

# The Role of Town Meetings in Environmental Health Research

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Kenneth Olden created an arsenal of mechanisms that enabled the National Institute of Environmental Health Sciences (NIEHS) to reach out to the American people and be responsive to their environmental health concerns. Commitment to the community has been a cornerstone of the research process during Dr. Olden's distinguished, nearly 14-year tenure as director of NIEHS and the National Toxicology Program. He is unique among National Institutes of Health (NIH) institute directors in his unrelenting and successful mission to gather direct input from affected communities and partner with them to set a national environmental health research agenda.

## What Is a National Environmental Health Research Agenda and How Is It Set?

The national environmental health research agenda is a template or "master plan" that the NIEHS formulates to determine how it will use its resources. Setting the agenda is a comprehensive interactive process by which the institute seeks extensive input and determines its future research priorities. The agenda requires NIEHS to devise a research and education strategy that advances our understanding of the causes and mechanisms of environmentally related diseases. The strategy includes translating this knowledge into effective prevention and clinical applications—collectively referred to as "translational research." Furthermore, the strategy is designed to be directly responsive to the public and to protect those most affected by adverse environmental exposures—that is, to provide environmental justice.

The NIEHS uses a broad and diverse array of constituencies and strategies to gather input for setting its environmental health research agenda. As director, Ken Olden led his institute to do all it could to truly

*We want to make our science responsive to the American people.  
I don't know how we find out what the American people want  
without going out and talking to them. – Dr. Kenneth Olden  
(Fisher 1999)*

improve the health and lives of the American people. For him, the term “environment” does not just include chemical and physical agents. He broadened the definition of environment to include also food and nutrients, biological agents, prescription drugs, lifestyle choices, social and economic factors, the built environment (Brown et al. 2004; Srinivasan et al. 2002), and oceans (Laws and Yanagihara 2004). The director and NIEHS senior staff seek advice and extensive involvement from a broad array of leading scientists, health care professionals, advocates, policymakers, and community members. This guidance is essential for successful development of research and education strategies that use state-of-the-science methodologies to improve community public health.

### **NIEHS and the Community: A Strong Two-Way Partnership**

With tremendous vision and an uncanny ability to see the whole picture, Dr. Olden conceived of many bold and innovative mechanisms to make his institute’s science responsive to the American people. For more than a decade, the NIEHS has established itself as a leader in promoting the importance of collaborations between researchers and communities. As a federal agency with a mission emphasizing disease prevention, the NIEHS has become a proponent of community–university partnerships to address community health concerns so that communities have an active role in all stages of research (Olden 1993; Shepard et al. 2002). The NIEHS has long recognized the need to conduct basic science research in tandem with effective and culturally appropriate translational research activities, including community-based participatory research, outreach, and education (Bonham and Nathan 2002; Huynh 2002;

Israel et al. 1998; Kone et al. 2000; Krieger et al. 2002; O’Fallon and Dearth 2001, 2002; O’Fallon et al. 2003).

During his distinguished tenure Dr. Olden initiated a wide range of strategies to seek input from the public it serves to ensure that NIEHS’s research agenda and educational efforts were responsive to community concerns and needs. These strategies include workshops, retreats, outreach programs, community advisory groups, public interest liaison groups, community–university partnerships, and town meetings. All these methods seek input from the community and enhance communication and outreach. Devising creative ways to directly involve the American people’s voice in setting a national environmental health research agenda is another Olden legacy.

### **NIEHS Town Meetings: Background**

One of the most successful methods to establish community partnerships and open avenues for effective two-way communication is the NIEHS town meeting. The regional town meetings focus on the general theme of environmental impacts on human health. Some town meetings focus on specific issues that are of unique concern to a particular community because of culture or geographical location. The purpose of these gatherings is to bring together members of the public who are interested in public health and the environment, as well as state and local health professionals, state and local government officials, academicians, environmental health professionals, and advocacy groups. The meetings provide a platform for an open dialogue to establish better coordination among the health professionals working on community exposures, industrial exposures, special-case “site” exposures, and other environmental issues. These

meetings also provide an opportunity to promote local and state media coverage of environmental health issues to broaden public understanding. Once issues are articulated and discussed, lines of communication are opened and the NIEHS along with its partners and the community work to put into place a variety of programs to address the problems. This two-way dialogue is a fundamental prerequisite to development and implementation of effective research and intervention efforts.

Town meetings are an important and effective means for providing senior leadership at the NIEHS the opportunity to hear from communities across the country about environmental and public health issues that are of greatest importance to them. Town meetings also provide a forum for the NIEHS to encourage increased interaction among communities, universities, health care professionals, advocacy groups, and policymakers. In the end, it is imperative that consumers be more intimately involved and informed about science and its implications. That is why the NIEHS strongly supports strategies such as town meetings as a means to ensure that its science is responsive to the needs of all communities.

### History of Town Meetings: Dates, Topics, Cities, and Host Institutions

Between 1998 and the writing of this article in early 2005, NIEHS has sponsored 21 town meetings. The first two meetings were convened in 1998 in New Jersey and Tennessee. Other states where town meetings have been held are Ohio (1999), California (1999, twice in 2001, 2002, 2005), Maryland (1999), Illinois (1999, 2003, 2005), Washington (2000), Texas (2001, 2002, 2003), Iowa (2001), Florida (2003), New York (2003), Hawaii (2004), and Georgia (2004). In some large states such as California and Texas, several town meetings have been organized in different parts of the state to address issues of concern to a uniquely affected community (e.g., chromium VI, Glendale, CA; community impacts of goods movement and the ports, Los Angeles, CA; Paso Del Norte heavy metal exposure, El Paso, TX).

Dates, topics, cities, host institutions, and online links (URLs) for all 21 town meetings to date are compiled into Table 1. Additional information on each town meeting is available by accessing the online link indicated or by contacting the organizers.

### Sponsorship of NIEHS Town Meetings

Town meetings are supported by the NIEHS and various local organizations. Most local organizations include NIEHS-supported research centers such as Environmental Health Sciences (EHS) Centers, Superfund Basic Research Program (SBRP) sites, Children's Environmental Health and Disease Prevention Research Centers, and Centers for Oceans and Human Health (COHH). Other local co-sponsoring institutions include universities, advocacy groups, professional organizations, and public interest groups such as the American Lung Association, National Breast Cancer Association, medical societies, and city and state government offices/departments. Grass roots efforts in conjunction with NIEHS-sponsored programs can arise from many constituencies and locations throughout the country and culminate in a town meeting. NIEHS staff coordinate with the local planners, who set the meeting agenda. Agendas focus on the unique issues in the specific geographic region; however, other topics frequently emerge, and these, too, are discussed. As Table 1 describes, some topics are extremely focused (e.g., chromium IV), and some topics address broad issues of environmental health (e.g., air, soil, and water pollution). The format for town meetings and lessons learned have been described in detail by O'Fallon et al. (2003).

### Attendance and Issues Raised at NIEHS Town Meetings

Town meetings are planned in order to allow the greatest participation of community members and are structured to properly represent community issues such as air pollution and respiratory disease, lead poisoning and children's health, breast cancer and the environment, or oceans and human health. All the gatherings have captured the spirit of a true town meeting. In addition to community members, attendance is by various community, city, county, state, and federal government representatives; academic faculty, staff, and students; representatives of industry and advocacy groups, as well as others.

The NIEHS director and several NIEHS staff members always attend the town meetings to listen to the issues raised and to answer any questions posed to the institute. The director always opens the town meeting by explaining the purpose of the event and emphasizing the importance that the NIEHS places on community

Table 1. Summary of NIEHS town meetings (1998 to present).

No.	Date	Title and Online Link	Location	Host Institution
1	1998 September 17–18	Urban Environmental Health <a href="http://www.niehs.nih.gov/drcpt/tm/tntn.htm">http://www.niehs.nih.gov/drcpt/tm/tntn.htm</a>	Piscataway, New Jersey The Environmental and Occupational Health Sciences Institute	EOHSI, UMDNJ–Robert Wood Johnson Medical School and Rutgers, the State University of New Jersey
2	1998 November 17–18	Air, Soil and Water Pollution: Environmental Health Implications <a href="http://www.niehs.nih.gov/drcpt/tm/tnnj.htm">http://www.niehs.nih.gov/drcpt/tm/tnnj.htm</a>	Nashville, Tennessee Vanderbilt University Peabody College Social Religious Building	The Center for Molecular Toxicology, Vanderbilt University
3	1999 January 19–20	Environmental Health in Our Neighborhoods: Speaking Out About Pollution and Health <a href="http://www.niehs.nih.gov/drcpt/tm/tnuc.htm">http://www.niehs.nih.gov/drcpt/tm/tnuc.htm</a>	Cincinnati, Ohio University of Cincinnati	University of Cincinnati Department of Environmental Health, Center for Environmental Genetics and Superfund Basic Research Program; Society of Toxicology
4	1999 February 19	Children's Environmental Health with an Emphasis on Healthy Schools <a href="http://ehs.sph.berkeley.edu/superfund/">http://ehs.sph.berkeley.edu/superfund/</a>	Berkeley, California Lawrence Hall of Science	University of California Berkeley; NIEHS/U.S. EPA Superfund Basic Research Program
5	1999 May 26	Health Disparities No URL available for this meeting	Baltimore, Maryland Inner Harbor Omni Hotel	Environmental Health Sciences Center, Johns Hopkins University
6	1999 July 9	Health Disparities No URL available for this meeting	Chicago, Illinois Hyatt Regency McCormick Place	University of Illinois at Chicago
7	2000 September 29–30	Voices for Healthy Environments, Healthy Communities <a href="http://depts.washington.edu/ceeh/Outreach/community.html">http://depts.washington.edu/ceeh/Outreach/ community.html</a>	Seattle, Washington Mount Zion Baptist Church	Center for Eco-genetics and Environmental Health; Environmental and Occupational Health Sciences, University of Washington
8	2001 January 14	Public Meeting on Chromium VI <a href="http://www.niehs.nih.gov/drcpt/tm/Chromium_meeting.pdf">http://www.niehs.nih.gov/drcpt/tm/ Chromium_meeting.pdf</a>	Glendale, California Glendale City Hall	Office of Congressman Adam Schiff; City of Glendale, California
9	2001 October 19–20	Neighborhood Environmental Health For more information contact Baylor College of Medicine (713-798-4614)	Houston, Texas University of Houston Hilton	Chronic Disease Prevention and Control Research Center, Baylor College of Medicine
10	2001 November 16	Public Meeting on Concentrated Animal Feeding Operations: Airing on the Environmental Health Issues <a href="http://www.public-health.uiowa.edu/townmeeting/">http://www.public-health.uiowa.edu/townmeeting/</a>	Iowa City, Iowa University of Iowa	Environmental Health Sciences Research Center, University of Iowa College of Public Health
11	2001 December 7–8	Voices for Healthy Environments, Healthy Communities, Healthy Jobs <a href="http://www.niehs.nih.gov/drcpt/tm/LA-Flyer.pdf">http://www.niehs.nih.gov/drcpt/tm/LA-Flyer.pdf</a>	Los Angeles, California Inglewood, California First Church of God	Southern California Environmental Health Sciences Center (USC/UCLA); UCLA Labor Occupational Safety and Health Program; Children's Environmental Health Center (USC/UCLA)
12	2002 February 1–2	Children's Environmental Health Public Forum: Paso Del Norte Heavy Metal Exposure <a href="http://www.niehs.nih.gov/drcpt/tm/elpsopubfrm02022001.pdf">http://www.niehs.nih.gov/drcpt/tm/ elpsopubfrm02022001.pdf</a>	El Paso, Texas University of Texas at El Paso Tomas Rivera Conference Center	Children's Environmental Health Institute; El Paso County Medical Society
13	2002 October 7–8	Voices for a Healthy Community– Breast Cancer and the Environment <a href="http://www.niehs.nih.gov/drcpt/tm/tnbrstart.htm">http://www.niehs.nih.gov/drcpt/tm/tnbrstart.htm</a>	Marin County, California San Rafael Community Center	Marin Cancer Watch Organization; NIEHS Berkeley Center Community Outreach and Education Program, University of California Berkeley
14	2003 January 7–8	Voices of Diversity in the Environment and Health No URL available for this meeting	San Antonio, Texas Brooks City Base Auditorium	Air Force Institute for Environment, Safety and Occupational Health Risk Analysis; San Antonio Metropolitan Health District; University of Texas Health Science Center; Alamo Breast Cancer Foundation
15	2003 February 27–28	Oceans and Human Health <a href="http://www.niehs.nih.gov/drcpt/tm/0203townmtgflyer.pdf">http://www.niehs.nih.gov/drcpt/tm/ 0203townmtgflyer.pdf</a> <a href="http://www.niehs.nih.gov/drcpt/tm/SchoolMeeting.pdf">http://www.niehs.nih.gov/drcpt/tm/SchoolMeeting.pdf</a>	Miami, Florida University of Miami RSMAS and MAST Academy	Marine and Freshwater Biomedical Sciences Center, University of Miami; Florida International University; University of Miami

*Continued*

**Table 1. Summary of NIEHS town meetings (1998 to present)—continued.**

No.	Date	Title and Online Link	Location	Host Institution
16	2003 April 21	Airborne Threats to Human Health: The Latest findings on Fine Particle Pollution- What You and Your Family Need to Know About Air Pollution and How It Affects Your Health <a href="http://www.niehs.nih.gov/drcpt/tm/0403mtgagenda.pdf">http://www.niehs.nih.gov/drcpt/tm/0403mtgagenda.pdf</a>	Syracuse, New York Upstate Medical University	American Lung Association of New York State; State University of New York–Upstate Medical
17	2003 June 3	Health Effects From Particulate Matter <a href="http://www.niehs.nih.gov/drcpt/tm/060302chicago.pdf">http://www.niehs.nih.gov/drcpt/tm/060302chicago.pdf</a>	Chicago, Illinois Children's Memorial Institute for Education and Research	American Lung Association of Chicago
18	2004 February 14	Environmental Health Concerns in Hawaii <a href="http://www.neurotoxicology.com/conf2004/~NIEHS%20Town%20Meeting%20FINAL%20FLYER%201-30-04.pdf">http://www.neurotoxicology.com/conf2004/~NIEHS%20Town%20Meeting%20FINAL%20FLYER%201-30-04.pdf</a> <a href="http://starbulletin.com/2004/02/15/news/story8.html">http://starbulletin.com/2004/02/15/news/story8.html</a>	Honolulu, Hawaii Ala Moana Hotel	University of Hawaii College of Medicine; University of Arkansas for Medical Sciences, Department of Pediatrics–Neurotoxicology
19	2004 December 16	Impact of Urban Sprawl on Health in the Inner City For more information contact John Schelp ( <a href="mailto:schelp@niehs.nih.gov">schelp@niehs.nih.gov</a> )	Atlanta, Georgia Morehouse College Sale Hall Chapel	Crystal James Associates; Morehouse College
20	2005 February 25–26	Growing Pains: Health and Community Impacts of Goods Movement and the Ports <a href="http://hydra.usc.edu/scehsc/TownMeeting2005/index.asp">http://hydra.usc.edu/scehsc/TownMeeting2005/index.asp</a>	Los Angeles, California University of Southern California	University of Southern California
21	2005 TBA	The Shadows That Surround Us: The Environmental Influences on Cancer in the Chicagoland Region For more information contact John Schelp ( <a href="mailto:schelp@niehs.nih.gov">schelp@niehs.nih.gov</a> )	Chicago, Illinois Feinberg Pavilion Northwestern University	Illinois Affiliate of Y–ME National Breast Cancer Organization

Abbreviations: EOHHSI, Environmental and Occupational Health Sciences Institute; U.S. EPA, U.S. Environmental Protection Agency; MAST Academy, Maritime and Science Technology High School; RSMAS, Rosenstiel School of Marine and Atmospheric Sciences, University of Miami; TBA, to be announced; UCLA, University of California at Los Angeles; UMDNJ, University Medicine and Dentistry of New Jersey; USC, University of Southern California; Y–ME, why me.  
\*Numbers correspond to those cited in Table 4.

**Table 2. Representative issues raised by community members during NIEHS town meetings.**

- Air pollution and respiratory disease
- Lead poisoning and children's health
- Environmental factors in the initiation and promotion of breast cancer
- Oceans and human health
- Cancer prevalence and prevention
- Children's health and the environment
- Clean water
- Environmental education
- Exposure assessment
- Health registries
- Public health and environmental health research
- Environmental justice and communities most affected
- Hazardous materials
- Worker safety
- Garbage incineration
- Concerns of lead exposure from paint dust on city sidewalks
- Poor housing conditions
- Violence
- Environmental effects on asthma morbidity
- The need for training and employment opportunities in under-served populations
- Concentrated animal feeding operations
- Regulatory issues and ways to address pollution
- Air and drinking water pollution
- Urban sprawl, traffic, air pollution, and physical activity
- Lead and asbestos exposures that community members believe may be linked to incidence of asthma, leukemia, and other cancers
- Mercury in fish
- Ocean and beach contamination from cesspools
- Hormone-related chemicals and diseases
- Environmental effects on children's brains
- Autism and related neurobehavioral effects
- Effects of volcanic air pollution on respiratory health
- Environmental regulations not being enforced by local officials
- Public education
- Interpretation of scientific information for the public
- Where does the average citizen go for information on environmental health issues today?

input, and participates fully in the discussions. The agenda is developed by the local organizers to focus discussion on topics of most concern to their specific community. However, in addition to the agenda, other more general issues also emerge from the often emotionally charged interactive sessions, and these are discussed as well. It is evident that local residents are passionate about the condition of the environment in which they live, and they welcome opportunities to talk with experts about their concerns. Table 2 lists representative issues raised by community members and discussed during NIEHS town meetings.

Through interactive discussions community members discuss a broad array of issues of concern with scientists; academics; local, state, and federal health officials; and political leaders. In turn, scientists and other experts share their research and knowledge of environmental health issues with the public.

NIEHS town meetings truly are open forums for citizens to raise any environmental health topic of concern that will be heard and followed-up by

Dr. Olden, senior NIEHS staff, and local sponsoring institutions. Table 3 presents some noteworthy quotes from participants of NIEHS town meetings.

### Significant Outcomes, Achievements, and NIEHS Follow-up to Town Meetings

NIEHS does not simply come into a city, listen to community problems, become aware of environmental health concerns, and leave. The input from these open forums plays a major role in how the NIEHS will use its resources for environmental health research. Listening directly to communities most affected helps the NIEHS make the most of its resources to be directly responsive to the American people.

Town meetings constitute a very effective mechanism for enhancing cooperation among researchers, community residents, and public health officials with the goal of improving public health and setting a national research agenda. There have been many positive outcomes to town meetings. Noteworthy outcomes from these town meetings have been used to guide

**Table 3. Noteworthy quotes from participants of NIEHS town meetings.**

*We are not necessarily looking at ways scientists can do research for the community, but rather the way scientists can do research with the community.* — Pauletta Hansel, Assistant Director, Urban Appalachian Council. 1999 Cincinnati Town Meeting (Fisher 1999)

*Clearly, the community was asking the scientists to please listen to their concerns and translate their concerns to see if we can help them alleviate their problems. They're saying, 'Our common sense tells us something is wrong. Please listen.'* — Marshall Anderson, Director, Center for Environmental Genetics. 1999 Cincinnati Town Meeting (Fisher 1999)

*We do not have the information, so people are frustrated. We can generate the science. The public has to demand it.* — Kenneth Olden, Director, NIEHS. 1998 Vanderbilt Town Meeting (Fisher 1999)

*We shouldn't wait for agencies to dictate how we're going to involve the public. People have a right to information, they have a right to access to the decision makers, and they have a right to accountability by their decision makers.* — Penny Newman, Director, Community Center for Action and Environmental Justice in Glen Avon. 2001 Los Angeles Town Meeting (Huyhn 2002)

*The meeting gave the opportunity for members of the community to see that we are people they can turn to. We do have names and faces. . . This was one of the first opportunities to really understand the concerns that people in the community have.* — Frank Bonfiglio, Program Director, Middle Tennessee Poison Center. 1998 Vanderbilt Town Meeting (Fisher 1999)

*In holding a town meeting like this, what we're interested in [on the federal level] is encouraging lines of communication.* — Samuel Wilson, Deputy Director of NIEHS. 1999 University of California Berkeley Town Meeting. (Fisher 1999)

*Our town meeting allowed some of the people from the community to meet with some high-level individuals that they wouldn't normally see.* — Michael Gallo, Director, Center for Environmental Health Sciences. 1998 New Jersey Town Meeting. (Fisher 1999)

*Dr. Olden went out of his way to find ways to help us deal with a wide variety of environmental health problems in Hawaii and the Pacific area. Some of these problems, such as health effects associated with volcanic emissions, are unique to Hawaii. I admired his willingness to take the time to really understand issues that were important to us.* — Bruce Anderson, President, Oceanic Institute, Waimanalo, Hawaii. 2004 Hawaii Town Meeting (Cranmer 2004a, 2004b)

*This was a good start. . . we outlined the progress we've made and the problems we face. We've got the players; now we need more dialogue and more people brought in.* — Martyn Smith, Director, Superfund Basic Research Program. 1999 UC-Berkeley Town Meeting. (Fisher 1999)

*The individual community groups and households know what the problems are. . . Academics need to set the research agenda in a fashion that will directly address community problems. . . and foster community-based partnerships.* — Samuel Wilson, Deputy Director, NIEHS. 1998 New Jersey Town Meeting (Fisher 1999)

*As a tropical state, Hawaii doesn't fit into the national goals for grants. . . There is always a mismatch.* — Roger Fujioka, University of Hawaii, Water Resources Center. 2004 Hawaii Town Meeting (Altonn 2004; Cranmer 2004b)

*Response: You have to be an activist. Let us know what you need and insist that we respond.* — Kenneth Olden, Director, NIEHS. 2004 Hawaii Town Meeting (Altonn 2004; Cranmer 2004b)

Table 4. Significant outcomes, achievements, and NIEHS follow-up to town meetings.

Town Meeting <sup>a</sup>	Outcomes and NIEHS Follow-up
<b>a) Community Impact:</b> An immediate outcome of a town meeting is increased awareness of environmental health research carried out by NIEHS-funded centers and grantees. Citizens learn of the resources a center can provide to address their environmental health concerns. In some cases, town meetings break down barriers, erase misconceptions, and may help enhance the process of establishing trust between researchers and communities.	
Johns Hopkins University (JHU) (5). After the Baltimore town meeting in 1999, researchers at the EHS Center at JHU noted several immediate outcomes.	Center investigators were able to begin building increased trust with Baltimore residents. In addition, residents soon saw the potential of the center to address the EJ concerns they have, primarily regarding indoor and outdoor pollutants, contaminants in schools, and building demolitions. As a result of the town meeting, center researchers have been able to work with community members to develop exposure assessment projects.
University of Washington (7). Two important outcomes resulted from the town meeting hosted by the Center for Environmental and Eco-genetics at the University of Washington in 2000.	Immediately after the meeting, the EHS Center developed the Health Justice Network, a computer listserv designed to disseminate information on EJ issues, including presentations, trainings, grant opportunities, and meetings. In addition, after the meeting, the center was approached by a Native-American community to help them conduct a study on reproductive health effects they believe may be related to the fish they eat.
University of California Berkeley (4). The SBRP at Berkeley was able to engage a different segment of the community as a direct result of their town meeting in 1999.	After attending the town meeting, the Alameda County Director of Public Health agreed to participate in the SBRP external advisory committee. Participation by the local health department has brought a greater EJ focus to the committee, which has enhanced the overall program.
Vanderbilt University (2). After the town meeting in 1998, the community recognized the EHS Center at Vanderbilt University as a valuable resource.	After the town meeting, the EHS Center was able to establish partnerships quickly with the Tennessee Pollution Prevention Partnership, the Tennessee Arts and Sciences Consortium, the Middle Tennessee Poison Center, and various community environmental advocacy groups. In addition, a variety of local work groups have asked the center to provide personnel for assistance. The center also began offering services to community members by making available general environmental health information, center-sponsored entrance into Vanderbilt's library network, and subscriptions to <i>Environmental Health Perspectives</i> .
University of Illinois at Chicago (6). Investigators established collaboration with the Grand Boulevard Asthma Coalition after hosting their town meeting in 1999.	As part of the partnership with the coalition and in response to the request of a past Chicago commissioner of public health, a collaborative team formed the Public Housing Environmental Task Force. This task force is composed of representatives from communities, community organizations, city officials, the university, and federal agencies. The task force was instrumental in the adoption of integrated pest management strategies throughout the Chicago public housing system by the Chicago Housing Authority.
University of Hawaii (18). After the town meeting in 2004, the community identified health care professionals and institutions to contact to follow up their specific issues and EJ concerns; the university received an NIEHS center grant for a new COHH.	Scientists described research under way on autism and related neurobehavioral disorders, and affected families learned of additional resources available to them for future needs. Research initiatives and prevention programs addressing effects of volcanic air pollution on respiratory health of Big Islanders are being pursued.  The Hawaii Heptachlor Health Effects Research Program was established in 1987 to implement the medical monitoring and research programs regarding the exposure of Oahu's residents to the pesticide heptachlor epoxide that contaminated the state's milk supply in 1982. At the town meeting residents learned the 20-year follow-up results of the Hawaii Heptachlor Study, personally discussed results with the investigators and established collaborations for any additional follow-up for long-term health effects of heptachlor.
<b>b) New Research:</b> Sometimes community–university partnerships that emerge from hosting a town meeting develop into successful research projects. To date, several of the research institutions have received some form of grant support for research projects directly resulting from a town meeting.	
Johns Hopkins University (5). A center investigator in partnership with a local community organization received an NIEHS CBPR.	The partnership and the research questions were established as a result of the town meeting. Findings from this project are affecting policy related to the demolition of homes in Baltimore. The purpose of the CBPR grant is to examine health effects of exposure to debris from building demolition that is taking place in neighborhoods of lower socioeconomic status surrounding the university.
University of Cincinnati (3). At the town meeting, EHS Center investigators were introduced to, and later partnered with, officials from the City of Cincinnati Office of Environmental Management.	The purpose of the partnership developed as a result of this town meeting is to address concerns of lead exposure from paint dust on city sidewalks, and to assess the efficiency of current dust removal procedures. The partnership received a 1-year grant from the U.S. Department of Housing and Urban Development for the project, titled Control of Lead in Sidewalk Dust Derived from Exterior Paint.

Continued

Table 4. Significant outcomes, achievements, and NIEHS follow-up to town meetings—continued.

Town Meeting <sup>a</sup>	Outcomes and NIEHS Follow-up
<p>University of Illinois at Chicago (6). Investigators at this institution have been successful in converting the outcomes of the town meeting into grant support; four projects have been funded by the NIEHS and U.S. EPA.</p>	<p>Issues raised at the meeting included lead, poor housing conditions, pollution, violence, environmental effects on asthma morbidity, and the need for training and employment opportunities in underserved populations. Partly in response to the town meeting, the Grand Boulevard Asthma Coalition adopted public housing as its major focus, specifically the Robert Taylor Homes. University investigators, in partnership with the coalition, received a small grant from the U.S. EPA to train peer educators to screen 100 families with asthma, examine environmental effects on asthma, and devise intervention strategies. Results from this initial project were used to successfully apply for an NIEHS community-based prevention/intervention research award to examine the effects of peer education on asthma, lead, and safer methods of pest control in approximately 300 families residing in Chicago public housing. In support of this effort, the Chicago Housing Authority successfully applied for U.S. EPA funding to train eight additional peer educators.</p> <p>Over the past 2 years, the task force created by university investigators has been working with the Chicago Housing Authority on maintenance and safer construction of new public housing structures. Demolition of older structures raised many concerns about possible health effects. These concerns led to an NIEHS grant award to examine the impact of demolitions on respiratory function.</p>
<p>University of Hawaii at Manoa (18). A new COHH was awarded to the University of Hawaii at Manoa after the 2004 town meeting.</p>	<p>University of Hawaii oceanographers and medical specialists will pool their expertise in a 5-year program to investigate the relationship between the oceans and human health thanks to the newly awarded COHH. In response to the urgent regional need to more effectively prevent water-borne diseases and control harmful algal blooms, as well as in response to the unique island setting and strategic location to mine the virtually untapped ocean environment, the new COHH, called the Pacific Research Center for Marine Biomedicine, has been established. Projects are funded in a program to study problems with potential impact on human health. Among these are ciguatera fish poisoning, pathogens in the ocean, and development of microorganisms for medical use and health-related products.</p>
<p><b>c) New Outreach:</b> Because a major goal of the town meeting is to increase community awareness and to establish strong community–university ties, a crucial outcome is often new methods of working with the community.</p>	
<p>University of Cincinnati (3). After the town meeting the center, with institutional support, established a community health and environment research center to facilitate community–university environmental health research activities.</p>	<p>This center, named In My Back Yard (IMBY), has worked with various communities since its inception. It provided technical support to the South Side Community Action Association in Southfield, Ohio, when they were conducting a survey of 1,035 households. IMBY has also provided continuing education to nurses in the city health department. IMBY and the University of Cincinnati Department of Environmental Health are leading a coalition of nonprofit organizations and government agencies in the development and implementation of the Over-the-Rhine Smart Streets: A Lead Reduction and Environmental Job Training Demonstration Project. IMBY has helped develop a training video and established an EJ and health disparities seminar series at the University's Department of Environmental Health. IMBY has also responded to requests for assistance from communities in Ohio, Louisiana, and Mississippi.</p>
<p>Vanderbilt University (2). Building on the momentum generated by the town meeting, the center at Vanderbilt initiated a new community forum series to strengthen partnerships with the community.</p>	<p>The community forum seminar series focuses on environmental health issues of particular concern to local and state communities. To promote community participation and interaction in the series, ample time is always set aside for audience members to discuss topics with presenters. The center has hosted six seminars addressing topics from cancer to herbal medicines. Presentations are given by center investigators as well as invited speakers from the NIH, NIEHS, Tennessee Department of Environment and Conservation, and Vanderbilt faculty.</p>
<p><b>d) Education:</b> In the process of increasing awareness about environmental health issues, some universities develop curricula that are appropriate for the communities with which they are working.</p>	
<p>University of Washington, Seattle (7). As a result of the town meeting, the EHS Center was able to establish and sustain two very important educational projects.</p>	<p>To involve youth from around Washington State in the town meeting, the center worked with high school teachers in the towns of Yelm and Wenatchee to set up a video conference project titled "Youth Network for Healthy Communities." In the first year, 18 middle and high school teachers worked with students on environmental health issues in their communities. The students then presented their findings to experts at the University of Washington (UW) via the statewide video conference network. Students researched such diverse topics as Superfund sites, health effects of wildfires, and environmental impact of diesel power generators. The project has been a great success.</p> <p>In response to expressed needs at the town meeting, researchers at the UW's Center for Children's Environmental Health and Disease Prevention Research developed a curriculum in a community-based project in the Yakima Valley to raise awareness of means of reducing pesticide and chemical exposures in agricultural settings. The UW plans to train teachers at Head Start and Heritage College in this curriculum, to help reduce pesticide exposure to children who live with farm workers. Materials developed will be shared with partners in western Washington, especially El Centro de la Raza and Education Service District 189.</p>

Continued

strategic research and education program development. O’Fallon et al. (2003) highlighted some major outcomes from the town meeting in addition to helping the NIEHS set a national research agenda in environmental health. They classified these noteworthy outcomes into five different categories: *a)* community impact, *b)* new research, *c)* new outreach, *d)* education, and *e)* public health and policy impact. Table 4 is a compilation of this information as well as that from other town

meetings into a readily viewable format that emphasizes the significant outcomes, achievements, and NIEHS follow-up to town meetings.

### Town Meetings and Environmental Health Research—An Olden Legacy

Kenneth Olden had the vision to use a familiar traditional mechanism (the old-fashioned town meeting) to engage the community face to face and respond to

**Table 4. Significant outcomes, achievements, and NIEHS follow-up to town meetings—continued.**

Town Meeting <sup>a</sup>	Outcomes and NIEHS Follow-up
University of Cincinnati (3). After hosting the town meeting, outreach staff at the EHS Center has had opportunities to develop new and use existing environmental health curricula.	IMBY coordinated development and conduct of a six-part continuing education program for the nurses of the Cincinnati Health Department (CHD). Learning Exchange for Genetic Disease Solutions (LEGENDS) is the adult education curriculum developed by the COEP of the Center for Environmental Genetics. The curriculum includes six chapters with 24 teaching modules, covering environmental health, human genetics, genes and disease, environmental genetics, genetic testing, and human genome research. As a result of the town meeting, the LEGENDS program was able to make contacts with local health agencies and community organizations, establishing collaborations that later led to the participation of COEP staff in educational programs sponsored by state and national organizations. On the local level, the director of Environmental Health Programs at the CHD became acquainted with the LEGENDS program at the regional town meeting and symposium.
Johns Hopkins University (5). After the town meeting, JHU developed a course on environmental health in community outreach for the 1999 fall semester.	The course, titled “Special Studies Course of Environmental Health in Community Outreach and Education,” continues to be offered each semester. The class meets weekly and involves presentations from members of many community organizations, with which working relationships have been developed since the town meeting. Many students from the JHU Bloomberg School of Public Health pursuing their master’s degree take this course and write an essay as part of the graduation requirement. Active involvement of community members in this course has helped link the efforts of community outreach with the mission of the school.
University of Medicine and Dentistry of New Jersey (1). After hosting a town meeting in 1998, the COEP at the EHS Center initiated collaboration with the COEP at Vanderbilt University.	This partnership later evolved into a larger NIH-funded collaborative project with seven other COEPs titled Environmental Health Science Training Education Program to train educators on select environmental health curricula.
<b>e) Public Health and Policy Impact:</b> Outcomes of town meetings include public health and policy impacts. Such results may come about through increased awareness of a topic discussed at the town meeting, from research resulting from the town meeting, or a combination of the two.	
University of Iowa (10). The EHS Center at the University of Iowa hosted a town meeting on CAFOs, an important topic among rural Iowans.	At the time of the meeting, researchers at the university were working collaboratively with researchers from Iowa State University on a larger report addressing adverse health effects from CAFOs. After the town meeting, a report was submitted to the state governor and the director of the Iowa Department of Natural Resources. Investigators recommended various environmental standards, including ambient air quality standards for hydrogen sulfide, ammonia, and odor at the property line of CAFOs and at neighboring residences or public use areas. Besides air quality, the report also addressed emerging issues such as water quality, antibiotic resistance, greenhouse gas emissions, statewide siting and spatial planning, and livestock epidemic and carcass disposal. Several recommended standards became established state policy.
Johns Hopkins University (5). Research on the demolition of homes clearly demonstrated the need for proper measures to reduce exposures from dust and pests.	As a result of the meeting, greater enforcement of existing policies has been taking place in Baltimore.
University of Cincinnati (3). The research project, “Control of Lead in Sidewalk Dust Derived from Exterior Paint,” that resulted from the town meeting was instrumental in emphasizing the importance of addressing lead exposures in the community.	At the conclusion of the research study, the Cincinnati Office of Environmental Management developed a comprehensive lead policy detailing each department’s role in reducing lead risk. In addition, the Cincinnati City Council is in the process of adopting a new city lead ordinance, the city health department is preparing a lead risk reduction plan for presentation to city council, and the state has just adopted a new set of lead regulations that will make it simpler for property owners to control lead hazards on their property.
Abbreviations: CAFO, concentrated animal feeding operation; CBPR, community-based participatory research; COEP, Community Outreach and Education Program; COHH, Center for Oceans and Human Health; EHS, Environmental Health Sciences; U.S. EPA, U.S. Environmental Protection Agency; EHS, Environmental Health Sciences; EJ, environmental justice; JHU, Johns Hopkins University; LEGENDS, Learning Exchange for Genetic Disease Solutions; NIH, National Institutes of Health; SBRP, Superfund Basic Research Program. Adapted in large part from O’Fallon et al. (2003).	
<sup>a</sup> Numbers in parentheses refer to the town meeting described in Table 1.	

their environmental health concerns. Dr. Olden will forever be recognized for initiating a series of national town meetings in cities across the United States to listen to the concerns of the American people—and then following up with actions to address the problems. Devising creative ways to directly involve the American people's voice in setting a national environmental health research agenda is an Olden legacy.

### SUMMARY

With tremendous vision and an uncanny ability to see the whole picture, Dr. Kenneth Olden conceived of many bold and innovative mechanisms to make his institute's science responsive to the American people. He created a series of successful strategies to enable the NIEHS to reach out to communities and be responsive to their environmental health concerns. One of the most successful strategies to establish community partnerships and open avenues for effective two-way communication has been the NIEHS town meeting. Town meetings are a very effective mechanism for enhancing cooperation among researchers, community residents, and government and public health officials with the goal of improving public health. This two-way dialogue is a fundamental prerequisite to the development and implementation of effective research and intervention efforts. Since 1998 NIEHS has sponsored 21 town meetings across the country. This article highlights the background, history, topics, location, sponsorship, host institutions, participants, issues raised, noteworthy outcomes, achievements, and the role town meetings have played in environmental health research. NIEHS town meetings truly have been open forums for citizens to raise any environmental health topic of concern that will be heard and followed-up by Dr. Olden, senior NIEHS staff, and local sponsoring institutions. Kenneth Olden has been unique among NIH Institute directors in his unrelenting and successful mission to gather direct input from affected communities and to partner with them to improve their environmental health.

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### NOTES

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### REFERENCES

- Altonn H. 2004. UH to study ocean's effects on health: the university is one of four sites chosen for the national program. Honolulu Star-Bulletin. 15 February. Available: <http://starbulletin.com/2004/02/15/news/story8.html> [accessed 25 January 2005].
- Bonham VL, Nathan VR. 2002. Environmental public health research: engaging communities. *Int J Hyg Environ Health* 205(1-2):11-18.
- Brown D, Tart KGT, Goehl TJ. 2004. Olden times: looking back on a career at the NIEHS. *Environ Health Perspect* 112(11):A598-A599.
- Cranmer JM. 2004a. Meeting report and program from the Twenty-First International Neurotoxicology Conference: Infant and Child Neurotoxicity Studies. *Neurotoxicology* 25(4):641-659.
- Cranmer JM. 2004b. Program of the NIEHS Town Meeting: environmental health concerns in Hawaii. *Neurotoxicology* 25(4):660-662.
- Fisher BE. 1999. NIEHS reaches out with Town Meetings. *Environ Health Perspect* 107(4):A192-A195.
- Huynh V, ed. 2002. Town Hall Meeting Held to Discuss Environmental Health and Justice Concerns. Occupational & Environmental Health Centers. Southern California. Newsletter. Winter 1 and 6.
- Israel BA, Schulz AJ, Parker EA, Becker AB. 1998. Review of community-based research: assessing partnership approaches to improve public health. *Annu Rev Public Health* 19:173-202.
- Kone A, Sullivan M, Senturia KD, Chrisman NJ, Ciske SJ, Krieger JW. 2000. Improving collaboration between researchers and communities. *Public Health Rep* 115(2-3):243-248.
- Krieger J, Allen C, Cheadle A, Ciske S, Schier JK, Senturia K, et al. 2002. Using community-based participatory research to address social determinants of health: lessons learned from Seattle Partners for Healthy Communities. *Health Educ Behav* 29(3):361-382.
- Laws EA, Yanagihara R. 2004. Pacific Research Center for Marine Biomedicine [Home page]. Centers on Ocean and Human Health. University of Hawaii at Manoa. <http://www.PRCMB.hawaii.edu> [accessed 31 January 2005].
- O'Fallon LR, Deary A. 2001. Commitment of the National Institute of Environmental Health Sciences to community-based participatory research for rural health. *Environ Health Perspect* 109(suppl 3):469-473.
- O'Fallon LR, Deary A. 2002. Community-based participatory research as a tool to advance environmental health sciences. *Environ Health Perspect* 110(suppl 2):155-159.
- O'Fallon LR, Wolffe GM, Brown D, Deary A, Olden K. 2003. Strategies for setting a national research agenda that is responsive to community needs. *Environ Health Perspect* 111(16):1855-1860.
- Olden K. 1993. Bringing science back to the neighborhood. *Science* 262(5136):1116.
- Shepard PM, Northridge ME, Prakash S, Stover G. 2002. Preface: advancing environmental justice through community-based participatory research. *Environ Health Perspect* 110(suppl 2):139-140.
- Srinivasan S, O'Fallon LR, Deary A, eds. 2002. Built Environment-Healthy Communities, Healthy Homes, Healthy People. Final Report. Research Triangle Park, NC:National Institute of Environmental Health Sciences. Available: <http://www.niehs.nih.gov/translat/BE-final.pdf> [accessed 23 October 2003].