

DEPARTMENT OF HEALTH AND HUMAN SERVICES

**CENTERS FOR DISEASE CONTROL AND PREVENTION
NATIONAL CENTER FOR ENVIRONMENTAL HEALTH/
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY**

convene the

BOARD OF SCIENTIFIC COUNSELORS MEETING

*Atlanta, Georgia
November 18-19, 2004*

RECORD OF THE PROCEEDINGS

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EXECUTIVE SUMMARY

The Centers for Disease Control and Prevention (CDC) convened a meeting of the Board of Scientific Counselors (BSC), National Center for Environmental Health/Agency for Toxic Substances and Disease Registry (NCEH/ATSDR) on November 18-19, 2004, in Atlanta, Georgia.

An update was provided on CDC's reorganization under the **Futures Initiative** (FI). Search committees have been formed to recruit directors for NCEH/ATSDR and six other centers. Dr. Henry Falk will serve as Director of the Coordinating Center for Environmental Health and Injury Prevention.

A status report was given on **NCEH/ATSDR's budget and current activities**.

The **BSC workgroup and subcommittees** provided progress reports.

The Program Peer Review Subcommittee (PPRS) outlined a schedule and proposed a methodology to review ATSDR by divisions and NCEH by branches. PPRS completed the ATSDR Hazardous Substances and Emergency Events Surveillance (HSEES) program and is now finalizing the draft report. The BSC unanimously agreed by a formal vote to accept PPRS's proposed methodology and schedule for the peer review process and also to approve distribution of the HSEES draft peer review report to staff prior to the next BSC meeting.

The Community Tribal Subcommittee (CTS) reported on its previous accomplishments and successes and agreed to formulate a work plan by January 2005 to prioritize its focus on existing and new projects in 2005. The BSC unanimously agreed by a formal vote to accept the CTS draft conference call minutes.

The Health Department Workgroup (HDW) identified five focus areas. In priority order, they are: the environmental health workforce, terrorism and local response capacity, improved surveillance systems, indoor and outdoor air quality, and guidelines for the built environment. HDW will propose its future form and composition at the next BSC meeting.

The BSC reviewed NCEH/ATSDR **strategic priorities** from four work groups. The Respiratory Disease and Air Quality Workgroup proposed four projects for respiratory diseases: indoor air, outdoor air, programs and interventions. The Healthy Water Workgroup proposed a project to determine the impact of drinking water exposures to contaminants from private wells and small water systems. The Biomonitoring Workgroup proposed to conduct a mercury and arsenic project. [The newly formed Hazardous Substances and Health Effects Workgroup did not present during this meeting.]

The BSC advised the workgroups to strengthen the strategic value of the proposed projects by identifying NCEH/ATSDR's unique mission, expanding collaborations outside of CDC, promoting NCEH/ATSDR's expertise, and considering other data sets.

The BSC received a report on NCEH/ATSDR's proposal to integrate **social and behavioral sciences** (SBS) into its environmental health programs and activities. The BSC agreed that SBS should be further integrated into NCEH/ATSDR programs to improve the effectiveness and efficiency of activities.

The BSC received a proposal from ATSDR to update the 1996 **dioxin soil policy guideline** (DSPG) to eliminate confusion about "screening" versus "action" levels and also to provide a consistent approach to evaluating dioxin in residential soils. After discussion, the BSC unanimously agreed by a formal vote to advise ATSDR to revise the DSPG based on comments made by the BSC members. The BSC further advised applying a risk communication perspective in pursuing the proposed policy changes.

The Office of Terrorism Preparedness and Emergency Response (OTPER) solicited the BSC's guidance in prioritizing **chemical, radiological and natural disaster (CRND) preparedness** projects due to budget constraints for these activities. The BSC was particularly concerned about the lack of funding for CRND preparedness at state and local levels. Other **BSC** comments included attention to collaborating with more universities to reduce training costs, increasing on-scene linkages between ATSDR and EPA, and consulting with the National Academy of Sciences Chemical and Bioterrorism Preparedness Committee.

The BSC co-Chairs opened the floor for **public comments** at all times noted on the published meeting agenda. During a discussion of its **business**, the BSC unanimously approved the May 20-21, 2004 Meeting Minutes with changes as noted for the record. Consensus recommendations, action items and future agenda topics items raised over the course of the meeting were reviewed and are outlined below:

Consensus Recommendations

- *PPRS's report on the methodology for the peer review process and two-year schedule to conduct peer reviews is accepted.*
- *PPRS's draft report on the HSEESP peer review is accepted and its distribution to staff for review and comment prior to the next BSC meeting is approved.*
- *The draft minutes of CTS's November 2, 2004 conference call are accepted.*
- *The following approach to produce the next iteration of the draft DSPG is approved. ATSDR will revise the DSPG based on the BSC's comments.*

The document will be modified from a risk communication perspective prior to submission for policy processing.

Action Items

- *Provide the BSC with the job announcement for the NCEH/ATSDR Director's position.*
- *Provide the BSC with an updated list of names and contact information for key leadership in CDC's new organizational structure under FI.*
- *Highlight items requiring a BSC vote on future meeting agendas.*
- *Explore the possibility of assigning two BSC members as "primary reviewers" of presentations to receive and critically review materials prior to meetings and lead discussions during meetings.*
- *Provide the BSC with contact information of NCEH/ATSDR staff who partnered with the Council of State and Territorial Epidemiologists in developing environmental health indicators.*
- *Fill the current vacancy on the CTS with a BSC member.*

Future Agenda Items

- *Further discussion on DSPG. Topics to include whether NCEH/ATSDR should assign a team to provide guidance to public health assessors in properly interpreting and applying field data in PHAs or if portions of the PHA Guidance Manual can be used in this effort.*
- *Presentation on the role and future direction of NHANES.*
- *Discussion on reasons for the disconnect between NCEH/ATSDR and communities. Topics to include the lack of community outreach among state and local departments and options for NCEH/ATSDR to directly outreach to the public if health departments are ineffective in this area.*
- *Presentation on the role of environmental monitoring in determining health effects.*

The next meeting of the BSC will be on May 19-20, 2005.

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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 November 18-19, 2004 at CDC Headquarters on Clifton Road, Auditorium A in Atlanta, Georgia.

Opening Session

Dr. Patricia Nolan, the BSC co-Chair, called the meeting to order at 8:41 a.m. on November 18, 2004. She welcomed the attendees to the proceedings and opened the floor for introductions. The list of participants is appended to the minutes as Attachment 1.

Dr. Henry Falk, the NCEH/ATSDR Director, presented certificates to acknowledge the years of service and valuable contributions of two BSC members whose terms have expired. The attendees applauded Drs. Rosemarie Bowler and Melissa McDiarmid.

Update on the Futures Initiative (FI)

Dr. Falk noted that FI represents CDC's most substantial, extensive and radical reorganization because individual centers will be grouped for the first time to jointly develop goals. Dr. Julie Gerberding, the CDC Director, established FI for CDC to more broadly address public health issues in the United States and meet the challenges of terrorism, obesity, global infectious diseases and other emerging public health needs.

The new organizational structure includes four coordinating centers that will house existing and new national centers and allow CDC to be more responsive to, obtain input from and better inform citizens. Key components of the reorganization are highlighted below.

The Coordinating Center for Environmental Health, Injury Prevention and Occupational Health (CCEOHIP) will house NCEH/ATSDR; the National Center for Injury Prevention and Control (NCIPC); and National Institute for Occupational Health (NIOSH). The three centers were grouped in one location due to overlapping activities in toxic chemicals, violence and injury prevention, hazardous substances and terrorism response. CCEOHIP leadership and staff have met with outside constituents of all three centers. The NCEH/ATSDR stakeholders expressed the most positive feedback about CCEOHIP and were particularly pleased the environmental health, injury prevention and occupational health programs will be more strongly linked.

The NCIPC stakeholders were supportive of CCEOHIP in general, but underscored the need to continue to promote and maintain a solid focus on the injury prevention agenda rather than blur the independence of the center. The NIOSH stakeholders expressed the most skepticism about CCEOHIP due to concerns that the visibility, budget and independence of the occupational health program may be lost, detracted or minimized. The three stakeholder groups were reassured that CCEOHIP's function will be to promote, enhance and support the integrity, independence and identity of NCEH/ATSDR, NCIPC and NIOSH.

Staff members have held meetings to discuss the process for the three centers to effectively operate under the new CCEOHIP structure. A nine-member transition team was formed with directors, deputy directors and senior scientists from NCEH/ATSDR, NCIPC and NIOSH. A visioning workgroup of 12 staff from the three centers was established to identify joint projects, assess other areas of overlap, and determine strategies to foster additional collaboration and coordination. A workgroup of principal leaders from the three centers was formed to identify similarities and differences among the centers in addressing areas related to policy, terrorism, communications, science and informatics.

CCEOHIP is more unique and challenging than the other three coordinating centers because NIOSH is geographically spread throughout the country and only has a small presence in Atlanta. Unlike other CDC entities, ATSDR and NIOSH must adhere to statutory mandates outlined in Congressional legislation. The portion of CDC's ~\$7 billion budget that will be allocated to CCEOHIP is ~\$400 million for NIOSH WITH ~1,400 staff; ~\$300 million for NCEH/ATSDR with ~900 staff; and ~\$150 million for NCIPC with ~200 staff.

The Coordinating Center for Health Promotion will house centers focusing on birth defects and developmental disabilities, chronic diseases and health promotion, and genomics. The Coordinating Center for Infectious Diseases will house centers focusing on infectious diseases, immunization, and HIV, STDs and TB. The Coordinating Center for Health Information and Service (CCHIS) will house centers focusing on health marketing, public health informatics, and health statistics. The Office of Global Health (OGH) and Office of Terrorism Preparedness and Emergency Response will serve as two independent offices and will closely coordinate and collaborate activities with all four coordinating centers.

The Office of Strategy and Innovation (OSI) will identify CDC's future changes and directions with goals that will be clearly defined, tracked, evaluated and quantified against CDC's performance. The evidence-based metrics and goals will also drive CDC's research agenda, budget and overall decision-making process. The disease prevention goals will address the burden of disease through life stages of infants, children, young adults and mature adults. The preparedness goals will focus on environmental and workplace protection as well as prevention against terrorism and other threats to health.

The Office of the Chief of Science has been expanded to include CDC's new extramural research effort. The Office of the Chief of Public Health Improvement will focus on strategies for CDC to improve collaboration and coordination with state and local health department activities. The Office of Workforce and Career Development (OWCD) will consolidate CDC's internal and external training initiatives. Other components of CDC's new organizational structure include the 13-member Executive Board of coordinating center directors; the Executive Leadership Team of center directors and Executive Board members; and the Management Council of key budget, administrative and management staff from each coordinating center.

Search committees have been formed throughout CDC to recruit directors for seven individual centers. Dr. Falk now serves as Director for both CCEOHIP and NCEH/ATSDR, but he will only serve as the CCEOHIP Director under the reorganization. The BSC was encouraged to submit names of potential candidates to fill the position of the NCEH/-ATSDR Director.

The **BSC** was pleased with and expressed support of FI overall. At the agency level, the reorganization will eliminate CDC's traditional structure of independent silos. At the center level, the occupational health program will be a solid contribution to the environmental health agenda. NCEH/ATSDR is commended for holding meetings to obtain input from stakeholders on CCEOHIP. Several members made recommendations to strengthen FI.

- Continue to facilitate team building across the three CCEOHIP centers by convening meetings for scientists, grassroots organizations and other constituent groups to provide input.
- Widely publicize changes under the reorganization that will impact and be of particular interest to stakeholders. For example, CDC's Office of Minority Health (OMH) will be renamed as the "Office of Health Equity" (OHE) and relocated from the Office of the Director to OSI. OMH's new name and location should be easily accessible to the public.
- Develop a clearly defined process for the BSC to communicate NCEH/ATSDR's most critical needs and make recommendations to important internal partners. For example, the BSC and CCEOHIP leadership could hold a series of meetings to jointly identify goals and measurements that are most relevant and appropriate to NCEH/ATSDR; determine the necessary resources and strategic plan to accomplish these goals; and discuss their linkage to the NCEH/ATSDR peer review process.
- Place stronger emphasis on the qualitative aspect of public health. Develop national benchmarks for state and local health departments to measure accomplishments and justify the need for additional resources.
- Maintain NCEH/ATSDR's strong relationships with the U.S. Environmental Protection Agency (EPA) and other environmental health agencies under the reorganization to ensure public health improvements are effectively measured.
- Carefully consider CCEOHIP's approach in formally obtaining outside advice. For example, three groups that are chartered under the Federal Advisory Committee Act (FACA) to provide separate guidance to NCEH/ATSDR, NCIPC, NIOSH may result in advantages and disadvantages to CCEOHIP.
- Continue to focus on NCEH/ATSDR priority issues that were initiated prior to the reorganization, such as the application of social and behavioral sciences in assessing impacts from chemical exposures.
- Closely collaborate with OWCD because ~50% of current environmental and occupational health personnel will retire over the next ten years, but the number of graduating students in these fields is not nearly sufficient to replace the retired workforce.
- Provide the BSC with an outline of FI's capacity to meet environmental and occupational health workforce and career development goals at both domestic and international levels.

Dr. Falk made several follow-up comments to the discussion. CDC expects the BSC to continue to provide advice and recommendations on the role and visibility of NCEH/ATSDR and strategies for the environmental health program to interact with other CDC activities. CCEOHIP's operational structure has not been fully defined at this time, but NCEH/ATSDR welcomes the opportunity to meet with the BSC to address several

issues. An appropriate and meaningful process for the BSC to offer guidance on the environmental health program under the new CCEOHIP structure should be identified. Indicators to measure environmental health outcomes should be developed, but this process is much more complex than establishing goals for other CDC programs. The BSC should explore the possibility of forming a workgroup to create clear environmental health metrics.

CDC plans to obtain input from state and local health departments while agency-wide goals are being established and metrics are being developed to ensure decisions are evidence-based. CCEOHIP has no plans at this time to consolidate the three existing and separate FACA committees for NCIPC, NCEH/ATSDR and NIOSH. However, several attendees of the stakeholder meetings suggested that a new "CCEOHIP" committee be formed with members from the advisory groups of the three centers to discuss common issues.

Update on NCEH/ATSDR Budget and Activities

Ms. Sherri Berger is the NCEH/ATSDR Acting Deputy Director for Management. She reported on the current status of the NCEH/ATSDR budget. NCEH and ATSDR were consolidated to integrate the administrative and management functions of the two agencies in a complimentary fashion and achieve a coordinated structure and joint leadership. The consolidation was built on major concepts outlined in the *Shared Vision for Environmental Public Health At CDC/ATSDR* report the agencies developed and issued in December 2000. In January 2003, a statement of intent to consolidate the management functions of NCEH and ATSDR was signed. In August 2003, HHS secured approval for the consolidation from the Office of Management and Budget. In January 2004, the organizational structure of the consolidated agency was officially approved.

NCEH's budget increased from \$69.2 million in FY'99 to \$183.2 million in FY'04. Of its FY'04 budget, NCEH allocated ~\$41 million to childhood lead poisoning prevention projects; ~\$38 million to the environmental health laboratory; ~\$37 million to asthma-related activities; and ~\$67 million to environmental health initiatives, including the Environmental Public Health Tracking (EPHT) project, pfiesteria and radiation studies. NCEH's FY'05 budget includes \$1 million to expand the Heath Tracking Network, \$1 million to expand primary immune deficiency activities, and \$500,000 to expand asthma-related projects.

ATSDR's budget has fluctuated over the past six years with funding of \$76 million in FY'99, \$82.2 million in FY'03 and \$73.4 in FY'04. Of ATSDR's FY'04 appropriation, ~\$430,000 was allocated to a recission; ~\$14 million to CDC business services,

leadership and support; ~\$38 million to personnel and benefits; ~\$14 million to intramural and operational costs; and ~\$7 million to extramural program activities, including the 1043 cooperative agreement. Of ATSDR's FY'05 proposed budget of \$76.4 million, \$3 million will be allocated to nationwide vermiculite initiatives and the World Trade Center (WTC) registry; an estimated \$12 million to CDC business services, leadership and support; \$40 million to salaries and benefits; and ~\$9 million to the 1043 cooperative agreement.

ATSDR's major challenges in FY'05 will be increased intramural costs due to \$40 million for salaries and the phase-out of Department of Defense (DOD) and Department of Energy (DOE) projects. ATSDR will also be challenged because funds were only allocated for six months to 1043 cooperative agreement grantees in FY'04. Despite these budget constraints, additional funding mechanisms are available to NCEH/ATSDR. Terrorism dollars of ~\$27 million were allocated to the agency in FY'04. DOD and DOE will support the Chemical Demilitarization Program and radiation studies, respectively. Other federal agencies are expected to provide additional dollars as well. Strategies to increase funding will be a priority area for NCEH/ATSDR, but a strong focus will also be placed on FY'05 operational activities to address short-term resource implications. NCEH/ATSDR will continue its long-term planning to maximize and strengthen the consolidation.

Dr. Thomas Sinks is the BSC Designated Federal Official (DFO) and the NCEH/ATSDR Acting Deputy Director for Programs. He reported on NCEH/ATSDR's recent activities. The NCEH/ATSDR laboratory houses the Newborn Bloodspot Quality Assurance Program that provides quality assurance to all domestic laboratories performing newborn screening. The NCEH/ATSDR laboratory has assisted 439 laboratories around the world in properly conducting newborn blood spot testing. In this effort, 500,000 blood spots were disseminated and >20,000 challenge tests were distributed to determine the accuracy of the blood spots. The NCEH/ATSDR laboratory has played a critical role in domestic laboratories having a rate of <1% of false negative results. In 2003, 53 countries were involved in detecting 38 newborn disorders. The NCEH/ATSDR laboratory is also developing new biomarker assays. A recent article in the *Morbidity and Mortality Weekly Report (MMWR)* showed that ~5% of women in the United States have mercury levels above the EPA reference dose.

NCEH/ATSDR detailed ~15 staff to Darfur, Sudan to administer a representative population-based field survey of displaced persons. The survey results showed global acute malnutrition at ~22% indicating a crisis; severe acute malnutrition at 4%; 25% of these cases with edema; vitamin A and iodine deficiencies; and anemia among children, women of reproductive age and pregnant women. NCEH/ATSDR made recommendations to improve and assure the general ration and its distribution, particularly to women and children.

NCEH/ATSDR collaborated with partners to conduct an epidemiologic investigation of an acute aflatoxicosis outbreak in Kenya that resulted in a high case fatality rate. Of 285 confirmed cases across all age groups, 115 resulted in aflatoxin deaths. The investigation showed that aflatoxin levels in cases were significantly higher than those in controls. The aflatoxicosis outbreak was found to be the largest known lethal epidemic and the environmental situation in Kenya was identified as a significant contributor. NCEH/ATSDR is collaborating with the World Health Organization (WHO) and other global partners to develop recommendations for the outbreak, particularly to resolve food security issues.

NCEH/ATSDR was informed that emissions from a landfill in Warren Township, Ohio are not strongly regulated. In response to a petition filed in 2002, ATSDR evaluated air, water and health impacts and categorized the community as an "urgent health hazard" based on results of an exposure investigation released in 2003. While conducting a health study, NCEH/ATSDR detected extremely high levels of hydrogen sulphide gas of 95 ppm from sewer systems in residential areas. According to NIOSH, 100 ppm of hydrogen sulphide gas represents an immediate danger to life and health in an occupational setting. Based on NCEH/ATSDR's letter to the township verifying the presence of an eminent hazard, the pumping of leachate into the sewer was immediately discontinued.

NCEH/ATSDR deployed >125 staff to 16 states and territories for emergency preparedness and response activities for four hurricanes, including continuity of medical care, provision of safe food and water, waste treatment initiatives, public health and injury surveillance, rapid needs assessments in communities, mosquito and vector control, and rapid communication, education and information to the public on carbon monoxide poisoning and other issues of relevance to hurricanes.

The NCEH/ATSDR Lead Poisoning Prevention Branch (LPPB) has been analyzing repeat offending homes that continually produce lead poisoned children in Baltimore, Detroit and other cities. Findings from these studies demonstrate a critical need for NCEH/ATSDR to strengthen its partnership with the U.S. Department of Housing and Urban Development and continue to target repeat offending homes. LPPB also determined that sources other than leaded paint are contributing to a significant proportion of lead-poisoned children. NCEH/ATSDR will convene a task force with federal partners in December 2004 to identify an effective approach to jointly prepare for and collectively respond to lead problems from sources other than paint, such as consumer products, food and take-home exposures.

Data from lead studies conducted by ATSDR and other agencies at the Tar Creek Superfund Site were extensively reviewed, compiled into a report and recently submitted to Congress. In 1995, 31% of children in the community had blood lead levels (BLLs) >10 µg/dL. Recommendations were made at that time to replace the soil,

monitor the community on an ongoing basis and conduct other activities. The interventions and extensive health education programs resulted in decreased BLLs over time across the entire Tar Creek population. However, the new report recommends continued and ongoing blood lead screening; analyses of lead and other metals of concern; assessments of the most effective interventions; and community education. The Tar Creek report is available to the public on the NCEH/ATSDR web site. NCEH/ATSDR's other initiatives in FY'04 included awards of \$112 million to 301 cooperative agreements and establishment of the WTC registry. The registry is now the largest in history with 70,000 participants.

The **BSC** acknowledged the extremely disproportionately low allocation of resources to NCEH/ATSDR, particularly in light of CDC's \$1 billion terrorism budget. Evaluations have predicted that a chemical rather than infectious agent is the most likely toxicant to be deployed during a bioterrorism event. NCEH/ATSDR is CDC's lead entity for chemical agents, but will be unable to apply its expertise without sufficient funding. Moreover, portions of the NCEH/ATSDR chemical terrorism preparedness budget may not be adequately disbursed for education and training of communities and emergency medical services personnel throughout the country. Many of these groups lack knowledge in using equipment and providing care to the public after a chemical release or similar event.

The **BSC** commended NCEH/ATSDR for exploring approaches other than published government documents to widely disseminate research findings to the public, particularly solid data from public health assessments (PHAs), exposure investigations and other studies. Several members made suggestions to strengthen NCEH/ATSDR's activities.

- Design a publication review process that will allow communities to review documents and offer comments prior to publication in peer-reviewed journals.
- Discuss leaded candy and lead-containing products other than pottery during the lead task force meeting in December 2004.
- Place stronger emphasis on increased cancer rates and other adverse health effects from pesticide exposures to agricultural workers in the United States.

Drs. Falk and Sinks made follow-up remarks to the discussion. NCEH/ATSDR's refugee health projects, displaced person studies and other global health initiatives will not be transferred to OGH after the reorganization due to expertise at the center level that is needed to perform these activities. However, NCEH/ATSDR and all other centers with global health projects will collaborate and coordinate with OGH to conduct these initiatives in the new organizational structure. OGH's role will be to oversee and

promote issues related to global activities across all CDC centers, such as policy, funding and data collection.

NCEH/ATSDR realizes the need to closely collaborate with the CDC Office of the Director to address its budget deficit and identify chemical terrorism priorities in most need of resources. For example, ATSDR and NIOSH have provided meaningful information on chemical releases to first responders, but acknowledge that these efforts must be strengthened. NCEH/ATSDR welcomes input and advice from the BSC in this area and committed to providing the members with detailed breakdowns of the separate ATSDR and NCEH budgets in preparation for the open discussion on the following day. NCEH/ATSDR is exploring the possibility of developing an electronic journal or creating another tool to more widely distribute environmental health practice data to the public.

NIOSH has a significant Congressional earmark to study the health of agricultural workers and will be in a position to more closely collaborate and coordinate with NCEH/ATSDR on this activity after CCEOHIP is officially established. NCEH/ATSDR is also interested in analyzing pesticide exposures to persons living in communities around areas where pesticides are sprayed or seep into groundwater.

Subcommittee and Workgroup Reports

Program Peer Review Subcommittee (PPRS). **Mr. Terrence McManus**, the PPRS Chair, reported that PPRS's charge is twofold. First, advice and recommendations will be provided to the BSC on program peer reviews. Second, a long-term perspective will be given on the conduct of the peer review process and the overall review strategy will be organized and facilitated under FACA rules. PPRS will establish teams to perform technical reviews and complete a review on each designated program at least once every five years. To fulfill its charge, PPRS plans to develop and implement a review methodology; collaborate with the NCEH/ATSDR Office of Science to form review teams from a list of pre-approved reviewers; assign at least one PPRS member to each review team; conduct three to four reviews per year; implement quality control measures to assess review outcomes; and present the final results to the BSC for approval.

PPRS has formed two workgroups. Team 1 is the Review Road Map Workgroup and has established a five-year review plan. Team 1 determined that PPRS will review ATSDR by its five divisions and NCEH by its 14 programs. The road map was developed based on input from NCEH/ATSDR staff on areas that should be reviewed first and specific selection criteria, such as programs with the longest history, a balance between ATSDR and NCEH, and a balance across environmental health divisions. In year 1, Team 1 will complete three reviews by the fall of 2005 on the ATSDR Hazardous

Substances and Emergency Events Surveillance Program (HSEESP) as well as the NCEH Environmental Health Services Branch and Air Pollution and Respiratory Health Branch.

Team 2 is the Review Methodology Workgroup and is considering an approach in which the individual program will perform a self-assessment and PPRS will “verify and clarify” results. With this strategy, PPRS will ensure that the self-assessment and improvement plan are solid and goals are on schedule. PPRS is aware that the self-assessment approach requires less time and external resources over the long term, but several months will be initially required to develop and test the self-assessment questionnaire. PPR’s draft minutes from its October 5, 2004 conference call were distributed in the meeting packets; PPRS will continue to provide the BSC with future conference call minutes.

Dr. Daniel Wartenberg is a PPRS member and discussed the ongoing review of HSEESP. ATSDR established HSEESP in 1990 with five states to gather data on hazardous substance spills in these areas. HSEESP’s objectives are to characterize the distribution of acute hazardous substance releases; describe the morbidity and mortality from these events; identify associated risk factors; and develop strategies to reduce morbidity and mortality. After ATSDR created and distributed a series of questions to HSEESP staff, Team 1 reviewed the responses and submitted comments. During a two-day site visit, Team 1 met with HSEESP managers and staff at all levels to discuss outcomes, an appropriate strategy to conduct the review and a methodology to compile the report.

Team 1 reached several conclusions based on the site visit. HSEESP’s efforts on the peer review are outstanding and staff are to be commended. The hazardous substances and emergency events database is more comprehensive and complete than similar databases. HSEESP now includes 15 member states that are required to design educational tools, develop activities and disseminate information within the individual state. These initiatives were found to be extremely important. HSEESP includes useful capacity-building and collaborative functions at the state level in which certain states assist others in integrating environmental health programs and reporting data to CDC. HSEESP has resulted in the publication of several informative reports, newsletters, peer-reviewed articles and other educational products.

Team 1 also made several recommendations to HSEESP after the site visit. A strategic planning exercise should be incorporated for HSEESP to regularly review goals and objectives, determine the appropriateness of these measures, and identify approaches to refine current activities. A formal and rigorous evaluation component should be immediately integrated that includes solid criteria, a sound methodology, and clearly defined metrics for HSEESP to measure its impact in reducing emergency events, morbidity or mortality. Denominator data should be gathered on hazardous substance

releases and emergency events to prevent the occurrence of similar events in other locations in the future.

Coordination and collaboration with other CDC programs should be strengthened. An evaluation should be performed to determine whether HSEESP's 15 member states truly represent the country or if a bias exists. A formal process should be designed to disseminate HSEESP's educational materials at the national level. A public use data set should be developed and accessible to other researchers in federal agencies, academic institutions and other groups. Efforts should be made to enhance consistency, coordination and collaboration among member states. Team 1 is finalizing the draft report on the HSEESP peer review for distribution to the full PPRS for review and comment. The revised document will then be circulated to the BSC for approval.

Community Tribal Subcommittee (CTS). **Dr. Cynthia Harris**, the CTS Chair, reported that three of the six previous Special Consultants (SCs) were selected to continue to serve on the CTS. These persons were chosen due to their diverse interests and expertise in tribal health, environmental health and affected communities. The composition of the new CTS is four BSC members, three SCs and the DFO. The CTS covered the following topics during its November 2, 2004 conference call. Previous accomplishments and successes of the former CTS were acknowledged and highlighted, such as PHA evaluations; a checklist for ATSDR's PHA Guidance Manual; task forces to address priority issues; a cultural sensitivity training initiative; three proposals for tribal issues; a federal facilities expert panel; and a community toolbox of available ATSDR resources.

The CTS's role to advise the BSC on community and tribal issues, concerns, outreach and assessment was outlined. Expansion of the CTS's function under the NCEH/ATSDR consolidated agency was considered, such as providing guidance on regional policies, practices and programs. The impact of the NCEH/ATSDR consolidation on ATSDR's previous mission and function was discussed. The need to continue existing CTS projects was emphasized, such as the PHA evaluations, community toolbox and cultural sensitivity training initiative.

New CTS activities were proposed, such as providing input during the development of standards and criteria to evaluate NCEH/ATSDR activities and public health impact; collaborating with PPRS in this effort; offering guidance on health disparities or children's issues; creating a new environmental justice (EJ) toolbox for NCEH/ATSDR staff; and designing community health education activities on the influence of social determinants on health status. Agreement was reached to formulate a work plan by January 2005 to prioritize the CTS's focus on existing and new activities in 2005. Draft minutes of the CTS November 2, 2004 conference call were distributed in the meeting packets; the CTS will continue to provide the BSC with future conference call minutes. Dr. Harris particularly acknowledged Dr. McDiarmid's contributions to the CTS.

Health Department Workgroup (HDW). **Dr. Gayle Windham**, the HDW Chair, reported that HDW's charge is threefold. First, the top three to five issues that are most significant and relevant to the relationship between NCEH/ATSDR and health departments should be identified. Second, HDW's function should be evaluated to determine whether an informal workgroup or formal subcommittee is better to implement activities. Third, efforts should be made to recruit a CDC grantee and representative of a professional organization to serve on HDW. HDW's composition includes five BSC members (three of which are health department representatives), four SCs and three NCEH/ATSDR staff. Key discussion topics during HDW's conference calls in October and November 2004 are as follows:

The need to maintain HDW's overarching focus on health departments during the NCEH/ATSDR consolidation was emphasized. A list of ten potential HDW issues was developed by members, then distributed to members for ranking, and prioritized in the following order. One, a competent environmental health workforce should be developed and maintained and leadership should be fostered. The *National Strategy to Revitalize Environmental Public Health Services* report should be used as a resource in this effort. Two, local response capacity should be built with regional epidemiologists; radiological agents should be included in chemical terrorism activities; legislation and regulations for surveillance and monitoring should be reviewed; and approaches to apply this expertise to other emergencies should be explored.

Three, NCEH/ATSDR should provide technical support to states to improve surveillance systems for EPHT projects and the Public Health Information Network. For example, NCEH/ATSDR could help standardize systems; provide consultation and support to states to conduct analyses and report results; develop strategies for states to acquire data from federal agencies; and sustain and expand surveillance funding to all states. Four, NCEH/ ATSDR should establish relationships with other environmental and health agencies to assist state and local health departments in addressing indoor and outdoor air quality concerns, such as mold, vermiculite, asbestos and asthma.

Five, NCEH/ATSDR should explore the possibility of developing guidelines for built environment issues at the local level, including land use, location and transportation of hazardous wastes, prevention of exposures, EJ and obesity. For its next steps, HDW will thoroughly review FACA rules to identify differences between a subcommittee and workgroup and propose its composition at the next BSC meeting. HDW will also define additional activities for the top five priorities after the BSC approves these issues.

The **BSC** made several suggestions for the CTS, HDW and PPRS to consider in future activities.

PPRS

- Urge reviewed programs to provide PPRS with a written plan of actions taken in response to recommendations outlined in peer review reports.
- Revisit programs during the mid-point of the five-year peer review process to evaluate improvements and determine whether changes are on schedule. Provide NCEH/ATSDR with a written report of the findings from mid-point site revisits.
- Advise HSEESP to encourage member states to enhance coordination and collaboration with EPA Chemical Risk Branches throughout the country, the Chemical Safety Board, American Chemistry Council, local emergency planning committees and other hazardous material responders.
- Maintain a list of names and background information of potential program reviewers to ensure the available pool expands over time.

CTS

- Collaborate with the PPRS Chair and NCEH/ATSDR Office of Science to jointly identify programs where a community review should be incorporated into the peer review process.
- Review and build on EPA's existing EJ definition and activities.

HDW

- Include laboratory capacity as one of the top priority issues.
- Establish HDW's composition as a formal subcommittee rather than an informal workgroup to strengthen linkages with state and local health departments and narrow the focus.
- Review and build on EPA's existing EJ definition and activities.

Drs. Falk and Sinks made several remarks in response to the BSC's discussion. NCEH/ATSDR hopes HSEESP will be expanded to all 50 states in the future and linked to better systems maintained by NIOSH and the Occupational Safety and Health Administration. This approach will strengthen the knowledge base on where accidents occur, reasons for these events and prevention strategies.

NCEH/ATSDR hopes OHE will assist program staff in establishing health equity goals and measurable outcomes that directly hold programs accountable for achieving these objectives. The CTS may assist in this effort after OHE's expanded mission and function are clearly defined and OHE is officially established in OSI. With respect to HDW, a workgroup is more flexible than a subcommittee because adherence to FACA rules is not required. For example, a subcommittee must open its meetings to the public, publish meeting announcements in the *Federal Register*, produce meeting minutes, and hold meetings with a DFO in attendance.

NCEH/ATSDR Strategic Priorities

Ms. Georgi Jones is the Director of the NCEH/ATSDR Office of Policy, Planning and Evaluation. She described NCEH/ATSDR's strategic priorities. As a newly consolidated agency, NCEH/ATSDR initiated its strategic planning process by forming the same four workgroups as CDC's FI workgroups on research, infrastructure, global issues, and customers, stakeholders and channels. To identify priority areas for development in NCEH/ATSDR, the workgroups collaborated with partners and created a matrix illustrating existing overlapping issues and new joint projects. The workgroup co-chairs and NCEH/ATSDR senior management initially selected several strategic priorities and then narrowed the list to four areas for new program development: air pollution and respiratory disease, safe water, biomonitoring, and hazardous substances and health effects.

NCEH/ATSDR charged the four workgroups with drafting proposals in the following areas. Compelling environmental health needs to address and market to CDC and Congress should be identified. Attributable causes from the environment to these problems should be determined. Unique contributions NCEH/ATSDR can make to address these problems should be evaluated. Activities or interventions NCEH/ATSDR should undertake to solve these problems should be assessed. Partners to assist NCEH/ATSDR in solving these problems should be identified. The cost of resolving these problems in FY'06 and outlying years should be analyzed.

NCEH/ATSDR is now requesting guidance from the BSC on whether the charge to the workgroups is sufficient; if the workgroups overlooked other critical issues or new directions in the proposed projects; and whether the workgroups' methodologies are appropriate. NCEH/ATSDR will incorporate recommendations from the BSC, finalize the workgroups' draft proposals by December 31, 2004, and present the proposals to OSI for integration into CDC's new goal management system as appropriate. Proposed projects of three of the four workgroups are summarized below. [The newly formed Hazardous Substances and Health Effects Workgroup did not present during this meeting.]

Respiratory Disease and Air Quality Workgroup (RDAQW). **Dr. Seymour Williams**, of NCEH/ATSDR, reported that RDAQW is proposing projects in four priority areas. For respiratory diseases, a national system should be developed to track asthma incidence; spirometry should be included in National Health And Nutrition Examination Surveys (NHANES); stronger data should be collected on asthma severity and treatment tracking; asthma should be characterized through genomics; and alpha 1 antitrypsin deficiency and other non-smoking causes of chronic obstructive pulmonary disease should be investigated.

For indoor air, activities should be designed to prevent carbon monoxide poisoning and characterize microbes, particulate matter (PM) and volatile organic chemicals (VOCs). A research plan for mold should be developed based on the existing Institute of Medicine study. These activities can be achieved by creating an indoor toxic release inventory (TRI) with human exposure data. Residents would be longitudinally followed in schools rather than homes to identify allergies, biomarkers and other disease outcomes. The burden from home heating systems, boats, intentional poisonings, and indoor combustion or grills would be quantified.

For outdoor air, research should be conducted on chemical-specific emissions by geographic areas and overlaid with respiratory conditions from the TRI, National Emissions Inventory and Geographic Information Systems (GIS). The general public should be educated on the relationship between PM exposure and lifestyle choices. Health promotion and prevention messages should be developed and delivered on the risk of acute cardiovascular events and adverse outcomes related to PM exposure. Public health agencies, health care providers and the public should be targeted in this effort.

State and local health departments should be funded and supported to use EPHT data for PM exposure and potentially associated health effects as well as to identify associations and at-risk populations. The effectiveness of EPA's Air Quality Index and other existing interventions should be evaluated. For programs and interventions, the effectiveness of carbon monoxide meters should be assessed. EPA's "Tools for Schools" Program should be evaluated and implemented as a national model for asthma and indoor air.

Healthy Water Workgroup (HWW). **Dr. Ken Orloff**, of NCEH/ATSDR, reported that HWW is proposing a project to determine the impact of drinking water exposures to contaminants from private wells and small water systems. These sources have ≤ 25 patrons or < 15 service connections and are not regulated by EPA under the Safe Drinking Water Act (SDWA). State and local regulations are also minimal, but the systems provide water to ~15% of the U.S. population or > 40 million persons. Water quality from private wells and small systems is generally unknown due to limited monitoring and unsafe due to bacterial, microbiological or chemical contamination.

Waterborne disease summaries published in the *MMWR* are based on passive surveillance data reported to CDC by state and local health departments. These data show that small systems and private wells result in 40% of reported waterborne disease outbreaks. Contaminants found in private wells include coliform bacteria, nitrates, arsenic and VOCs. States have asked CDC to provide technical assistance and guidance to reduce the risk of waterborne diseases associated with small drinking water

systems and private wells. HWW will take several actions in the proposed healthy water project.

First, high-risk areas will be identified to launch pilot projects. Selection criteria include areas with past disease outbreaks, known hydrogeological contamination, hazardous waste sites, farmland, and Native Americans or other under-served populations. The pilot projects will be conducted in conjunction with state governmental agencies to determine the effectiveness of the activities in detecting disease. The projects will be expanded to other areas if the pilots demonstrate success.

Second, a series of activities will be implemented. Efforts will be made to advance from passive to active surveillance of waterborne disease outbreaks by obtaining input from local health departments, healthcare providers, testing and clinical analysis laboratories, schools and campgrounds. Disease outbreaks will be investigated by collaborating with local health officials and deploying epidemiologists, toxicologists, sanitary engineers and laboratory technicians to affected areas. Monitoring of private wells in high-risk areas will be increased with additional resources to state laboratories. Sanitary surveys of small drinking water systems will be performed to identify, prevent or correct problems.

Third, health education will be provided to increase public awareness. These efforts will be targeted to private well owners, small system operators, healthcare providers, and health departments at state and local levels. Fourth, NCEH/ATSDR will strengthen partnerships with EPA, state and local health departments, and other traditional partners. Collaboration will be enhanced with new partners, including state environmental agencies, the American Water Works Association, National Groundwater Association and physicians' groups.

Biomonitoring Workgroup (BW). **Dr. James Pirckle**, of NCEH/ATSDR, reported that BW is focusing on metals and initially emphasizing mercury and arsenic due to severe data gaps and tremendous economic consequences in these areas. Efforts are underway to remove thimerosal from children's vaccines, but the influenza vaccine is recommended for children and still contains thimerosal. Autism and other potential health effects from thimerosal have minimized public confidence in the influenza vaccine. Recent data demonstrate that 5.7% or ~4 million women of childbearing age have mercury levels greater than the EPA reference dose. Data collected to date have not identified "safe" exposure levels for mercury in very young persons. New mercury regulations for coal-burning power plants have been strongly opposed by industry due to the lack of solid scientific evidence.

EPA and the Food and Drug Administration (FDA) are still issuing conflicting guidance on mercury exposure from fish and amalgams. Human data are not adequate to provide better guidance on arsenic in drinking water. Minimal efforts have been made

to analyze studies on combined neurologic effects of lead and mercury. CDC previously formed groups to identify data gaps, but now recognizes the need to more aggressively fill gaps. NCEH/ATSDR's role in this effort will be to conduct activities or ensure tasks are performed. BW reviewed the public health model of "essential steps for disease prevention" to propose its mercury and arsenic project in four phases.

First, exposure should be detected by targeting general, highly-exposed and vulnerable populations, such as fetuses and elderly persons. New technologies should be applied to speciated biomonitoring methods. For example, blood and urine measurements are being improved to distinguish the amount of arsenic or mercury from drinking water versus food. Methods are being refined to speciate organic mercury in methyl, ethyl, phenyl and other forms. Exposure from water, food, air or other sources should be accurately attributed to ensure the most appropriate and effective interventions are implemented.

Second, assessments should be performed on health risks from mercury levels associated with central nervous system effects in vulnerable populations; health risks from thimerosal exposure; and arsenic dose-response relationships for cancer. Research should continue on biomarkers of early effects to advance the knowledge base. Combined neurological effects from mercury and lead should be further investigated. Third, interventions should be developed and implemented by demonstrating the efficacy of exposure investigations. Clinical guidelines should be created for fish and other exposure sources, biomonitoring levels and exposure reduction. Fourth, solid data should be used to assure and document the effectiveness of interventions, including those for exposed or large populations, state-based activities and Superfund sites.

The **BSC** made several suggestions to refine the projects proposed by the NCEH/ATSDR strategic priority workgroups.

RDAQW

- Prioritize activities because the NCEH/ATSDR budget is not sufficient to conduct all of the proposed projects. Base decisions on NCEH/ATSDR's unique mission, scope and expertise; resource constraints; and the types of expertise needed for each project. Determine whether activities are truly critical, compelling and essential to saving lives. For example, testing laboratories rather than NCEH/ATSDR could assess the effectiveness of carbon monoxide meters.
- Partner with the Centers for Medicare and Medicaid Services, Health Resources and Services Administration and other federal agencies that will play a critical role in policy implementation at the state level.
- Include additional information on the priority matrix for the BSC to provide more meaningful input. For example, identify the audience, such as

federal, state or public health agency. Clearly define the purpose of each proposed project, such as public education, research or problem resolution.

- Educate clinicians on the environmental health aspects of asthma because this approach may influence healthcare insurers to focus on environmental prevention strategies.
- Expand the membership from CDC staff and one EPA consultant; broadly represent expertise in the field; and include substantial efforts at the national level by EPA and the National Institutes of Health (NIH).
- Strengthen coordination with EPA by meeting with key EPA staff who focus on the same issues as the proposed projects.
- Include cancer on the priority matrix as an important respiratory disease.
- Create standardized databases for indoor and outdoor air that can be implemented at state and local levels.
- Widely promote NCEH/ATSDR's expertise in registries, tracking programs, risk communication and health education for federal partners to advance research agendas and programs on air pollution and respiratory diseases in other agencies.

HWW

- Include surveillance of regulated/non-disinfected small drinking water systems as an additional activity due to the *MMWR* report of acute gastrointestinal outbreaks from these sources.
- Include warm-water/non-disinfected systems as an additional high-risk area because these sources result in microorganic buildup.
- Coordinate with Food Net because this program has already advanced from passive to active surveillance of food-borne outbreaks in selected states.
- Place emphasis on *Cryptosporidium* from swimming pools and waterborne disease outbreaks from other recreational sources. Compile and distribute these findings as prevention guidance.
- Establish partnerships with university cooperative extensions because these groups are the primary source of education to private well owners on water protection and testing. Compile and analyze data collected by these groups.
- Follow up on the nitrate/fetal loss study. For example, the *MMWR* published an article on women with nitrate levels above SDWA standards who experienced multiple miscarriages. All women in the study carried their pregnancies to full-term after switching from nitrate-contaminated water to bottled water.
- Use the proposed healthy water project to enhance NHANES. For example, include nested environmental monitoring and water sources as NHANES components.

- Develop effective educational tools and create a strong management system to provide solid healthy water recommendations.
- Widely promote NCEH/ATSDR's chemical expertise while publicizing the healthy water project.
- Initiate dialogue with EPA on an appropriate methodology to analyze small drinking water systems because these sources affect a tremendous number of individuals throughout the country.

BW

- Analyze cultural and ritualistic uses of metals, cadmium, manganese, pesticides and other common neurotoxicants as additional exposure sources in the biomonitoring project.
- The findings on carcinogenicity of dimethylarsenic acid, a urinary metabolite of arsenic, were from rodent studies. Biomonitoring in humans would identify amounts in urine from foods which could be compared to arsenic ingested from drinking water.
- Include Asians as a U.S. sub-population to detect exposure because Asian patent medicines are a source of heavy metals.
- Partner with HHS agencies with larger budgets than NCEH/ATSDR to ensure critical public health gaps in biomonitoring are filled.

Social and Behavioral Sciences (SBS) at NCEH/ATSDR

Dr. Elizabeth Howze is the Director of the NCEH/ATSDR Division of Health Education and Promotion. She and **Drs. Michael Hatcher and Seymour Williams** provided background information on three questions that will need to be considered to build and integrate SBS into NCEH/ATSDR activities. First, what is SBS and how has it been applied to non-environmental health problems to improve the health of the public? SBS includes health promotion, community psychology, political sciences, cultural anthropology, organizational development, sociology, social work, education, economics and communication.

Several theories and methods have been integrated into SBS to influence behaviors and improve health outside of environmental health. For example, CDC has adopted the VERB Campaign to motivate young persons 9-13 years of age to undertake more physical activity. Features of the campaign include emphasizing the importance of physical activity to this age group, creating a social norm for physical activity, engaging parental support, and ensuring programs for physical activity are available. An ecological approach is being used to address women and tobacco. This strategy includes educational activities, advocacy, social support, organizational change efforts, policy development, economic supports and environmental changes. Both programs

have demonstrated the effectiveness of SBS by increasing physical activity among young persons 9-13 years of age and decreasing the number of women who smoke. NCEH/ATSDR is now considering strategies to apply these successes to environmental health.

Second, how can SBS be used to address important environmental health problems? How is SBS currently being applied at NCEH/ATSDR? Over the past 20 years, the definition of environmental health has been broadened from chemical toxicants to include land use, the built environment and public policy influences. Most environmental hazards, agents and media have risk factors that can be addressed by SBS interventions. For example, SBS provides theories, constructs and methods for understanding the social context of human interaction with both natural and manmade environments. SBS also provides tools to address health consequences of interactions at both individual and societal levels.

NCEH/ATSDR, EPA and the National Institute of Environmental Health Sciences have integrated the social determinants of health model into a variety of environmental health and community-based programs, research and activities. Examples of NCEH/ATSDR's application of SBS is outlined as follows. NCEH funded the Inner City Asthma Intervention (ICAI) due to successful behavioral changes demonstrated by the National Cooperative Inner City Asthma Study (NCICAS). NCICAS resulted in fewer days with symptoms, less hospitalizations and decreased dust mite allergens among its cohort of children 5-12 years of age with asthma in eight inner-city communities.

NCEH recruited 23 health institutions and has enrolled 584 children in ICAI to date. Social workers at the master's level who served as asthma counselors were found to be key components in both ICAI and NCICAS. Social worker skills were also found to be critical in assessing family situations, removing psychosocial barriers, and building a support system to improve knowledge and change behavior. NCEH is now analyzing ICAI data. ATSDR partnered with the Missouri State Health Department to apply SBS strategies in health education, recruitment of parents for a children's blood lead screening program, and community engagement activities to reroute trucks that transported lead ore to a smelter in Herculaneum.

ATSDR applied evidence-based message mapping methods to develop and distribute educational materials on fish consumption in Mississippi. This approach has demonstrated effectiveness in increasing message comprehension from 30%-60%. Based on this success, ATSDR held a public forum similar to a health fair instead of convening traditional public meetings. The public forum allows more personal interaction with community members, scientists and public health officials.

Third, are the range and depth of SBS research and applications adequate to improve the effectiveness and efficiency of environmental health interventions in light of

resources? What are appropriate next steps? Limited surveillance, capacity and infrastructure to document links between exposure and disease impede public health action, but NCEH/ATSDR's EPHT project is expected to play a critical role in filling these knowledge gaps. However, social and behavioral indicators should be measured in this initiative to more broadly analyze EJ issues and health disparities.

Similar to environmental health, methodological complexities and other problems are also associated with SBS. For example, models must be better specified to improve data collection and analysis at both individual and societal levels. Agency staff with SBS training and experience are limited. In terms of opportunities, SBS can be applied in FI to enhance the areas of health impact, customer focus, public health research, performance improvement, leadership and global health impact. Despite limited resources, SBS should be built and further integrated into NCEH/ATSDR to improve effectiveness and efficiency.

The **BSC's** recommendations for NCEH/ATSDR to incorporate SBS into existing projects are outlined below.

- Collaborate with OHE and other internal partners to identify opportunities to integrate SBS into CDC programs. For example, LPPB can use SBS to enhance its current focus on repeat offending homes that continually produce lead poisoned children. CCHIS can use SBS to communicate accurate health information to the public and minimize fears on mercury contamination from fish consumption.
- Review lessons learned and successes of the behavioral safety field and apply these experiences as appropriate to environmental health.
- Focus on SBS complexities and problems other than health education and communication. For example, decisions to engage in or refrain from risky behaviors will depend on the manner in which individuals value their personal lives.
- Begin to build and integrate SBS into projects by determining the contribution of various exposures and stressors and identifying areas to apply resources and SBS interventions. Use the science-based component of SBS to generate interest and opportunities among EPA and other external partners. For example, NCEH/ATSDR will collaborate with partners to develop clinical guidelines on interpreting mercury levels in humans.

Public Comment Period

Dr. McDiarmid opened the floor for public comments; no attendees responded.

With no further discussion or business brought before the BSC, **Dr. McDiarmid** recessed the meeting at 5:35 p.m. on November 18, 2004.

Review of Previous Meeting Minutes

Dr. Nolan reconvened the meeting at 8:40 a.m. on November 19, 2004 and entertained a motion to approve the previous minutes. Several **BSC** members proposed the following changes:

- Change “lipids” to “in the body” in the biomonitoring presentation on page 12.
- Delete the reference to the “smartest guys in the world” on page 13.
- Change the sentence to “... sent a total of \$5 million in grants to 33 states” on page 14.
- Add “Ms. Babich also requested more meeting time for discussion” to the last bullet on page 14.

A motion to approve the minutes was properly made and seconded by voting members; the May 20-21, 2004 BSC Meeting Minutes were unanimously approved as corrected with no further changes or discussion.

Overview of the ATSDR Dioxin Soil Policy Guideline (DSPG)

Dr. Mark Johnson, of the NCEH/ATSDR Division of Regional Operations, explained that DSPG serves as guidance for public health assessors to evaluate the public health implications of exposure to dioxin and dioxin-like compounds in residential soils. DSPG applies to human exposure for direct ingestion of soil. ATSDR developed DSPG in response to EPA’s request in 1995 to evaluate the protectiveness of the Superfund policy for dioxin in residential soils. ATSDR established a workgroup and drafted an interim policy that was peer reviewed, announced in the *Federal Register*, released for public comment, and eventually published in peer-reviewed literature.

ATSDR based the 1996 DSPG on the screening level for soil dioxin of 50 ppt. Further actions are not recommended if the level is <50 ppt, but an evaluation of site-specific conditions is advised if the level is >50 ppt. These factors could include the climate, community concerns, background exposures, ingestion rates, pathways and bioavailability. A higher level of public health actions is recommended if the soil dioxin level is >1 ppb. These activities could include surveillance, research, community and physician education, health studies and exposure investigations.

Most international organizations agree with the minimum risk level (MRL) for dioxin in soil of 1 pg/kg/day, but ATSDR now acknowledges the need to revise DSPG. Methods to evaluate health hazards for dioxin in residential soils are inconsistent. The process to interpret the action level of 1 ppb is unclear and often confused with “residential soil cleanup” or a “public health hazard.” Public health activities are improperly linked to specific dioxin soil concentrations. Other exposure pathways are typically not considered in evaluations of dioxin soil concentrations and result in less comprehensive site assessments. ATSDR is now proposing to revise and update DSPG to eliminate confusion about “screening” versus “action” levels and also to provide a consistent approach to evaluating dioxin in residential soils.

Highlights of the draft DSPG are summarized as follows. The 50 ppt “screening level” for dioxin in residential soils will be retained, but the 1 ppb “action level” to evaluate public health hazards or initiate public health activities will be removed. The 1 ppb level will be referred to as an EPA “regulatory level” on which to base cleanup decisions. The policy will only apply to direct ingestion of soil, but evaluation of other site-specific exposure pathways will be recommended. The draft DSPG has been submitted to NCEH/ATSDR for internal review and clearance and also to EPA and state health departments for review and comment. The revised draft will be released for public comment and finalized.

The **BSC** extensively discussed the draft DSPG. Several members agreed that the current document lacked a sufficient description of the scientific underpinnings to support the change in guidance from CDC. Moreover, there was considerable agreement among the BSC that any change by CDC with respect to guidance regarding dioxin in soil was likely to have a significant impact on actions taken by state and federal agencies at any dioxin contaminated site. As a result, the DSPG should be very well described with transparent justification when the guidance is issued. Specific recommendations by the members to refine the draft DSPG are outlined below:

- Clearly communicate that the 50 ppt screening value is being retained. Strongly emphasize that the removal of 1 ppb as an “action level” is the only substantial change being proposed in the draft DSPG. Use this approach to ensure the new guidance is not misinterpreted as ATSDR’s recommendation to lower the action level.
- Add language to clarify the process of using non-detection limits and summing up TEQ values.
- Insert “residential” before “soil” in the title.
- Clarify the terminology for the public by changing “screening level” to “no public health hazard level” or “no evaluation needed level.”
- Substantially revise the draft DSPG before releasing the document for public comment. For example, the current version lacks clarity overall and

will be confusing to both the scientific community and general public. An executive summary should be developed or a section should be added to the introduction to outline the purpose and objective of the document; clearly indicate changes from the previous and draft DSPGs; and describe ATSDR's rationale for reaching these conclusions. The actual mathematical steps and exposure assumptions used to calculate the 50 ppt screening value and arrive at the 1 pg/kg/day MRL should be illustrated.

- Show the incremental dose for various contaminant exposures above background levels instead of using risk criteria for background chemicals.
- Form a BSC workgroup to assist ATSDR in refining and clarifying the draft DSPG.
- Add an introductory memorandum from Dr. Falk to clearly convey three key messages to the public. First, ATSDR has decided that the action level of 1 ppb will no longer be in effect. Second, ATSDR encourages public health officials to investigate all sites with levels of 50 ppt TEQ dioxin-like chemicals to gain a better understanding of these sites. Third, ATSDR recommends standard and customary risk assessment calculations for sites that require additional evaluation to determine acceptability.
- Clearly distinguish between ATSDR's "action level" and EPA's "cleanup level" because the language from the two agencies appears to be in conflict and causes tremendous confusion in communities.
- Discuss the "estimated intake of 3 pg/kg/day (97% from diet)" at the beginning of the DSPG with the other levels to ensure the public places background exposures in the proper context.
- Show the incremental amount of dioxin from residential soils for both adults and children that is estimated to be added to the intake of 3 pg/kg/day from background exposure from the diet.
- Clearly communicate that the "updated" DSPG is actually a clarification of an existing policy.
- Revise DSPG based on the BSC's comments and present the new draft for a formal vote at the next meeting or during an interim conference call because the document is actually a change in policy.
- Address the potential concern that EPA may establish a new action level of 50 ppt if the current level of 1 ppb is entirely removed from DSPG rather than clarified.
- Ask ATSDR's risk communicators to translate DSPG into "plain language."

Update on Chemical, Radiological and Natural Disaster (CRND) Preparedness

Dr. Scott Deitchman is the Associate Director of the Office of Terrorism Preparedness and Emergency Response (OTPER). He described current OTPER projects and activities. During normal situations, OTPER represents CRND perspectives in CDC's planning processes with internal partners, funding processes for readiness evaluations, and strategic plans and priorities. OTPER also represents CDC in federal, domestic and international preparedness planning; identifies external partners of relevance to NCEH/ATSDR programs; and reviews educational materials for policy and content prior to distribution to clinicians, health departments and the general public.

During disasters, OTPER directs the CDC Emergency Operations Center response, coordinates recruitment and deployment of CDC staff, represents CDC on federal agency conference calls, reviews public communications, and prepares after-action reports. These actions are taken because NCEH/ATSDR serves as CDC's lead center for CRND events. Although OTPER recently responded to ricin incidents and hurricanes and participated in various other activities, resources for CRND preparedness are still limited. Of CDC's FY'04 appropriation for terrorism and disaster preparedness of \$240 million, NCEH/ATSDR received ~11%. The NCEH/ATSDR divisions proposed \$45.8 million in FY'04 to conduct CRND projects, but only received \$27.6 million from CDC.

In an effort to address limited resources for CRND preparedness, OTPER is now soliciting the BSC's guidance in prioritizing activities of high, medium or low importance. The status of OTPER's current and proposed initiatives are outlined below.

- Activities to prepare CDC and the U.S. government for nuclear and radiological disasters are active and funded. The amount requested was \$2.7 million, but \$2.1 million was received.
- Of four projects to strengthen chemical and radiological capacity of the NCEH/ATSDR laboratory, two are active and funded and two are active at a low level with no funding. The amount requested was \$19.4 million, but \$15.6 million was received.
- The effort to place emergency response coordinators in each ATSDR regional office is active. The number of full-time equivalents requested was 12, but two were funded.
- The project to develop and maintain a rapid response registry of persons who can be immediately deployed to an emergency site to register exposed or potentially exposed individuals to terrorist and emergency events is active and funded. The amount requested was \$1.1 million, but \$55,000 was received.
- Projects to enhance the GIS Program with technical services, data analysis, evaluation methods and models, research and other tools are active and funded. The amount of \$956,593 was requested and received.

- Initiatives to prepare state and local health departments to respond to nuclear and radiological terrorism are active with no funding; \$5.1 million was requested.
- The activity to update and expand medical management guidelines on poisoning from various chemical contaminants is inactive and not funded; \$563,000 was requested.
- Efforts to produce and distribute guidance for the responder stress readiness program are inactive and not funded; \$94,000 was requested.
- Projects to prepare hospitals for chemical emergencies and terrorism events are inactive and not funded; \$961,939 was requested.
- Two initiatives to enhance chemical and radiological surveillance and strengthen the epidemiology infrastructure are active. The amount requested for HSEESP was \$2.2 million, but \$1.7 million was received. The amount requested for the Toxic Event Surveillance System was \$1.2 million, but no funding was allocated.
- Of four activities to train the public health workforce, none are funded. The amount requested was \$350,000 for two projects under the Public Health Role in Incident Management Systems Training and Exercise Program; both are active. The amount requested was \$155,000 for two activities under the Hospital Preparedness Course; both are inactive.
- Initiatives to enhance the CDC/EPA emergency response partnership in environmental and public health issues are inactive and not funded; \$1 million was requested.
- Of three projects to build capacity in environmental health, medicine and toxicology through national partnerships, all are active. The amount requested and received was \$250,000 for the partnership with the American College of Medical Toxicology; no funding was received for partnerships with the National Association of Environmental Health and 11 Pediatric Environmental Health Specialty Units.
- Collaborative projects with the Federal Emergency Management Agency to improve preparedness and response capacity of local communities are inactive and not funded; \$182,563 was requested.
- Joint efforts among CDC, EPA and NIH to strengthen preparedness and response capacity in developing nations are inactive and not funded; \$150,000 was requested.

The **BSC's** comments on OTPER's existing and proposed projects are outlined below.

- Partner with a broader group of universities to conduct training activities because this approach may be less expensive than collaborations with internal and external agencies.

- Place more emphasis on and allocate additional funding to assist state agencies and local communities in strengthening CRND preparedness, response and planning capacity.
- Make efforts to link ATSDR regional staff with EPA on-scene commanders.
- Consult with the multi-disciplinary panel of experts who served on the National Academy of Sciences Chemical and Bioterrorism Preparedness Committee and produced a report of recommendations in this area.

BSC Open Discussion

Drs. McDiarmid and Nolan opened the floor for the BSC to discuss previous agenda items. In terms of the NCEH/ATSDR budget, several members recognized the BSC's role to advocate, support and justify additional funding that will be needed for new projects proposed throughout the meeting. However, existing activities have been adversely impacted by the budget deficit. Most notably, states were only awarded funding for six months in FY'04 under ATSDR's 1043 cooperative agreement. ATSDR is receiving a disproportionately low amount of CDC's terrorism dollars. The possibility was raised of asking the CDC Director to forgive ~\$12 million of ATSDR's budget that will be dedicated to CDC business services, leadership and support in FY'05, particularly since the \$76.4 million budget is insufficient for ATSDR's mission. CDC could cover these overhead costs with discretionary dollars.

Drs. Falk and Sink clarified several aspects of the NCEH/ATSDR budget. NCEH's allocation of \$1 million in FY'05 to the Health Tracking Network will include expanding asthma surveillance and air pollution projects throughout the country, using these activities to prevent asthma-related diseases at the local level, and linking the initiatives to physician training programs. ATSDR dedicated >50% of its budget to extramural programs in 1998, but increased salaries and overhead costs have dramatically reduced extramural funding over time. The most recent decrease in ATSDR's extramural budget was ~\$17 million to ~\$13 million. Of this funding, ~\$9 million was allocated to state cooperative agreement programs.

Reductions in ATSDR's extramural budget over the past six years have led to minimizing or entirely eliminating several external research activities. The NCEH budget has grown since FY'99, but is now at a plateau. In terms of overhead, many of these issues will be resolved fairly soon. The Senate Appropriations Committee approved a new approach for the CDC budget in which overhead costs will be consolidated and fixed beginning in FY'05. With this strategy, new funding will be directly allocated to the respective program rather than to the CDC Office of the Director for overhead costs.

BSC Business

Consensus recommendations, action items and future agenda topics items raised by the BSC over the course of the meeting are outlined below. All consensus recommendations were properly moved and seconded by voting members and unanimously approved.

Consensus Recommendations

- *PPRS's report on the methodology for the peer review process and two-year schedule to conduct peer reviews is accepted.*
- *PPRS's draft report on the HSEESP peer review is accepted and its distribution to staff for review and comment prior to the next BSC meeting is approved.*
- *The draft minutes of CTS's November 2, 2004 conference call are accepted.*
- *The following approach to produce the next iteration of the draft DSPG is approved. ATSDR will revise the DSPG based on the BSC's comments. The document will be modified from a risk communication perspective prior to submission for policy processing.*

Action Items

- *Provide the BSC with the job announcement for the NCEH/ATSDR Director's position.*
- *Provide the BSC with an updated list of names and contact information for key leadership in CDC's new organizational structure under FI.*
- *Highlight items requiring a BSC vote on future meeting agendas.*
- *Explore the possibility of assigning two BSC members as "primary reviewers" of presentations to receive and critically review materials prior to meetings and lead discussions during meetings.*
- *Provide the BSC with contact information of NCEH/ATSDR staff who partnered with the Council of State and Territorial Epidemiologists in developing environmental health indicators.*
- *Fill the current vacancy on the CTS with a BSC member.*

Future Agenda Items

- *Further discussion on DSPG. Topics to include whether NCEH/ATSDR should assign a team to provide guidance to public health assessors in properly interpreting and applying field data in PHAs or if portions of the PHA Guidance Manual can be used in this effort.*
- *Presentation on the role and future direction of NHANES.*

- *Discussion on reasons for the disconnect between NCEH/ATSDR and communities. Topics to include the lack of community outreach among state and local departments and options for NCEH/ATSDR to directly outreach to the public if health departments are ineffective in this area.*
- *Presentation on the role of environmental monitoring in determining health effects.*

Public Comment Period

Dr. Nolan opened the floor for public comments; no attendees responded.

Closing Session

Dr. Sinks will distribute an evaluation form to the BSC for the November 2004 meeting to improve future meetings. He asked the members to provide feedback on specific successes and failures of the meeting and describe approaches NCEH/ATSDR can take in the future to better prepare the BSC for addressing difficult issues. The members will be polled by e-mail to determine availability and confirm a date for the next meeting.

With no further discussion or business brought before the BSC, **Dr. Nolan** adjourned the meeting at 12:20 p.m. on November 19, 2004.

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

Date

Melissa A. McDiarmid, M.D., M.P.H.
Board of Scientific Counselors co-Chair

Date

Patricia Nolan, M.D., M.P.H.
Board of Scientific Counselors co-Chair

ATTACHMENT 1

List of Participants

BSC Members

Dr. Melissa McDiarmid, co-Chair
Dr. Patricia Nolan, co-Chair
Dr. Rosemarie Bowler
Dr. James Derouin
Dr. Miguel Fernandez
Dr. Joxel Garcia
Dr. David Gaylor
Dr. Lois Gold
Dr. Cynthia Harris
Mr. Scott Holmes
Dr. Nancy Kim
Dr. Harold Koenig
Dr. Ronald Laessig
Dr. Roger McClellan
Mr. Terrance McManus
Dr. Jerome Nriagu
Dr. Ngozi Oleru
Dr. Geary Olsen
Dr. Dennis Paustenbach
Dr. Daniel Wartenberg
Dr. Gayle Windham

Ex Officio Members

Dr. Allen Dearry (NIEHS)
Dr. James Stephens (NIOSH)
Dr. Harold Zenick (EPA)

Designated Federal Official

Dr. Thomas Sinks

CDC Representatives

Dr. Henry Falk, NCEH/ATSDR Director
Mr. Mike Allred
Ms. Carol Aloisio
Mr. Grant Baldwin
Dr. Drue Barrett
Mr. Michael Beach

Ms. Sherry Berger
Ms. Martha Boisseau
Dr. Michael Brooks
Ms. Donna Chaney
Dr. William Cibulas
Ms. Ilene Cohen
Ms. Joanne Cox
Ms. Sarah Cox
Dr. Scott Deitchman
Ms. Diane Dennis-Stephens
Mr. Mike Donnelly
Dr. Tina Forrester
Ms. Laura Harden
Dr. Carolyn Harper
Ms. Olivia Harris
Dr. Michael Hatcher
Dr. Janet Heitgerd
Dr. Heraline Hicks
Mr. Jim Holler
Ms. Cynthia Holloway
Dr. Elizabeth Howze
Dr. Mark Johnson
Ms. Georgi Jones
Mr. Vic Kapil
Mr. Ronney Lindsey
Mr. Shirley Little
Ms. Sandra Malcom
Dr. Stephanie Miles-Richardson
Ms. Jasmin Minaya
Dr. Moiz Mumtaz
Dr. Ken Orloff
Ms. Priscilla Patin
Ms. Paula Peters
Dr. James Pirckle
Ms. Barbara Rogers
Mr. Joe Segalla
Dr. Yee-Wan Stevens
Dr. Pamela Tucker

Dr. Seymour Williams
Dr. Mildred Williams-Johnson
Dr. David Williamson

Guests
Mr. Rob Blake
(DeKalb Board of Health)
Ms. Megan Weil (ASTHO)

ATTACHMENT 2

List of Acronyms

BLLs	— Blood Lead Levels
BSC	— Board of Scientific Counselors
BW	— Biomonitoring Workgroup
CCEOHIP	— Coordinating Center for Environmental Health, Injury Prevention and Occupational Health
CCHIS	— Coordinating Center for Health Information and Service
CDC	— Centers for Disease Control and Prevention
CRND	— Chemical, Radiological and Natural Disasters
CTS	— Community Tribal Subcommittee
DFO	— Designated Federal Official
DOD	— Department of Defense
DOE	— Department of Energy
DSPG	— Dioxin Soil Policy Guideline
EJ	— Environmental Justice
EPA	— U.S. Environmental Protection Agency
EPHT	— Environmental Public Health Tracking
FACA	— Federal Advisory Committee Act
FDA	— Food and Drug Administration
FI	— Futures Initiative
GIS	— Geographic Information Systems
HDW	— Health Department Workgroup
HHS	— Department of Health and Human Services
HSEESP	— Hazardous Substances and Emergency Events Surveillance Program
HWW	— Healthy Water Workgroup
ICAI	— Inner City Asthma Intervention
LPPB	— Lead Poisoning Prevention Branch
MMWR	— <i>Morbidity and Mortality Weekly Report</i>
MRL	— Minimum Risk Level
NCEH/ATSDR	— National Center for Environmental Health/Agency for Toxic Substances and Disease Registry
NCICAS	— National Cooperative Inner City Asthma Study
NCIPC	— National Center for Injury Prevention and Control
NHANES	— National Health And Nutrition Examination Surveys
NIH	— National Institutes of Health
NIOSH	— National Institute for Occupational Health
OGH	— Office of Global Health
OHE	— Office of Health Equity

OMH	— Office of Minority Health
OSI	— Office of Strategy and Innovation
OTPER	— Office of Terrorism Preparedness and Emergency Response
OWCD	— Office of Workforce and Career Development
PHAs	— Public Health Assessments
PM	— Particulate Matter
PPRS	— Program Peer Review Subcommittee
RDAQW	— Respiratory Disease and Air Quality Workgroup
SBS	— Social and Behavioral Sciences
SCs	— Special Consultants
SDWA	— Safe Drinking Water Act
TRI	— Toxic Release Inventory
VOCs	— Volatile Organic Chemicals
WHO	— World Health Organization
WTC	— World Trade Center