and funding should be targeted to training clinicians/other medical practitioners, health physicists and public health professionals. Epidemiologists are trained to address long-term health effects over time, but the skills of clinicians and health physicists to immediately respond to an event could be more easily applied to a radiation emergency.

## Public Comment Session

Dr. Kapil opened the floor for public comments; no participants responded.

## Updates by the BSC Federal Expert Members: Session 1

### **Bonnie Richter, PhD, MPH**

Senior Epidemiologist, Office of Health and Safety  
U.S. Department of Energy

Dr. Richter reported that DOE conducted a retrospective analysis to determine illness-related absences among beryllium-sensitized workers. DOE used two major data sources in the study. The DOE Beryllium-Associated Worker Registry was established in 2002 by federal mandate. The registry collects and maintains data on beryllium exposures and medical information of 28,420 workers.

The DOE Illness and Injury Surveillance Program was established in the 1980s. The program collected and maintained data on all absences related to illness or injury for  $\geq 40$  consecutive work hours (or one work week), all-cause morbidity, and demographic data of ~164,000 workers across 14 sites. Because the \$1 million program budget was eliminated in 2014, DOE now has no mechanism to examine the health of current DOE workers.

DOE merged the two surveillance registries. Individual sites electronically transmit de-identified worker data and “pseudo” identifiers to databases maintained by Oak Ridge Associated Universities. Both registries are exempt from Institutional Review Board requirements and do not allow workers to opt-out of participation. The extraction of records from both registries for the 2002-2011 time period showed that a total of 19,305 workers would be eligible for the retrospective beryllium study.

Beryllium is a lightweight metal with a high melting point and heat adsorption that is used in the aerospace and electronics industries, high-speed aircraft, gyroscopes and nuclear weapons components. Beryllium sensitization (BeS) is an immune system response to the metal and precedes the development of chronic beryllium disease (CBD). BeS can occur immediately or over ~15 years after beryllium exposure. BeS workers have similar baseline chest x-rays, pulmonary function and exercise tolerance as non-BeS workers. CBD is a severe, irreversible disease of the lungs that is characterized by granuloma formation and scarring of the lungs from inhaling beryllium powder or fumes.

DOE developed three research questions to guide the retrospective beryllium study: (1) Are diagnoses of BeS/CBD associated with increased absences from work? (2) Does time in person-years to the first absence differ by BeS/CBD status? (3) Is the job category associated with BeS/CBD status? DOE used the beryllium lymphocyte proliferation test to measure BeS in the study population.

The study found that of all 19,305 workers, ~3% had BeS and/or CBD. Compared to workers with normal test results, BeS/CBD workers had 30% more all-cause absences, 50% more

respiratory absences, and earlier and more frequent absences following exposure to beryllium. The study was adjusted for gender, age, occupational group and calendar time. Compared to other occupational groups, line operators and crafts workers had the highest risk of BeS/CBD of 36%.

The DOE retrospective beryllium study is the only research to analyze absenteeism among BeS workers. The study findings led DOE to establish and implement new beryllium exposure guidelines that are much stricter and more protective of workers than current Occupational Safety and Health Administration regulations. In response to the BSC's suggestion, Dr. Richter confirmed that DOE would explore the possibility of conducting additional analyses with the retrospective dataset to determine the incidence of asthma among BeS/CBD workers.

### **Hal Zenick, PhD**

Director, National Health and Environmental Effects Research Laboratory  
U.S. Environmental Protection Agency

Dr. Zenick reported that EPA posted its FY2014-FY2018 Strategic Plan in April 2014 on the EPA.gov website. The Strategic Plan outlines several themes that will serve as the bases for all EPA programs.

- Making a visible difference in communities across the country
- Addressing climate change and improving air quality
- Taking action on toxics and chemical safety by renewing the Toxic Substances Control Act
- Protecting water as a precious, limited resource
- Launching a new era of state, tribal and local partnerships
- Embracing EPA as a high performing agency
- Advancing toward a sustainable future
- Enforcing and ensuring compliance with EPA regulations

The activities and focus areas of EPA's Office of Research and Development (ORD) Programs are closely aligned with the Strategic Plan themes. The Air, Climate and Energy Research Program assesses impacts of air pollution and climate change, prevents and reduces emissions, and responds to changes in climate and air quality. EPA's activities to support the next generation of air monitoring include developing and stimulating new technology, improving facility fence-line monitoring with new innovations, evaluating emerging sensor technology, promoting community participation in air monitoring, and advancing to satellite-based air quality measurements.

The Chemical Safety for Sustainability Research Program addresses impacts of chemicals throughout the entire continuum of manufacturing, use and disposal. The program also enhances understanding of the relationship between chemical exposure and harmful effects to human, wildlife and the environment.

EPA and its federal partners have developed and implemented ToxCast as a new method for toxicity screening of >2,000 chemicals, including the prioritized list of chemicals for potential testing in EPA's Endocrine Disruptors Screening Program. Case evaluations are underway to validate the ability to use ToxCast for hazard identification and risk assessment. EPA released new chemical data from ToxCast studies in December 2013 and also announced a call for

challenges to obtain external input and expertise on the best use of new ToxCast data to inform chemical safety decisions.

The Human Health Risk Assessment Program develops assessments of individual chemicals and chemical mixtures to support EPA's priority risk assessment and management decisions. The program's activities target Integrated Risk Information System chemicals, integrated science assessments for air pollutants and new risk assessment tools.

The Safe and Sustainable Water Resources Research Program ensures watershed protection for human and ecosystem health, strengthens understanding of the condition and trends of water resources, improves management of water resources, regulates consistent and efficient delivery of safe drinking water, transforms wastewater treatment to energy-efficient resource recovery, and promotes green infrastructure innovation for stormwater runoff solutions.

The Sustainable and Healthy Communities Research Program provides decision support tools and innovation to support environmental decision-making in communities; demonstrates the value of public health and local ecosystem goods and services in promoting community well-being; offers sustainable approaches for contaminated sites and materials management; and provides communities with integrated solutions for sustainable outcomes (e.g., buildings and infrastructure, transportation, land use and materials management).

The activities and focus areas of individual ORD Programs have implications for EPA's cross-cutting research. For cross-cutting nutrient pollution research, EPA developed a roadmap to target research to high-priority nutrient issues. Research projects will be designed to support nutrient management decision-making through the use of models to predict impacts on the size, frequency and duration of low oxygen levels in the Gulf of Mexico. To overcome challenges in nutrient pollution research, EPA will solicit bold and innovative ideas that have the potential for fundamental change in nutrient management.

For cross-cutting climate research, EPA is coordinating efforts with its federal partners on the U.S. Global Change Research Program. Adaptation research projects will target extreme weather events, climate-resilient investments by communities, and the health of forests and their potential as a carbon sink. Additional research will address the environmental impacts of control strategies on greenhouse gases, hydraulic fracturing, and changes in the production and use of energy as well as the possibility of reducing cook-stove emissions.

For cross-cutting sustainability research, EPA will target investments to green infrastructure, green chemistry and international efforts on reducing cook-stove pollution. EPA funding will support multiple sustainability research projects, such as small business innovation research on mushroom-based replacement of styrofoam and National Academy of Sciences alternative chemical assessments.

The EPA Regional Sustainable Environmental Science Program will apply ORD Program tools to promote sustainable decision-making in communities; evaluate solutions for school indoor air pollution with Springfield, Massachusetts serving as the EJ community; and assess health and environmental impacts of green infrastructure as part of community revitalization efforts with Proctor Creek, Georgia serving as the pilot site.

EPA also plans to conduct sustainability research in coastal communities in the Caribbean and Gulf of Mexico. These sites are struggling with a myriad of issues, such as protecting water

quality, sustaining fisheries, boosting tourism and recreation, and managing new development. EPA and its partners will provide these communities with a structured decision-making process to balance social, economic and environmental factors. EPA engaged stakeholders in Guanica Bay, Puerto Rico in a decision-making process that led to broad consideration of issues and an evaluation of alternative policy options.

EPA will conduct several research activities in the future to achieve the Strategic Plan goals and objectives. A report on the environment with additional sustainability and climate indicators will be released and used by EPA programs and regions. Children's EH studies will be conducted. Methods will be designed to make an overall impact in communities by promoting community resiliency and taking a systems approach to remediation.

Tools will be developed to inform sustainable responses to air and climate change. Research will be conducted to inform the development of new policies to protect human and ecosystem health in an evolving energy landscape. Advanced monitoring technology and applications will be created to improve water quality. More emphasis will be placed on emerging compounds, green chemistry, and chemicals that are methodically challenging. Dr. Zenick agreed with the BSC's comments that EPA needs to strengthen the social and economic components of its sustainability research.

With no further discussion or business brought before the BSC, Mr. Kass recessed the meeting at 4:35 p.m. on May 22, 2014.

### Opening Session: May 23, 2014

#### **Vikas ("Vik") Kapil, DO, MPH, FACPOEM**

Chief Medical Officer and Associate Director for Science, NCEH/ATSDR  
Centers for Disease Control and Prevention  
BSC Designated Federal Official

Dr. Kapil opened the floor for introductions to determine the BSC voting members and Federal Expert members who were in attendance. He reminded the BSC voting members of their individual responsibility to identify real or perceived conflicts of interest with any of the published agenda items for May 23, 2014 and recuse themselves from participating in or voting on these matters.

Dr. Kapil announced that the members in attendance constituted a quorum for the BSC to conduct its business on May 23, 2014. He called the proceedings to order at 8:32 a.m. and welcomed the participants to day 2 of the BSC meeting. None of the BSC voting members disclosed any conflicts of interest for the public record.

#### **Daniel Kass, MSPH, BSC Chair**

Deputy Commissioner, Division of Environmental Health  
New York City Department of Health and Mental Hygiene

Mr. Kass joined Dr. Kapil in welcoming the participants to day 2 of the BSC meeting. In response to Mr. Ranchod's request on the previous day, he confirmed that the day 2 agenda

had sufficient flexibility to allow for longer discussion periods on the Strategic Plan and NCEH/ATSDR's response to the BSC's previous guidance.

## Update on the NCEH/ATSDR Strategic Plan and Priorities

### **Julie Fishman, MPH**

Associate Director for Program Development  
NCEH/ATSDR Office of the Director

Ms. Fishman presented an update on the NCEH/ATSDR Strategic Plan and priorities. The goals of the strategic planning process were to clearly establish NCEH/ATSDR's vision, mission, goals and objectives for FY2014-FY2016; better align the NCEH/ATSDR organization and strategies; ensure alignment with CDC's goal-setting initiatives; and identify topical priorities.

NCEH/ATSDR initiated the strategic planning process with extensive engagement of leadership and staff, meetings with external informants, and presentations to the BSC, National Environmental Health Partnership Council and National Tribal Environmental Health Think Tank. The draft Strategic Plan was reviewed, edited, finalized and released in April 2014.

- NCEH/ATSDR Vision: *Healthy people in a healthy environment*
- NCEH/ATSDR Mission: "NCEH/ATSDR protects people's health from environmental hazards that can be present in the air we breathe, the water we drink, and the world that sustains us." "NCEH/ATSDR does this by investigating the relationship between environmental factors and health, developing guidance, and building partnerships to support healthy decision-making."
- NCEH/ATSDR Core Values:
  - Accountability
  - Collaboration
  - Innovation
  - Equity
  - Integrity
  - Respect
- Goal 1: Implement EH programs and interventions to protect and promote health.
  - Objective 1.1: Build the capacity of the state, tribal, local and territorial workforce to anticipate, assess and respond to environmental exposures and conditions.
  - Objective 1.2: Strengthen collaborations between EPH and healthcare.
  - Objective 1.3: Reduce asthma morbidity and mortality through comprehensive asthma control activities.
  - Objective 1.4: Ensure safe drinking water by assessing, preventing or mitigating waterborne exposures and diseases associated with unregulated drinking water sources.

- Objective 1.5: Develop strategies to prevent and minimize adverse effects from known and emerging EH challenges, including unsafe food, air pollution and climate change.
- Objective 1.6: Investigate, reduce and prevent environmental threats in communities and neighborhoods with a particular focus on vulnerable populations or those bearing a disproportionate burden.
- Objective 1.7: Develop and strengthen interventions and practices to promote healthy land use, healthy and safe community design initiatives, and safe home and indoor environments.
- Goal 2: Prepare for and respond to public health emergencies, including chemical, biological, radiological and nuclear incidents; natural disasters; and extreme weather events.
  - Objective 2.1: Enhance the nation's capacity to respond to EH emergencies through use of epidemiology, laboratory science, and integrated preparedness and response planning with federal, state, tribal and local partners.
  - Objective 2.2: Provide support to people, communities and EPH systems to recover and rebuild after environmental incidents.
  - Objective 2.3: Guide threat assessment, risk reduction and resilience building efforts to lessen the impact of environmental threats and promote healthy community environments.
- Goal 3: Identify, characterize and monitor health outcomes and environmental exposures to guide public health actions that protect and promote health.
  - Objective 3.1: Develop and use new tools and technologies to better anticipate and quantify exposure in populations, especially vulnerable subpopulations such as children, the elderly, low-income individuals and minority groups.
  - Objective 3.2: Provide more complete, relevant, timely and accurate data through EH surveillance and tracking.
  - Objective 3.3: Advance the development and interpretation of human health risk from exposure to environmental hazards.
  - Objective 3.4: Provide laboratory science that improves the detection, diagnosis, treatment and prevention of disease resulting from exposure to environmental hazards.
- Priority 1: Reduce asthma morbidity and mortality.
 

*Selected Actions*

  - Collaborate with the Center for Medicare and Medicaid Innovation, states and other partners to incorporate asthma strategies in State Innovation Models, Healthcare Improvement Awards, and other programs to drive quality and innovation in healthcare delivery.
  - Reduce the number of homes where children with asthma are exposed to second-hand smoke.
- Priority 2: Protect children from the health risks of harmful exposures and conditions.
 

*Selected Actions*

  - Develop and implement a national strategy to protect children from harmful exposures related to the siting of daycare and early learning centers.

- Implement a nationwide health education campaign to protect school-aged children from exposures to mercury and recover mercury from schools, homes and abandoned facilities.
- Ensure that children are a routinely examined subpopulation within land-use and transportation Health Impact Assessments.
- Priority 3: Ensure safe drinking water.  
*Selected Actions*
  - An overview of NCEH/ATSDR's safe water activities is scheduled on the agenda.
- Priority 4: Use innovative laboratory methods to detect, diagnose and prevent environmental disease.  
*Selected Actions*
  - Complete biomonitoring measurements for >250 priority environmental chemicals in a two-year National Health and Nutrition Examination Survey sample to assess exposure among the U.S. population.
  - Develop or improve methods for detecting human exposure to 15 priority environmental chemicals per year.

Ms. Fishman noted that NCEH/ATSDR considered and took action on much of the extensive input the BSC provided over the course of the strategic planning process since October 2012. For example, the BSC advised NCEH/ATSDR to clearly define and link action steps, milestones and timelines to the Strategic Plan objectives. The divisions have or currently are completing strategic planning processes with specific details on their individual roles and responsibilities. NCEH/ATSDR extensively considered the BSC's guidance in other areas as well.

- Decrease the focus on environmental hazards and place more emphasis on the promotion of health and healthy environments
- Show a clearer relationship between the Strategic Plan objectives and priorities
- Decrease the number of Strategic Plan objectives
- Prominently feature EJ issues in all parts of the Strategic Plan
- Reconsider the decision to identify asthma as the only disease in the four Strategic Plan priorities
- Strengthen the focus on policy interventions for all of the Strategic Plan objectives

Ms. Fishman responded to the BSC's previous concerns regarding the Strategic Plan priorities overall. The BSC noted that the public might perceive the priorities as the only issues of concern or interest for NCEH/ATSDR funding and support. NCEH/ATSDR leadership will place strong emphasis on the four priorities for a relatively short period of time. The priorities also will provide opportunities for NCEH/ATSDR to engage external partners in a much more focused manner. Moreover, expertise and resources from multiple NCEH/ATSDR divisions can be brought to bear due to the cross-cutting nature of the priorities.

The NCEH/ATSDR Strategic Plan was posted on the CDC.gov/nceh website in April 2014 and also was shared with all staff and >440 external partners. Meetings, teleconferences or other targeted outreach have or will be used to present and discuss the Strategic Plan with various groups that provided external advice and expertise: the BSC, National Environmental Health Partnership Council, National Tribal Environmental Health Think Tank, and state EH directors. Other groups have mentioned the Strategic Plan on Twitter.

NCEH/ATSDR already has initiated efforts to implement the Strategic Plan at multiple levels: alignment with strategic planning efforts of individual NCEH/ATSDR divisions; incorporation of the priorities into CDC's quarterly program reviews (QPRs); guidance to inform resource decision-making; opportunities to foster collaboration across NCEH/ATSDR and CDC; and assessments of state EPH funding portfolios. NCEH/ATSDR will consider options for reviewing and updating the Strategic Plan before the current Plan ends in FY2016.

The BSC discussed the following topics with Ms. Fishman on NCEH/ATSDR's next steps in implementing the Strategic Plan.

- The pros and cons of implementing the Strategic Plan asthma priority with a narrow focus on children versus broader inclusion of all populations.
- Key performance indicators that will be included in strategic planning efforts of individual NCEH/ATSDR divisions to evaluate progress.
- The need to more fully incorporate EJ into the Strategic Plan mission and the "equity" core value.
- The possibility of NCEH/ATSDR targeting implementation of the Strategic Plan to broad, emerging or rapidly evolving EH sectors: energy, transportation, food/agriculture, water or housing.

The discussion resulted in the BSC making several suggestions for NCEH/ATSDR to consider in implementing the Strategic Plan.

- NCEH/ATSDR should include childhood lead poisoning prevention in the implementation of Strategic Plan priority 1 (reduce asthma morbidity and mortality) or priority 2 (protect children from the health risks of harmful exposures and conditions). The increase of the FY2014 CLPP Program budget to \$15.5 million and the existing expertise of this program could play a tremendously important role in addressing EJ issues for priority 1 or 2.
- NCEH/ATSDR's strong efforts to respond to the BSC's comments and concerns on the Strategic Plan are commendable, but the relationship between the goals/objectives and priorities remains unclear. NCEH/ATSDR should replace the terminology of "priorities" with "focus areas" in the implementation phase to be consistent with the strategic planning processes of other CDC National Centers; minimize confusion of the general public and external stakeholders; and allow for flexibility in updating the focus areas based on the current CDC budget, priorities and activities. However, other BSC members noted that the terminology of "focus areas" would not be as strong or have the same weight as "priorities."
- On the one hand, NCEH/ATSDR did not address the BSC's concern regarding the inclusion of asthma as the only disease in the Strategic Plan priorities. On the other hand, the BSC is aware that NCEH/ATSDR is required to prioritize asthma as an EPH issue due to CDC's federal mandate and Congressional line-item. To resolve this issue, NCEH/ATSDR should explore the possibility of merging priorities 1 and 2 during implementation: "protect children from the health risks of harmful exposures and conditions, including asthma."
- NCEH/ATSDR and EPA released their EPH Strategic Plans in April 2014 with little interagency communication or coordination. NCEH/ATSDR, EPA and other federal partners with a role in EPH should convene an interagency meeting to align and assure consistency of priorities across the U.S. government, such as asthma and EJ issues.

For example, NCEH/ATSDR could benefit from EPA's successes in using its Strategic Plan as a tool to fill gaps in the retiring EPH workforce.

- NCEH/ATSDR established Objective 1.1 to build workforce capacity at multiple levels in addressing environmental exposures.
  - The scope of objective 1.1 should be expanded to enhance capacity at the broader systems level (e.g., improved laboratories and other physical infrastructures, better guidance on protocols, and best practices in investigating environmental exposures).
  - The BSC should use objective 1.1 to monitor NCEH/ATSDR's progress in building workforce capacity and also to determine alignment between the NCEH/ATSDR Strategic Plan priorities at the national level and strategic plans of EH directors at the state level. To support this effort, periodic updates by state EH directors should be placed on future meeting agendas.
- NCEH/ATSDR should use the CDC QPR process to determine the Strategic Plan priorities that will be easiest to implement and identify specific barriers to implementation (e.g., the absence of leadership, innovation or direction). The CDC Search Committee should apply findings from this self-assessment in interviews and other aspects of the selection process for the new NCEH/ATSDR Director.

<b>ACTION ITEMS</b>	
<b>Responsibility</b>	<b>Action Step</b>
BSC DFO	Schedule ongoing agenda items: <ul style="list-style-type: none"> <li>• Regular updates by NCEH/ATSDR OD on implementation of the Strategic Plan</li> <li>• Regular reports by the NCEH/ATSDR divisions on progress in achieving their individual strategic plan action steps, timelines and milestones</li> <li>• Regular updates by the Association of State and Territorial Health Officials and selected state EH directors on state EH strategic plans</li> </ul>
BSC DFO	<b>Schedule a priority agenda item for the next meeting:</b> Overview by Dr. Frieden on his perspectives, as the CDC Director, on the alignment between EPH priorities agency-wide and the NCEH/ATSDR Strategic Plan priorities
BSC DFO	Distribute materials to the BSC for review: <ul style="list-style-type: none"> <li>• The spreadsheet that describes NCEH/ATSDR's responses to all of the BSC's input on the Strategic Plan over time (e.g., comment considered and "action taken" or the rationale for "no action taken")</li> <li>• Documents that demonstrate NCEH/ATSDR's key outcome and process performance indicators, including recent QPRs and FOAs released to states</li> </ul>

## Panel Presentation: Overview of the NCEH/ATSDR Water Safety Priority

### Judith Qualters, PhD

Director, NCEH Division of Environmental Hazards and Health Effects (EHHE)  
Centers for Disease Control and Prevention

Dr. Qualters presented an overview of NCEH/ATSDR's water-related initiatives and described EHHE's activities to address the Strategic Plan priority to ensure safe drinking water. Drinking water quality is a longstanding public health success story. Most notably, water disinfection has resulted in a dramatic decrease in waterborne disease rates since 1900. The EPA Safe Drinking Water Act (SDWA) regulates drinking water supplies in ~155,000 public water systems (or a coverage rate of 85%-90% of the U.S. population).

SDWA establishes maximum contaminant levels for >80 potentially harmful microorganisms, organic and inorganic chemicals, metals and radionuclides in drinking water. However, gaps exist in this federal regulation. Most notably, SDWA does not cover ~45 million Americans who still use federally unregulated drinking water systems (FUDWS). Minimal data have been collected on FUDWS locations, populations served by FUDWS, and potential contaminants and other health risks related to FUDWS. Small studies have found unsafe levels of contaminants in private wells, including radon, arsenic, nitrates/nitrites and microbial pathogens.

CDC's surveillance data on drinking water and health show that waterborne diseases cost the United States >\$1.8 billion annually. Both treated and untreated water (e.g., disinfected swimming pools, lakes, rivers and oceans) also are associated with recreational water illness and outbreaks. CDC published an *MMWR* supplement that reported of 60 water-related investigations in 1961-2010, ~50% were related to recreational water use (e.g., injuries and illness from incorrect use of pool disinfectants); 10 were related to chemical contamination of drinking water; and others were related to algal blooms, microbes and regulatory standards. Some of the investigations emphasized the need for more rigorous pool inspections and guidelines.

All NCEH/ATSDR divisions conduct water-related activities, including investigations around waste sites; capacity building and TA to states, tribes, localities and territories; disaster preparedness and response; development of laboratory and epidemiologic methods; vessel sanitation inspections; and epidemiologic studies. NCEH/ATSDR also responds to waterborne outbreaks from chemicals, biologic toxins, radionuclides, infectious disease pathogens and environmental antecedents of infectious diseases.

The NCEH/ATSDR safe water budget has remained at ~\$7-\$7.5 million since 2008. Despite level funding, NCEH/ATSDR leadership acknowledged the need for a cohesive water strategy and operational plan due to the wide range of activities and stakeholders. The scope of NCEH/ATSDR's current water activities, limited funding and staff, and the requirement to leverage resources were considered in the initial planning process.

At the division level, EHHE's mission is to protect people from environmentally-related illness, disability and death through surveillance, research and action. The EHHE Health Studies Branch maintains the Clean Water for Health Program and has expanded its focus from harmful algal blooms to the Private Well Initiative over time. Several factors informed this transition,

including input from states and other partners as well as lessons learned from TA, outbreak investigations and disaster response efforts. EHHE identified arsenic, uranium, nitrate and radon as priority contaminants to address in the immediate future.

Examples of EHHE's previous water-related activities are highlighted as follows. The Private Well Initiative was piloted in Maine to demonstrate capacity at the state level to access, compile and manage private well water data. Maine examined arsenic, manganese, uranium, fluoride and nitrates, created metrics at town and other geopolitical levels, and applied the data to drive water-specific actions.

EHHE and its partners assessed exposures on Navajo Nation reservations. The investigation showed that ~14,000 Navajo Nation households (or 30%) were not connected to public water systems. EHHE surveyed 297 Navajo Nation households to evaluate potential public health risks from drinking water. Unregulated water sources that exceeded EPA's uranium and arsenic levels were identified. In response to these findings, EHHE and its partners developed community educational materials that informed the provision of water hauling services to remote areas of Navajo Nation reservations.

EHHE conducted an Epi-Aid in the spring of 2013 that included focus groups with private well owners to assess their knowledge, attitudes and practices regarding drought. EHHE convened two focus groups each in Arkansas, Indiana and Oklahoma. Most focus group participants were conserving water and reported that 2012 was the worst drought season in history. Conservation measures and levels of worry or stress were higher in Arkansas and Oklahoma than in Indiana. Most participants had not tested their well water in the past five years. States will use the focus group findings to inform the development of drought responses.

EHHE's ongoing and new water-related activities are focused on three major efforts: (1) characterize exposures, health risks and health impacts from non-infectious drinking water contaminants; (2) guide the development of effective and evidence-based interventions for use at state, tribal, local and territorial levels; and (3) respond to environmental emergencies that impact unregulated drinking water sources.

EHHE has awarded contracts and CoAg funds to support water-related projects that are aligned with the NCEH/ATSDR Strategic Plan priority to ensure safe drinking water.

- Estimate the burden of disease from arsenic in private well water using 1992-2004 National Water-Quality Assessment (NAWQA) Program data (Abt)
- Model arsenic, uranium and nitrates in private wells using NAWQA data (University of Utah)
- Assess the knowledge, attitudes and practices related to water system use among tribal members (National Tribal Water Council)
- Evaluate the effectiveness of private well education programs (University of Illinois and National Ground Water Association)
- Conduct a CASPER to address impacts of the Elk River chemical spill

The EHHE National Environmental Public Health Tracking Network maintains environmental and health data into one easily accessible website. Tracking Network grantees in 23 states and New York City have made a number of notable accomplishments to date: collected data on ~11 contaminants from public water systems in states; collaborated with two universities to improve

water quality data by linking contaminants to specific health effects; developed a tool to map water distribution systems in California; and piloted indicators and measures for unregulated drinking water systems and private wells in coordination with the EHHE Private Well Task Force.

The EHHE Climate Ready and Health Program funds states and cities to implement climate adaptation strategies to protect vulnerable populations from potential health impacts of climate change. For example, the North Carolina Department of Health and Human Services used CDC funding to model a scenario in which storm surge would cause the failure of the critical drinking and wastewater infrastructure in coastal communities and ultimately lead to waterborne disease outbreaks.

North Carolina health officials used the climate change models to estimate flooding in coastal areas and map risks to the drinking water and wastewater infrastructure based on storm surge distances of 0.5, 1 and 2 miles. North Carolina will apply the climate change modeling data to guide preparedness planning and decision-making on future facility sites.

**Sharunda Buchanan, PhD, MS**

Director, NCEH Division of Emergency and Environmental Health Services (EEHS)  
Centers for Disease Control and Prevention

Dr. Buchanan described EEHS's activities to address the Strategic Plan priority to ensure safe drinking water. EEHS's mission is to advance EPH practice and emergency preparedness and response efforts to better serve and protect the health of all people in the United States. EEHS's partners have administered surveys that showed state, local, tribal and territorial health officials need leadership, oversight, TA and support in several water-related areas.

- Surface water and groundwater protection
- Regulations, inspections and licensing services related to swimming pools and private drinking water
- Unregulated drinking water systems
- Environmental factors associated with waterborne illness
- Recreational water
- Emergency response

In addition to addressing these needs, EEHS also conducts water-related activities in outbreak response, cruise ship inspections and chemical weapons elimination. For unregulated drinking water, EEHS oversees the \$1.6 million CoAg to 11 SHDs and LHDs. The CoAg funds are used to assess and manage risks associated with private wells and other FUDWS because state laws and regulations for private wells widely vary. At this time, >50% of states do not require testing of private wells after construction is completed.

For environmental factors associated with waterborne illness, EEHS oversees the EHS-Net CoAg with funding of \$892,000 to five SHDs and LHDs. The CoAg funds are used to identify environmental factors associated with foodborne and waterborne illness. A multi-site EHS-Net water project is underway to better understand the seasonality of non-community water systems in terms of the provision of safe drinking water and key vulnerabilities of these systems.

The EHS-Net grantees are conducting several water-related projects in their states. California is evaluating food and water safety risk factors associated with mobile food vehicles. Iowa is developing methods to minimize the risk of arsenic exposure in wells in Cerro Gordo by identifying groundwater arsenic concentrations, determining the potential sources of arsenic, and establishing well construction best practices. Tennessee is analyzing well water and water distribution by comparing land use, surface water and socioeconomic status to cryptosporidiosis and mapping locations of well water and onsite sewage.

Minnesota is conducting two EHS-Net projects: (1) demonstrate a linkage between private well water and enteric illnesses, such as *Campylobacter*, *Cryptosporidium* and Shiga toxin-producing *Escherichia coli* and (2) improving waterborne disease outbreak investigation reporting based on data from three states. An EHS-Net review was completed on the history of waterborne disease outbreaks to identify strategies to better protect communities from these outbreaks.

New York is conducting three EHS-Net projects: (1) determine the types and concentrations of pharmaceuticals and personal care products beneath onsite septic systems in Skaneateles Lake Watershed; (2) analyze problem alerts and concurrent emergency department syndromic surveillance in the state; and (3) assess and summarize private well testing in Rockland County to estimate whether contaminants in private wells exceed national and state drinking water standards.

For recreational water, EEHS has been collaborating with state and local public health officials and industry experts over the past five years to develop the Model Aquatic Health Code. This effort was initiated in response to injuries, exposures and contamination associated with pools in various aquatic facilities. The model code includes 12 modules that offer guidance and policies on the design, construction, operation, maintenance and management of aquatic facilities.

After the public comment period closes on May 27, 2014, the model code will be finalized and released before the 2015 swim season as the nation's first free, science-based model pool code. The model code will serve as a guidance document rather than a federal law to promote the development of recommendations to reduce illness and injuries. The model code will be targeted to public swimming pools, aquatic facilities, spas and water parks to help state and local agencies incorporate science-based practices into pool programs.

For emergency response, EEHS offers its "Environmental Health Training in Emergency Response" course to CDC staff, FEMA staff, and state, local and tribal jurisdictions at no charge. EEHS has provided TA and onsite support during emergencies, including Hurricanes Sandy and Irene, the cholera outbreak in Haiti and the *Campylobacter* water outbreak in Arizona. EEHS collaborated with EPA to develop and disseminate the Drinking Water Advisory Toolkit to provide states and localities with standard and uniform guidance on responding to a water emergency.

For cruise ship inspections, the EEHS Vessel Sanitation Program distributes the *Construction Guidelines and Operations Manual* to provide detailed guidance to the cruise ship industry. The guidelines cover potable water tanks and distribution systems, water treatment and recreational water facilities on cruise ships. EEHS also offers TA on evidence-based, cost-effective strategies to decrease exposure to contaminants and reduce risks during planned construction inspections and unannounced operational inspections.

For outbreak response, EEHS provided TA to address the EH components of recent *Legionella* outbreaks in an Indianapolis hospital, an Ohio retirement home, and resorts in Mazatlan, Mexico and northeast Georgia. For chemical weapons elimination, EEHS provides safety and health oversight at chemical weapons destruction facilities. For example, construction of a Colorado site will recover, recycle and reuse water used in the neutralization process to conserve water.

Drs. Qualters and Buchanan concluded their panel presentation by announcing that NCEH/ATSDR is now soliciting the BSC's input on the scope of its safe water portfolio, major gaps in these activities, and climate change, flooding, drought, new technologies or other significant emerging issues to consider.

The BSC discussed the following topics with Drs. Qualters and Buchanan on the NCEH/ATSDR water safety priority.

- NCEH/ATSDR's role in other water-related activities: responding to coal ash spills at sites and monitoring pesticides in water.
- The rationale for NCEH funding Tracking Network grantees in only 23 states and New York City.
- NCEH's ongoing efforts with partners to update its Drinking Water Advisory Toolkit due to weaknesses identified in the document during the investigation of the large industrial MCHM chemical spill that contaminated the Elk River in West Virginia.

The discussion resulted in the BSC making several suggestions in response to the request by Drs. Qualters and Buchanan for guidance on major gaps or emerging issues to improve NCEH/ATSDR's safe water activities.

- NCEH/ATSDR should be extensively engaged in ongoing federal efforts to provide education and address adverse health outcomes from the disposal of medications in sewer systems. In response to a report by the U.S. Government Accountability Office, EPA and other federal agencies signed a memorandum of understanding to establish a new steering committee to specify the roles and responsibilities, current activities and collaborative opportunities to address pharmaceuticals in water. NCEH/ATSDR should serve as CDC's lead on the new federal steering committee.
- NCEH/ATSDR should explore the possibility of contributing to the small number of epidemiologic studies that have reported a higher lifetime risk of developing asthma among infants who learn to swim before 6 months of age, swimmers at older ages, and chlorinated pool workers.
- NCEH/ATSDR should conduct research on the potential ability of hydraulic fracturing liquids to contaminate surface groundwater and drinking water.
- NCEH/ATSDR should develop guidelines or a standardized checklist of well water testing codes. Private well owners typically limit their testing to *Escherichia coli*, nitrates and/or arsenic only. NCEH/ATSDR also should collaborate with national professional associations to test the effectiveness of various dissemination methods due to the difficulty of reaching localities.
- NCEH/ATSDR should expand the Tracking Network database with data from a broader range of sources (e.g., the National Oceanic and Atmospheric Administration, National Science Foundation and U.S. Geological Survey) to produce a more interoperable, integrated and richer surveillance system.

## Public Comment Session

Dr. Kapil opened the floor for public comments; no participants responded.

## Updates by the BSC Federal Expert Members: Session 2

### **Kristina Thayer, PhD**

Director, NTP Center for the Evaluation of Risks to Human Reproduction  
National Institute of Environmental Health Sciences

Dr. Thayer reported that the National Toxicology Program (NTP) was established in 1978 as a non-regulatory interagency program and is headquartered at NIEHS. NTP's mission is to evaluate agents of public health concern by developing and applying modern toxicology and molecular biology tools. NTP established four overarching goals to achieve its mission.

- Coordinate toxicological testing programs within HHS
- Develop and validate improved testing methods and assure their ability to reduce, refine or replace the use of animals when feasible
- Develop approaches and generate data that strengthen knowledge about potentially hazardous substances
- Communicate information about potentially hazardous substances to health regulatory and research agencies, scientific and medical communities, and the public

NTP has ~110 staff, a budget of ~\$110 million and in-kind funding of ~\$30 million to target activities to two major areas. First, research is conducted on thousands of "nominated" agents that are evaluated in comprehensive toxicology studies. Rodent bioassay models typically are used in these studies, but high throughput screening model systems also are utilized. The results are communicated through technical reports, scientific publications and web-based materials.

Second, data are analyzed and reported, such as the Congressionally-mandated *Report on Carcinogens*; systematic reviews, development of methods and other non-cancer data analyses performed by the Office of Health Assessment and Translation (OHAT); and implementation of alternative model systems by the NTP Interagency Center for the Evaluation of Alternative Toxicological Methods.

Examples of NTP's communications and publications are highlighted as follows: technical reports (~600 two-year cancer assays); toxicity reports (~100 shorter-term non-cancer toxicity studies, immunotoxicity and developmental toxicity studies, AIDS therapeutics toxicity reports, and generally modified models); OHAT monographs (level of concern conclusions regarding current human exposure levels); the *Report on Carcinogens*; and ~300 research articles published in journals each year. All NTP reports are peer-reviewed and can be downloaded from the NTP website at no charge.

NIEHS allocates the majority of funding to NTP, but the FDA National Center for Toxicological Research and the National Institute for Occupational Safety and Health also contribute funds. NTP's organizational structure includes four offices and one interagency center at the OD level and four branches. NTP primarily operates in a mixed-management mode with a team science model and an interdependent cross-branch and cross-office matrix mode.

NTP develops its research programs in response to expertise and technical input provided by three key sources during both the nomination and review processes: internal NIEHS/NTP sources, external governmental sources and external non-governmental sources, such as the BSC. The timeline of the nomination process widely varies based on the scope, expense and availability of existing resources to advance the agent from a nomination to an actual research program. An iterative approach is applied to design and conduct each study and analyze data.

NTP uses rigorous criteria over multiple levels of review to determine the merit and need for a nominated agent to be prioritized for study.

- What is the production level and use of the agent?
- What is the known or anticipated human exposure to the agent?
- What is the suspected toxicity of the agent based on its chemical structure or existing data?
- What is the availability of adequate toxicological data for the agent?
- What is the extent of public concern regarding the agent?
- What is the utility of the agent in conducting additional studies for public health decision-making?

NTP's current research programs target the following issues: combination AIDS therapeutics, complex occupational exposures, dietary supplements, green chemistry, endocrine active compounds, flame retardants, food and drinking water contaminants, nanoscale materials, persistent environmental contaminants, personal care products, industrial chemicals, and radiofrequency radiation. In response to the BSC's request, Dr. Thayer confirmed that her update during the next meeting would include more details on NTP's green chemistry and complex occupational exposures research projects.

### **NCEH/ATSDR Response to Prior BSC Guidance**

#### **William Cibulas, PhD, MS, CAPT USPHS**

Senior Advisor for Public Health

Deputy Director, NCEH/ATSDR Office of Science

Dr. Cibulas explained that this item was placed on the agenda due to the BSC's request for NCEH/ATSDR to describe actions taken in response to its prior guidance. Based on the BSC's agreement, this item would be scheduled on all future meeting agendas. The BSC's guidance also would be captured and maintained in a spreadsheet that would be circulated to the responsible NCEH/ATSDR programs. Staff would then provide responses to the most relevant and timely topics during the upcoming meeting.

For the current meeting, Dr. Cibulas and the following NCEH/ATSDR staff would respond to the BSC's previous advice.

- Amy Wolkin, MSPH; Disaster Epidemiology and Response Team Lead  
NCEH Division of Environmental Hazards and Health Effects
- David Williams, PhD; Senior Advisor  
ATSDR Division of Toxicology and Human Health Sciences
- Lynn Wilder, PhD, CIH; Associate Director for Science  
ATSDR Division of Community Health Investigations
- Jennifer Lyke; Public Health Advisor, ATSDR Region 6 Representative
- Sharunda Buchanan, PhD, MS; Director  
NCEH Division of Emergency and Environmental Health Services
- Vikas (“Vik”) Kapil, DO, MPH, FACPOEM; Chief Medical Officer & Associate Director for Science, NCEH/ATSDR Office of the Director
- Julie Fishman, MPH; Associate Director for Program Development  
NCEH/ATSDR Office of the Director

<b>BSC Guidance</b>	<b>NCEH/ATSDR Response</b>
<b>LOGISTICS AND PROCEDURES OF BSC MEETINGS</b>	
Provide ongoing feedback to the BSC.	The BSC will be asked to reach agreement on whether the “NCEH/ATSDR Response to Prior BSC Guidance” should be a routine agenda item.
Reconfigure the time allotted for NCEH/ATSDR presentations and BSC discussions.	The current agenda shortened the 45-minute NCEH/ATSDR presentations and 15-minute BSC discussions to 30 minutes each. Depending on the importance of the topic (e.g., updates on the Strategic Plan), future agendas will allow for even longer BSC discussions.
Advise NCEH/ATSDR staff to end presentations with no more than three bullet points or questions for the BSC.	Targeted questions for specific agenda items were shared with the BSC prior to the meeting and after presentations during the meeting. Most notably, the BSC was asked to respond to specific questions on NCEH/ATSDR’s food safety and safe water activities.
<b>PUBLIC HEALTH SURVEILLANCE FOLLOWING EMERGENCY EVENTS</b>	
Establish relationships and collect surveillance data from police departments, emergency management agencies and other groups.	EHHE has been strengthening relationships with emergency managers over the past year. EHHE and the International Association of Emergency Managers have collaborated in identifying social vulnerabilities of at-risk populations and addressing their needs during each stage of a disaster. EHHE conducted in-depth interviews and convened a workshop with emergency managers across the nation to inform the project. EHHE developed public health tools and currently is creating a guidance document to assist emergency managers in identifying and following

BSC Guidance	NCEH/ATSDR Response
	<p>at-risk populations during all stages of a disaster. EHHE is leveraging the expertise of the Tracking Network to integrate public health and emergency management data to provide emergency managers with one source of data before and during a disaster and improve preparedness and response efforts.</p>
<p>Increase outreach and communications to inform states and localities outside of health departments.</p>	<p>The ATSDR National Toxic Substance Incidents Program (NTSIP) collects and maintains data on hazardous chemical releases across the country. SHDs closely collaborate with state emergency response entities (e.g., police and fire departments, emergency management services, hospitals/clinics and care providers) to gather and submit data to the U.S. Coast Guard National Response Center for further collection by NTSIP. ATSDR requires all NTSIP-funded states to collaborate with LHDs and emergency response entities in demonstrating effective public health practices based on NTSIP data each year. This approach allows ATSDR to maintain a collection of emergency public health surveillance data and evaluate the use of these data in the field. ATSDR hopes to increase the reach of NTSIP to states and localities through social media and additional training opportunities.</p>
<b>SITE-SPECIFIC ACTIVITIES AND EJ ISSUES</b>	
<p>Assure that site-specific activities address EJ concerns and ethical issues through extensive community engagement and outreach at the beginning of projects.</p>	<p><b>ATSDR</b> relies on Geographic Information System data to characterize a community before a site-specific project is initiated. For example, ATSDR investigated polychlorinated biphenyl (PCB) contamination of fish and crab at the Donna Reservoir and Canal Superfund Site in Texas. The demographics of the community are fairly unique with Hispanics accounting for 93% of the total population, children &lt;14 years of age accounting for 30% of the population, and the majority of the community living in temporary housing due to their recent emigration from Mexico. ATSDR and its state health partners conducted community outreach by educating local healthcare providers, restaurants, individual residents and <i>promotoras</i> on potential health risks from PCB exposure as well as health and childcare needs. These efforts resulted in a surprisingly positive unintended consequence of</p>

BSC Guidance	NCEH/ATSDR Response
	<p>LHDs increasing their focus on health issues associated with lead exposure.</p> <p><b>NCEH</b> routinely outreaches to all NCEH/ATSDR divisions and CDC programs to obtain up-to-date information on their EJ activities. These initiatives include “climate justice,” asthma and lead poisoning prevention. NCEH represents CDC on the HHS EJ Workgroup and currently is developing a website that will describe all of NCEH/ATSDR’s EJ-related programs. NCEH uses blogs, fact sheets and newsletters to widely publicize NCEH/ATSDR’s EJ activities to the public. NCEH is closely collaborating with EPA on its 2015 EJ Plan and is coordinating efforts with HHS to develop an EJ training course for staff in all HHS agencies. NCEH has initiated discussions with key federal partners on potential EJ-related research areas.</p>
<p>Report study findings in a manner that is appropriate for the specific community.</p>	<p>ATSDR currently is developing plain-language videos and other user-friendly materials that will be distributed before a site-specific project is initiated to ensure the community is well informed of its abilities and limitations. ATSDR is conducting several activities (e.g., targeted outreach, focus groups and customer satisfaction surveys) to obtain community input on gaps and areas of improvement of its extensive and highly technical site-specific documents. The language and format of these documents are being revised for communities to better understand their intent.</p>
<p><b>EPH LINKAGES WITH CLINICAL CARE</b></p>	
<p>Closely collaborate with other CDC National Centers and federal partners to explore strategies to better link EPH activities to the clinical care system.</p>	<p>NCEH/ATSDR’s EPH programs (e.g., the lead and asthma programs) routinely engage the clinical community in its activities. NCEH/ATSDR is increasing its focus on reimbursement and ACA because these issues will play a critical role in embedding EPH activities into clinical settings. NCEH/ATSDR’s new FOAs will emphasize the need for its EPH grantees to improve their linkages to clinical care. CoAgs for the asthma and tracking programs will be renewed in 2014 with explicit language for grantees to adhere to new requirements for healthcare system collaboration. NCEH/ATSDR serves on the CDC-wide workgroup that was formed to strengthen the public health-healthcare</p>

BSC Guidance	NCEH/ATSDR Response
	relationship. NCEH/ATSDR established a new workgroup that holds monthly meetings to ensure staff is aware of ongoing EPH-clinical care activities in all divisions. NCEH/ATSDR is developing a paper to describe the impact of ACA on EH issues. The American Public Health Association will host the “Environmental Health and Community Health Benefits: Moving Upstream to Prevent Harm” webinar on May 27, 2014 at 1:00 p.m.
Engage professional association partners to include EPH topics in medical and nursing school curricula.	The ATSDR Case Studies in Environmental Medicine Program is actively engaged with key clinical partners to include EPH topics into curricula for medical students, nursing students and students of other health professions. The ATSDR PEHSUs are maintaining their strong and longstanding relationships with the American Academy of Pediatrics and American Congress of Obstetrics and Gynecology (ACOG). ATSDR closely collaborated with ACOG on its recently published position statement on the linkage between EH issues and reproductive health.

The BSC thanked NCEH/ATSDR for providing a comprehensive response to its previous guidance. The members particularly noted that the longer discussion periods resulted in more substantive input by the BSC and a much more productive meeting overall.

**The BSC agreed by consensus that the “NCEH/ATSDR Response to Prior BSC Guidance” should be a routine agenda item.** NCEH/ATSDR confirmed that in the future, this agenda item would be held earlier in the meeting with time allotted for the BSC’s discussion.

ACTION ITEM	
Responsibility	Action Step
BSC DFO	Provide the BSC with language in the new FOAs for the asthma and tracking programs that will require grantees to collaborate with the healthcare system.

**BSC Business Session**

**Daniel Kass, MSPH, BSC Chair**  
 Deputy Commissioner, Division of Environmental Health  
 New York City Department of Health and Mental Hygiene

Mr. Kass opened the business session and called for the BSC's review, discussion and/or formal action on the following topics.

### **Topic 1: Establishment of a New Fracking Workgroup**

A motion was properly placed on the floor and seconded by Drs. Rebecca Head and Michael Kleinman, respectively, for the BSC to establish a new "Fracking Workgroup" that would focus on hydraulic fracturing and other environmental public health issues.

Dr. Richter questioned the need for a new BSC workgroup to formulate recommendations on hydraulic fracturing. NCEH/ATSDR is on public record about the importance of this issue, particularly in light of its expert consultation that was held to discuss the state of the science related to hydraulic fracturing. Dr. Richter concluded that guidance from a BSC workgroup would not be needed if NCEH/ATSDR applied recommendations from its expert consultation and initiated new hydraulic fracturing activities and research.

Dr. Ikeda responded that NCEH/ATSDR must be extremely selective in undertaking new research projects due to its overall limited budget, inflexible funding for some programmatic areas and competing priorities. However, formal guidance from the BSC, as the advisory body for CDC/ATSDR's EPH portfolio, would provide NCEH/ATSDR with additional leverage and justification to initiate new hydraulic fracturing activities and research.

**The motion passed by a majority vote of 10 in favor, 0 opposed and 3 abstentions: King, Ranchod, Strickland.**

Mr. Kass described the next steps for the BSC's newly-established workgroup. Because workgroups are not subject to FACA rules and regulations, the new Fracking Workgroup could meet as often as needed. NCEH/ATSDR would provide logistical support for the workgroup to meet remotely via teleconferences or webinars. The workgroup would report all of its findings and recommendations to the BSC for deliberation and formal action.

NCEH/ATSDR staff would participate on teleconferences to describe its collaborations and other activities related to hydraulic fracturing to assist the workgroup in refining its charge and future direction. For example, the workgroup could advise the BSC to nominate a set of hydraulic fracturing chemicals or byproducts for NTP's review and study. Another potential task of the workgroup could be to identify endpoints of interest that CDC and/or states should evaluate based on a broad EPH perspective.

The membership of the new BSC Fracking Workgroup is set forth below.

- Rebecca Head, PhD, DABT
- Daniel Kass, MSPH
- Michael Kleinman, PhD
- Shannon Márquez, PhD, MEng
- Bonnie Richter, PhD, MPH
- Kristina Thayer, PhD (Lead for the first workgroup meeting)
- NCEH/ATSDR staff as a technical advisor (to be determined)

## Topic 2: New Agenda Items

Dr. Kass noted that new agenda items proposed by the BSC over the course of the meeting would be captured in the minutes. However, additional topics to be considered should be e-mailed to him ([dkass@health.nyc.gov](mailto:dkass@health.nyc.gov)) and Dr. Kapil ([vkapil@cdc.gov](mailto:vkapil@cdc.gov)).

Dr. Kapil confirmed that NCEH/ATSDR would attempt to complete its internal review and clearance processes more rapidly in order to more quickly distribute the meeting minutes to the BSC. Several BSC members pointed out that the meeting minutes were extremely helpful in proposing new agenda items.

## Topic 3: Next BSC Meeting

Dr. Kapil confirmed that NCEH/ATSDR would poll the BSC members via e-mail within the next six weeks to determine their availability for the next meeting. The members would then be notified of the confirmed date.

In response to the BSC's previous request, Dr. Kapil confirmed that NCEH/ATSDR would convene the next BSC meeting at the Tom Harkin Global Communications Center located at CDC Headquarters. Efforts would be made to incorporate tours of the CDC Museum and Emergency Operations Center into the agenda.

## Closing Session

The BSC commended Mr. Kass for his outstanding role as the new Chair. The participants applauded NCEH/ATSDR OD staff for their continued excellence in planning and organizing the BSC meeting.

With no further discussion or business brought before the BSC, Mr. Kass adjourned the meeting at 12:00 p.m. on May 23, 2014.

I hereby certify that to the best of my knowledge, the foregoing Minutes of the proceedings are accurate and complete.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Daniel Kass, MSPH  
Chair, NCEH/ATSDR  
Board of Scientific Counselors



## Participants' Directory

### BSC Members Present

Mr. Daniel Kass, Chair  
Dr. Julia Gohlke  
Dr. Rebecca Head  
Mr. Himanshu Jani  
Dr. Ewa King  
Dr. Michael Kleinman  
Dr. Shannon Márquez  
Dr. Melissa Perry  
Mr. Sanjay Ranchod  
Dr. Matthew Strickland  
Dr. Phillip Williams  
Dr. Sacoby Wilson  
Dr. Robert Wright

### BSC Members Absent

Dr. Lisa Alvarez-Cohen  
Dr. Hillary Carpenter  
Dr. Kenneth Ramos

### BSC Federal Expert Members Present

Dr. Bonnie Richter  
U.S. Department of Energy

Dr. Kristina Thayer  
National Toxicology Program, National  
Institute of Environmental Health Sciences

Dr. Hal Zenick  
U.S. Environmental Protection Agency

### BSC Federal Expert Member Absent

Dr. John Decker  
National Institute for Occupational Safety  
and Health

### Designated Federal Official

Dr. Vikas ("Vik") Kapil  
Chief Medical Officer &  
Associate Director for Science,  
NCEH/ATSDR

### CDC/NCEH/ATSDR Representatives

Brian Awsumb  
Mary Jean Brown  
Sharunda Buchanan  
Paula Burgess  
Sascha Chaney  
William Cibulas  
Erik Coleman  
Stephanie Davis  
Scott Deitchman  
Julie Fishman  
Demetria Gardner  
Kathryn Harben  
Olivia Harris  
James Holler  
Kevin Horton  
Lindsey Horton  
Robin Ikeda  
Yulia Iossifova  
Chinara Kennedy  
Chris Kochtitzky  
Caroline Lagoy  
Lauren Lewis  
Shirley Little  
Jennifer Lyke  
Sandra Malcom  
Josephine Malilay  
Sarah Merkle  
Amy Mowbray  
Edward Murray  
Whitney Neal

Wellington Onyenwe  
Radhe Pennotti  
James Pirkle  
Judith Qualters  
Von Roebuck  
Helen Rogers  
John Sarisky  
Carol Selman  
LoNeka Shockley  
James Stephens  
Heather Strosnider

Jerry Thomas  
Jenny Van Skiver  
Germaine Vazquez  
Padmaja Vempathy  
Rachel Weber (Summer Intern)  
Robert Whitcomb  
LaToria Whitehead  
Lynn Wilder  
David Williams  
Amy Wolkin  
Alan Yarbrough



## Glossary of Acronyms

ACA	Affordable Care Act
ACCLPP	Advisory Committee on Childhood Lead Poisoning Prevention
ACOG	American Congress of Obstetrics and Gynecology
ALS	Amyotrophic Lateral Sclerosis
BeS	Beryllium Sensitization
BLLs	Blood Lead Levels
BSC	Board of Scientific Counselors
CAP	Community Assistance Panel
CASPER	Community Assessment for Public Health Emergency Reponse
CBD	Chronic Beryllium Disease
CDC	Centers for Disease Control and Prevention
CLPP	Childhood Lead Poisoning Prevention
CoAg	Cooperative Agreement
CPSC	U.S. Consumer Product Safety Commission
DFO	Designated Federal Official
DOE	U.S. Department of Energy
EEHS	Division of Emergency and Environmental Health Services
EH; EPH	Environmental Health; Environmental Public Health
EHHE	Division of Environmental Hazards and Health Effects
EHS-Net	Environmental Health Specialists Network
EIS	Epidemic Intelligence Service
EISOs	Epidemic Intelligence Service Officers
EJ	Environmental Justice
EPA	U.S. Environmental Protection Agency
FACA	Federal Advisory Committee Act
FDA	U.S. Department of Food and Drug Administration
FEMA	Federal Emergency Management Agency
FOA	Funding Opportunity Announcement
FQHCs	Federally Qualified Health Centers
FUDWS	Federally Unregulated Drinking Water Systems
HHS	U.S. Department of Health and Human Services
HUD	U.S. Department of Housing and Urban Development

INDD	Improvised Nuclear Device Detonation
LHDs	Local Health Departments
<i>MMWR</i>	<i>Morbidity and Mortality Weekly Report</i>
NAWQA	National Water-Quality Assessment Program
NCEH/ATSDR	National Center for Environmental Health/ Agency for Toxic Substances and Disease Registry
NHANES	National Health and Nutrition Examination Survey
NIEHS	National Institute of Environmental Health Sciences
NTP	National Toxicology Program
NTSIP	National Toxic Substance Incidents Program
NVEAIS	National Voluntary Environmental Assessment Information System
OD	Office of the Director
OHAT	Office of Health Assessment and Translation
ORD	Office of Research and Development
PCB	Polychlorinated Biphenyl
PEHSUs	Pediatric Environmental Health Specialty Units
QPRs	Quarterly Program Reviews
REP	Radiation Emergency Preparedness
RV BLL	Reference Value Blood Lead Level
SDWA	Safe Drinking Water Act
SHDs	State Health Departments
SMEs	Subject-Matter Experts
SNS	Strategic National Stockpile
TA	Technical Assistance
USPHS	U.S. Public Health Service
VSP	Vessel Sanitation Program