

National Healthy Housing Policy Summit

May 7, 2009
Washington, DC



Record of the Proceedings

Summit Sponsors

We wish to thank the following sponsors for their generous support of the Policy Summit:

The Home Depot Foundation

The Kresge Foundation

The Robert Wood Johnson Foundation Commission to Build a Healthier America

The U.S. Centers for Disease Control and Prevention (*grant award 1U13EH000315-01*)

The views expressed in written conference materials or publications and by speakers and moderators do not necessarily reflect the official policies of the conference sponsors; nor does mention of trade names, commercial practices, or organizations imply endorsement by the conference sponsors.

Planning Committee and Facilitation

We gratefully acknowledge the contributions of the following individuals for serving on the Summit Planning Committee:

Matthew Ammon, U.S. Department of Housing and Urban Development

Barry Brooks, U.S. Centers for Disease Control and Prevention

Mary Jean Brown, U.S. Centers for Disease Control and Prevention

Michelle Harvey, National Center for Healthy Housing

Tracey Kolian, American Public Health Association

Jeff Lubell, Center for Housing Policy

Patrick MacRoy, Alliance for Healthy Homes

Rebecca Morley, National Center for Healthy Housing

Dr. Peter Simon, Rhode Island Department of Health

Stockton Williams, Living Cities

Charles Wilkins, the Compass Group

Additional Thanks

For her outstanding facilitation of the summit, we also wish to thank Stephanie Pollack, Associate Director of the Dukakis Center at Northeastern University.

TABLE OF CONTENTS

	<u>Page</u>
Proceedings of the National Healthy Housing Policy Summit	
Opening Session	1
THE EVIDENCE BASE: FROM RESEARCH TO ACTION	4
Healthy Housing: A Review of the Science.....	4
Beyond Health Care: The Intersection of Housing and Health.....	7
CASE STUDY 1: PREVENTING AND MANAGING CHILDHOOD ASTHMA THROUGH HOME ENVIRONMENTAL INTERVENTIONS	9
Societal and Health Implications of Healthy Homes and Communities.....	10
A Health Plan Perspective on Addressing Asthma Triggers in Housing.....	12
Asthma Roundtable Discussion	14
CASE STUDY 2: POLICY TOOLS FOR SYSTEMIC COMMUNITY-LEVEL CHANGE	18
A Ground-Up Approach to Housing Code Enforcement.....	18
Bringing Health and Social Justice to Housing and Community Development Decisions.....	19
Community-Level Policy Tools Roundtable Discussion.....	22
Integration Session	25
Closing Session	28

“NATIONAL HEALTHY HOUSING POLICY SUMMIT”

**May 7, 2009
Washington, DC**

Proceedings

The National Center for Healthy Housing (NCHH) and the Alliance for Healthy Homes convened the National Healthy Housing Policy Summit on May 7, 2009 in Washington, DC. The purpose of the Policy Summit was to convene a multidisciplinary roundtable of leading organizations and experts to discuss and provide recommendations on the best policies, programs and practices to create healthier housing for American families.

The Policy Summit participants reflected backgrounds and expertise in multiple disciplines, including (1) housing, public health and environmental policy; (2) housing finance, construction, codes, rehabilitation and management; (3) green building, energy efficiency, indoor air quality and environmental health; and (4) tenant rights, home ownership and community organizing.

Ms. Rebecca Morley, Executive Director of NCHH, thanked the participants, roundtable panelists and keynote speakers for attending the Policy Summit and contributing their valuable expertise. She also recognized NCHH’s U.S. government partners, including the Centers for Disease Control and Prevention (CDC), Department of Agriculture, Department of Energy (DOE), Department of Housing and Urban Development (HUD), and Environmental Protection Agency (EPA). The participants joined Ms. Morley in applauding the Board members of NCHH and the Alliance for Healthy Homes (AFHH) for dedicating years of volunteer service to support the missions of both organizations.

Ms. Morley acknowledged 15 organizations that made substantive commitments to healthy housing prior to the Policy Summit. These commitments ranged from supporting Senator Jack Reed’s Safe and Healthy Housing Act to promoting healthy housing throughout their respective memberships. A summary of these commitments was distributed to the participants for review.

Ms. Morley emphasized that families have been asked to choose between healthy housing and affordable housing for far too long. The consequences of this untenable decision have been borne by the education system, healthcare system and society as a whole. In an effort to address this issue, the Policy Summit would be used as a platform to convene non-profit leaders and experts to gain commitments to healthy housing from organizations with large memberships or spheres of influence. The Policy Summit also would serve as a forum to begin crafting an ambitious, yet feasible National Healthy Housing Action Plan that would outline strategies with national impact.

Ms. Morley explained that the participants would be asked to provide direct input on the best policy options to advance the healthy homes agenda and describe achievable objectives in short- and mid-term timelines. The initial products from the Policy Summit would include a first draft report that would be

distributed to the participants for review and comment. All organizations would then be asked to endorse the final draft report in whole or in large part. After consensus was reached on a set of short- and mid-term policy options, the organizations would be asked to provide input on advancing the National Healthy Housing Action Plan.

Mr. Patrick MacRoy, Executive Director of AFHH, joined Ms. Morley in welcoming the participants to the Policy Summit. Similar to NCHH, he confirmed that AFHH also looked forward to reviewing the comments and recommendations made by the participants.

Ms. Stephanie Pollack, Associate Director of the Dukakis Center at Northeastern University, facilitated the Policy Summit. She reiterated that the overarching goal of the Policy Summit would be to identify a set of realistic and achievable policy-related actions for organizations to collaboratively pursue to offer the greatest potential for improving the health and safety of housing without compromising affordability.

Ms. Pollack outlined the structure of the Policy Summit. A series of presentations would be made on the following topics: the existing evidence base for effective interventions, a case study on asthma, and a case study on community-level policy tools. The presentations would be used to guide roundtable discussions focusing on actions that affirmatively could be taken. For example, each barrier that was raised during the Policy Summit would be accompanied by a concrete solution to overcome the issue. The Policy Summit would conclude with an integration session to compile key themes that emerged during the roundtable discussions and determine whether consensus could be reached on the proposed policy options.

Ms. Pollack explained that 40 attendees were asked to participate in the roundtable discussions. This group represented a diverse set of backgrounds and interests, including the health and housing sectors; federal, state and local agencies; and non-profit and private organizations. However, the remaining participants would be provided with an opportunity to review and submit comments on the draft report.

Ms. Pollack reviewed the packet of materials that was provided to the participants to guide the roundtable discussions:

- A review of the evidence on housing interventions and health.
- Four case studies on energy efficiency, asthma, code development and financing.
- An issue brief on the links between housing and health.
- Biographical sketches of the speakers.
- A list of the NCHH and AFHH Board members.
- Organizational commitments to promote healthy housing.
- A participant directory with complete contact information.

U.S. Senator Jack Reed explained that Providence, Rhode Island and other older cities throughout the country are acutely attuned to the issue of healthy homes due to an old housing stock and lead contamination in homes. These issues emphasize the critical importance of healthy housing due to the vast amount of time individuals spend in their homes. Most notably, children can become adversely affected from exposure to lead and other environmental problems in the home.

Current data show that 240,000 children in the United States have elevated blood levels. However, strong efforts over time by public health authorities and national organizations have contributed to the significant decline in the incidence of childhood lead poisoning. The passage of legislation also has played an important role in reducing lead exposure. For example, the Lead Based Paint Poisoning Prevention Act authorized major changes in federal laws to control the content of lead-based paint and reduce lead exposure.

The Lead Hazard Demonstration Project allocates funding to cities with critical lead exposure problems. Under this initiative, \$48 million was targeted in FY2009 to remediate issues of lead exposure in homes. EPA recently promulgated a rule on lead standards. Senator Reed acknowledged his colleagues, Senators Kit Bond and Barbara Mikulski, for their valuable contributions toward the legislative progress that has been made in environmental health.

Senator Reed announced that he would introduce two bills to further advance the healthy housing agenda. First, the Healthy Housing Council bill was designed to convene disparate agencies, such as EPA and HUD, that have responsibilities for healthy housing. The legislation would call for federal agencies to coordinate existing programs and activities and also would request input and advice from a diverse group of housing experts in the government, private and non-profit sectors.

Second, the Safe and Healthy Housing Act was designed to enhance the capacity of federally funded programs to address healthy housing issues with a multi-pronged approach. These strategies would include additional grant dollars, expanded national outreach efforts, improved research, and wide implementation of effective programs to ensure communities and families are aware of the availability of these resources.

Senator Reed was enthusiastic about supporting these two important legislative initiatives. He was also encouraged that these activities were developed as bipartisan efforts because healthy housing is an issue for all Americans. He was pleased that a major reform of the McKinney-Vento Homeless Assistance Act was passed on the previous day. The bill most likely would be adopted by the House and forwarded to the President over the next few weeks.

Senator Reed emphasized that the contributions, experiences and ideas of the Policy Summit participants and other stakeholders would continue to be essential in passing healthy housing legislation at the federal level. He cited an example in which multidisciplinary teams of nurses, social workers and paraprofessionals make home visits to screen newborns, provide early intervention services for lead poisoning, and immunize children. He hoped this collaborative and coordinated model would be replicated to increase healthy housing opportunities for all Americans.

The participants applauded Senator Reed for spearheading and providing leadership for the healthy housing bills.

THE EVIDENCE BASE: FROM RESEARCH TO ACTION

The two presentations reviewing the evidence base on healthy housing are summarized below.

Healthy Housing: A Review of the Science

Dr. David Jacobs is the Research Director of NCHH. He explained that U.S. housing laws were initially developed to address infectious diseases, such as cholera, typhoid and tuberculosis. Indoor plumbing and other early housing interventions played a significant role in eliminating infectious diseases in the United States. The 2005 American Housing Survey showed that disparities still persist in housing quality and disease outcomes. The prevalence of living in moderate or severely deficient housing was found to be 7.5% among non-Hispanic blacks, 6.3% among Hispanics, and 2.8% among non-Hispanic whites.

A 2009 published study showed that long-term disparities in health and housing show no sign of abating. Most notably, the American Public Health Association (APHA) published an article in 2005 that emphasized safer housing as a key step to overcoming health disparities. APHA also developed some of the first model U.S. housing codes in the early 1970s.

The World Health Organization (WHO) published a review of several hundred scientific studies to determine the impact of housing quality on certain health outcomes. The WHO literature review identified factors in four categories that were supported by sufficient evidence. The physical factors included (1) the role of heat and cold on excess winter and summer mortality; (2) the role of energy efficiency in housing on respiratory health; (3) the role of radon exposure in dwellings on lung cancer; and (4) the role of neighborhood and building noise on mental health.

The social factors included the role of multifamily housing, high-rise housing and housing quality on mental health. The chemical factors included the role of environmental tobacco smoke (ETS) exposure in dwellings on respiratory and allergic effects and the role of lead on health effects. The biological factors included the role of humidity and mold in dwellings on respiratory health effects and the role of hygrothermal conditions and house dust mite exposure on asthma.

The WHO literature review also identified factors in five categories that were supported by some evidence. The physical factors included the role of ventilation in dwellings on respiratory and allergic effects. The chemical factors included the role of volatile organic chemicals (VOCs) on respiratory, cardiovascular and allergic effects. The biological factors included (1) the role of cockroaches and rodents in dwellings on respiratory and allergic effects; (2) the role of cats, dogs and mites in dwellings on respiratory and allergic effects; and (3) the role of pets and mites on respiratory, allergic or asthmatic effects.

The building factors included the role of sanitation and hygiene conditions on related physical health effects. The social factors included (1) the role of social conditions of housing on fear of crime; (2) the role of poverty, social exclusion and crowding on related health effects; and (3) the role of social factors and social climate on mental health.

NCHH released a report entitled *Housing Interventions and Health: A Review of the Evidence* in January 2009. The report was based on the outcomes of an expert panel meeting CDC convened in December

2007 to conduct a peer review of intervention studies. The goals of the meeting were to develop policy recommendations for evidence-based interventions; identify research priorities; and identify interventions with no demonstrated record of effectiveness, such as mattress covers alone or interventions that might be harmful, such as ozone generators.

The expert panel reviewed the available evidence to determine the impact of housing changes or interventions on health outcomes. The evidence review was conducted in five panels: (1) biological agents, such as mold and moisture, pest allergens and pests; (2) chemicals, such as radon, lead, particles, pesticides and VOCs; (3) water and sewage treatment; (4) injuries, such as falls, fire and scalds; and (5) community-level effects. The experts considered evidence based on whether the interventions could demonstrate clinical and environmental health outcomes.

The expert panel reviewed studies based on their design and suitability, execution, study size and population, overall value, direction of effect and degree of impact. The expert panel determined that the following interventions were effective and supported by strong scientific evidence for broad implementation: lead hazard control, multifaceted tailored asthma interventions, integrated pest management (IPM), mold and moisture control, smoking bans, drinking water standards, smoke alarms, preset safe water temperature on hot water heaters, four-sided pool fencing, and rental subsidy standards.

In the “chemicals” category, the expert panel found sufficient evidence to demonstrate that active radon mitigation through subslab depressurization would consistently achieve exposures in the home well below EPA exposure limits. Radon is the second leading cause of lung cancer and causes more deaths than drunk driving, falls in the home, drownings and home fires. The expert panel found sufficient evidence to demonstrate the effectiveness of IPM. Published studies showed that IPM reduced severe asthma from 37% to 9%, lowered insecticides in the air, and removed insecticides from maternal blood. IPM was found to be more effective against pests than routine spraying.

The expert panel found sufficient evidence to demonstrate that lead hazard control can significantly reduce racial disparities and decrease lead exposure for the general population. Data from the National Health and Nutrition Examination Survey (NHANES) showed that ~95% of African American children and >80% of white children had blood lead levels above the CDC threshold of concern in the 1970s. Although these racial disparities have greatly decreased since that time, current blood lead levels among U.S. children are still 100 times more than their ancestors. Moreover, the scientific community has not yet identified a safe level for lead.

Published studies showed the effectiveness of lead-safe window replacement because windows have the highest lead levels. This intervention was found to improve dust lead and paint lead levels by 78%-95%. Lead-safe window replacement also was found to generate net benefits to the nation of \$67 billion due to higher lifetime earnings from avoided IQ deficits, energy conservation and increased home values. Other benefits from this intervention include improved weatherization, additional jobs, a positive impact on climate change, decreased lead poisoning, and potentially a reduction in mold, asthma and falls.

The expert panel found sufficient evidence to demonstrate the effectiveness of smoking bans. Published studies showed that exposure to ETS is the cause of 3,000 deaths per year in non-smokers, premature births and low birth weight, 4,000 chemicals and 40 carcinogens, and reduced cognition in teens.

In the “biological agents” category, the expert panel found sufficient evidence to demonstrate the effectiveness of multifaceted asthma interventions that include education, management, coordinated care and housing structural improvements. Asthma costs \$18.3 billion per year in direct medical costs and lost work or school days. CDC’s 2009 published study showed that home-based environmental interventions for asthma improved quality of life and decreased symptom days, medical care and missed school days.

In the “injuries” category, the expert panel found sufficient evidence to demonstrate the effectiveness of injury prevention interventions, particularly working smoke alarms, four-sided pool fencing, and preset safe temperature on water heaters to prevent scalds. Homes are the second leading site where most injuries and fatalities occur. In the “community-level interventions” category, the expert panel found sufficient evidence to demonstrate the effectiveness of the Housing Choice Voucher Program in improving health outcomes.

Overall, literature reviews by multiple groups have demonstrated that sufficient scientific evidence exists to implement housing and community interventions to improve health and prevent housing-related disease and injuries. However, additional research needs to be conducted.

Beyond Health Care: The Intersection of Housing and Health

Dr. Wilhelmine Miller is the Associate Director of the Robert Wood Johnson Foundation (RWJF) Commission to Build a Healthier America. She explained that the potential to lead long and healthy lives is not equally available to all Americans. Profound health status disparities exist by race, ethnicity, educational attainment, income and geography. Efforts will be needed by housing, neighborhood design and other sectors to close health gaps between socially and economically disadvantaged Americans and those who live better as well as health gaps between the current and improved health status of the U.S. population. This goal also will require participation by businesses, community organizations and government at all levels.

RWJF acknowledges that healthcare is not the most important factor in building a healthier America. RWJF also recognizes that addressing America’s health shortfalls will require a new direction and a counter-intuitive, unconventional, evidence-building and consensus-based process. This innovative approach will offer the greatest promise of advancing health policy. In an effort to achieve this goal, RWJF launched the Commission in 2008 with 12 persons representing a variety of backgrounds, including business, labor, public service, education, community development, journalism and health services administration. These diverse areas of expertise support the credibility and of the Commission’s consensus recommendations.

The Commission was charged with addressing policymakers in the private sector as well as those in federal, state and local levels. The Commission also was charged with focusing on the impact of social factors on health and the potential for non-medical interventions to improve population health and reduce health disparities. This broad mandate led the Commission to recommend ten actions across the domains

of early childhood development, nutrition, physical activity, housing and community design, workplace health and safety, and data collection and accountability.

The majority of guidance on health disparities published by federal agencies focuses on racial/ ethnic differences in health outcomes. However, the Commission's recommendations focus on disparities by income class and educational attainment first and differences by racial/ethnic groups second. Within each racial/ethnic group, the percentage of adults who report being in fair or poor health is highest for those living in households with incomes below the federal poverty level (FPL) and least for those living in households with incomes above 400% of the FPL.

Americans with minimal economic resources represent a substantial proportion of the U.S. population. Data show that one in five children in the United States live in families with incomes less than the FPL, 15% of families with children <18 years of age live below the FPL, and >30% of all Americans live in households with incomes less than 200% of the FPL. Wealth is perhaps the most indicative factor of household economic stability. The average or median net worth of black and Hispanic households in each income quartile is much less than in white households.

The Commission's recommendations on housing and neighborhood improvements reflect on behaviors affecting physical and emotional well-being, emphasize the need to eliminate environmental risks and barriers to healthy living, and describe the importance of building in conditions in homes and communities that promote health and healthy daily practices. Housing attributes that significantly affect health include affordability, neighborhood characteristics and physical conditions of the home. Of households in the bottom income quartile, >66% spend >30% of their income on housing. Unaffordable housing results in crowding, instability and inadequate resources for other household necessities. Data show that residential instability is associated with emotional, behavioral and academic problems in children.

Housing deficiencies typically co-occur, including poor indoor air quality, lead exposure, lack of safety devices and inadequate indoor temperature regulation. Residential exposures are the cause of 40% of diagnosed childhood asthma. Disadvantaged and unhealthy living conditions are particularly concentrated for racial/ethnic groups. Blacks, Hispanics and Native Americans are at least four times as likely as whites to live in neighborhoods with concentrated poverty. These neighborhoods have the highest rates of unemployment, are located furthest away from places of employment, and lack affordable public transportation and quality childcare and schools.

The Commission's recommendations on homes and communities emphasize the need for home and neighborhood environments to provide a social and physical infrastructure that supports healthy behaviors and minimizes hazardous exposures. The recommendations are summarized as follows. Housing and neighborhood infrastructure projects, new buildings, renovations, investments in transit, and community transportation path designs should be given a "health impact rating." Projects with the highest scores and the most significant impact on community health should be financially rewarded or offered incentives.

Public and private funders, including philanthropic organizations, government agencies and businesses, should invest in a broad array of healthy community demonstration projects that consider the impact of a variety of health-promoting policies and programs in sectors other than health care and traditional public

health interventions. Health impact assessments and a policy framework are tools that are relatively new in the United States. However, these analytic approaches are being increasingly implemented in communities with a goal of addressing embedded health, social problems and dysfunctions that have produced persistent health disparities at the local level.

The Commission hopes that its recommendations can advance the development and wide implementation of these analytic approaches to inform governance and local planning. The Commission's full report and other resources, including interventions for housing, communities, workplaces, schools and families, can be downloaded from www.commissiononhealth.org.

CASE STUDY 1: PREVENTING AND MANAGING CHILDHOOD ASTHMA THROUGH HOME ENVIRONMENTAL INTERVENTIONS

Ms. Laurie Stillman is the Director of the Public Health Policy Center at The Medical Foundation. She moderated the asthma case study and explained that efforts are underway in the asthma policy community to address and improve housing conditions for persons living with asthma. Asthma is a chronic lung disease that affects ~23 million adults and children in the United States. The incidence of asthma has precipitously increased over the past 20 years, but the factors that are most responsible for this epidemic are unknown. Asthma is responsible for a tremendous societal burden in terms of healthcare costs and productivity at work and school.

Asthma disproportionately affects persons with a lower socioeconomic status, persons living in low-income neighborhoods, certain racial/ethnic groups, and persons who are obese, smoke and exposed to smoke. Data have been collected over the past ten years on the impact of both outdoor and indoor environments on asthma. More recent data have been generated over the past five years on triggers within the home that can precipitate asthma attacks, such as allergens, mold, pets, dust mites and irritants, such as ETS, toxic sprays and fumes from combustible products.

Ms. Stillman pointed out that the asthma case study would be used as an forum to explore the role of the healthcare sector in addressing and mitigating household environmental factors as part of an asthma management plan. Although the healthcare sector has not traditionally focused on housing conditions and other social determinants of health, the healthcare sector is responsible for ensuring positive health outcomes for patients, controlling healthcare costs and obtaining better value for healthcare dollars. The healthcare sector bears \$15 billion of the \$20 billion annual cost for asthma in the United States. Preventable hospitalizations account for 24% of healthcare costs for asthma. As a result, the healthcare sector should have a strong interest in assuring decreased asthma costs.

Recent data have shown that a reduction in symptom days, decreased lost days at work and school, higher quality of life scores, less reliance on rescue medications and other improved asthma outcomes can be achieved by mitigating triggers. Several home visiting programs targeted to low-income patients and households with children with asthma have been evaluated. Environmental interventions offered by these programs include a home health assessment, educational materials on asthma triggers, clinical information, asthma mitigation supplies, professional cleaning services and IPM services. Nurses, community health workers (CHWs) and other non-clinicians typically conduct the interventions.

A report entitled *Investing in Best Practices for Asthma: A Business Case for Education and Environmental Interventions* demonstrated that environmental interventions were cost-effective for the healthcare sector. The data showed that costs for environmental interventions and standard medical treatment were similar in reducing symptom days. The CDC Task Force on Community Preventive Services will soon release a report with the same conclusion.

The National Asthma Education and Prevention Program is the gold standard for developing asthma management guidelines. This group of experts concluded that multifaceted environmental trigger interventions tailored to a patient's allergy profile and exposures were an appropriate component of effective healthcare asthma management programs. From a policy perspective, strategies are needed to broadly integrate environmental intervention programs into healthcare programs. Efforts are needed to convince the health payer sector to financially support these important interventions in a systematic manner as part of standard asthma management and care for persons at highest risk. An approach is needed to ensure capacity is available to deliver environmental interventions for asthma.

Ms. Stillman introduced the two presenters for the asthma case study.

Societal and Health Implications of Healthy Homes and Communities

Dr. James Krieger is Chief of the Chronic Disease and Injury Prevention Section at the Seattle-King County Health Department. He explained that the prevalence of asthma has rapidly increased over the past 20 years and remains at historically high levels. During this same time period, the incidence of obesity increased as well. Environmental determinants and exposures might be common themes for the increase in both the asthma and obesity epidemics.

Indoor asthma triggers substantially increase asthma morbidity and are associated with substandard housing, including mites, mold and roaches from excessive moisture and water damage; roaches and rodents entering from breaks in walls; higher allergen and tobacco smoke levels from poor ventilation; a reservoir for triggers from deteriorated carpeting; and lung irritants from off-gassing. Cleaning, hazardous household products, smoking, pets and other behaviors of residents also contribute to poor indoor air quality in homes. The community environment is associated with the obesity epidemic due to the absence of places to walk or ride bicycles, multiple unhealthy food options and limited access to healthy foods.

Seattle-King County designed the Healthy Homes Project with indoor environment interventions for low-income children with asthma to improve their housing and health-related behaviors, decrease exposure to asthma triggers and improve asthma outcomes. CHWs conduct home visits to assess exposure to asthma triggers and self-management behaviors; teach and model self-management and asthma trigger reduction skills; provide social support; offer advocacy and referrals to housing, food, furniture, jobs and other resources; and promote the use of primary care.

The CHWs are from participating communities, receive rigorous training, and have personal experience with asthma. Key outcomes from the Healthy Homes Project showed that asthma symptoms decreased by

one day over a two-week period, urgent health care utilization decreased by 40%-70%, and quality of life measures improved for parents and caregivers of children participating in the study.

Seattle King-County expanded the Healthy Homes Project to focus on actual housing and community conditions of the children. In 2004, residents of the High Point community reported water damage, condensation, mold and mildew, pests, crime and lack of pedestrian safety. In 2006, the new High Point community was reopened with the guiding principles of new urbanism, mixed income housing and “BuildGreen™” materials.

Seattle King-County used HUD funding to build “Breathe Easy Homes” in the new High Point community. Each of the 35 units cost ~\$6,500 more than baseline homes and included high-quality insulated windows, a fresh filtered air ventilation system, airtight wall construction, moisture-removing fans, low-VOC cabinetry, an insulated foundation, low-pile carpeting on staircases, walk-off doormats, a HEPA filter vacuum, marmoleum flooring, and low-VOC paint. The study followed 35 families one year before and one year after moving into the Breathe Easy Homes home to monitor children’s asthma.

Key clinical outcomes included a decrease in asthma symptoms by five days over a two-week period, a 67% reduction in utilization of urgent health care, and a dramatic improvement in quality of life measures for parents and caregivers of children participating in the study. In terms of asthma triggers, visible mold, water damage and rodents decreased to 0% in the Breathe Easy Homes, condensation and roaches decreased to <5%, and pets and tobacco smoke were not allowed.

Components in the new High Point community to promote a healthy physical environment included walkable streets, a network of open spaces and trails, spaces for social interaction, tobacco-free units and zones, community gardens, access to a transit system, low-allergen landscaping, greenbelt and wetland sustenance, and watershed protection. Streets in the new community separated cars and pedestrians and included more plantings.

Components in the new High Point community to promote a healthy food environment included community gardens, a community kitchen and food events. Plans are underway to develop community-supported agriculture, a farmer’s market and commercial kitchen. Components in the new High Point community to promote a healthy social environment included healthy home visits to neighbors, clean staircases to link walking trails, social cohesion, walking groups and walking maps, and assurance of pedestrian safety.

Pre-/post-studies and comparison groups showed a dramatic increase in minutes walked per day among residents who joined a walking group. The High Point residents formed a Community Action Team to build community capacity to improve pedestrian safety and address other community concerns of residents.

Lessons learned from the new High Point community will be applied to the Yesler Terrace community. This major public housing site covers 30 acres and has 561 units. Of 1,200 residents, 90% are persons of color. Yesler Terrace will be rebuilt with healthy homes and healthy building concepts from the outset. Seattle-King County hopes Yesler Terrace will serve as a model for other communities throughout the country that are rebuilt with public funding.

The health goals for the new Yesler Terrace include an opportunity to build social connections; access to goods, services and employment; protection from environmental pollutants; a safe level of community noise; a protected natural environment; healthy indoor environments; access to parks and green spaces; diverse food systems; and an environment supporting physical activity. Vehicle exhaust exposure will be minimized and good indoor ventilation will be assured to reduce and mitigate the impacts of air pollution to promote healthy respiratory function. Space will be provided for community gardens and markets on site to ensure access to a diversity of healthy food choices. Public transit use will be promoted, walking trails will be built and traffic calming measures will be implemented to reduce the use of private vehicles and provide alternative choices.

Overall, both housing and community designs in the built environment affect health. Sufficient evidence exists to guide the design of healthy housing and communities. Many existing housing and community designs do not meet the guidelines for promoting health. Building new homes and communities to be healthy by design and remediating existing homes and communities are two key strategies that should be pursued to make housing and communities healthier.

A Health Plan Perspective on Addressing Asthma Triggers in Housing

Dr. Mohamed Ally is the Senior Medical Director of Network Health. He explained that Network Health is a Medicaid managed care organization that strives to improve the health and well-being of its members and diverse communities. Network Health currently covers 155,000 members through two health care plans and provides access to high-quality health care through partnerships with >18,000 primary care providers, specialists, hospitals and community organizations. Network Health serves members in >300 cities and town throughout the commonwealth of Massachusetts.

An association between asthma and the environment was demonstrated in the Institute of Medicine's meta-analysis of the published literature in 2000 and the publication of the "Inner City Asthma Study" in the *New England Journal of Medicine* in 2004. Network Health collaborated with the Asthma Regional Council in 2004 to develop a white paper focusing on the potential correlation between the living environment and asthma attacks. The literature suggested a relationship between cockroach allergen and asthma attacks. The white paper on asthma triggers and care also reviewed local trends in environmental improvements, such as improved air quality.

The prevalence of asthma in Network Health's Medicaid population is higher than the Medicaid population in surrounding Massachusetts communities. Asthma prevalence among enrollees in an identified region was 24.8% compared to 14.3% across the entire Network Health coverage area. The hospitalization age-adjusted discharge rate for asthma of 257.1 was 97% higher than the statewide rate of 130.8.

Network Health received a two-year grant from RWJF to participate in the Best Clinical and Administrative Practice Project with 13 other teams throughout the country. Network Health determined that the asthma outlier and identified region with high asthma prevalence was associated with significant

racial disparities. Network Health used its grant funds to develop the Asthma Health Disparity Project to identify and address barriers to care for asthmatic Hispanic-American enrollees. The multifaceted approach focused on enrollees, providers and the community at large. Interventions for these target groups included educational materials, discussions with providers, radio and television broadcasts on asthma, community focus groups, and a poster contest for middle-school children.

The project validated the presence of health disparities, but cockroach infestation was the issue that was most frequently raised by providers, town officials and members of community focus groups. After Network Health made visits to the homes of some of its enrollees, a decision was made to expand the project to include an environmental component. An innovative asthma care program was piloted in 2007 in collaboration with Cambridge-Somerville Healthy Homes to address asthma triggers in the home. The goals of the pilot were to improve asthma outcomes by enhancing and expanding the home visiting program to pediatric members with high asthma utilization and coordinate with the Network Health Asthma Care and Management Program and primary care providers.

Nurses and CHWs conducted five home visits to each household in the study over a six-month period. The targeted in-home program included intensive education on asthma triggers, medication compliance, clinical aspects, a formal home environmental assessment, an evaluation of each participant, barrier-type supplies to remediate identified triggers, and advocacy materials for participants to pursue structural or environmental issues with the landlord or housing department. The 64 study participants were ≤ 18 years of age and lived in four urban communities.

Medical records of the participants were reviewed one year before and one year after enrollment in the study. Results of the pilot showed a four-fold decrease in emergency department (ED) visits and a 3.3-fold decrease in inpatient visits. A quality of life survey was administered to each participant to determine the number of symptom-free days and absences from school or work before and after the pilot. However, the selection of Network Health members with the highest number of ED visits might have introduced a bias in the pilot.

The pilot resulted in several lessons learned. Existing opportunities in reducing costs and improving quality of life should be used. Healthcare utilization of emergency care or inpatient care should be reduced. The influence of primary care providers should be facilitated beyond the office and into the homes of patients. Asthma triggers should be addressed in the home environment.

Network Health will more widely launch the asthma care and management program on July 1, 2009. Interventions used in the pilot will be replicated in the program, including home visits, medication compliance, advocacy and health education, home assessments of all enrollees with uncontrolled asthma, a commitment to high quality care and tracking of data. Network Health recognizes the difficulty of healthcare payers bearing the cost of all environmental components, but efforts should be made at this time to assist the healthcare sector in overcoming regulatory, practical and operational barriers.

Asthma Roundtable Discussion

Ms. Pollack conveyed that the participants would be asked to answer two key questions during the asthma roundtable discussion: (1) What strategies can be implemented for every health insurance company in the United States to use Network Health as a model in reimbursing costs for an asthma care and management program? (2) What approaches can be taken to ensure that each rebuilt and upgraded community in the country is similar to the healthy High Point community in Seattle?

While recommending concrete actions on conducting home-based interventions as part of asthma case management, Ms. Pollack asked the participants to be mindful of three challenges that need solutions: paying for home environmental interventions to prevent and manage childhood asthma; developing an infrastructure and workforce to conduct home-based interventions; and advancing beyond current interventions to upgrade the housing stock. Ms. Pollack reminded the participants that their policy recommendations would be used to inform the development of a consensus-based action agenda.

Policy options recommended by the participants to prevent and manage childhood asthma through home environmental interventions are outlined below.

- The traditional culture of the healthcare sector should be changed by engaging in collaborative efforts and initiating dialogue with local politicians, other decision-makers, and community and state leaders at state and local levels. These discussions should focus on new messages that emphasize the cost-effectiveness, long-term cost-savings, and other benefits of moving the cost of home environmental interventions upstream. This approach would assist in building acceptance for home environmental interventions for vulnerable populations and the broader community.
- The health sector should develop strong partnerships with the housing and energy sectors at the local level. For example, weatherization dollars could be used to develop tools to assure safe pest control while breaks in walls are being repaired in the home. Collaboration among these sectors will be a critical need because the implementation of new asthma care and management programs will be extremely expensive at the local level, particularly without advocacy at the national level. Most notably, individual localities have encountered significant challenges over time in receiving reimbursement for lead poisoning prevention activities. To avoid repeating this problem, a national policy framework should be developed to address the issue of healthcare reimbursement for home environmental interventions for asthma.
- A rigorous cost-benefit/cost-effectiveness analysis should be conducted of the Seattle and Network Health models. For example, each of the Breathe Easy Homes in Seattle required an additional \$6,500 to build. A study could be conducted to determine the length of time required to recover these dollars in terms of less medical care costs. A study also could be conducted to show the decrease in healthcare costs as a result of Network Health's targeted and intensive in-home program. This intervention significantly decreased the number of ED and inpatient visits among the study population. Cost-effectiveness and cost-benefit data would make a stronger case in leveraging healthy housing funds from payers.

- Potential homebuyers and renters should be provided with powerful information on lead, radon, asthma, mold or other hazards in the home to inform intelligent decision-making during the home purchasing or renting process. Consideration also should be given to using economic stimulus dollars to offer \$300 to homebuyers and renters to mitigate hazards in the home.
- Housing authorities and other voucher administrators should be urged to increase the number and value of Section 8 rental assistance vouchers to provide individuals with an opportunity to live in better and healthier communities. Advocates throughout the country should be extensively engaged in this effort. Most notably, ~170,000 vouchers have been lost over the past several years and need to be replenished. The voucher program should be used as an effective mechanism to involve both the private and public sectors in addressing multiple health problems simultaneously.
- Housing quality standards for inspections should be developed with a healthy homes standard that is uniformly adopted across federal agencies. This approach would facilitate the launching of highly usable voucher programs throughout the country and also would allow local programs to better allocate dollars.
- Efforts should be made to scale-up expertise in a variety of professions that will be needed for green jobs. Funding that can be leveraged from green jobs to support home environmental interventions should be considered as well. For example, \$750 million in the economic recovery bill has been set aside for a new and competitive program within the Department of Labor. Of these federal dollars, \$500 million will be allocated to green jobs and \$250 will be allocated to prioritize green jobs in the healthcare sector. The public health community, community-based organizations and other groups would tremendously benefit from becoming involved in this initiative at the outset.
- Extreme caution should be taken in primarily focusing on rebuilding and redeveloping subsidized public housing to make communities healthier. For example, private housing accounts for >90% of the U.S. housing stock, while subsidized public housing only accounts for 2%-3%. Standards that define “effectiveness” should be changed in the housing market as a whole.
- Large-scale demonstration projects should be conducted in a systematic manner to show the overall benefits of a comprehensive and holistic approach. For example, a pilot with a study population of 500 units would demonstrate to homebuilders, the market and society the benefits of home environmental interventions on a much larger scale.
- The healthy housing agenda should be linked to larger initiatives that address climate change, energy efficiency, green building and reauthorization of the federal transportation bill. For example, \$13 billion in the economic stimulus bill will be allocated to state and local energy programs.
- Partnerships should be established with the mortgage market to design healthier homes from the outset and rely less on government funding. This approach would be advantageous in the long-term to both the housing and mortgage industries.
- The health insurance sector should be extensively engaged in discussions and collaborative efforts to advance the healthy housing agenda.
- Solid evidence on the prevention aspects of healthy housing should be gathered to provide incentives and build a strong case for the larger healthcare reform agenda.

- Issues regarding the marketplace, scale-up and limited funding availability should be addressed in the low-income community. This housing stock is not exclusively rental and represents 29 million Americans who are owner-occupied low-income.
- Collaborations should be established within individual sectors for health, housing, environment, green jobs, energy and other networks to better understand various internal agendas before efforts are made to engage external partners.
- The healthy housing agenda should be advanced by considering the entire healthcare budget. For example, home-based interventions conservatively could result in cost-savings of \$3 billion annually from asthma alone. These dollars could then be allocated to programs that have generated cost-savings from home-based interventions.
- Resources should not be wasted on gathering additional evidence to support the healthy housing agenda. Instead, funding should be allocated to determine interventions with recurring savings versus those with recurring costs.
- Efforts should be made to eliminate silos at the national level. New federal legislative opportunities for universal healthcare, housing, energy and climate change should be leveraged to advance the healthy housing agenda.
- The healthy housing agenda should be linked to Executive Order 12898 that called for federal actions to address environmental justice in minority and low-income populations.
- A national campaign should be launched to educate the public on the healthy housing agenda and the cost-benefits of this initiative.
- Large employers should be encouraged to collaborate with health insurance companies to mitigate environmental hazards in the homes of identified employees. This model was found to be extremely effective with substance abuse treatment, smoking cessation and exercise programs for employees. This approach also lowered group costs of insurance premiums paid by employers and increased productivity of employees in the workplace.
- Strategies and funding mechanisms with a demonstrated track record of success at the local level should be replicated and scaled-up at the national level. For example, the state of Minnesota created a certification program, developed the workforce and provided stable financing beyond grant funding for CHWs to provide specific services. Well-trained CHWs play a valuable role in delivering home environmental interventions due to the nursing shortage in the United States.
- Officials in state and local government agencies should be identified to champion the healthy housing agenda. For example, the MacArthur Foundation identified leaders at state and local levels in Chicago, Illinois to serve as innovators for the preservation of affordable housing. These leaders also will launch peer networks that will conduct a number of activities in the future, such as collecting state and local data on both the assisted and unassisted housing stock; implementing strategies for state and local officials to collaborate on enforcing green energy codes to improve the housing stock with federal dollars; and use the upcoming reauthorization of the transportation bill for housing and transportation officials to jointly promote transit-oriented development.
- Large employers and purchasers should be urged to request home visits and other best practices for asthma care and management. To support this effort, the Asthma Regional Council is currently developing a business case for large employers, purchasers and insurance brokers to create specifications in requesting home-based visiting programs.
- The broader healthcare reform agenda should be used as an major opportunity to influence housing and other social determinants of health. For example, local health departments serve as a

valuable source in delivering home-based environmental interventions throughout the country, but these agencies need additional funding. The Trust for America's Health has been attempting to develop a wellness trust in which a certain percentage of funds from healthcare expenses would be dedicated to prevention-oriented care. Wellness trust funds could be allocated to local health departments to enhance capacity and ensure continued delivery of environmental services at the local level.

- New and innovative funding streams should be leveraged to advance the healthy housing agenda. For example, incentives should be offered to Medicaid managed care plans at the federal level to deliver environmental services to patients, improve asthma outcomes and lower healthcare costs.
- An analysis should be conducted to demonstrate the economic value and impact of healthy housing interventions to the private sector.
- Assurances should be made to maintain a local context in healthy housing interventions. All planning and designs for healthy housing occur at the local level for local populations. Incentives should be offered to programs with strong local planning, while programs without public participation in planning should not be rewarded.
- Solid plans for green building with substantive content that prioritizes health should be presented to sustainability partners.
- Mixed-income and diverse housing for various age and income groups should be established as core criteria for all healthy neighborhoods. Efforts should be made to incorporate these criteria into the reauthorized transportation bill.
- Consideration should be given to diverting a modest 2%-5% charge from all healthcare expenditures in the country and allocating these funds for housing and transportation departments to conduct joint interventions in collaboration with public health.
- A model should be developed to demonstrate the value and capitalize on income streams that will be produced in the future as a result of building healthy housing.
- Research and data should be compiled to capture the co-benefits of green building that cut across different silos.

Ms. Pollack concluded the session by summarizing three key themes that emerged during the asthma roundtable discussion. One, a much broader group of partners and stakeholders should be engaged in the healthy housing dialogue, including the climate sector, transportation sector and large employers. Two, the market should serve as a source to leverage opportunities to advance the healthy housing agenda. Three, the healthy housing agenda should be linked to the health, housing, energy efficiency, green building and transportation sectors that will be redefined and reinvented.

The participants attended a luncheon in which Dr. Jocelyn Elders, the former U.S. Surgeon General, would serve as a keynote presenter.

CASE STUDY 2: POLICY TOOLS FOR SYSTEMIC COMMUNITY-LEVEL CHANGE

Mr. Stockton Williams is the Director of Green Economy Initiatives at Living Cities. He moderated the community-level policy tools case study and explained that Living Cities is a consortium of banks, foundations and insurance companies. Living Cities historically has supported organizations that conduct

affordable housing and community development projects, but is now beginning to leverage opportunities to address health in a systemic and strategic manner by investing in organizations with innovative community-level approaches.

Mr. Williams noted that a multi-dimensional view in defining communities as a place, practice or people is an important element in healthy homes. The broader community scale also provides opportunities to engage multiple partners and conduct larger initiatives with more impact to elevate the healthy housing agenda.

Mr. Williams yielded the floor to the two presenters for the community-level policy tools case study.

A Ground-Up Approach to Housing Code Enforcement

Ms. Beth McKee-Huger is the Executive Director of the Greensboro Housing Coalition (GHC). She explained that GHC is an advocate for safe and affordable housing in Greensboro, North Carolina. Greensboro developed the rental unit certificate of occupancy (RUCO) ordinance as a proactive and systematic inspection program to reduce substandard housing. After GHC and the Greensboro Neighborhood Congress made a presentation to the City Council in 2002, the RUCO ordinance was unanimously adopted.

To facilitate implementation of RUCO and use the ordinance as a catalyst for change, GHC sponsored a bus tour in 2004 for 84 community leaders to meet residents who lived in dangerous housing conditions. Since that time, GHC has sponsored and videotaped bus tours each year to demonstrate its progress through code enforcement and repair programs. Greensboro has issued 32,604 RUCOs since January 1, 2004. In 2006, GHC identified and published the names of the top ten landlords with the most code violation cases in a local newspaper. The RUCO ordinance has played a key role in the dramatic reduction of substandard units from 2,156 in 2003 to 744 at the present. Effective January 1, 2009, the rental of units without a RUCO is illegal within the city limits of Greensboro.

In addition to the RUCO ordinance, GHC also is implementing a five-phase strategy to expand the Healthy Homes Greensboro Initiative. In the identification phase, nurses and social workers conduct home visits to identify and refer homes with health issues to healthy homes specialists. In the assessment phase, a healthy home specialist conducts a comprehensive evaluation, educates tenants, provides linkages to services, advocates on behalf of tenants, and makes referrals to RUCO inspectors. In the repair phase, “green” contractors make repairs according to current green practices and holistic work practices, such as IPM, lead-safe work practices and energy efficiency. Collaborative efforts are underway to develop green job training programs and expand resources.

In the evaluation phase, healthy home specialists make follow-up home visits to verify the completion of repairs and determine their effect on health and utility bills. Results of the evaluation are entered into a database and used to measure outcomes, assess impact, broaden community education, and engage additional stakeholders in the healthy homes initiative. In the education phase, community educators

increase public awareness of healthy homes and more home visitors are trained to identify hazardous housing issues.

GHC gathered and mapped addresses of asthma hospitalizations and correlated these addresses to homes with code violations. This analysis documented racial/ethnic disparities because most substandard housing in Greensboro was located in non-majority white areas. However, a comparison of historical five-year data and data collected as of December 31, 2008 showed that RUCO has played a key role in reducing disparities.

Greensboro has applied lessons learned in its ground-up approach to recommend several healthy homes policies. Public visibility of housing conditions and their impact on health, environment and social justice should be raised. Proactive code enforcement should be combined with resident education and repair resources. Broad collaboration should be built for greater effectiveness and community-wide endorsement. CHWs should be trained to conduct housing assessments and perform holistic, green and healthy repairs. Disparities should be analyzed and outcomes from interventions should be measured.

Ms. McKee-Huger concluded her presentation by showing a video of GHC's "2008 Healthy Homes Bus Tour."

Bringing Health and Social Justice to Housing and Community Development Decisions

Dr. Rajiv Bhatia is the Director of Occupational and Environmental Health at the San Francisco Department of Public Health (SFDPH). He explained that the social and environmental context of housing impacts human health. Most notably, traffic noise and pollution are important determinants of many outdoor environmental health hazards and are associated with heart disease, hypertension, sleep disturbance, respiratory disease, asthma, delayed lung growth and premature mortality. Segregated housing environments also are a major cause of inequities in environmental conditions.

Public health institutions can take several actions to address health inequities. Indicators of and inequities in health-relevant social environmental conditions should be assessed and monitored. Health impact assessments (HIAs) of local policies, plans and projects should be conducted. Collaboration should be established with social interest groups to increase understanding of health determinants and champion health equity strategies and policies. Health protective laws and regulations should be developed and enforced.

An HIA is a systematic process that makes evidence-based, transparent and reasoned judgments on the health impacts of social decisions; considers health impacts holistically and comprehensively; communicates findings into the policy process; and provides a method for analyzing health impacts in environmental impact assessment and other health impact mandates.

Case studies in which health and social justice were linked to housing and community development in San Francisco are summarized as follows. Tenants of the Trinity Plaza Apartments challenged the

demolition and redevelopment of 360 rent-controlled apartments by citing human impacts related to displacement, crowding, substandard conditions, loss of employment and a change in schools. The tenants asked SFDPH to document adverse health effects associated with these changes. After SFDPH gathered scientific evidence to support the community's complaints, the Planning Department required the developer to submit a "no displacement" project alternative. This issue was resolved by the developer's commitment to build full replacement rent-controlled housing for the 360 households in the future project.

The city of San Francisco proposed building a development of 6,000 condominiums, but the housing would be affordable to only ~5%-7% of persons who worked in the area. The new development also would create an exclusive and high-income community. The Planning Department asked SFDPH to gather evidence to demonstrate the need for more affordable housing, social integration and community infrastructure from a health perspective. This issue was resolved by the community using SFDPH's health data to leverage community mitigation funds and negotiate an agreement with the developer to build more affordable and inclusionary housing.

The city of San Francisco proposed industrial rezoning of land for 40,000 new units, but the housing would be a source of traffic and industrial hazards. In an environmental review process, SFDPH designed sophisticated tools to analyze impacts from noise, air pollutants and pedestrian injuries in the industrial-residential rezoning plans. This issue was resolved by SFDPH developing new requirements to prevent health hazards, protect respiratory health, reduce noise exposure and decrease pedestrian injuries. SFDPH compiled and published the results of the environmental review.

SFDPH conducted an HIA of the West Oakland Port in response to community concerns regarding health impacts on neighborhoods adjacent to ports. This issue was resolved by SFDPH documenting health impacts from air pollution, noise and truck-pedestrian collisions as well as economic impacts on the retail environment and employment opportunities. All of these case studies resulted in the Planning Department using SFDPH as an environmental health expert for the city of San Francisco to review community development projects on a daily basis and prevent future controversies with the community.

Despite the success of these HIAs, SFDPH recognized the need to create a consistent vision for the city of San Francisco, develop a well-established set of criteria, and avoid conducting HIAs on each individual community development project. The outcome of SFDPH's two-year community planning process led to the design of the healthy development measurement tool (HDMT) that would serve as a bridge between health and planning. The HDMT is an indicator system with >100 community-level measures of health, including overcrowded conditions, traffic, noise, air quality, pedestrian injury rates, alcohol outlets, fast food restaurants, grocery stores and pollution. Key features of the HDMT include menus of best practices for policy, strategies and design; a developer's checklist; and supportive health evidence.

SFDPH designed the HDMT with a user-friendly three-step approach. First, indicators of health are reviewed for the specific location where housing will be developed or planned to determine community needs, potential liabilities, focus areas and community priorities. Second, the proposed plan is evaluated to assess its role in either improving or worsening the indicators. Third, the proposed plan is modified based on findings of the evaluation.

SFDPH identified several important outcomes from applying the HDMT to plans and projects. The HDMT ensures community needs and issues are well known; assists in the selection of locations for housing investments; identifies neighborhood inequities and forms a basis for standards; catalyzes focused attention and responsive policies; justifies development funding and mitigations; makes tradeoffs transparent; and documents community benefits of development projects. Additional information on the HDMT, including instructions, resources and supporting data, can be downloaded from www.thehdm.org.

In addition to the HDMT, SFDPH also has been focusing on the development of local building standards for traffic pollution “hot spots.” SFDPH has a strong interest in this issue because neither EPA nor any other regulatory authority monitors or regulates roadway air pollution hot spots at this time. SFDPH conducted research and proposed a method to assess the air quality outside of new developments. These efforts resulted in SFDPH implementing the first land-use law in the country in 2008 requiring engineered ventilation to remove particulates from areas with higher roadway emissions.

SFDPH’s specific role in the law is to conduct site-specific analyses and review mitigation strategies to protect indoor air quality from roadway hot spots. California is now reviewing the legislation for possible statewide implementation, while environmental justice organizations have expressed an interest in incorporating the law into transportation projects.

Overall, the public health community should address existing challenges and take advantage of current opportunities to influence social and environmental inequities. Disciplinary languages should be learned and expertise should be built in this discipline. Creative funding streams should be designed to support health and social justice activities in housing and community development. “Turf” issues should be resolved to effectively collaborate with sister institutions.

A clear distinction should be made between “informing” and “advocating.” The extraordinary social commitment to health and equity within the broader public health community and among individual public health staff should be widely leveraged. Linkages should be made to the tremendous social justice and health movements that are underway. HIA rules in existing laws should be implemented rather than passing new legislation. The public health community should play a neutral role in convening and building consensus to minimize social and environmental inequities.

Community-Level Policy Tools Roundtable Discussion

Ms. Pollack reminded the participants to recommend concrete solutions and ideas for community-level policy tools rather than focusing on barriers to this issue. Policy options recommended by the participants to promote systemic community-level change through policy tools are outlined below.

- More effective policies and regulations should be developed to define the manner in which individuals live in society. Existing codes and laws for energy, weatherization and Medicaid as well as other current opportunities at federal, state and local levels should be identified and leveraged to establish standards that focus on the impacts of housing on health.

- Zoning and land use should be considered as essential drivers to advance the healthy housing agenda. However, a process should be designed for small, mid-size and rural communities to replicate zoning, land use and other effective strategies that were developed for larger localities with more funding and resources. The healthy housing agenda should be practical and feasible for diverse communities.
- An approach should be created to assist communities in prioritizing regulations and codes that would be most important to the health status of local communities.
- A strong partnership should be established between attorneys and physicians to advance the healthy housing agenda through code enforcement. For example, physicians and attorneys have been collaborating with other partners in Boston for the past 15 years to jointly address housing and other social determinants of health, enforce existing laws in a seamless manner, and promote the concept of a medical home. Law schools should be engaged in this effort to promote legal/medical partnerships for housing among law students and faculty.
- First responders should be extensively engaged as a key partner in a broader “safe and healthy housing agenda” due to their powerful role as authority figures in the community. The inclusion of first responders also would assist in addressing overlapping areas. For example, a smoke-free home would produce benefits from both an environmental health perspective and an injury prevention perspective in terms of reducing the number of residential fire deaths in the country. Moreover, the tremendous efforts and lessons learned by the home safety community in influencing and advocating for code enforcement could be applied to the safe and healthy housing agenda.
- Existing opportunities at national and local levels should be leveraged simultaneously. For example, CDC, professional associations or other credible groups should develop and provide local jurisdictions with a national checklist, standards or guidelines that would define “healthy housing codes.” This resource would provide localities with more credibility in making a case to local policymakers about the need to change existing local codes. National standards should cover injury prevention, toxic and environmental exposures, and protection in the home from outdoor exposures.
- Health departments should use their existing infrastructures to play a leadership role in and serve as the catalyst for the healthy housing agenda through code enforcement. For example, the New York State Health Department mandates localities to conduct data-driven community health assessments and implement primary prevention for childhood lead poisoning. This policy has required localities to partner with housing agencies.
- Rigorous training and education should be targeted to the housing community due to the tremendous lack of capacity in this sector to conduct specific components of the healthy housing agenda. For example, the vast majority of housing staff most likely has limited or no expertise in weatherization, energy efficiency, green building, or the legal and social aspects of housing. However, housing personnel with inadequate knowledge and minimal training in these areas are required to routinely make housing decisions that affect families at the local level. Standards should be established to ensure that the housing sector is as well educated and trained as the health sector to truly make progress in healthy housing.
- HUD should develop a prescriptive and directive IPM policy at the federal level that can be adopted at the local level. This policy should be accompanied by federal dollars for localities to train IPM operators.

- Potential unintended consequences of housing codes should be addressed, particularly in the context of migrants or undocumented immigrants. For example, HUD funding cannot be used to remediate zero-bedroom units that are occupied by poor families. These families typically are undocumented immigrants who are not protected by local housing laws.
- A sustainable funding stream should be developed to increase community organizing and facilitate the development of more ground-up approaches beyond short-term grant cycles.
- The energy efficiency, utility and other key industries should be extensively engaged in the healthy housing agenda.
- The critical need for states, cities and communities to adopt and enforce the best model building codes and train local staff in this area should be widely publicized.
- The Massachusetts “opt-in code” should be reviewed as a model for code enforcement. This incentive offers state funds to communities that adopt and enforce the state energy code and demonstrate an additional 20% improvement over baseline.
- Efforts should be made to revive the “Community Building Code Administration Grant Act of 2008” that would authorize HUD to distribute up to \$20 million in competitive grants to local building code enforcement departments annually, particularly those with collaborations with health departments and other groups.
- The insurance industry should be used as a solid ally in the healthy housing agenda. This sector is one of the strongest supporters of codes because fewer insurance claims are submitted when home inspection codes are enforced for disaster resistance and other safety-related items in the home. Financial incentives could be provided to the insurance industry to reduce the premiums of policyholders who make their homes healthier and safer.
- Professional associations should give awards to their members to reward best practices and excellence in exceeding healthy housing requirements and practices.
- HUD funding should be used to specifically close the gap between model codes and the existing housing stock.
- A mechanism should be developed at the federal level to audit or take other types of punitive measures against federally-funded local governments that do not meet their obligations to enforce housing codes.
- The U.S. Green Building Council should be engaged as a key partner to assist in developing a housing code similar to the Leadership in Energy and Environmental Design (LEED) certification. The “LEED-type” code should include green, health, safety, economic and environmental components to drive public policy, funding decisions and code enforcement.
- An expert peer review panel should be convened with the banking industry, insurance sector and property owners to gather evidence to inform the development of a “healthy housing seal of approval.”
- The U.S. Conference of Mayors, League of Cities, workforce development boards, sustainability and zoning commissions, and other local policymakers should be engaged as key partners in the healthy housing agenda due to their power and influence in implementing standards at the local level. Most notably, the new DOE Energy Efficiency and Conservation Block Grant Program will allocate dollars to every U.S. city with a population of >35,000 persons. Local officials in each of these cities will be required to submit a written “Energy Efficiency and Conservation Strategy” within the next 120 days. Local decision-makers also can play a key role in marketing the healthy housing agenda to the financial industry.

- Strong partnerships should be established with state and local Departments of Education and education reform advocates; Departments of Health and Human Services and child welfare advocates; and the Office of Juvenile Justice and Delinquency Prevention and juvenile justice reform advocates. These agencies and advocacy groups can serve as strong supporters of the healthy housing agenda by making a solid case regarding the disparate impact of housing on minorities in terms of children’s behavioral issues and their capacity to attend school and learn.
- Banks should be educated on the critical need to enforce codes when mortgages or rental agreements are offered instead of at the point when homes are foreclosed.
- Instead of attempting to address a multitude of individual topics, emphasis should be placed on targeting and coordinating activities in five major categories that would advance the healthy housing agenda on a large societal scale and result in systematic change. The five categories are (1) public and private policy; (2) development, mitigation, smart growth and other community issues; (3) code enforcement and other regulatory issues, (4) actions that can be taken by homeowners and renters; and (5) market and financial issues.

Ms. Pollack concluded the session by summarizing two key themes that emerged during the community-level policy tools roundtable discussion. One, new codes, a healthy housing seal of approval or other standardized tools should be developed and distributed to state and local agencies. Two, partnerships should be established with the insurance industry, legal community, utility companies, energy efficiency sector and other diverse stakeholders to make progress in community-level changes.

Integration Session

Ms. Pollack explained that the purpose of the integration session would be to synthesize the vast amount of existing knowledge, evidence and information to scale-up a policy-oriented, actionable, practical and feasible safe, affordable and healthy housing agenda. Her charge to the participants is summarized below.

The comments should only focus on tools and partnerships/collaboration. Instead of identifying specific entities, the partnerships/collaboration recommendations should focus on strategies to present a compelling case for the healthy housing agenda to potential partners. Comments should not be made on funding and political will for the healthy housing agenda, but suggestions on new or innovative funding sources could be proposed.

Recommendations by the participants on tools and partnerships/collaboration that would be needed to advance the healthy homes agenda are outlined below.

TOOLS

- Education to mayors, city administrators, planning commissions and general government managers to increase their knowledge and understanding of the implications of housing policies and code enforcement on health.
- An “Energy Star-type” healthy housing rating or labeling standard for use by practitioners and the general public.

- Model healthy housing standards that would serve as a foundation for local governments to issue voluntary certifications or develop codes.
- Opportunities to integrate healthy housing tools into existing initiatives.
- A training module to incorporate healthy housing into high school and college curricula.
- Healthy housing educational tools and materials for parents and pre-K students that address literacy issues (existing model for replication: Home Safety Council’s Home Literacy Project).
- Information that can be specifically used to change behaviors and build a base of support for policy actions.
- A public campaign to widely shift the nomenclature from “healthy and green housing” to “healthy, green and safe housing.”
- Federal or state certification to define a standard for “IPM providers.”
- A \$300 incentive from the federal government for homebuyers to pay for an inspection and assure the purchase of a safe, healthy, and structurally and mechanically sound home (existing model for replication: Federal Housing Administration (FHA) program).
- Discounts on premiums by insurance companies for homeowners, homebuyers and renters whose homes meet healthy and safe housing criteria during an inspection or certification process (existing model for replication: the state of Florida as the insurer of last resort following hurricanes).
- Commitments, standards, up-front disclosures and grant funds from HUD to meet healthy housing criteria before HUD-owned homes are placed on the market for purchase by the public.
- Wide publication of existing codes developed by the International Code Council, fire and safety departments, and other groups.
- Products by retailers and manufacturers that could be labeled with a “healthy” or “green” seal.
- Financially sustainable programs in which healthy and safe housing components could be integrated into the existing housing stock during green and energy retrofits (existing models for replication: Babylon, Berkeley and Desert Palms, California programs).
- Mathematical tools for banks to calculate healthy housing into home values.
- A web-based interactive tool for various constituencies in the housing sector to discuss specific issues (existing model for replication: www.housingpolicy.org).
- A new funding stream that would promote collaborative expenditures among the healthy housing, weatherization and energy efficiency sectors.
- New tools and models to rezone land for health.
- Cost-savings and cost-benefit analyses of healthy homes programs with a demonstrated track record of success (existing models for replication: the healthy High Point community in Seattle and the Network Health Asthma Care and Management Program).
- Clear distinction between healthy housing standards inside and outside the home environment; development of both types of model standards by CDC, DOE, EPA, HUD and federal highways; and federal dollars to implement both types of model standards.
- Revitalization of the 2006 Healthy Places Act.
- Development of guidelines by the Council on Environmental Quality on appropriately analyzing health impacts under the National Environmental Policy Act.
- Oversight and analysis of past and potential accomplishments in the future of the HUD “Big Buy Program.”
- Flexible spending plans by large employers for healthy housing improvements or assessments.

- A standardized tool for nurses, CHWs, energy auditors, first responders and professionals in other disciplines to feel comfortable in entering homes and initiating dialogue with residents on healthy housing.

PARTNERSHIPS AND COLLABORATION

- Contact the Executive Director of the Institute for Business and Home Safety to engage the insurance industry in the healthy housing agenda.
- Form “Housing and Healthy Community Policy Councils” in local jurisdictions to convene builders, planners, public health officials, insurers and other key stakeholders to develop creative solutions and formulate policies to address local needs. Design toolkits at the national level to provide to these groups. (Existing model to replicate: local Food Policy Councils for stakeholders to design food systems)
- Encourage public health officials to serve on sustainability commissions to promote healthy housing as part of sustainability.
- Create formal interagency agreements to eliminate silos and enhance collaboration across governmental departments. (Existing model to replicate: interagency agreement between the public health and transportation commissioners in Massachusetts)
- Urge Fannie Mae and Freddie Mac leadership to allow homebuyers to incorporate the cost of home inspections into their FHA mortgages and widely publicize this option.
- Collaborate with multiple entities to identify areas in the healthy housing agenda that overlap with existing legislative and policy issues.
- Provide pediatricians and clinicians with educational pamphlets on basic healthy housing interventions their high-risk patients could implement at minimal or no cost, such as placing cheesecloth over vents.
- Contact the Congressional Black Caucus to obtain assistance and expertise in reducing health and housing disparities in communities of color.
- Facilitate linkages between community outreach workers and code enforcement officials to minimize fear of homeowners and renters at highest risk, enhance capacity to enter a greater number of properties, and conduct home-based interventions.
- Emphasize the role of strong code enforcement programs in reducing crime to obtain wide endorsement and support for the healthy housing agenda. Create geographic information system (GIS) maps to illustrate the relationship between local areas with the highest crime rates and areas with the highest number of substandard housing units and code violations. Develop GIS maps in plain form to ensure that compelling stories from these data sets are clearly portrayed and understood by diverse audiences.

Ms. Pollack concluded the integration session by summarizing four broad categories of tools the participants recommended for development in advance or as part of the healthy housing action plan. One, definitional tools should be designed to clearly communicate IPM and other specific components of the healthy housing agenda. The definitional tools could be created and disseminated in multiple formats, including codes, standards, Energy Star or other types of product labeling, and educational materials.

Two, informational tools should be designed to garner support and clearly articulate the importance of healthy housing to a variety of audiences, including homebuyers, high school students, renters, building

managers and public health agencies. Three, financial tools should be designed to leverage existing resources or propose new and innovative funding streams, such as renewable energy credits. Four, policy tools should be designed for effective implementation of healthy housing interventions at national, state and local levels.

Closing Session

Dr. Thomas Vernon, Jr., Chair of the NCHH Board of Directors, pointed out that the challenge at this time is for persons outside of the housing sector to broadly communicate the healthy housing message to a wider audience. He confirmed that the healthy housing agenda would be guided by seven C's: collective, collaborative, clarity of vision, competence, commitment, consistency and control.

Dr. Vernon reviewed key points that emerged during the Policy Summit of particular relevance to him. Strategies are needed to incorporate home environmental interventions into the healthcare system to ensure that cost-savings are equally shared between payers and persons who benefit. Approaches are needed to apply existing knowledge to actual practice. The banking industry, insurance sector, large employers, transportation sector and other groups need to be engaged in the healthy housing agenda to leverage opportunities on a much broader scale.

Housing has actual promise compared to other components of the prevention agenda. Mechanisms are needed to advance the healthy housing agenda despite limited resources in the field, such as the use of CHWs to overcome barriers to the nursing shortage. The co-benefits and health aspects of green building should be captured. Regulations and rules have a demonstrated track record of success and are still needed. For example, mandatory child seat restraints, bicycle helmets, smoking bans and immunization have made a tremendously positive impact on the health status of Americans.

Dr. Vernon emphasized NCHH's commitment to continue to partner with, follow, lead or convene the participants and other organizations to advance the healthy housing agenda. The participants joined Dr. Vernon in applauding Ms. Pollack for her outstanding facilitation of the Policy Summit.

Dr. Megan Sandel, Vice Chair of the AFHH Board of Directors, noted that a healthy, safe and affordable home is the best medical intervention for many of her patients. As a physician, however, she is unable to undertake this effort in isolation. Clinicians must extensively collaborate with the public health, housing, insurance, weatherization and other sectors to assure healthy and safe housing for their patients.

Dr. Sandel emphasized AFHH's commitment to continue to ensure the passage of Senator Reed's bill, the "Research, Housing Intervention and National Outreach for Healthier Homes Act." This legislation would play a key role in further building the healthy homes movement with the following activities: (1) evaluating the cost-effectiveness of interventions; (2) enhancing federal capacity and clearly defining roles for CDC, EPA and HUD in the healthy housing agenda; (3) providing workforce training to deliver healthy housing interventions; (4) strengthening national outreach to provide market-based incentives and build the capacity of communities; and (5) benchmarking progress in healthy housing over time. Dr. Sandel noted that a healthy housing media campaign should be launched to inform and empower persons and build coalitions on a broader scale. The participants joined Dr. Sandel in applauding Ms. Morley and Mr. MacRoy for their outstanding efforts in organizing the Policy Summit.