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 28-29, 2009
Atlanta, Georgia

Record of the Proceedings

TABLE OF CONTENTS

ATTACHMENT 1

List of Participants

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Dr. Michelle Kegler
Dr. Jonathan Patz
Dr. Robert Rickard
Dr. Timothy Ryan
Hon. Gerard Scannell
Mr. Matthew Stefanak
Dr. Andrea Taylor
Dr. Leonardo Trasande
Dr. David Wallinga
Dr. Cynthia Warrick

Designated Federal Official
Dr. Mark Bashor,
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NCEH/ATSDR

***Ex-Officio* Members**
Dr. Allen Dearry (National Institute of Environmental Health Sciences)
Dr. Lee Sanderson (National Institute for Occupational Safety and Health)
Dr. Hal Zenick
(U.S. Environmental Protection Agency)

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Sandra Malcom
Jacqueline Mason
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Paul Mehta
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ATTACHMENT 2

Acronyms Used In These Meeting Minutes

ALS	—	Amyotrophic Lateral Sclerosis
BLLs	—	Blood Lead Levels
BSC	—	Board of Scientific Counselors
CCEHIP	—	Coordinating Center for Environmental Health and Injury Prevention
CDC	—	Centers for Disease Control and Prevention
CHEs	—	Complex Humanitarian Emergencies
CLEH	—	Collegiate Leaders in Environmental Health
COTPER	—	Coordinating Office of Terrorism Preparedness and Emergency Response
CWEB	—	Chemical Weapons Elimination Branch
DHAC	—	Division of Health Assessment and Consultation
DHS	—	Division of Health Studies
DOD	—	Department of Defense
DOT	—	Department of Transportation
DRO	—	Division of Regional Operations
DTEM	—	Division of Toxicology and Environmental Medicine
EHAC	—	National Environmental Health Science and Protection Accreditation Council
EHSB	—	Environmental Health Services Branch
EPA	—	U.S. Environmental Protection Agency
EPH	—	Environmental Public Health
FDA	—	Food and Drug Administration
GAO	—	U.S. Government Accountability Office
GPA	—	Grade Point Average
HBCUs	—	Historically Black Colleges and Universities
HCDI	—	Healthy Community Design Initiative
HHS	—	Department of Health and Human Services
HIA	—	Health Impact Assessment
IERHB	—	International Emergency and Refugee Health Branch
JrCOSTEP	—	Junior Commissioned Officer Student Training and Extern Program
LPP/HHB	—	Lead Poisoning Prevention/Healthy Homes Branch
NCEH/ATSDR	—	National Center for Environmental Health/ Agency for Toxic Substances and Disease Registry
NGOs	—	Non-Governmental Organizations
OD/OS	—	Office of Director/Office of Science
PHAs	—	Public Health Assessments
PHE	—	Public Health Emergency
SUPEH	—	Summer Undergraduate Program in Environmental Health
USAID	—	U.S. Agency for International Development
VSP	—	Vessel Sanitation Program
WHO	—	World Health Organization

EXECUTIVE SUMMARY

The 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 28-29, 2009 in Atlanta, Georgia.

The NCEH/ATSDR Director provided an update on several important developments that occurred since the last BSC meeting in November 2008:

- CDC's response to the novel H1N1 outbreak.
- The newly-appointed CDC Director.
- The NCEH and ATSDR FY2009 budgets.
- NCEH/ATSDR's testimony before the House Science and Technology Committee Subcommittee on Oversight and Investigations in March 2009.
- NCEH's new FY2009 appropriation of $7.5 million for the climate change initiative.
- The FY2009 appropriations language that changed the name and expanded the scope of the Lead Poisoning Prevention Branch to the "Lead Poisoning Prevention/Healthy Homes Branch."
- ATSDR's ongoing efforts to develop a new amyotrophic lateral sclerosis registry with a broader focus on other neurological diseases.
- NCEH/ATSDR's collaboration with federal partners to address homes in the United States with Chinese manufactured drywall.
- NCEH's release of the *Fourth National Report on Human Exposure to Environmental Chemicals* in 2009.
- ATSDR's precedent in using the Superfund legislation to provide medical care to the Libby, Montana community

ATSDR reported on the progress that has been made since its initial response in 2007 to the BSC's program peer review of site-specific activities. ATSDR described its new or improved activities and operational changes in response to the BSC's recommendations to implement a strategic planning process across NCEH/ATSDR; enhance the relationship with the U.S. Environmental Protection Agency; strengthen support for the Cooperative Agreement Program; and make a commitment to high-quality applied research.

ATSDR described achievements that have been made by each of its four divisions: Division of Health Assessment and Consultation, Division of Regional Operations, Division of Health Studies, and Division of Toxicology and Environmental Medicine. ATSDR asked the BSC to provide input on whether appropriate progress is being made at this time or if ATSDR should focus on other areas.

NCEH/ATSDR presented an overview of the planning process, overarching goal and objectives, and target audience for the 2009 National Environmental Public Health Conference that will be held on October 26-28, 2009 in Atlanta, Georgia. NCEH/ATSDR received >600 abstracts for the six conference tracks: Healthy Places; Protecting the Public from Toxic Chemical Exposures; Sustainability and Public Health; Environmental Systems and Public Health; Chemical, Radiologic, Biologic and Natural Disasters; and Environmental Health Practice.

The NCEH/ATSDR Associate Director for Science and Designated Federal Official of the BSC proposed a new charge for the BSC to conduct program peer reviews in the future. Programs would be reviewed in four categories: mission, methods, performance and resources. Guidelines would be used to score programs as "outstanding," "excellent," "very good," "adequate" or "poor." The BSC was asked to give feedback on the proposed charge as well as information or materials that would be needed to conduct future peer reviews.

In preparation of the next BSC program peer review, NCEH presented comprehensive overviews of the Division of Emergency and Environmental Health Services and its six branches and programs: Lead Poisoning Prevention/Healthy Homes Branch; Environmental Health Services Branch; International Emergency and Refugee Health Branch; Healthy Community Design Initiative; Chemical Weapons Elimination Branch; and Vessel Sanitation Program.

NCEH/ATSDR presented an extensive update on the National Conversation on Public Health and Chemical Exposures, including the project goals, objectives, vision, public health approach, potential topics, extensive outreach efforts, upcoming activities and timeline. The BSC was asked to provide input on its potential role in the National Conversation, the most appropriate definition of "chemical," and the best outreach strategies to engage the public.

NCEH/ATSDR outlined the successes, key milestones and lessons learned from the first year of the Collegiate Leaders in Environmental Health (CLEH) Internship Program in 2008; described the characteristics, demographics and differences in the 2009 CLEH class; and presented the new Summer Undergraduate Program in Environmental Health.

NCEH/ATSDR formally responded to the BSC's program peer review of its internal clearance policies and external peer review procedures. ATSDR formulated its response in the context of the six categories in the BSC peer review report: scientific integrity, system issues: complexity, systems issues: Documentum, cross-organizational clearance, external peer review, and other concerns.

NCEH/ATSDR reported on the progress that has been made since its initial response in 2008 to the BSC's program peer review of the Preparedness and Emergency Response Program. NCEH/ATSDR described its new or improved activities and operational changes in response to the BSC's recommendations on strategic planning, internal and external communications, short-term funding, and workforce management.

NCEH/ATSDR was pleased to report that the BSC's peer review recommendations resulted in the CDC Coordinating Office of Terrorism Preparedness and Emergency Response changing its funding system. NCEH/ATSDR also used the BSC's recommendations to provide guidance to the acting CDC Director on enhancing the emergency preparedness and response workforce.

During the business session, the Chair made suggestions for the record on behalf of the BSC to improve the operation of BSC meetings and NCEH/ATSDR's programs and activities in the future. NCEH/ATSDR staff should conduct practice sessions in the presence of a supervisor or manager before making their presentations to the BSC to ensure the allotted time on future agendas is met. NCEH/ATSDR should take action on the BSC's previous request to decrease the number of presentations and increase the time for the BSC to ask questions and provide feedback.

NCEH/ATSDR should provide the BSC with materials and specific questions that would require feedback well in advance of meetings. This approach would allow the BSC to give more

thoughtful input and concrete recommendations during meetings. NCEH/ATSDR should identify and prioritize activities that are manageable with its relatively limited budget and workforce. The NCEH/ATSDR Deputy Director asked the BSC to provide input on whether developing future agendas with a "peer review theme" was the most appropriate use of the BSC's time and expertise during meetings.

The Chair called for public comment at all times noted on the agenda published for the May 28-29, 2009 BSC meeting.

The BSC did not reach agreement on convening the next meeting on November 5-6, 2009, December 3-4, 2009, or in conjunction with the National EPH Conference on October 26-28, 2009. The BSC would be polled by e-mail to determine the exact date of the next meeting.

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BOARD OF SCIENTIFIC COUNSELORS
May 28-29, 2009
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Minutes of the Meeting

The 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 28-29, 2009 at CDC's Chamblee Campus in Building 106, Conference Rooms 1A and 1B, in Atlanta, Georgia.

Opening Session

Dr. Janice Chambers, Chair of the BSC, called the meeting to order at 8:41 a.m. on May 28, 2009 and welcomed the attendees to the proceedings. She announced that BSC meetings are open to the public and all comments made are a matter of public record.

Dr. Chambers opened the floor for introductions; the list of participants is appended to the minutes as Attachment 1.

NCEH/ATSDR Director's Report

Dr. Howard Frumkin, Director of NCEH/ATSDR, covered the following areas in his update. The novel H1N1 outbreak resulted in 7,927 cases and 11 deaths in the United States as of May 27, 2009 at 11:00 a.m. NCEH/ATSDR deployed 32 staff to the CDC Operations Center to respond to the outbreak, including laboratory staff and a modeling group.

CDC implemented an operational review in preparation for the arrival of the new CDC Director, Dr. Thomas Frieden, in June 2009. Dr. Frieden is expected to review structural, functional and procedural changes as well as other recommendations that emerged from the operational review. Dr. Frieden has an impressive background in infectious diseases, chronic diseases and public health, including his positions as the Director of TB Control for the New York City

Department of Hygiene and Mental Health under CDC's Epidemic Intelligence Service; the head of TB Control in CDC's India Office; and the New York City Health Commissioner.

ATSDR's FY2009 ceiling budget of ~$75 million has remained flat for the past several years, but the actual ATSDR budget for payroll, contracts and extramural activities is ~$61 million after CDC deducts its portion. The ATSDR budget also includes NCEH's transfer of Congressional earmarks of $4.9 million for the amyotrophic lateral sclerosis (ALS) registry and $4.9 million for polycythemia vera studies. Because more of ATSDR's budget is dedicated to payroll each year, less funding is available for the discretionary and extramural line items. The ATSDR State Cooperative Agreement Program will suffer the largest funding cut in FY2010.

NCEH's FY2009 budget of $190.3 million is allocated to asthma, climate change, laboratory activities and biomonitoring, newborn screening, tracking, lead and healthy homes, landmine survivors, safe water, radiation, environmental health projects and terrorism. The NCEH FY2009 budget reflects an increase of $24.9 million for the following activities: $7.3 million for climate change, $8.3 million for laboratory activities and biomonitoring, and $7.3 million for tracking. Terrorism funding was cut by $1.3 million.

Dr. Frumkin reminded the BSC that he testified before the House Science and Technology Committee Subcommittee on Oversight and Investigations in 2008 on three specific issues: formaldehyde in trailers the Federal Emergency Management Agency deployed to the Gulf Region following Hurricanes Katrina and Rita, the Great Lakes Report, and the Brush Wellman site in Ohio. In a recent hearing in March 2009, his testimony before the Subcommittee more broadly focused on ATSDR's performance and activities.

In Dr. Frumkin's view, both the 2009 Subcommittee staff report and hearing were highly critical, one-sided and non-factual. However, he informed the Subcommittee that ATSDR initiated several actions following the 2008 hearing. To better address ongoing community concerns, ATSDR would revisit some of the four target sites discussed during the 2009 hearing: Vieques, Puerto Rico; Illinois Beach State Park; Colonie, New York; and Midlothian, Texas. ATSDR is rigorously reviewing its overall agency mission and several aspects of its operations.

CDC contracted Price Waterhouse to conduct an in-depth evaluation of ATSDR management. The assessment showed that ATSDR management is equivalent to the management of CDC centers and has no major problems. ATSDR charged the BSC with conducting a peer review of its science administration, particularly in the context of the peer review process and clearance policies. The BSC found ATSDR's peer review and clearance procedures to be sound and effective in general. Overall, Dr. Frumkin emphasized to the Subcommittee that ATSDR is performing well and produces solid science, but he acknowledged a number of areas need concrete improvements.

NCEH/ATSDR is now focusing on two key activities in response to the Subcommittee's requests following the 2009 hearing. The U.S. Government Accountability Office (GAO) initiated an audit of ATSDR in April 2009 and is expected to produce a report of its findings some time in 2010. An investigation is underway to identify a possible "cover-up" in CDC's published study on lead in drinking water in Washington, DC. NCEH/ATSDR looks forward to the closeout of the

Congressional hearings in order to focus its time, efforts and resources to becoming a better National Center and agency.

NCEH received a new appropriation of $7.5 million in FY2009 to advance its climate change initiative. NCEH will use the funding to build its internal staff on climate change; conduct intramural and extramural research and surveillance; build capacity by awarding pilot grants to state and local health departments; provide education, training and outreach; and use cooperative agreements to strengthen climate change partnerships with a number of professional associations. NCEH expects to establish a new "Climate Change and Health Branch" in the near future.

A change in the FY2009 appropriations language expanded the name and scope of the Lead Poisoning Prevention Branch to the new "Lead Poisoning Prevention/Healthy Homes Branch." The *2009 Surgeon General's Call to Action on Healthy Homes* will be officially released in June 2009 and will address key healthy housing objectives, including indoor air, drinking water quality, residential chemicals, housing structure and unintentional injuries. A pilot project will be launched in August 2009 to build strategic alliances for healthy housing.

ATSDR will convene an ALS meeting in June 2009 to (1) review results of four pilot studies on the feasibility of developing a national ALS registry from existing databases; (2) explore strategies to develop a national registry; (3) solicit recommendations from experts on the next steps to develop a new "National ALS Registry;" and (4) discuss multiple sclerosis surveillance projects. Pending legislation calls for ATSDR to establish disease registries for multiple sclerosis and Parkinson's disease that would be patterned after the proposed ALS registry.

NCEH/ATSDR, the U.S. Environmental Protection Agency (EPA), and state health and environmental agencies are supporting efforts of the Consumer Product Safety Commission to address ~60,000 homes containing Chinese manufactured drywall that have been built in the United States since 2006. Public, political and media attention have focused on reports regarding home damage and health symptoms.

NCEH/ATSDR's role in addressing Chinese manufactured drywall is to help design and interpret environmental sampling data; assess possible health implications; provide information to the public and clinicians; and ensure a coordinated multi-agency response. NCEH testified during a Senate hearing that was held on Chinese manufactured drywall earlier in May 2009.

NCEH will release the *Fourth National Report on Human Exposure to Environmental Chemicals* some time in 2009. The 4th National Report was expanded to cover 75 new chemicals, including bisphenol A, speciated arsenic, acrylamide and volatile organic chemicals. The goals of the 4th National Report are to characterize exposed populations, specific exposure levels, trends in and the efficacy of public health interventions, and reference values for public health and physicians. NCEH will continue to strengthen its understanding of the full value of the National Reports and utilize the data in the most appropriate manner.

ATSDR will soon set a precedent in using the Superfund legislation to provide medical care to the Libby, Montana community. The law contains provisions for EPA to declare a public health

emergency (PHE) and take actions that ordinarily would be prohibited, such as conducting cleanup activities inside the home. The PHE provisions also direct ATSDR to deliver medical care to exposed persons. Libby was the major site worldwide for producing vermiculite, but the chemical was found to be heavily contaminated with asbestos and asbestos-like fibers.

In preparation of EPA declaring a PHE at the Libby site, ATSDR and the Health Resources and Services Administration have been partnering to release a $6 million grant opportunity to the Lincoln County Health Department and a consortium of at least three healthcare entities to provide medical care to Libby residents. During the two-year grant cycle, screening and healthcare services will be offered to eligible persons with asbestos-related diseases in Lincoln County and EPA will continue its massive cleanup of the Libby site.

The federal government has been unsuccessful to date in utilizing the Superfund legislation or criminal justice laws to require the company that was clearly responsible for polluting Libby to share in the cost of providing medical care to residents. ATSDR is acutely aware that because Libby will set a precedent, other communities throughout the country might begin to request PHEs for their hazardous waste sites to assure the provision of medical care to local residents.

Dr. Frumkin provided additional details on NCEH/ATSDR's recent environmental public health (EPH) activities in response to the BSC's comments and questions. NCEH/ATSDR would provide more information on the ALS registry for the BSC to determine its next steps as an advisory committee on this initiative. For example, the BSC could use this information to write a letter in support of ATSDR's strong interest in expanding the ALS registry to include surveillance of other neurological diseases. NCEH/ATSDR then would widely distribute the BSC's letter to Congress, CDC leadership and advocates.

A fairly large amount of stimulus funding was allocated to HHS for CDC's healthy communities initiative. Although the CDC National Center for Chronic Disease Prevention and Health Promotion will extensively consider EPH principles in dispersing these funds to communities, stimulus dollars will not directly support NCEH/ATSDR's activities.

NCEH/ATSDR is currently focusing on efforts to blend public health principles and green chemistry. Most notably, NCEH/ATSDR is now using its opportunity of submitting comments on the Kid's Safe Chemical Act to support incentives for green chemistry and further expansion of biomonitoring. A portion of extramural grant funds for the climate change initiative most likely would be used to support international activities.

Dr. Frumkin concluded his update by presenting certificates of appreciation to three BSC members whose terms would expire in June 2009: Dr. Janice Chambers, Dr. Robert Rickard and Mr. Matthew Stefanak. Dr. Chambers was given an additional certificate and a token of appreciation in recognition of her outstanding leadership as the BSC Chair. The participants joined Dr. Frumkin in applauding the valuable service and contributions the three outgoing members have made to the BSC, NCEH/ATSDR, and the broader EPH community at international, national, state and local levels.

The BSC thanked Dr. Frumkin for providing an informative and comprehensive update on NCEH/ATSDR's recent EPH activities. In particular, Dr. Chambers raised the possibility of the BSC issuing a formal response to the Subcommittee's report that was released in April 2009. She noted that some portions of the report regarding the BSC's peer review of NCEH's clearance policies and peer review process were inaccurate.

Dr. Chambers confirmed that she would send the e-mail address of the Subcommittee report for each BSC member to read the document. She would then poll the members to determine their individual interest in issuing a formal BSC response. A conference call would be convened for the BSC to further discuss this issue as well as the proposal to expand the ALS registry to include surveillance of other neurological diseases

In general, several BSC members made comments and suggestions for NCEH/ATSDR to consider in refining its EPH initiatives.

- ATSDR should extensively partner with the Department of Defense (DOD) and Department of Veteran Affairs in developing the ALS registry. The review of the Gulf War syndrome showed that ALS appeared to be higher in troops returning from the Gulf War. As a result, these two agencies most likely would have a strong interest in allocating funds to ATSDR to support the development of the ALS registry.
- ATSDR should review its existing data on an ALS cluster at Kelly Air Force Base to inform the development of the ALS registry.
- ATSDR should make every effort to link all registries to the tracking program. This approach would enhance knowledge of the relationship between exposure and disease in specific areas where persons live, work and play.

Update on the BSC Program Peer Review of ATSDR's Site-Specific Activities

Dr. William Cibulas, Director of the ATSDR Division of Health Assessment and Consultation (DHAC), reported on the progress ATSDR has made since its initial response in 2007 to the BSC's program peer review of site-specific activities. The four ATSDR divisions coordinate to conduct site-specific activities. The Division of Regional Operations (DRO) makes initial contact with the site, coordinates local and regional activities, and provides front-line consultation, triage and emergency response.

DHAC has the major responsibility for producing public health assessments (PHAs) and health consultations. These documents serve as an evaluation of site-specific exposures and contain recommendations for site-specific public health actions. The Division of Health Studies (DHS) conducts health effects studies and provides epidemiologic and statistical consultation. The Division of Toxicology and Environmental Medicine (DTEM) produces toxicological profiles and ToxFAQs™ that are used to form the basis of PHAs and develops educational materials for health professionals.

The BSC reached the following conclusions in its peer review report that was presented to ATSDR in May 2007. ATSDR's site-specific activities have made a positive contribution to the health of communities and the public health infrastructure. ATSDR divisions have a good and shared understanding of the purpose of site-specific activities and an appreciation of their unique roles. ATSDR has a good record of responding to communities. ATSDR staff has produced a number of excellent communications for use at sites, such as toxicological profiles, ToxFAQs and site-specific fact sheets.

Dr. Cibulas's summary of ATSDR's progress in four of the BSC's 13 recommendations on site-specific activities is outlined below.

1. *Recommendation*: More formal processes for strategic planning should be considered within NCEH/ATSDR to strengthen alignment between site-specific activities and other programs. (Directed to all NCEH/ATSDR divisions)

   Progress: All divisions are undergoing strategic planning, including the development of a mission statement, vision statement, goals and objectives. All of the strategic plans will align with the NCEH/ATSDR, CDC and HHS goals. The National Conversation on Public Health and Chemical Exposures is expected to impact goal setting.

2. *Recommendation*: The relationship between EPA and NCEH/ATSDR should continue to be built. (Directed to all ATSDR divisions)

   Progress: The ATSDR divisions have strengthened their relationships with EPA through the following activities:
   - EPA Community for a Renewed Environment Program (DHAC, DRO)
   - EPA Brownfields Program (DHAC, DRO)
   - Emergency response activities (DRO, DTEM)
   - Removal programs for all regions (DRO)
   - Updated hazard category language (DHAC)
   - Libby, Montana site (DHS)
   - Great Lakes initiative (DHAC, DHS, DRO)

3. *Recommendation*: The Cooperative Agreement Program and local government interactions should be supported and new strategies to enhance funding for these activities should be supported. (Directed to DHAC and DRO)

   Progress: Funding has remained level from 2006-2009 and a 10% decrease is anticipated for 2010. The number of partners has decreased by one during the current funding cycle. Full funding of all states is estimated to be $35-$40 million. Additional FY2009 funding of $350,000 was allocated to five states to engage in land reuse and development sites.

4. *Recommendation*: The commitment to high-quality applied research that is relevant to human exposure to hazardous materials in the environment should be sustained. Investments should be made in promoting this research by aggressively utilizing existing

opportunities for establishing a scientific research agenda. (Directed to DHAC, DHS, DTEM)

Progress: DTEM developed computational toxicology molecular docking studies linking genomic variations with chemical exposures and autism. DTEM partnered with the NCEH Division of Laboratory Sciences to develop reverse dosimetry studies using computational toxicology modeling and data from the National Health and Nutrition Examination Survey to elucidate prior chemical exposures in the general U.S. population. DTEM developed interagency collaborative studies with EPA, the Food and Drug Administration (FDA) and National Institutes of Health using computational toxicology approaches to delineate new molecular biomarkers. DHAC and DHS conducted complex water modeling and epidemiologic studies for the Camp Lejeune site. DHS's polycythemia vera investigation defined areas of clusters and also identified and utilized a novel genetic test to accurately identify cases.

ATSDR has prioritized a number of next steps to make further progress on the BSC's recommendations. The National Conversation will be used to assist with establishing goals. Sites will be prioritized by public health impact to accommodate diminishing resources. Outreach and engagement will be enhanced with communities around all sites. Methodologies will be strengthened for addressing prototypic sites. Funding opportunities will be explored outside of Superfund to identify new project areas. The scope and depth of surveillance activities will be improved to achieve greater public health impact.

Dr. Cibulas concluded his update by asking the BSC to focus on two key questions during its discussion. One, given the recommendations the BSC made during the program peer review, is ATSDR making appropriate progress? Two, should ATSDR focus on other areas?

Dr. Cibulas provided additional details on ATSDR's site-specific activities in response to the BSC's questions and comments. ATSDR maintains a detailed database to track the length of time between the initial request for and the response to PHAs. ATSDR has made strong efforts to improve its timeliness by establishing a new goal to complete each PHA one year after the activity was accepted.

ATSDR developed a community needs assessment tool to determine the needs of the community at the beginning of the process. Dr. Frumkin has encouraged all senior managers to visit communities to increase ATSDR's leadership presence at sites. Moreover, ATSDR has strengthened its outreach and engagement at sites by asking local community organizers, leaders and other key stakeholders to attend public meetings and provide input on specific questions that should be asked during site visits. ATSDR is currently developing "Public Health Action Plans" to reach agreement with communities regarding expectations, all actions that would be taken at a site from the beginning until the end of the entire process, and a timeline.

ATSDR closely collaborates with state health departments during the health assessment process and uses these relationships to engage local health departments at sites. ATSDR also uses DRO staff to ensure that local health departments and other stakeholders are involved in all aspects of site-specific activities.

ATSDR convened a steering committee, held focus groups and partnered with communication experts to obtain external input on the updated hazard category language over a period of nearly three years. Although ATSDR initially believed this activity would be completed in six months, additional time was required to ensure that the updated hazard category language would serve the needs of ATSDR, regulatory agencies and community residents. ATSDR would present the updated language during the 2009 National Environmental Public Health Conference.

Dr. Chambers recalled that the BSC asked ATSDR to give an update on its progress one or two years after the peer review report on site-specific activities was presented in May 2007. She thanked ATSDR for responding to the BSC's request. The BSC advised ATSDR to take more aggressive actions to ensure the involvement of local health officials in site-specific activities from the outset of the health assessment process instead of solely relying on state health departments to make these linkages.

Overview of the 2009 National Environmental Public Health Conference

Mr. Adam Brush is a Conference Coordinator at CDC and is assisting the NCEH/ATSDR Program Development Team in organizing and planning the National Environmental Public Health Conference that will be held on October 26-28, 2009 in Atlanta, Georgia for >1,000 participants. NCEH/ATSDR's planning partners include >60 federal agencies and non-governmental organizations (NGOs). The overarching goal of the conference is to exchange scientific information and promote effective strategies that address the nation's existing and emerging environmental health challenges.

The objectives of the conference are to provide learning opportunities for the participants, highlight current research, extend the reach of innovative EPH practices, and translate issues and opportunities into policies or other solutions. The call for abstracts closed on May 22, 2009 with >600 abstracts submitted for consideration. Registration for the conference will open on June 1, 2009. At this time, keynote and plenary speakers are being invited; the program agenda is being developed; and communication tools are being designed.

The conference will be targeted to environmental health professionals in the public health, healthcare and academic sectors. Representatives from communities, organizations, advocacy groups and business groups are expected to attend the conference. Each of the six conference tracks will be co-chaired by an NCEH/ATSDR staff member and an external partner. The "Healthy Places" track will include sessions focusing on research and programs related to healthy communities, schools, housing, indoor and outdoor air quality, and the built environment. NCEH/ATSDR received 164 abstracts for this track.

The "Protecting the Public from Toxic Chemical Exposures" track will include sessions focusing on biomonitoring, exposure pathways, health impacts and interventions. This track will provide an opportunity to focus on specific hazardous substances and emerging toxic exposures.

NCEH/ATSDR received 171 abstracts for this track. The "Sustainability and Public Health" track will provide an opportunity to present and discuss issues related to climate change, land and energy use, and green institutions. NCEH/ATSDR received ~70 abstracts for this track.

The "Environmental Systems and Public Health" track will provide a forum to discuss the impact of changes in the earth's ecosystems on population health. Sessions in this track will focus on the interrelationship between human and animal health and EPH systems that monitor, control or prevent adverse health outcomes. NCEH/ATSDR received ~70 abstracts for this track.

The "Chemical, Radiologic, Biologic and Natural Disasters" track will provide a forum to discuss the anticipation of, response to and recovery from disasters. NCEH/ATSDR received ~40 abstracts for this track. The "Environmental Health Practice" track will provide learning opportunities on new and emerging tools for use in science, research and programming. Sessions in this track will focus on informatics, tracking, surveillance, geospatial research, laboratory science, modeling, capacity building, program implementation and evaluation. NCEH/ATSDR received 120 abstracts for this track.

The plenary and keynote sessions will focus on environmental health in the post-carbon economy; new opportunities to improve health and the environment from a federal perspective; an overview of the National Conversation; and environmental health in all policies. The conference is being planned and organized under CDC's "Go Green, Get Healthy" agenda to reduce unwanted environmental impacts of convening a large event.

A Green Team was established to select a green site; reduce the production of paper, exhibits and other conference items; identify healthier food choices; offer multiple recycling options; explore opportunities to purchase carbon offsets; and expand the use of electronic and new media. More information can be obtained on the conference from a web site at www.team-psa.com; Facebook at www.facebook.com; Twitter at twitter.com/NEPHC; and an e-mail address at nephc2009@cdc.gov.

Mr. Brush provided additional details on the conference in response to the BSC's questions and comments. NCEH/ATSDR is aware of budget and economic constraints that might not allow the full range of state and local partners and other traditional participants to attend the conference. A number of mechanisms are being considered to address this concern, such as airing live webcasts of the plenary sessions and specific conference tracks; posting abstracts on the CDC web site; attempting to leverage funds from NCEH/ATSDR Cooperative Agreement Programs and external partners to sponsor travel to the conference for students and other attendees; and holding a poster presentation for students.

Federal leaders have been invited to serve on a panel to discuss new opportunities to improve health and the environment. NCEH/ATSDR hopes the panel will include a member of Congress and representatives of other federal agencies. Agriculture and food will be one of the three topics presented and discussed during the plenary session on environmental health in all policies

The BSC commended NCEH/ATSDR on its outstanding efforts to date in planning and organizing the conference. The members made two key suggestions for NCEH/ATSDR to consider in its ongoing planning activities.

First, the $75 registration fee for students should be waived, particularly in light of the current economic crisis. Second, efforts should be made to obtain data from the ongoing health assessment on electricity production, transportation and food to inform the plenary session on environmental health in the post-carbon economy. The World Health Organization (WHO) and the London School of Hygiene and Tropical Medicine are conducting this initiative.

Overview of the Approach and Plans for Future BSC Program Peer Reviews

Dr. Mark Bashor, Associate Director for Science at NCEH/ATSDR and Designated Federal Official of the BSC, explained that all CDC and ATSDR extramural research must undergo external peer review and all intramural programs must undergo peer review every five years. The BSC has been conducting peer reviews of NCEH/ATSDR's intramural programs since 2004, but a new charge for program peer reviews was proposed.

Dr. Bashor gave the BSC members time to read the draft charge that was distributed in the meeting binders. The BSC was asked to provide input on whether the proposed charge was clear, appropriate and complete. Programs would be peer reviewed in four categories under the proposed charge: mission, methods, performance and resources. Guidelines would be used to score programs as "outstanding," "excellent," "very good," "adequate" or "poor."

The BSC also was asked to give feedback on information or materials that would be needed to conduct peer reviews under the proposed charge. The proposed documents included the program's mission and strategic plan; organizational placement of the program and its entity; internal and external collaborations; publications, reports, products and other accomplishments; resources in terms of funding and staffing; and curriculum vita of leadership, management and key staff.

The BSC's position was that the draft charge served as a solid basis to conduct future peer reviews. The members made several comments on the overall peer review process.

- The draft charge should have been distributed to the BSC prior to the meeting to ensure the provision of thoughtful, substantive and effective input. Moreover, the BSC should have been given at least a half-day to discuss the proposed charge due to the importance of the peer review process.
- Documents should be organized and provided to peer reviewers to match the four review categories.
- Materials should be given to peer reviewers far in advance of the site visit to assure a high-quality review.
- The possibility of extending the traditional 1.5-day site visit should be explored.

- The "primary client" of the peer review, such as the NCEH/ATSDR Director, Division Director or supervisors, should be clearly identified because the target audience would influence the nature of the questions asked during the review.
- The new scoring guidelines should not be used in the peer review process because this approach typically does not allow for an honest critique. For example, reviewers might be extremely reluctant to give a low score due to the fear that the program's budget might be cut or other punitive measures might be taken.
- New review categories should be added to ask questions on necessary next steps and provide a road map for the next set of peer reviewers to evaluate the program's progress over the past five years.
- The scoring guidelines should be revised for the reviewers to assess whether the program "met," "partially met" or "did not meet" specific criteria in improving its activities. Supporting commentary and suggestions for continuous improvement should accompany these criteria. The "outstanding" to "poor" scores should be removed. The Council on Education of Public Health accreditation standards should be reviewed as a model in this effort.
- Each reviewer should be assigned specific aspects of the peer review in advance of the site visit to increase the efficiency of the entire team during the limited time of the site visit.
- A facilitator should be engaged to guide the peer reviewers during the site visit, but the advantages and disadvantages of an external versus an internal facilitator should be recognized. On the one hand, an internal facilitator might have a bias to NCEH/ATSDR and less time to devote to the peer review. These issues might be resolved by recruiting a full-time internal facilitator from CDC to assure independence from NCEH/ATSDR. On the other hand, an external facilitator would have less knowledge of NCEH/ATSDR and the peer review process. This issue might be resolved by using former BSC members who served as program peer reviewers in the past or former CDC directors with institutional knowledge who are now employed by academic institutions.

The BSC's suggestions and comments on the four review categories of the draft charge are outlined below.

- The "mission" category should be expanded with additional questions on the objectives of the program and the ability of the program to meet metrics and objectives.

- The "methods" category should be expanded with additional questions on:
  - The responsiveness and flexibility of the program to sufficiently address changes in priorities or shifts in targets.
  - Innovation of the program in terms of developing novel or cost-effective research technologies or tools.

- The "performance" category should be expanded with additional questions on:
  - The existence and adequacy of performance measures or benchmarks to determine the effectiveness of the program.
  - Actual impact and accomplishments of the program.

- The “resources” category should be expanded with additional questions on:
  - The sufficiency or inadequacy of finances for the program to conduct its activities.
  - Appropriate accountability and responsibilities of the program.
  - Institutional commitment to support the program with funding, staff, equipment and other resources.

The BSC’s suggestions and comments on materials that would be needed to conduct peer reviews under the proposed charge are outlined below.

- Data from reviews or audits conducted by external groups, such as the GAO audit of ATSDR and the Price Waterhouse evaluation of ATSDR management.
- A guidance document that clearly delineates the framework of the review, including the location, timeline, scope, individuals involved, expectations, target audience for the recommendations, and format for the final document.
- NCEH/ATSDR mandates with no flexibility versus non-mandated activities that could be changed.

Overview of the NCEH Division of Emergency and Environmental Health Services (EEHS)

Dr. Sharunda Buchanan, Director of EEHS, explained that EEHS focuses on a number of challenging issues, including lead poisoning prevention, cruise ship inspection, war-related injuries, healthy homes, drinking water and food safety. She further explained that EEHS has disparate programs, but all of its activities fall into one of CDC’s health protection goals: healthy people, healthy places, preparedness and global health. However, the majority of EEHS’s projects focus on the healthy people and healthy places goals for healthy homes, communities, schools, workplaces, healthcare settings, institutions and travel and recreation.

EEHS operates its programs with a budget of $55 million and a multidisciplinary staff of ~120 personnel, including environmental health scientists, public health advisors, veterinarians, behavioral scientists and sanitarians. EEHS’s overall mission is to create and shape healthy communities through environmental health practice by revitalizing the EPH system, building capacity, developing policy, improving practice and sustaining health.

Dr. Buchanan asked the BSC to focus on several key questions during the upcoming program peer review of EEHS. Are EEHS’s service programs adequately science-based? Are EEHS’s investments in translation and operations research sufficient? Is EEHS adequately measuring the utility of its programs? Does EEHS have sufficient resources for its mission? Are EEHS’s programmatic focus areas relevant or does a need and opportunity exist for change?

Dr. Buchanan noted that a number of issues should be considered to determine whether all elements of EEHS should be included in the program peer review. The Lead Poisoning Prevention/Healthy Homes Branch obtains external advice from a separate committee chartered under the Federal Advisory Committee Act.

The Vessel Sanitation Program is supported through a pay-for-service agreement with the cruise ship industry. A decision should be made on whether the program should be reviewed through a separate process that would focus on its services. The Chemical Weapons Elimination Branch is funded through a memorandum of understanding with DOD. A decision should be made on whether the branch should be reviewed separately.

Dr. Buchanan concluded that the major outcome of the program peer review would be to assess EEHS's ability to weave science, policy and practice in a successive and organized manner. She yielded the floor to senior leadership of the EEHS branches and programs to provide overviews in preparation of the BSC's upcoming program peer review.

Lead Poisoning Prevention/Healthy Homes Branch (LPP/HHB). Dr. Mary Jean Brown, Chief of LPP/ HHB, explained that HHS established a goal to eliminate blood lead levels (BLLs) $\geq$10 µg/dL among children 1-5 years of age by 2010. A Federal Task Force was convened with a number of government agencies to develop a coordinated strategy to achieve this goal. The Federal Task Force disbanded, but will be revitalized in 2009.

A number of accomplishments have been made since the inception of the Lead Poisoning Prevention Branch in 1990. Nearly 60 childhood LPP programs were funded to develop, implement and evaluate LPP activities. Technical assistance was provided to support the development of state and local lead screening plans. Agreements were fostered between state and local health departments and state Medicaid agencies to link surveillance and Medicaid data.

Training was provided to public health professionals, including current LPP/HH training to 19 land grant colleges. The Childhood Blood Lead Surveillance System was established through which 46 states currently report data to CDC. Public health laboratory capacity was expanded in all funded states. Targeted screening and case management guidelines were published to identify and manage children with elevated BLLs. LPP policies have made a tremendous impact on steadily reducing the average BLL of children in the United States, decreasing the percent of children with BLLs $\geq$10 µg/dL, and significantly closing the gap in racial/ethnic disparities of elevated BLLs among African American, Mexican American and white children.

CDC recently expanded its traditional focus on lead to a more holistic approach that will address the impact of housing on health. Existing knowledge, skills, personnel and best practices that have been developed for lead will be applied to other housing conditions, such as mold, moisture, ventilation and injuries. However, strategies are needed at this time to structure a research agenda to make the transition from lead to healthy homes.

CDC's current lead infrastructure includes a multidisciplinary workforce of 38 staff with expertise in program development and evaluation, epidemiology and surveillance, and policy development. Of LPP/HHB's total budget of $32 million, $27 million is allocated to 40 state and local programs under cooperative agreements and $1.8 million is awarded to contracts.

In addition to the need to develop a healthy housing research agenda, other challenges also exist in making the transition to healthy homes. No new funding for healthy housing has been appropriated to date, but legislation is on the horizon. Development of a healthy housing infrastructure was initiated at federal, state and local levels with training and a $600,000 healthy housing notice of funding availability, but 67 applications were submitted in response to this request. Some LPP programs will be restricted from shifting to healthy housing due to authorizing legislation at state and local levels.

Despite these challenges, several activities are underway to advance the healthy housing agenda. The *2009 Surgeon General's Call to Action on Healthy Homes* will be officially released on June 9, 2009 and will address key healthy housing objectives, including indoor air, drinking water quality, residential chemicals, housing structure and unintentional injuries. HHS's 2020 Healthy Housing objectives were developed by subject matter experts and are consistent with the Surgeon General's Call to Action. Lead poisoning surveillance systems are being expanded to include healthy homes factors. Environmental justice principles will guide the healthy housing initiative.

A Healthy Housing Variable Workgroup was established with both CDC experts and external partners. The workgroup agreed to incorporate the following healthy housing factors in the next iteration of the lead poisoning surveillance system: smokers in the home, mold, smoke alarms, rodents, carbon monoxide detectors, asthma, insects and poisons. The revised lead poisoning surveillance system will be tested in June 2009 and launched in the fall of 2009.

Dr. Brown asked the BSC to consider four strategies that potentially could be used to prioritize healthy housing research. The research could be aligned with other national priorities, such as the green and healthy agenda and the role of healthy housing in reducing healthcare costs. The most significant healthy housing impacts could be demonstrated for asthma, burns, depression, falls and other health outcomes. Early success that would be expected from adopting healthy housing interventions could be highlighted, such as smoke alarms, ventilation and integrated pest management. Healthy housing research could be prioritized based on the interest of outside partners.

Research investments will be targeted to five key areas that demonstrate the role of healthy housing in improving physical and mental health. Additional housing factors that harm, promote or protect the health of individuals will be identified. An understanding of the causal sequences of events leading to specific injuries will be developed. The physiologic pathway that links the housing environment and mental health will be described. A deeper understanding of building practices that improve the health of residents will be developed. Scientific and analytic methods that are available to researchers who undertake formative research in this area will be improved.

Research investments also will focus on the long-term economic benefits of healthy housing. Further research is needed to determine the relative benefits and costs of modern construction practices, such as increasing the width of stairs and traction on floor surfaces, improving home lighting and installing handrails. The potential for cost-savings and other benefits that result in improvements in both the health of residents and cost-savings through energy conservation

should be investigated as well. Efforts will be made to leverage funds from the weatherization program that will receive $1 billion in economic stimulus funding.

Environmental Health Services Branch (EHSB). Mr. Robert Blake, Chief of EHSB, explained that EHSB was established in 1999 with a mission to improve EPH services and develop a cadre of EPH professionals to prevent adverse environmental exposures and health consequences to the public. EHSB conducts its activities with a budget of $7 million and 37 full-time and non-full-time equivalents.

EHSB supports state, local, tribal and territorial EPH programs that conduct diverse activities in the following areas: food service inspections, outbreak investigations, emergency preparedness and response, drinking water systems, wastewater systems, vector control, chemical hazards, indoor air quality, childhood lead poisoning prevention, pollution prevention, educational materials and EPH innovation.

The robust workforce that is needed to address state and local EPH issues is not available in the United States. A number of trends significantly impact this crisis. First, environmental factors cause outbreaks of foodborne illness that are now more frequent and complex, such as the *Escherichia coli* outbreak associated with spinach from contaminated irrigation water. EHSB's role in foodborne outbreaks is to supply appropriate environmental data to inform and support ongoing investigations, conduct environmental assessments, and link food and water safety programs. EHSB also provides technical assistance to state and local programs by educating restaurant owners, inspecting restaurants and identifying environmental causes.

CDC's Environmental Health Specialists Network conducts practice-based research to identify environmental causes of illness outbreaks to inform prevention efforts. EHSB was involved in an investigation of tomato-related risk factors for *Salmonella* proliferation and efforts to change national policy on the sale of undercooked meat to children. EHSB is now collaborating with federal partners on developing a voluntary National Environmental Information System to capture existing data from environmental assessments conducted during outbreaks.

Second, severe storms and other emergencies from climate change are increasing. EHSB designed the Environmental Health Training in Emergency Response course with nine modules targeted to state, local, tribal and territorial EPH staff. The modules focus on potable water, mass sheltering, vector control and food safety. EHSB recently established a new relationship with the Department of Homeland Security to pay for state and local practitioners to attend the training course. EHSB is currently developing intermediate and advanced levels of the training course.

The Environmental Public Health Leadership Institute enhances capacity by providing leadership training in systems thinking to address root causes of EPH problems. Under this initiative, a fellow designed a project to include health indicators in the Austin, Texas climate change action plan. The study was recently published in the *Journal of Environmental Health*.

Third, financial and resource issues are severely affecting the EPH workforce. The number of skilled EPH professionals is limited. The EPH role at the local level has been reduced to a

"checklist" approach resulting in the loss of systematic and scientific thinking that is needed to identify and prevent problems. The reduced role has led to fees-only programs that provide EPH professionals with lower pay, less respect and more repetitive work. Enrollment in accredited college courses in EPH has declined and careers in EPH are less attractive to the most talented recruits.

The EPH workforce crisis has resulted in unhealthy communities that have less resilience to emergencies and natural disasters; more sickness, death and healthcare costs; and lower quality of life. Local businesses have lost money as well. A survey was administered to local health departments that showed dramatic budget cuts, significant staff layoffs and weakened organizational structures. In an effort to address the EPH workforce crisis, EHSB created a "staircase plan" to develop and improve EPH capacity to respond to all outbreaks and emergency events and fully prevent disease, injury and disability by 2020.

Individual "stairs" in the plan include expanding environmental health training in emergency response; staffing existing performance standards and voluntary accreditation at state and local levels; enhancing the EPH Leadership Institute; expanding Environmental Health Specialists Network research and data systems to include water-, food- and vector-borne issues; creating regional EPH Training Academies; enumerating the current EPH workforce; conducting research to improve EPH service delivery; broadening the reach of accredited EPH undergraduate programs through internships and apprenticeships; and building an Environmental Health Service Corps, including inactive reserves, to strengthen capacity at the federal level to respond to acute emergencies in local communities.

EHSB also is taking other actions to strengthen the EPH workforce. Federal partnerships are being enhanced with a number of agencies. Efforts are underway to influence GAO or the Institute of Medicine to publish a report highlighting the EPH workforce crisis. External coalitions will be formed to deliver consistent EPH messages. A budget line item hopefully will be established for EPH services in response to a recommendation that was made during the last peer review of EHSP.

***International Emergency and Refugee Health Branch (IERHB)*:** Mr. Michael Gerber, Chief of IERHB, explained that IERHB was established more than 30 years ago with a mission to improve the health of and reduce mortality and morbidity in populations affected by complex humanitarian and other international emergencies, such as war, famine, civil strife, disaster and displacement.

IERHB's multidisciplinary workforce of 24 staff coordinates CDC's response to complex humanitarian emergencies (CHEs). IERHB also serves as CDC's major provider of technical leadership and scientific consultation on CHE and emergency health issues to the international community. IERHB provided ~80 humanitarian assistance missions outside the United States in FY2008.

IERHB is responsible for a number of technical areas, including water and sanitation, mental health, epidemiology and surveillance, communicable diseases, war-related injuries, nutrition and food security, reproductive health, vaccine preventable diseases, outbreak response and

control, evaluation and application of technology. IERHB enhanced its efficiency in addressing this multitude of technical areas by grouping activities into one of four broad categories: humanitarian action, operations research, capacity building and policy.

A model in which IERHB's expertise was utilized to shift an international community from an emergency to preparedness mode is described as follows. IERHB provided scientific consultation for a large cholera outbreak in Zimbabwe that started in August 2008. The outbreak was initially contained in urban and peri-urban communities, but spread to rural areas and eventually led to a breakdown in urban water and sewage treatment systems and contamination of drinking water supplies.

The cholera outbreak of ~120,000 confirmed cases affected 60 of 62 districts in Africa, resulted in 4,152 deaths with a four-fold case fatality rate of 4.4%, and spread to surrounding countries. IERHB immediately recognized the need for long-term prevention strategies rather than an outbreak response, particularly in light of the upcoming cholera season.

IERHB provided technical assistance to the Office of Foreign Disaster Assistance in assessing the magnitude of the outbreak, visiting affected communities, reviewing and developing water and sanitation strategies, and advising the Ambassador to declare an emergency. CDC and UNICEF are now compiling lessons learned from the Zimbabwe cholera outbreak to protect the remainder of the region in Africa.

CDC and UNICEF will jointly take a number of actions to achieve this goal. Principal modes of cholera transmission will be identified. The effectiveness of water and sanitation interventions will be evaluated to inform regional preparedness. A systematic assessment of the water and safety response in Zimbabwe will be conducted. Standardized data collection tools and methodologies will be developed to evaluate water and sanitation interventions for current and future cholera outbreaks. The epidemiology of recent outbreaks in the region will be reviewed to implement appropriate environmental responses. Water and sanitation guidelines will be created for the control of cholera outbreaks.

Mr. Gerber noted that during the upcoming program peer review of EEHS, the BSC would need to consider several issues unique to IERHB. IERHB provides advice and guidance on global emergency aid, but does not actually implement these activities in international countries. IERHB is challenged by shifting from data collection to a policy focus.

IERHB recognizes the need to increase the impact of its advice, but its guidance is based on the policies of partners, such as the U.S. Department of State, United Nations, U.S. Agency for International Development (USAID) and NGOs. IERHB has made efforts to enhance implementation of its guidance and strengthen the impact of its advice in the field by deploying several strategies focusing on education, funding, communications and the "CDC brand."

Healthy Community Design Initiative (HCDI). Dr. Arthur Wendel is a Medical Officer in HCDI. He explained that HCDI was established in 2002 with a mission to improve understanding and enhance relationships between health and community design. Community design has a

tremendous impact on public health and is used as an important tool to plan and build neighborhoods, towns, cities and regions to make sustainable improvements.

HCDI conducts its extramural and intramural activities with a $2 million budget and a multidisciplinary workforce of 7.5 staff that includes a team lead, medical officer, community planner, Presidential management fellow, project officer, program operations specialist, health communications specialist and nutritionist. HCDI's focus sectors of transportation, land use and greenspace are designed to impact the following health outcomes: obesity and physical activity, health effects of climate change, injury and pollution exposure.

Model projects in HCDI's six categories of activities are described as follows. For "surveillance," HCDI contracted Thunderhead Alliance to conduct a benchmarking project to synthesize existing data on bicycling and walking in the United States and health data, such as obesity rates.

For "health impact assessment" (HIA), HCDI established a research agenda in collaboration with external partners; built HIA capacity through training, technical assistance and state pilot programs; provided guidance on incorporating health impact into environmental impact assessments; and published an article to describe and characterize the current use of 27 HIAs in the United States. HIA is a process to prospectively define potential health outcomes of a project, program or policy and determine methods to enhance positive benefits and mitigate negative effects.

For "evaluation," HCDI assessed the effectiveness of two Department of Transportation (DOT) programs that were designed to improve the health and safety of children who walk to school. HCDI launched DOT's $100 million "Non-Motorized Transportation Pilot Program" in four communities and leveraged technical expertise and funding to integrate health into the evaluation. HCDI collaborated with the Safe Routes to School National Partnership to conduct health-focused evaluations of DOT's $612 million "Safe Routes to School Program" at four low-income schools. The program is implemented in all 50 states.

For "policy," HCDI is participating in discussions with a number of partners regarding the influence of transportation policy on health in preparation of the upcoming reauthorization of the Federal Highway Bill. HCDI provided technical assistance and helped to convene an expert panel review to ensure that health was incorporated into design standards developed by the U.S. Green Building Council's Leadership in Energy and Environmental Design for Late Neighborhood Development.

For "research," HCDI is analyzing changes in physical activities of persons who relocate to walkable communities. HCDI also published a number of papers in 2008 and 2009 on HIA, transportation and land use to demonstrate the relationship between community design elements and health.

For "communications and education," HCDI assisted in developing and teaching a combined urban planning/public health course to master's students. The Safe Routes to School National Partnership produced six best practices monographs under HCDI's direction. HCDI established

an internal Built Environment Workgroup with staff from multiple CDC centers to discuss recent healthy community design projects. HCDI sponsored a Journal Club to highlight the latest research in healthy community design. HCDI makes presentations at a variety of events to deliver important messages on healthy community design to a broader audience.

HCDI acknowledges three key limitations in advancing its activities. HCDI's role and scope need to be clearly defined both inside and outside of CDC. Strategies are needed to establish strong linkages between key external stakeholders and HCDI. Funding has been relatively uncertain for HCDI.

Despite these limitations, HCDI will make strong efforts to take advantage of existing opportunities. The obesity and physical activity, climate change, injury, air pollution and other key health sectors will be further engaged to focus on HCDI's health outcomes of interest, community design components and specific activities. New external partnerships will be built with the land use, transportation, planning and environmental protection sectors.

HIA, evaluation and capacity-building programs will be established. Indicators and surveillance for healthy community design will be developed and improved over time. If additional funding becomes available in the future, plans will be designed to enhance HCDI through implementation of strategies and better understanding of and linkages between health and community design connect.

Chemical Weapons Elimination Branch (CWEB). Mr. Joseph Padayhag presented the overview on behalf of Mr. Terry Tincher, Chief of CWEB, who was unable to attend the meeting due to an unexpected illness. Mr. Padayhag explained that CWEB conducts its activities with a workforce of 14 staff and contractors, including the Branch Chief, an environmental engineer, public health analyst, administrative assistant, chemical safety engineer, environmental engineer, two chemical engineers, two industrial hygienists, and three medical and occupational health chemists.

CWEB is fully funded by DOD and is Congressionally mandated to review engineering safeguards, methods and other details of plans for the disposal and transportation of chemical weapons and open air testing. The nine original chemical weapons stockpile sites in the United States were located in Anniston, Alabama; Blue Grass, Kentucky; Edgewood, Maryland; Johnston Atoll; Newport, Indiana; Pine Bluff, Arkansas; Pueblo, Colorado; Tooele, Utah; and Umatilla, Oregon. Of 31,496 tons of chemical weapons the nine original sites stockpiled, the current seven sites have eliminated ~60% of the stockpile. In terms of non-stockpile burial locations, 100 locations are suspected in 40 states and two U.S. territories.

CWEB's key projects and milestones in 2008 included (1) destruction of the nerve agent stockpile at all active U.S. sites; (2) health and safety reviews on chemical agent destruction technologies and monitoring systems; (3) evaluation of secondary waste, offsite shipment of waste and heat stress programs for workers; and (4) evaluation of a controlled detonation chamber for destruction of recovered chemical warfare material in Hawaii.

CWEB has several important initiatives underway in 2009 in collaboration with key partners. CWEB is investigating toxicology issues with sulfur and ether mustard and GB hydrolysate with outside experts and will publish the findings in the future. CWEB is evaluating its involvement in the Chemical Stockpile Emergency Preparedness Program in preparation for the start-up of new facilities. CWEB is partnering with the State Department on threat reduction of industrial chemical dual technology in high-risk countries.

CWEB has planned a number of key projects and initiatives for the future. CWEB will capitalize on its strengths in engineering and risk evaluation as a transition is made into other environmental and public health areas due to the elimination of chemical weapons at all stockpile sites by 2012. CWEB will continue to focus on non-stockpile sites because the mission of these sites was extended to 2020.

CWEB will continue to review the designs for the assembled chemical weapons alternatives at the Colorado and Kentucky sites and will adhere to the requirement for non-incineration technologies. CWEB will develop a model to evaluate the risk of underwater munitions and also will continue to expand its role in storage of chemical weapons, recovery of underwater munitions and international efforts to destroy chemical weapons.

Vessel Sanitation Program (VSP). Capt. Jaret Ames, Chief of VSP, explained that VSP was established in 1970 with a mission to prevent the introduction, transmission or spread of communicable diseases into the United States as well as to assist the cruise ship industry in developing and implementing comprehensive sanitation programs to minimize the risk for transmission of gastrointestinal diseases.

VSP conducts its activities in Atlanta and Ft. Lauderdale offices with a workforce of 13 staff, including eight environmental health officers, a health service officer, project analyst, medical epidemiologist and two administrative assistants. VSP's $2.2 million annual budget is solely funded through a fee-for-service agreement with the cruise industry that was established in 1987. VSP's operating area includes ports in all U.S. states and territories, but international consultations, outbreaks, and construction inspections and reviews require VSP to travel to foreign countries on a monthly basis as well.

VSP faces a number of scientific challenges in conducting its activities. VSP's applied public health program is based on evidence from current science, standards and codes that were developed for land-based sanitation and must be translated for ship-based sanitation. VSP has used evidence from its program experience of more than 30 years to develop principles and standards for the cruise industry that might not be applicable to the land-based sanitation community.

VSP's stronger focus on applied public health elements rather than research presents a significant challenge in terms of developing evidence-based science to inform decisions and policies in operations, construction, outbreak management, variances, and questions from the public, cruise industry and public health authorities. To address the concern regarding evidence-based research for outbreak prevention and response, VSP is exploring the possibility of changing its currently vacant project analyst position to an epidemiologist position.

VSP is structured with four major program components. VSP conducts two unannounced operational inspections per year on ships that sail in the United States. At the end of each inspection, cruise ships receive a score and report that are posted on the CDC web site. VSP published the last *Vessel Sanitation Program Operations Manual* in August 2005 and is currently revising the manual based on previous operations manuals, the FDA 1999 model food code, the WHO *Guide to Ship Sanitation*, and an extensive reference section.

VSP conducts surveillance and outbreak investigations based on gastrointestinal illness reported by cruise ships to the United States. These reports are made 24 hours prior to arrival when cruise ships sail from a foreign to a U.S. port. VSP defines an outbreak using 3% gastrointestinal illness in passengers or crew. However, VSP initiates investigations based on either 2% elevated gastrointestinal reports or laboratory confirmation of pathogenic organisms where the cruise is the epidemiologic link. Cruise ships report ~25 gastrointestinal illness outbreaks per year on average, but the number of outbreaks could be as high as 45 in some years. Norovirus is the cause of ~95% of gastrointestinal outbreaks.

VSP focuses on construction of cruise ships by reviewing plans, drawings, and schematics for water, ventilation, food service areas, child activity centers, pools and spas. VSP published the last *Vessel Sanitation Program Construction Guidelines* in July 2005 and is currently revising the guidance document with input from a number of external sources. Although the guidelines are not mandatory, a clause is incorporated into each contract that requires the ship to be built in accordance with the CDC VSP guidelines.

VSP provides training to supervisory staff by sponsoring ~6 training programs each year on sanitation and public health principles. The training programs are extremely popular and are attended by ~120 cruise ship supervisors. VSP has provided international consultation to Egypt for its Nile River cruise boats; Sydney and Greece for the 2000 and 2004 Olympics, respectively; European countries for the development of standards under the SHIPSAN Program; and WHO for training of countries to meet its ship sanitation certificate requirement. Health Canada harmonized its activities with VSP and is now inspecting ships according to the VSP *Operations Manual*.

VSP's FY2009 fees range from $1,300 for inspections of extra small cruise ships with <3,001 passengers and crew to $15,600 for inspections of mega cruise ships with $\geq$120,001 passengers and crew. VSP recognizes that its fees are expensive and believes CDC rather than the cruise ship industry should allocate additional funding to hire additional full-time VSP staff. At this time, VSP is a free service to the government.

The BSC thanked the EEHS leadership for providing comprehensive overviews of the missions, budgets, activities and challenges of their respective branches and programs. The members noted that the overviews would be extremely helpful in preparing for the upcoming program peer review of EEHS.

The BSC members made a number of comments and suggestions on EEHS and its six branches and programs.

- EEHS should assure that oversight and independent review of VSP and CWEB are not dependent on or influenced by the external funding sources of these two programs.
- LPP/HHB should strengthen its case in leveraging economic stimulus dollars from the weatherization program by highlighting the co-benefits of saving energy costs and positively impacting health.
- LPP/HHB should include additional research questions in the healthy housing research agenda that would be relevant and similar to other healthy places, such as healthy schools, hospitals and other built environments.
- EHSB should take advantage of current technologies to recruit more students in the EPH workforce, publicize the full inventory of EPH training opportunities, and "glamorize" the profession. For example, EPH interns and fellows could be featured on You Tube to demonstrate their projects and also could use Twitter to describe their exciting activities in international countries in real-time.
- EHSB should partner with Environmental Health Committees in schools of public health to widely publicize the interesting work in the EPH field and higher salaries for students with an MPH degree.
- EHSB should make efforts to eliminate barriers related to talented international students entering the EPH field. Many students from other countries have a strong interest in pursuing an EPH career, but will not be hired due to their status as a non-U.S. citizen.
- EHSB should strongly encourage leadership in state and local health departments to build the EPH workforce by mentoring students. In support of this effort, EHSB should use the EPH Leadership Institute to develop mentoring skills among state and local leadership.
- EHSB should partner with the Department of Agriculture Cooperative Extension Group that allocates funding to attract students to the agricultural field. This partnership could result in more exposure for EPH.
- IERHB should expand its partnerships to include country-level public health programs and academic institutions when countries request CDC's technical assistance and scientific consultation in international emergencies and refugee health. Many faculty members deployed to in-country programs have been trained in the United States and could serve as a valuable resource to IERHB in terms of forging strong political alliances with CDC personnel on the ground.
- IERHB should engage the Society for Disasters and Emergency Medicine as a key partner in responding to international emergencies because this group has a significant role as an international convener.
- IERHB should deploy CDC advisors to USAID and Department of State programs abroad to establish policies regarding international relief and development in countries that are affected by EPH disasters.
- IERHB should collaborate with U.S. corporations that conduct business outside of the United States. The workforce and production of private-sector companies in foreign countries would be significantly impacted by international EPH emergencies.
- HCDI should highlight other issues in its role of describing the relationship between health and community design, such as noise and light pollution; dust, particulate matter and other construction; and discarded tires, lead batteries and other waste.

- HCDI should engage professional societies to increase its base of health partners, such as the International Illumination Society and American Society of Acoustics.
- HCDI should approach the Robert Wood Johnson Foundation's Active Living Program to leverage funding for healthy community design. This group has a vested interest in reducing obesity and promoting physical activity.
- HCDI should prioritize its healthy community design projects because the three groups of focus sectors, four categories of health outcomes and six sections of activities do not appear to be feasible with a $2 million budget and a workforce of 7.5 staff. The prioritization analysis should be designed to determine whether all activities are needed or if HCDI could transfer some projects to other groups.
- HCDI should place more emphasis on sustaining healthy community design partnerships over time by convening meetings with the public health and planning communities; encouraging both sectors to publish papers in journals of the other group; developing interdisciplinary curricula; and establishing standardized language and metrics for both fields. To support this effort, HCDI should continue and expand its cooperative agreement for local public health officials and regional planners to form collaborative teams, obtain training and increase their knowledge of HIA.
- HCDI should attempt to leverage federal funding that will be used for demolition and massive clearance of slums in many communities throughout the country. HCDI should explore the opportunity of using its HIA activities and public health influence to play a key role in designing healthy communities in these open spaces. HCDI also should educate state and local EPH practitioners on applying HIA tools to assist local communities in redeveloping neighborhoods in a healthy manner.
- HCDI should partner with local mayors and state governors to develop healthy community design guidelines for planning commissions.

Public Comment Session

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

With no further discussion or business brought before the BSC, Dr. Chambers recessed the meeting at 4:45 p.m. on May 28, 2009.

Update on the National Conversation on Public Health and Chemical Exposures

Dr. Chambers reconvened the meeting at 8:36 a.m. on May 29, 2009 and yielded the floor to the first presenter.

Ms. Julie Fishman, of NCEH/ATSDR, explained that the goal of the National Conversation is to develop an action agenda for revitalizing the public health approach to chemical exposures. Gaps, redundancies, priorities and solutions will be identified. Emphasis will be placed on the role of NCEH/ATSDR and other federal agencies in the National Conversation. The role of

state and local agencies, NGOs, academia, the private sector and other non-federal partners will be addressed as well.

NCEH/ATSDR initiated outreach efforts with internal staff and a number of external groups that potentially could serve as partners in the National Conversation. In 2007, the concept of the National Conversation was first discussed by NCEH/ATSDR leadership and presented to the BSC and partner groups. In 2008, the National Conversation was presented at an NCEH/ ATSDR All Hands meeting, another BSC meeting and additional partner groups. A dedicated staff person was hired.

In 2009, the National Conversation was presented at another NCEH/ATSDR All Hands meeting, published in the *Journal of Environmental Health* in the standing "Direct from ATSDR" column, presented at a project development workshop with several stakeholder groups, and posted on the NCEH/ATSDR Intranet. An Internet site for the National Conversation will be launched within the next week and three additional staff will be hired this summer.

The National Conversation is based on the vision that chemicals should be used and managed in a safe and healthy manner for all persons. Achievement of the vision will require several components:

- accurate information on chemical use, exposure pathways and exposure levels in humans and environmental media;
- broad understanding of the impact of chemicals on health;
- proactive and evidence-based policies and practices that prevent or reduce harmful exposures;
- effective prevention of, preparedness for, and response to chemical emergencies;
- elimination of inequities in exposure;
- a well-informed public and healthcare provider network;
- public engagement in governmental decision-making; and
- close collaboration and coordination among partner organizations and agencies.

Elements of the public health approach to chemical exposures will be categorized into seven key functions. The "surveillance and data collection" function includes monitoring of chemicals in environmental media, biomonitoring, collecting data on chemical exposures and releases, and tracking health outcomes that could be environmentally related. The "research" function includes both toxicologic and epidemiologic research.

The "investigation" function includes the detection of incidents, releases and clusters. The "emergency preparedness and response" function includes vulnerability assessments, risk reduction, and emergency preparedness and response planning. The "implementation and evaluation of interventions" function includes primary prevention to reduce chemical exposures, such as green chemistry and community health interventions as well as secondary prevention to reduce health effects of chemical exposures, such as health screening and health care.

The "policies, laws and regulations for public health protection" function includes decision support through risk assessments, promulgation and enforcement, and evaluation. The

"education and communication" function includes public education, risk communication, and professional training and capacity building.

NCEH/ATSDR identified three examples from its ongoing activities that potentially could serve as National Conversation topics. In assessing health concerns at waste sites, ATSDR was successful in evaluating numerous sites and advancing community-based approaches. However, ATSDR was challenged by providing definitive answers and recognizing that waste sites were not the sole route of exposure. Current opportunities for ATSDR to improve site-specific activities include redefining expectations, utilizing new science and methods, and rethinking its mission.

In providing toxicological information, ATSDR was successful in promoting wide use and appreciation of its toxicological profiles. However, ATSDR was challenged by coordinating with EPA and other groups and updating the documents. Current opportunities for ATSDR to improve the provision of toxicological information include enhancing coordination to provide more information.

In conducting biomonitoring, NCEH was successful in determining exposure levels of many chemicals for the U.S. population. However, NCEH was challenged by interpreting results to the public. Current opportunities for NCEH to improve biomonitoring include using results to inform decision-making.

The National Conversation will be in line with the memorandum President Obama issued in January 2009 for the government to be transparent, participatory and collaborative. As a result, NCEH/ATSDR is planning a number of activities to assure public participation and community involvement in the decision-making process related to chemical exposures. A kick-off meeting will be held on June 26, 2009 in Washington, DC. The plenary session will provide an overview of the National Conversation and breakout sessions will be convened to discuss specific topics. Limited funding has been set aside to support travel costs. More information on the kick-off meeting can be obtained by e-mailing nationalconversation@cdc.gov.

A plenary session on the National Conversation will be convened during the National EPH Conference in October 2009. A series of regional forums and community town hall meetings will be held and web-based discussion platforms will be broadcast over the next 18 months. The National Conversation Action Agenda will be drafted and finalized based on broad input from partners and stakeholders. NCEH/ATSDR will collaborate with partners to begin implementing the action agenda in January 2011.

Six expert workgroups will be established with the following roles. The Monitoring Workgroup will be charged with collecting information on chemical use, exposure pathways, exposure levels and health outcomes. The Scientific Understanding Workgroup will be charged with filling knowledge gaps on the health effects of chemicals. The Policies and Practices Workgroup will be charged with reducing harmful chemical exposures and adverse health outcomes, eliminating inequities, and spurring the development and use of safer alternatives.

The Chemical Emergencies Workgroup will be charged with preventing, preparing for, and responding to acute chemical incidents. The Serving Communities Workgroup will be charged with addressing local chemical exposure concerns to promote environmental justice and improve health. The Education and Communication Workgroup will be charged with ensuring a well-informed public and a competent network of healthcare providers.

Each of the six expert workgroups will be supported with a chair, facilitator, and an NCEH/ ATSDR staff member and senior liaison to address logistical or administrative issues and provide subject matter expertise as needed. The workgroups will be open to EPH professionals at all levels, community members and NCEH/ATSDR staff.

A Leadership Council on Public Health and Chemical Exposures will be developed with ~30-40 stakeholders from a broad range of sectors to provide oversight and guidance to the National Conversation project. RESOLVE is a firm with an extensive background in conflict mediation and facilitation of environmental issues and has been contracted to convene and facilitate the Leadership Council.

Ms. Fishman asked the BSC to particularly focus on three issues during its discussion of the National Conversation during the meeting or at a later time. Issue 1 was the most appropriate role of the BSC in the National Conversation, such as serving on the Leadership Council and six expert workgroups, participating in public meetings and web-based discussions, submitting comments on work products, or conducting outreach to key constituencies.

Issue 2 was the most appropriate definition of "chemical," such as the inclusion of organic and inorganic chemicals, industrial and naturally occurring chemicals, and engineered nanoparticles and other emerging issues; the exclusion of radioactive risks; and the potential inclusion of diesel emissions and other particulate matter as well as botulinum and other toxins or biological threats.

Issue 3 was the most appropriate strategy to engage the general public in the National Conversation, such as the development of a "Citizen Conversation Toolkit." This resource would be widely disseminated to communities as a guide for persons to initiate conversations on chemical exposure issues with family members and friends. The toolkit also would provide instructions for persons to submit comments and information to the National Conversation Project Team.

Dr. Chambers clarified that the BSC would need to revisit and discuss issue 1 at a later time in more detail because the BSC's role in the National Conversation must be consistent with its charter. For example, the BSC is chartered to provide advice and guidance to the HHS Secretary, CDC Director and NCEH/ATSDR Director. BSC members as individual citizens could provide comments on National Conversation work products and recommendations to other agencies, but the BSC would be prohibited from providing this function in its official role as a federal advisory committee.

Dr. Thomas Sinks, Deputy Director of NCEH/ATSDR, made additional remarks to further clarify the BSC's role in the National Conversation. On the one hand, the BSC members could serve

as individual citizens by participating in the Leadership Council, expert workgroups, and other meetings and activities for the National Conversation. On the other hand, the BSC could serve in its official capacity as a federal advisory committee by submitting feedback on the National Conversation Action Agenda after the document was released for public comment.

The BSC commended NCEH/ATSDR on its extensive planning of the National Conversation activities. Several members made comments and suggestions for NCEH/ATSDR to consider in its ongoing efforts to further plan and organize the project.

- Green chemistry and safer alternatives to reduce chemical exposures are under the function of "implementation and evaluation of interventions" in the public health approach to the National Conversation. However, these interventions also should be listed in either the "surveillance and data collection" or "research" functions. This approach could play a role in initiating efforts to build and maintain a federal repository of information, best practices and ongoing activities in industry on green chemistry, green design and safer alternatives.
- A plenary session on the National Conversation is planned for the National EPH Conference. However, additional strategies should be developed and more activities should be incorporated into the National EPH Conference to capitalize on the current enthusiasm and momentum of the National Conversation.
- A listserve should be created to better disseminate information on the National Conversation. For example, many BSC members did not receive the "Save the Date" notice for the kick-off meeting of the National Conversation in June 2009 and were unaware of this event.
- ATSDR- and CDC-funded programs should be invited to the National Conversation kick-off meeting, such as state and local health departments and Environmental Public Health Tracking Project grantees. The National Conversation will serve as an important component for grantees to advance their EPH programs and initiatives.
- Extreme caution should be taken to avoid potential unintentional consequences of the National Conversation. For example, the project might result in the public placing demands on EPA and other federal agencies that are not feasible. The Leadership Council should seriously explore strategies to govern public expectations to ensure that NCEH/ATSDR's federal partners remain engaged and actively participate in the National Conversation.
- The proposed definition of "chemical" should be expanded to include "synthetic biology."
- The proposed definition of "chemical" should be replaced with "contaminants" to allow for a broader focus on pathogens and microbial agents. This approach would allow NCEH/ATSDR to take advantage of the wealth of solid data that has been collected on the association between contaminants and human health risk.

Update on the Collegiate Leaders in Environmental Health (CLEH) Internship Program

Lieutenant Junior Grade Cory Moore, of NCEH/ATSDR, covered the following areas in her update. The mission, program goals and objectives of CLEH are to offer selected students a

broad overview of EPH at the federal level; foster interest in EPH as a career; introduce EPH to environmental studies students; encourage students to obtain graduate degrees in public health or EPH; increase the pipeline of individuals employed in the EPH field; and provide students with mentoring and networking opportunities. CLEH is a ten-week paid internship with 12 undergraduate students in the 2008 inaugural class and 14 undergraduate students in the 2009 upcoming class.

NCEH/ATSDR achieved a number of successes after the first CLEH internship program ended in August 2008. Of 12 interns in the 2008 inaugural class, four are pursuing public health or EPH degrees, three are pursuing other degrees, and three are entering the workforce. The CLEH web page was updated with projects and profiles of the 2008 interns.

CLEH was the ninth most popular web page on the NCEH web site during a three-month time period. Cities with $\geq$50 views of the CLEH web page increased from 50 in 2008 to 297 in 2009 resulting in 47,385 web page views in a three-month time frame. With the exclusion of 4,194 views of the CLEH web page from Atlanta alone, New York City, Washington, DC and Athens, Georgia accounted for the top three cities with the most views of the CLEH web page in 2009. Georgia Tech, Emory and Harvard accounted for the top three universities with the most views of the CLEH web page in 2009.

Georgia, Pennsylvania and Massachusetts accounted for the top three states with the largest number of CLEH applicants in 2009. Emory, Georgia Tech and the University of Georgia accounted for the top three Georgia universities with the highest number of CLEH applicants in 2009. The University of North Carolina-Chapel Hill, Johns Hopkins, University of California-Berkeley, University of Michigan and Washington University accounted for the top five universities outside of Georgia with $\geq$3 CLEH applicants from the same institution in 2009. ATSDR Regions 1, 3 and 4 accounted for the most CLEH applicants in 2009 based on region. ATSDR Regions 1 and 4 accounted for the majority of applicants who were accepted into the 2009 CLEH class.

Demographics of the 2009 CLEH applicants included a 3.52 overall grade point average (GPA), 50% from public schools, 76.7% female and 29% racial/ethnic minorities. Caucasians accounted for the majority of the 258 CLEH applicants in 2009. The submission of all applications from public and private institutions was equal, but private schools accounted for 68% of the top 60 applications that received the highest scores.

Of the 14 applicants accepted into the 2009 CLEH class, the overall GPA is 3.65; 11 attend private universities and 3 attend public universities; seven are Caucasian, four are racial/ethnic minorities and three did not self-identify; eight are females and six are males; and all 14 have relevant work experience. The 6.5% acceptance rate for the 2008 CLEH class was based on the selection of 12 interns from 185 total applicants, while the 5.4% acceptance rate for the 2009 CLEH class was based on the selection of 14 interns from 258 total applicants.

The 67% yield rate for the 2008 CLEH class reflected eight of 12 interns who accepted the program offer, while the 93% yield rate for the 2009 CLEH class reflected 13 of 14 interns who

accepted the program offer. The dramatic increase in the yield rate demonstrates that CLEH is becoming a top choice for internships among undergraduate students.

The 2009 CLEH interns will be paired with NCEH/ATSDR staff in each division to conduct projects related to vapor intrusion, asbestos exposure, the debris landfill initiative, community health, food and nutrition HIAs, environmental health teens and text, drinking water for the Navajo Nation, the health disparity framework, a residential exposure study, air exposure and walkability, healthy community design, the air emissions petition program, Brownfields land reuse, and air pollution and sickle cell anemia.

Of the 14 CLEH interns in the 2009 class, 12 have an environmental studies major or minor. Moreover, all 14 interns have a strong understanding of the environment and knowledge of the impact of human activity on air, water, soil, food and climate change. Despite these extraordinary successes, NCEH/ATSDR recognizes the need to meet additional targets to improve the 2010 CLEH class. More students will be recruited from public universities, schools that are west of the Mississippi River, and Historically Black Colleges and Universities (HBCUs).

In response to a recommendation the BSC made during the November 2008 meeting, NCEH/ATSDR developed a new Summer Undergraduate Program in Environmental Health (SUPEH) to offer internships to students who are already enrolled in undergraduate EPH programs. SUPEH internships are offered to undergraduate students with an EPH major at a National Environmental Health Science and Protection Accreditation Council (EHAC) school and a minimum GPA of 3.0. SUPEH internships also are offered to students in the junior Commissioned Officer Student Training and Extern Program (JrCOSTEP).

The time period for students to submit SUPEH applications was mid-February to March 20, 2009, but NCEH/ATSDR acknowledges the need to extend the application process in the future. Each application must include two letters of recommendations, a curriculum vitae, college transcript, and two essays describing an EPH issue and factors that make the applicant a strong candidate for the SUPEH program.

NCEH/ATSDR recruited potential candidates for SUPEH by sending e-mail announcements to program leaders at EHAC and Association of Environmental Health Academic Program schools, distributing letters to listserves, and encouraging students who were not accepted into CLEH to apply to SUPEH. Of the 15 SUPEH applicants, nine were female, seven were ethnic minorities, and 11 EHAC schools were represented.

Of the four applicants who were selected as SUPEH interns, two are males and two are females; two are JrCOSTEP students; and two are Caucasian and two are ethnic minorities. The SUPEH interns represent three EHAC schools, have an overall GPA of 3.71, and will be placed in EHSB and local health departments for a short period of time. Both the CLEH and SUPEH interns will attend the National Environmental Health Association conference in June 2009 and also will be exposed to key EPH topics during brown-bag presentations and field trips.

NCEH/ATSDR will apply lessons learned to improve both of its EPH internship programs in the future. A distinction will be made between CLEH and SUPEH during recruitment. Because

students have already made decisions on internships by late March, application materials for SUPEH will be distributed much earlier and in conjunction with COSTEP deadlines.

The BSC commended NCEH/ATSDR on its tremendous growth and progress in the CLEH program in only one year and the development of the new SUPEH program. Several BSC members made comments and suggestions for NCEH/ATSDR to consider in refining the EPH internship programs in the future.

- NCEH/ATSDR should make stronger efforts to recruit more students from HBCUs by broadening EPH internship criteria to focus on skills rather than content knowledge. This approach will be important because most HBCUs do not have environmental studies programs and students at HBCUs would be challenged by submitting an essay on an EPH issue. However, HBCU students who have GPAs >3.0 and meet other requirements for an EPH internship would be excellent candidates for an EPH career. NCEH/ATSDR should collaborate with existing programs that have well-established relationships with CDC in offering internships to HBCU students.
- NCEH/ATSDR should engage in a long-term strategic planning process to increase and sustain class sizes and acceptance rates of the EPH internships over time. The long-term strategic planning process also should focus on using DRO as a mechanism to engage EPA, state and local health departments, and academic institutions in increasing the reach of EPH internships in more regions throughout the country.
- NCEH/ATSDR should compile the successes, lessons learned and other key milestones of the EPH internships and widely distribute this package to universities throughout the country. This information would be extremely helpful to academic institutions that are currently exploring the possibility of developing an undergraduate major in EPH and also would assist in developing a pipeline for the EPH workforce.

Response to the BSC Program Peer Review of NCEH/ATSDR's Peer Review Process and Clearance Policies

Dr. Bashor thanked the reviewers for their outstanding efforts in conducting the peer review in a short amount of time, particularly in light of ongoing Congressional and media interest in NCEH/ATSDR's performance and current activities. He noted that both the BSC's peer review report and NCEH/ATSDR's formal response were distributed in the meeting binders in their entirety.

Dr. Bashor's summary of NCEH/ATSDR's response to the BSC's program peer review of its clearance policies and peer review process report is outlined below.

1. ***Scientific Integrity*.** NCEH/ATSDR agreed with the BSC's findings and reiterated the commitment of leadership, management and staff at all levels to scientific accuracy and excellence. The BSC noted a weakness in which DTEM has conducted its own external peer reviews or selected external reviewers in some cases. The BSC further noted that this practice could leave NCEH/ATSDR open to charges of conflict of interest.

NCEH/ATSDR recently took actions in 2009 to address this issue by consolidating and coordinating peer reviews for all ATSDR divisions within the NCEH/ATSDR Office of Director/Office of Science (OD/OS). The BSC expressed concern about the difficulty in scientists, health communicators and editors striking a balance between delivering messages that are both scientifically accurate and clearly understood by the public. NCEH/ATSDR agreed with the BSC's finding to always err in favor of scientific accuracy in these cases and would continue to explore strategies to achieve the most appropriate balance.

2. ***System Issues: Complexity*.** NCEH/ATSDR agreed with the BSC's findings on redundancies in the review process in principle, but will not take action at this time on the BSC's suggestion to conduct reviews at the OD/OS level only in certain instances and provide divisions with greater autonomy in clearing documents. NCEH/ATSDR's position is that the centralized review at the OD/OS level remains an important step in assuring scientific excellence. However, NCEH/ATSDR has taken several steps in response to the BSC's suggestions for improvement. The 2006 Clearance Policy and procedures will be revised to achieve greater clarity and simplicity without compromising the integrity and scientific accuracy of products. Annexes to the 2006 Clearance Policy were developed in early 2009 to identify web-based materials that could be cleared at the division level without undergoing OD/OS review. In response to the BSC's concern regarding OD/OS's limited number of staff and large work volume, two highly credentialed professionals with expertise in emergency medicine and epidemiology recently accepted positions. Additional positions in exposure assessment/industrial hygiene and other disciplines will be filled in the future to further enrich and broaden OD/OS's scientific expertise. The critical need for adherence to clearance processes and timely communication with senior management in OD to assure excellence in science and public health was reiterated to each division and office. The updated 2006 Clearance Policy will address the BSC's concern regarding the unnecessary complexity of the "Clearance Quick Reference."

3. ***Systems Issues: Documentum*.** NCEH/ATSDR agreed with the BSC's findings. The updated 2006 Clearance Policy will provide guidance on the use of Documentum and emphasize the system as the CDC-wide clearance tool. However, the ability to take action on the BSC's suggestion to replace Documentum with another electronic system appears to be unlikely at this time. Onsite programmers are currently developing software enhancements to address key flaws in the system.

4. ***Cross-Organizational Clearance*.** NCEH/ATSDR clarified that Documentum is not designed to handle simultaneous distribution of documents within NCEH/ATSDR centers. The current cross-clearance process is for documents to be simultaneously sent via e-mail to other NCEH/ATSDR offices and divisions with overlapping program interests. However, Documentum has been reprogrammed to allow simultaneous distribution of documents when cross-clearance is needed from other CDC centers outside of NCEH/ATSDR.

5. ***External Peer Review.*** NCEH/ATSDR agreed with the BSC's suggestion to revise the ATSDR Peer Review Policy to reflect the needs of both NCEH and ATSDR. The outdated policy was developed in 1990 and updated in 1996. NCEH/ATSDR addressed the BSC's concern regarding the selection of external peer reviewers with its new process of OD/OS consolidating and coordinating peer reviews for all divisions. For documents submitted to peer-reviewed journals for publication, the BSC encouraged NCEH/ATSDR to only use its external peer review process for documents characterized as "influential scientific information" and "highly influential scientific assessments." NCEH/ATSDR will carefully consider this suggestion while updating the 1996 ATSDR Peer Review Policy.

6. ***Other Concerns.*** NCEH/ATSDR agreed with the BSC's suggestion to establish a formal process to resolve disputes on scientific issues arising during the clearance and review processes. This concern will be addressed in the updated 2006 NCEH/ATSDR Clearance Policy. The BSC proposed a number of excellent options for NCEH/ATSDR to consider in more effectively documenting its success. These suggestions will be reflected in a new "Metrics of Success" section in both the updated 1996 ATSDR Peer Review Policy and 2006 NCEH/ATSDR Clearance Policy. The BSC acknowledged that a comment made during the site visit about the clearance process serving as an impediment to publishing most likely was a "heat of the moment" remark. The BSC found that this perspective did not reflect the organizational norm due to NCEH/ATSDR's numerous successes in publishing peer-reviewed federal documents and journal articles of scientific importance. NCEH/ATSDR determined that the frequent criticism regarding the lengthy time of the clearance process was due to the confusion between "document development" and "actual clearance." OD/OS often receives documents in marginal to unacceptable condition and must spend a great deal of time rewriting rather than actually clearing documents.

Dr. Chambers co-chaired the peer review of NCEH/ATSDR's clearance policies and peer review process. She noted that the peer reviewers found more positive than negative outcomes and were particularly impressed by NCEH/ATSDR's scientific integrity.

The BSC members made two key suggestions for NCEH/ATSDR to consider in its ongoing efforts to improve the peer review and clearance processes. First, training should be provided to scientists to improve their skills in developing messages that can be clearly understood by the public. Similar training should be offered to health communicators to enhance their skills in developing scientifically accurate messages. This approach most likely would eliminate tension when NCEH/ATSDR forwards documents to the CDC National Center for Health Marketing for editing.

Second, the peer review and clearance processes should be formalized as a critical job element for NCEH/ATSDR division directors and branch chiefs. This performance requirement would minimize the time OD/OS spends in rewriting marginal to unacceptable documents that are submitted for internal clearance. The responsibility on division management also would minimize accusations related to senior managers rewriting science.

Update on the BSC Program Peer Review of the NCEH/ATSDR Preparedness and Emergency Response (PER) Program

Dr. Scott Deitchman, Associate Director for Terrorism Preparedness and Emergency Response in NCEH/ATSDR, reported on the progress NCEH/ATSDR has made since its initial response in November 2008 to the BSC's program peer review of the PER program. The BSC encouraged NCEH/ATSDR to engage in a strategic planning process to inform and drive its priorities, funding and activities. NCEH/ATSDR recently completed a review of its strategic priorities with all division directors.

The CDC Coordinating Office of Terrorism Preparedness and Emergency Response (COTPER) recently released FY2010 funding guidance that outlined its priorities in five major categories: surveillance and registry architecture standards; laboratory methods for chemicals and infectious diseases; radiologic laboratory capability, the CDC deployment tool; and vulnerable populations research.

NCEH/ATSDR's strategic priorities were broader than those of COTPER, but were consistent in most cases. NCEH/ATSDR established its strategic priorities in six major categories: effective disaster surveillance; post-event chemical monitoring; post-event radiological monitoring; workforce management for emergency response; effective use of geographic information systems and information technology; and earthquake preparedness.

The BSC emphasized the need for NCEH/ATSDR to improve communications with internal and external stakeholders. For internal communications, NCEH/ATSDR now meets with all divisions during monthly terrorism preparedness and emergency response coordination meetings. Each division engages with the NCEH/ATSDR Office of Terrorism Preparedness and Emergency Response as needed. For external communications, NCEH/ATSDR now represents HHS on the National Response Team and has developed closer relationships with EPH professionals and other stakeholders.

The BSC advised NCEH/ATSDR against using a competitive one-year model to fund core functions. COTPER made the following changes to its funding system in response to the peer review recommendations. The funding cycle was expanded from one to two years. Existing projects can be extended for an additional year without reapplication.

Each CDC center and coordinating center can only submit one new project proposal. This revision would allow the Coordinating Center for Environmental Health and Injury Prevention (CCEHIP) to submit no more than four new project proposals for CCEHIP, NCEH, ATSDR, and the National Center for Injury Prevention and Control. A panel of two representatives from each center will select proposals based on COTPER priorities and input from the panel.

The BSC emphasized the need for NCEH/ATSDR to match its funding and identified strategic priorities. NCEH/ATSDR discussed its strategic priorities with division directors and also promulgated its strategic priorities with those of COTPER. COTPER's FY2010 funding

guidance was distributed to all NCEH/ATSDR divisions and project officers and will be further discussed in greater detail during two meetings COTPER will hold with CCEHIP staff.

The BSC recognized the competency, knowledge, commitment and enthusiasm of staff and further noted that staff nearly universally viewed emergency response activities as secondary to their main jobs. The BSC also acknowledged that the staff is overburdened, has no backup and is not supported by long-term succession planning.

The public health workforce shortage was particularly apparent during CDC's recent response to the novel A/H1N1 influenza outbreak and also will be a serious concern in the capacity to respond to hurricanes, wildfires, earthquakes or other events that occur during a pandemic. Moreover, disasters can further accelerate and worsen influenza transmission. A second catastrophic event during a pandemic would require a response involving all parts of CDC; compel CDC to balance resources for the pandemic, second event and continuity of daily operations; lower state thresholds for requesting federal assistance; and challenge other federal agencies.

To address issues related to workforce management and prepare CDC's human resources, NCEH/ATSDR made a number of recommendations to the acting CDC Director and also presented this guidance to the National Response Team. Skilled and rested personnel should be maintained for a pandemic, second event and continuity of CDC's daily operations. The length of staff rotations and rest periods for personnel should be explicitly defined. The learning curve of staff should be balanced against personnel burnout. These actions should be taken for both emergency response staff and personnel who would continue CDC's daily operations during an event.

All CDC and ATSDR employees should complete emergency response training and leadership candidates should be identified. The CDC Emergency Operations Center's "shadowing" model should be implemented in exercises and responses. Training should be offered to contractors and retirees to assure the availability of additional personnel as needed.

Responders in the field should be prepared to prevent deployed personnel from becoming infected or spreading infection. Recommendations should be developed for personal protective equipment, pharmaceutical protection with and without vaccine, pre-/post-deployment screening, and post-deployment isolation. CDC should develop recommendations for field responders in collaboration with the Occupational Safety and Health Administration and widely share the guidance with colleagues in HHS and other federal agencies.

CDC's guidance on hurricanes and other natural disasters should be reviewed to identify specific elements that need to be revised to meet the needs of a pandemic. CDC should collaborate with HHS colleagues and the American Red Cross in revising this guidance. Specific guidance should be developed for mass care standards during a pandemic. NCEH/ATSDR identified a core knowledge set and training resources CDC would need to implement the emergency response recommendations. Action steps for the guidance were articulated as well. NCEH/ATSDR plans to present the emergency response recommendations to the newly-appointed CDC Director.

Dr. Chambers served as one of the reviewers on the BSC's program peer review of the NCEH/ ATSDR PER program. She was extremely pleased that some of the BSC's recommendations, particularly those related to short-term funding, were implemented and resulted in positive changes throughout CDC and ATSDR. She conveyed that the revised funding system demonstrates the strong impact of BSC's program peer reviews on NCEH/ATSDR programs.

The BSC joined Dr. Chambers in commending Dr. Deitchman for his strong leadership in establishing strategic priorities and taking aggressive actions at both the NCEH/ATSDR and CDC levels to implement the peer review recommendations on workforce management and short-term funding. The BSC advised NCEH/ATSDR to expand its emergency response recommendations on surveillance to include the occupations and employment industries of responders in the field. This guidance also should emphasize the need for active rather than passive surveillance of field responders.

BSC Business Session

Dr. Bashor regrettably announced the recent passing of Dr. Gerald Cooper of the NCEH Division of Laboratory Services. He noted that Dr. Cooper was a beloved colleague and friend to CDC and a giant in the field of EPH.

Dr. Chambers made three key suggestions on behalf of the BSC to improve the operation of BSC meetings and NCEH/ATSDR's programs and activities in the future. First, she stated for the record that the meeting was recessed late on the previous day because several speakers well exceeded the allotted time for their 15-minute presentations as noted on the published agenda. The extended presentations also did not allow the BSC to engage in substantive discussions.

Dr. Chambers strongly urged NCEH/ATSDR staff to conduct practice sessions in the presence of a supervisor or manager before making their presentations to the BSC to ensure the allotted time on future agendas is met. She also reminded NCEH/ATSDR of the BSC's previous request to decrease the number of presentations and increase the time for the BSC to ask questions and provide feedback.

Second, Dr. Chambers reiterated the BSC's previous request for NCEH/ATSDR to provide materials and specific questions that would require feedback well in advance of meetings. She noted that this approach would allow the BSC to give more thoughtful input and concrete recommendations during meetings. Third, Dr. Chambers encouraged NCEH/ATSDR to seriously consider, identify and prioritize activities that are manageable with its relatively limited budget and workforce.

Dr. Sinks confirmed that NCEH/ATSDR would continue to thoughtfully consider and discuss the BSC's suggestions on improving future meetings. He urged the BSC to provide feedback on the May 2009 meeting because this was the first agenda that was primarily devoted to the

BSC's previous and upcoming program peer reviews. Based on the outcomes of the May 2009 meeting, Dr. Sinks asked the BSC to submit comments to Dr. Bashor on whether developing future agendas with a "peer review theme" was the most appropriate use of the BSC's time and expertise during meetings.

In response to Dr. Sinks's remarks, Dr. Chambers clarified that the May 2009 meeting was a tremendous improvement over past meetings in terms of organizing agenda items. She also noted that the current meeting reflected NCEH/ATSDR's serious response to the BSC's previous requests for changes in the meeting format. She expressed the BSC's appreciation to NCEH/ATSDR for undertaking this effort.

Closing Session

Dr. Chambers announced that the next BSC meeting only could be held on November 5-6, 2009 or December 3-4, 2009 to ensure Dr. Frumkin's attendance. In an informal poll, however, the majority of members expressed a preference for convening the next BSC meeting in conjunction with the National EPH Conference on October 26-28, 2009. Ms. Sandra Malcom, the BSC Committee Management Specialist, would poll the members by e-mail because no agreement was reached on holding the next meeting during the proposed October, November or December 2009 dates.

Dr. Chambers conveyed that she was privileged to serve as both a member and chair of the BSC. She emphasized that this experience provided her with a wealth of knowledge and profound appreciation of NCEH/ATSDR's tremendous leadership of the EPH community. She was confident that the BSC would continue to make enormous contributions to the EPH field under the leadership of Dr. Timothy Ryan, who would begin serving as the BSC Chair at the next meeting.

The participants joined Dr. Chambers in applauding Ms. Malcom and Ms. Dolly Sinha for providing outstanding administrative support and making logistical arrangements for the BSC meeting.

With no further discussion or business brought before the BSC, Dr. Chambers adjourned the meeting at 12:02 p.m. on May 29, 2009.

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

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Date

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Janice E. Chambers, Ph.D.
Chair, Board of Scientific Counselors