

National Conversation on Public Health and Chemical Exposures Community Conversation Results Summary¹

Introduction

The *National Conversation on Public Health and Chemical Exposures* is a collaborative project, supported by the Centers for Disease Control and Prevention (CDC) and the Agency for Toxic Substances and Disease Registry (ATSDR). The *National Conversation* vision is that chemicals are used and managed in ways that are safe and healthy for all people. The project's goal is to develop an action agenda with clear, achievable recommendations that can help government agencies and other organizations strengthen their efforts to protect the public from harmful chemical exposures. The *National Conversation* Leadership Council will author the action agenda, utilizing input from six project work groups and members of the public who choose to participate in web dialogues and community conversations. This report summarizes the input received by members of the public who participated in community conversations about public health and chemical exposure issues.

To support the community conversation process, CDC/ATSDR and the American Public Health Association developed a Community Conversation Toolkit.² During the summer of 2010, interested members of the public used this toolkit to convene 52 conversations in 24 states (see Figure 1), involving more than 1000 people.³ With support from CDC/ATSDR, the National Environmental Health Association provided mini-grants to offset the costs of convening 24 community conversations.

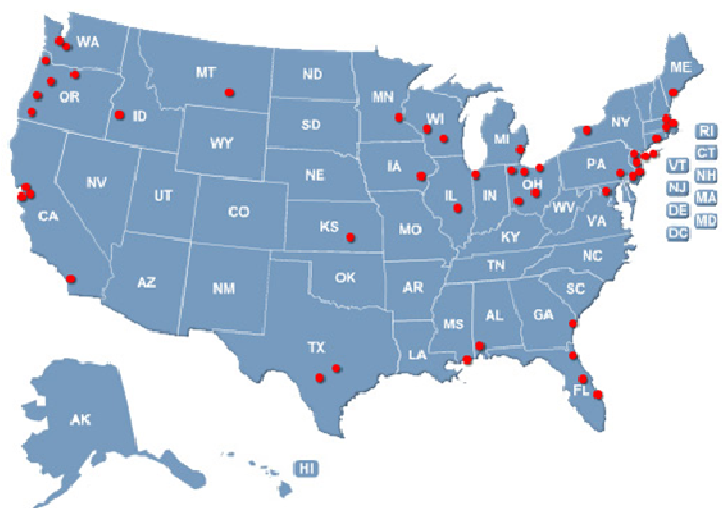


Figure 1. Community Conversation Locations

The Community Conversation Toolkit provided conveners with:

- Outreach tips to help recruit participants
- Instructions for hosting and guiding a community conversation
- A brief background paper on public health and chemical exposures
- A discussion guide to prompt conversations
- Instructions and materials for providing results to the *National Conversation* team

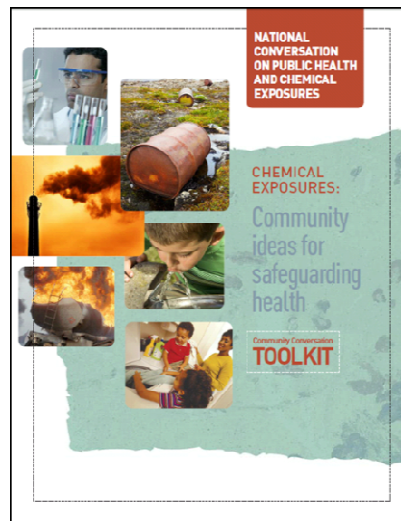
¹ **Disclaimer:** This document is a synthesis of information derived from unedited summaries submitted by third party conveners of Community Conversations. It does not include discussions of every idea or comment received, but rather is an attempt to capture the primary concepts expressed in the Conversations. To access the full Community Conversation summaries, please visit http://www.neha.org/pdf/national_conversation/Community_Conversation_Summary_Reports.pdf. The findings and conclusions in this document have not been formally disseminated by the Centers for Disease Control and Prevention and should not be construed to represent any agency determination or policy.

² The Community Conversation Toolkit is available at <http://www.atsdr.cdc.gov/nationalconversation/toolkit.html>. A Spanish language version is also available.

³ This map is available at: <http://www.atsdr.cdc.gov/nationalconversation/map.html>.

Each convener submitted a summary of their discussion.⁴ *National Conversation* staff reviewed these summaries for themes and common ideas, which are presented in this document.

Community conversations were convened by organized groups and interested individuals – including local governmental officials, educators, community advocates, health professionals, and concerned citizens. Conveners were asked to describe the group that participated in their conversation. Responses suggest that participants were diverse in terms of age, race and ethnicity, class, profession, and knowledge of the issues being discussed. Further, conversations were held in different geographic regions throughout the United States, and included urban, suburban, and rural settings. Several conversations were held by teleconference. The varied responses received from participants provide unique insights into many issues central to *National Conversation* work group and Leadership Council discussions.



Community
Conversations
Toolkit

Conveners' summary reports suggest that community conversations focused largely on five topics:

- **Concerns about personal health and safety**
- **Preventing exposures and ensuring accountability**
- **Environmental justice and community health hazards**
- **Building a knowledgeable public**
- **Research and monitoring**

Concerns about personal health and safety centered on consumer protection and the risks posed by exposures from everyday products like food and cosmetics. Participants noted opportunities for **preventing exposures and ensuring accountability** through government and industry actions, including chemical policy reform, capacity building, enhanced cross sector coordination and cooperation, and public engagement. Further, participants voiced concerns about **environmental justice and community health hazards**, noting that people of color and poor, immigrant, and other disadvantaged populations face an unequal burden of health risks associated with chemical exposures due to in part to unfair government and industry decision making processes. Participants suggested that **building a knowledgeable public** is necessary because people would make smart choices if they were provided accurate and understandable information about chemical exposure risks. Participants believed that better education entailed easily understandable, multilingual information from honest, unbiased sources aimed at informing all people, including people of color, the poor, and those with less formal education about chemical exposures and health. Finally, participants wanted **research and monitoring** that engages individuals and communities in better understanding their exposure levels and health risks, and leads to preventive, remedial, and clinical actions.

Each section below summarizes participants' input related to these five themes, and includes suggestions that participants provided for better protecting the public from harmful exposures.

⁴ Summaries of each Community Conversation are available at: http://www.neha.org/pdf/national_conversation/Community_Conversation_Summary_Reports.pdf.

Concerns about Personal Health and Safety

Ensuring that individuals are safe from harmful chemicals was a priority for community conversation participants. Participants stressed the importance of taking personal responsibility for making healthy decisions and controlling individual exposure risks. Participants sought to pursue safety in their homes and workplaces and to pay special attention to children. Participants' discussions related to individual safety focused on the following issues:

- Ensuring the safety of consumer goods
- Protecting at-risk populations
- Ensuring workplace safety

Consumer Goods

Community conversation participants expressed a sense of fear and worry regarding exposures to substances they encounter every day in their homes. For this reason, exposures from consumer goods, or materials made available for purchase and use by individuals, was the top individual safety concern explored during community conversations. While a variety of consumer goods was discussed, many concerns focused on (1) kitchen and food products and (2) personal care and cleaning products.

Kitchen and food products

Common concerns expressed during community conversations included chemicals leaching from plastic storage containers into food heated in microwaves, the presence of bisphenol-A in plastic bottles, and synthetic substances like Teflon and Styrofoam leaching chemicals into cooked foods. Additional concerns focused on the food itself, in particular the prevalence of genetically modified organisms in products, the advertising and selling of processed foods that contain potentially harmful chemicals and preservatives, the selling of pesticide-contaminated fruits and vegetables, and the treatment of animals used for food with antibiotics and hormones. Participants reflected a mix of fear at having little control over the chemicals present in the goods they purchase, outrage toward producers who do not alert consumers to health risks, and frustration with lax regulation and their inability to detect products' health risks via sight, smell or taste.

Personal care and cleaning products

Other concerns focused on cosmetics and cleaning products, with participants expressing incredulity that products intended to clean or beautify could have negative health effects. The three most mentioned products were laundry detergents, dish-washing soaps, and sanitation products like bleach. Participants noted that these types of products are often advertised as health-promoting, with no warnings about potentially harmful side effects or consideration of issues like multiple chemical exposures and chronic health risks of repeated exposures.

The most common response to fears about consumer goods was reducing exposure through personal actions, including purchasing organic food, drinking filtered water, reducing the use of plastics, and utilizing environmentally-friendly cleaning products. Many participants, however, noted acting on these solutions is not realistic for some people, due to lack of access and information. As one convener noted:

Participants would like to buy organic produce and natural cleaning and personal care products, but there is concern on the affordability... lots of time all of the choices are bad... many people live where they're not available.

In addition to lack of access due to cost and availability, imperfect information compromised participants' ability to support companies with good environmental practices and healthy products. Participants' inability to make informed decisions stems from lack of product labeling, unknown corporate and industrial practices, and unknown health effects of the products they buy. Participants further noted that healthy choices need to be convenient.

Participants noted the following solutions to concerns about consumer goods:

- Improve access to healthy goods through (1) reducing prices (subsidy systems were described in multiple cases), (2) giving stores incentives for carrying healthy goods, and (3) creating a standard for advertising cleaning products as healthy and environmentally-friendly.
- Provide unbiased, multilingual, and easy to understand information that will help consumers choose responsibly.
- Include a complete list of ingredients and the potential side effects of exposure to these ingredients on product labels.
- Improve access to information about companies' production methods (including chemical release and storage).
- Encourage convenience for consumers by substituting safer chemicals whenever possible.
- Provide greater funding to the Consumer Product Safety Commission to facilitate increased protection from harmful chemicals in consumer products.

At-Risk Populations

Many community participants noted that multiple groups face increased risks from chemical exposures, including children, pregnant women, the elderly, chemically sensitive individuals, and people whose cultural practices expose them at higher rates and levels. Several noted that children cannot be responsible for avoiding exposures, and expressed anger that they are often burdened with environmentally-related illnesses like asthma. Participants were also concerned with in utero exposures and developmental effects. Participants noted the difficulty of preventing harmful exposures to unborn children, as one noted "it's impossible to get away from these chemicals!" Finally, participants in several tribal communities voiced concerns about cultural activities that place their members in higher risk situations. For instance, some communities depend on local fisheries for survival and, consequently, experience high levels of heavy metals due to contaminated fish.

While participants stressed the need to prevent exposures, some also noted the importance of diagnosis and treatment. The perceived lack of doctors to diagnose chemical exposures was a problem echoed in several community conversation summaries, but most strongly expressed by the chemically sensitive community. Several community conversations in self-identified low-income people of color communities (Latino, Native American, and African American) noted that their exposure symptoms had been dismissed by doctors, with one summary stating that doctors classified their symptoms as "headaches or colds, ignoring the exposure to [various chemicals]."

Participants' suggestions for protecting at-risk populations included:

- Ensure that measures to reduce children’s chemical exposure risk are taken, including educating parents and schools on ways to limit chemical use and/or employ green chemicals; guaranteeing that consumer goods used by and in the presence of children are tested to ensure that products are safe for children; and building schools away from environmental health risks such as power plants, landfills, or highways.
- Consider “detoxification” programs for chemically sensitive populations, pregnant mothers and children, and work with doctors and medical schools to ensure they consider chemical sensitivity in at-risk populations as a serious health risk.

Workplace Safety

Community participants noted that workers who encounter chemicals daily are at-risk. While participants suggested that employers have responsibility for making the workplace safe, they noted that employees must cooperate with employers to protect themselves. They suggested that employees accomplish this by following available safety protocol and attending mandatory safety training. Employers’ responsibilities include offering training sessions in multiple languages, making sessions easily understandable and unbiased, and opening themselves up to receiving employee feedback if potentially dangerous exposures occur without imposing repercussions. One participant expressed a “feeling of helplessness in the workplace: fear of losing [my] job if [I] complained about chemical exposure.”

Participants offered several ideas for addressing chemical exposures in the workplace:

- Researchers need to determine permissible exposure limits that protect individuals.
- Employees should have access to easily understandable, multilingual exposure protection training and the most recent Material Safety Data Sheet information.
- Employers need to provide equipment proven to protect workers and also reduce or avoid the use of harmful chemicals in products.
- Individuals who have endured past exposure must be monitored regularly for potential health effects and those who have suffered illness from previous exposure should be provided medical compensation. Employers need to remove barriers to employees seeking justified compensation and provide such compensation more quickly.

Preventing Exposures and Ensuring Accountability

While participants stressed the need for individual action to avoid chemical exposures, they noted that the nation lacked a policy framework that provides adequate protections. As one summary noted, “There is the macro-- the big pollution we cannot protect ourselves against without government intervention, no matter how well we protect ourselves from the micro.” Participants desired reforms in governance and corporate practice, enhanced government capacity and coordination, and greater accountability on the part of polluters. They viewed public engagement and community empowerment as critical to developing an effective chemical policy system. Further they noted that economic health and human health should both be priorities.

Reforming Chemical Policies and Practices

Community conversation participants highlighted several ways in which government and industry actors could develop policies and implement practices that would protect people from harmful chemical exposures. Often, these suggestions were linked to participants’ perceptions

that the federal government was allowing business to function and prosper at the public's expense. One summary noted a "lack of will and a plan in government to protect [us] from chemical exposures." This section highlights concerns and suggestions related to:

- Accessing information and improving transparency
- Promoting safer products and processes
- Enhancing government capacity and coordination

Accessing information and improving transparency

Participants expressed frustration and concern with government and corporate policies that limited public access to information on chemical use. In particular, they expressed concerns about government and industry policies regarding trade secrets and confidential business information, desiring greater disclosure to support monitoring, research, and decision making. Participants called on businesses to implement "toxics 'Right to Know'" policies and provide full information to the public on the health and environmental hazards associated with chemicals they manufacture or utilize.

Promoting safer products and processes

While participants expressed genuine concern that changing business models could hurt profits, they wanted businesses to prevent products containing harmful chemicals from reaching the market and do more to provide safe, sustainable alternatives. In addition, participants who had experienced local contamination issues noted that this strategy would also reduce exposures among "fenceline" communities. Participants noted that "companies have not been in touch with what the public wants," and stressed that safer products would help build trust and also be mutually beneficial to the public and companies. Suggestions for promoting safer products included:

- Government agencies at all levels should work with chemical companies to incentivize and/or require the development and use of newer, safer alternatives in place of older and more hazardous chemicals.
- Government agencies should "lead by example" through procurement standards that favor safe products.
- The burden of proof regarding chemical toxicity should be shifted from the government to industry.

Enhancing government capacity and coordination

Several participants noted that greater investments should be made in government capacity to address chemical exposures and that government agencies should better coordinate their efforts to ensure consistent approaches across jurisdictions and levels. Participants outlined various policies that lacked consistency, including differing processes for "determining harmful levels of chemical substances." Of particular interest to some participants was building the capacity of local government agencies to respond adequately to chemical contamination concerns. Participants noted that local agencies are often underfunded and lack the technological, staff, and regulatory capacity to address local chemical exposure issues. Suggestions for enhancing governmental coordination and capacity included:

- Ensuring consistent messaging across all levels of government concerning toxic exposures.
- Distinguishing authority and jurisdiction between governmental agencies.
- Centralizing some tasks to facilitate efficiency.
- Forming task forces up, down, and across organizational lines and between and among organizations to develop integrated risk reduction strategies.

Ensuring Accountability When Prevention Fails

While all conversations called for prevention, they recognized that exposures would still happen and desired an accountability framework that would hold polluters responsible. Such a framework would utilize the legal system, strengthen government oversight of industry, and increase transparency and community empowerment.

Utilizing the legal system

Participants expressed anger and frustration relating to their attempts to rectify community contamination issues with corporations and government agencies. They complained that industry and government have left multiple communities with a polluted environment, worthless homes, damaged health, and few jobs. They desired these entities to take responsibility for the health and environmental consequences of spills, waste, and contamination caused by their operations. Many summaries suggested that corporations are able to maneuver the legal system so as to avoid liability, whether through the use of civil settlements, declaring bankruptcy, or utilizing political influence. Monetary settlements were cited as only addressing the immediate effects of chemical exposure, not compensating whole communities for the sum total of damage. Participants sought the federal government and the legal system to bring justice through multiple means, including:

- Ensuring that government regulatory agencies “hold industry violators criminally responsible” for pollution by exacting fines and preventing industries from “declaring bankruptcy or [crafting] secret settlements to avoid responsibility and public knowledge.”
- Re-examining the “least-harm” principle in environmental regulations in favor of a “most effective” principle in protecting citizens.
- Establishing relocation or renovation subsidies paid for by the responsible entity, including “free installation and maintenance of indoor air filtration systems.”

Strengthening government oversight

A common perception among participants was that “collusion between businesses and government compromises [the] integrity of public health and chemical exposure [information] reported to [the] public,” preventing justice and accountability in governmental decision making. Multiple participants expressed perceptions that agencies such as the Food and Drug Administration (FDA) and the Environmental Protection Agency (EPA) are ineffective and corrupt. For example, one commented that “EPA will announce before inspecting suspected problems, giving business enough time to fix it before the inspection.” Participants suggested the following solutions:

- Establish public financing of political campaigns, employ stricter conflict of interest laws, and further restrict favors and donations from businesses that are monitored or regulated.
- Ensure that “neutral scientists” staff regulatory bodies such as the Department of Agriculture, EPA, and FDA.

Increasing transparency, public participation, and community empowerment

Participants stressed the need for government, non-profits, and businesses to interact transparently in crafting chemical policy. Many participants want more citizen engagement, providing individuals and communities with easy access and meaningful roles to play in the policymaking process. They explained that government and industry actions to increase citizen engagement would help increase accountability and lead to the reduction of harmful exposures. One summary explained that “community outcries of chemical exposure are painted as emotional and irrational,” and for this reason government officials sometimes take short cuts,

avoiding real community involvement by engaging with select volunteers or community experts in local decision making. One conversation cited EPA workshops and community meetings as a success in remediating highly contaminated neighborhoods and educating individuals on what government is doing to protect individuals and how individuals can protect themselves.

Participants suggested the following ideas for engaging communities in policy making:

- Develop policies for promoting involvement of community members and high risk populations, including people of color, low-income communities, and special-needs communities.
- Increase funding for “tools and resources” that communities could utilize to empower themselves and improve policies and practices including funding through grants and partnerships between communities and government.
- Evaluate and apply lessons learned from past attempts (like those of EPA) to future community engagement efforts.
- Establish ombudsman positions in governmental agencies.

Environmental Justice and Community Health Hazards

Many community conversation participants expressed anger that communities of color and lower income often face unequal exposure and health burdens. Participants blamed government and private sector actors for leaving economically depressed and politically disempowered communities vulnerable to chemical hazards. Their desires centered on ensuring that industry and government practice social responsibility in decision making, increasing the level of trust and respect afforded to communities by government and industry, and promoting environmental justice by holding accountable those responsible for inequitable chemical exposures.

Participants sought to promote environmental justice and prevent unequal exposure in the future through dialogue with government and corporate actors. Community environmental justice and health hazard concerns fell largely into four categories:

- Proximity to undesirable land uses
- Exposure disparities in occupational and community settings
- Accountability and communication challenges
- Additional community-wide exposure concerns

Proximity to Undesirable Land Uses

Participants expressed many environmental justice concerns regarding proximity to industrial facilities, transportation networks, and waste disposal facilities. Participants expressed anger toward government and industry who they perceived to have intentionally sited hazardous land uses near low-income, people of color, and politically disempowered communities.

Participants expressed concern that communities located near industry face increased exposures and health impacts due to air, water, soil, and food contamination. Participants cited several types of facilities, including power plants, chemical manufacturers, processed food companies, and metal producers for damaging the health of local residents and ecosystems. Releases of heavy metals and industrial chemicals were of particular concern.

Participants noted that transportation systems often result in inequitable exposure. As was noted in one summary, “low-income people have to live in areas where rents are [lower] and these areas tend to be closer to busy urban freeways and interchanges.” Participants suggested

that proximity to transportation networks was related to increased exposure to chemicals and particulates in exhaust from air, road, and rail transportation fuels. Further, participants noted that these exposures have led to a range of health effects born unequally by disadvantaged communities. Health concerns included respiratory, neurological, and developmental effects, particularly among children.

Many conversations noted concerns over proximity to waste disposal sites, including landfills, illegal dumps, solid waste dumps, and industrial waste dumps. Participants described health concerns relating to exposures, including contaminated water and soil. Individuals also noted concerns about the “ugliness” of disposed items and areas, acrid smells from waste sites, and unsafe physical conditions that could result in puncture wounds, cuts and abrasions at or near sites.

Participants suggested the following solutions to concerns about proximity to undesirable land uses:

- Practice preventive policies by “incorporating environmental justice principles into...decision making” and “meaningfully engaging the citizens most affected by the project.”
- Change current health and risk assessment practices that are perceived as being discriminatory and inconsistently-applied across states and counties.
- Incentivize proper disposal practices through community disposal policies where government provides oversight of storage, use, and disposal of toxic and hazardous substances, taking a lifecycle perspective.
- Relocate industrial plants, reroute highways, close factories, and pay for past damage inflicted on environmental justice communities.

Exposure Disparities in Occupational and Community Settings

Additional environmental justice concerns targeted occupational justice, and disparities in exposure to contaminants in food, water, consumer goods, and household settings. Participants also described concerns with exposures in water, air, and soil.

Occupational justice

Many participants framed hazardous working conditions faced by certain people of color and lower-income workers as environmental justice concerns. Many concerns were aimed at specific occupations, the most common being farmers and farmworkers exposed to pesticides and domestic workers exposed to cleaning chemicals. Participants at several community conversations discussed concerns about the health of workers responding to the BP Oil Spill in the Gulf of Mexico. Multiple communities discussed violations of worker protection codes as an occupational injustice. Some participants described not receiving proper worksite training or protective equipment, which led to preventable exposures. They suggested that more educated and empowered groups of workers receive these protections.

Disparities in exposure to contaminants in food, water, consumer goods, and homes

Participants, especially those located in impoverished areas, suggested that inexpensive products that are accessible and affordable are more dangerous in terms of chemical contaminants than more expensive products. They noted that healthy food products, including organic foods with less chemical contamination, are often more expensive and less accessible to these same communities. Polluted drinking water was another concern, especially in rural areas without municipal water infrastructure. Summaries from conversations in several tribal communities described indoor air pollution concerns related to mold due to poor ventilation in

U.S. Department of Housing and Urban Development housing units. Solutions related to these issues included:

- Requiring insurance companies “to inspect manufacturers, ensure they are complying with regulations, and inspect for the safe use of chemicals. Companies who do not comply with the regulations and using chemicals safely should then have to pay more for insurance.”
- Preventing improper pesticide use by expanding EPA monitoring, training agricultural and landscape workers, and increasing the number of licensed pesticide applicators.
- Ensuring that individuals in close proximity to pesticide and fertilizer applications (including but not limited to farms, apartment complexes, and public housing projects) are notified about the types of chemicals being used before spraying and the time of application, and overhauling the Federal Insecticide, Fungicide, and Rodenticide Act to more effectively regulate amounts of allowable contaminants in soils and drinking water. This overhaul should include priorities for “no-spray zones” and protective buffers for freshwater and soil resources.
- Considering using food stamps for purchasing healthier foods and limiting their use for products with low nutritional value and high chemical burdens.

Promoting Justice through Accountability and Communication

Participants stressed the need to hold industry and government accountable for ensuring environmental justice and responsible for communicating effectively with potentially affected communities. Multiple participants were concerned that government did not always provide medical services to those affected by chemical exposures. While participants noted the need for more research to determine when exposures lead to adverse health outcomes, they asked industries to compensate individuals who are negatively impacted by products or local releases. Another participant demanded that companies not be allowed to declare bankruptcy as to “avoid responsibility and public information about damages,” and “be required by the federal government to pay for any damage to public health and the environmental [sic] instead of making taxpayers pay for it.” Participants suggested that addressing disparities in chemical exposure and health outcomes requires effective communication between government, industry, and other organizations and community residents. This issue is more fully addressed in the “building a knowledgeable public” section.

Other Community Exposure Concerns

Participants expressed concerns relating to environmental health risks associated with commonly shared resources like air, soil, and water. Participants noted that water contamination is a problem due to improper waste disposal by individuals, industries, and the military, and runoff from transportation networks and agricultural areas. These drinking water concerns spanned both urban communities on municipal water systems and rural communities utilizing groundwater sources. Participants mentioned contaminants of concern including industrial and military chemicals, petroleum, heavy metals, pharmaceuticals, and pesticides. Participants expressed confusion about water infrastructure and safety systems, and asked questions about how their tap water was cleaned, who established standards, and how the standards were determined.

Air pollution from transportation, industry, and power plants in particular presented additional areas of concern for participants. Transportation emissions (e.g., car and train exhaust) were a major concern. Participants also were concerned by airborne emissions of particulate matter.

Many of these concerns were expressed by those who said their community has experienced high rates of respiratory disease, especially children who suffer from asthma. Participants were also concerned about the cumulative impacts of toxicants in the air, and how to protect themselves from the synergistic effects of particulate matter and vaporized chemicals. Participants stressed the need for better, stronger government regulations to solve these issues.

Participants also expressed concern for the international community, noting that emissions often travel across borders and that U.S. regulations need to ensure that companies do not outsource chemical exposures to those in other countries.

Building a Knowledgeable Public

Community conversation participants noted that timely, relevant, and easily understandable information helps them make healthy decisions. Participants desired education and communication that is honest, inclusive of different communities and identities, and empowers communities. Participants wanted honesty from industries and government in particular about what is known and what is not known about what is in products. They stressed that efforts to communicate and educate should be inclusive of children and people of color, non-English speakers, individuals with little formal education, and individuals of low socio-economic status. Participants wanted these educational efforts to include the importance of protecting children and future generations. A small number of participants from non-English speaking households or those who had recently moved to the United States noted multilingual members of non-English speaking communities should take greater responsibility for sharing health information within their communities. Finally, participants suggested that knowledge-rich institutions (schools, media, government, and business) should help empower marginalized communities to make healthy decisions and be effective self-advocates.

Community conversation summaries highlighted these issues that related to educational needs:

- Promoting environmental health literacy
- Increasing trust in available information

Promoting Environmental Health Literacy

Community conversation participants suggested that educational efforts should aim to increase health literacy. Participants also addressed the key roles that federal and local health professionals and the scientific community play in educating and communicating with the public about chemical exposures and health.

Participants in several conversations suggested that communities would benefit from educational efforts aimed at increasing environmental health literacy. As one convener noted:

There was a general agreement among participants that lack of knowledge about and understanding of environmental health and safety issues made taking a firm stance on any aspect of the issue difficult at this time.

Participants desired tools to (1) help the public understand various health risks, (2) engage their interest in reducing their risks (through national, local, and personal action), and (3) offer additional resources for learning more.

Raising awareness

Some individuals explained that they participated in community conversations “because they had been previously exposed...and were not interested in the issue until they were in a situation of personal risk.” However many participants noted that this characteristic is not representative of their larger community, and suggested that addressing apathy among the public is essential for promoting healthy behaviors. Several participants suggested that interested organizations can engage the public by addressing people’s common motivations (including personal safety, convenience, and traditions) and realities (including priorities, daily concerns, and perceptions of health risks). With a reason to accept outreach, participants noted that they would “be vigilant about recognizing and identifying issues,” be more apt to “reach out to other potentially affected individuals” and participate in “wide-ranging conversations to raise...awareness.” However, participants noted that general education and outreach initiatives may be rejected by people who have experienced harm and are largely interested in restoring their health and remediating their surrounding environment.

Providing appropriate and understandable information and reaching vulnerable populations

Many participants suggested that available information is often too complicated or convoluted to be of use in community settings. This confusion, they felt, led to apathy in decisions, unnecessary exposure, irrational fears, and irritation towards new information. As one convener noted:

It is hard to find clear concise reliable information on what chemicals are safe to use and which may not be. Oftentimes, lack of information will result in consumers giving up on figuring out what is safe, and instead buying what is cheap or convenient... Make it easy to recognize if it is safe or not, [it] seems too difficult now.

Participants thought information would allow individuals to make smarter choices and form better habits, and promote government and industry accountability. In many cases, having clear information allowed communities to raise concerns about projects to local government and industry and have input into decisions that led to more favorable outcomes.

Participants noted that many current communication efforts often fail to reach at-risk populations and utilize content that is not easily understood by community members. Participants suggested that greater effort be placed on reaching people with different education and literacy levels, ethnicity, socio-economic status, race, and age, as well as those with physical or mental disabilities.

The roles of federal and local health professionals

Participants suggested that health professionals at federal agencies should play a major role in educating the public about the sources of chemical exposures and related risks. As one summary stated, “Government should ensure that there is ACCURATE public information as it relates to chemical exposures and resulting risks to public health.” Health professionals at the Centers for Disease Control and Prevention and other federal agencies were cited by participants as responsible for communicating with communities about environmental hazards, consumer goods that may pose a threat, and public services that could help reduce exposure risk.

Many summaries called upon local health officers to better utilize outreach tools to communicate focused and relevant research to affected communities, and to learn about local concerns about water, soil, and air contamination. An example would be informing communities in rural areas

during the growing season about what kinds of chemicals are being used on farms and where/when they are being applied, bringing together citizens and farmers to discuss solutions to exposure concerns. Participants in low-income communities emphasized the need for local government to provide easily understandable tools on proper disposal of chemicals, electronics, and medications to local businesses, government, and neighborhoods.

The role of health providers

Many conveners noted that health providers were not adequately prepared to address questions that members of the public have about chemical exposures and health though they are responsible for diagnosing and treating illnesses linked to chemical exposures. They also suggested that when scientific understanding advances, for example with research into chemical mixtures and multiple exposures, experts should reach out to doctors to help them redesign their diagnostic methods. Further, summaries from several largely people of color communities attributed doctors' "denying people's symptoms who become ill from chemical exposure" to inadequate medical education.

The role of scientists

Due to a lack of consensus in the scientific community over concerns like nanotechnology and remediation technologies, participants felt that the integration of new science and understanding into suggested actions and education materials is slow. As one conversation summary stated, "scientists do not have the capacity to test and learn while at the same time...educating the public and policymakers about the implications of what they learned."

Participants offered the following ideas for promoting education and access to information:

- Utilize case studies from across the country to design local best management practices regarding prevention and toxic exposure. Use these case studies to develop fact sheets for communities that explain why reducing exposures is important and outline ideas for doing so.
- Distribute information on chemical exposures in easily-accessible locations, for example on household bills.
- Perform outreach not only when a community has a confirmed public health hazard, but also when there are suspected health concerns, and provide opportunities for community members to give feedback.
- Create curricula that can be used in schools to ensure individuals understand chemical safety concerns and to distinguish between exposure issues that must be addressed on a societal scale and issues that individuals can act upon immediately in their purchasing and daily habits.
- Utilize various media (including television, internet, magazines, and distribution through schools) and methods (multilingual, large print, pictures, Braille, etc.) to reach diverse groups of individuals.
- Improve communication between scientists, health professionals, and doctors in order to understand possible health effects of chemical exposures, improve diagnoses, and plan treatment.

Increasing Trust in Available Information

While participants valued honest, accurate information about chemical exposures, many expressed a lack of faith in industry and government to provide it. One summary stated that "most of the information that is out there for the public is inaccurate or misleading (and the community does not have the tools to determine which sources are reliable)."

Participants suggested the following ways that the media, scientists and health professionals, government officials, policymakers, non-profit organizations, community organizers, businesses and individuals could bolster trust in available information through transparency, community empowerment, and media ethics:

- **Transparency:** Provide publicly the results of factory safety tests, ingredient lists for consumer goods, and information about contaminated areas; publish lists of companies whose products are environmentally-friendly and responsibly-produced to help communities avoid “green washed” products that are toxic but advertised as safe and environmentally-responsible; provide disclaimers about science produced and/or funded by industry; evaluate the quality of work done by industry scientists.
- **Community empowerment:** Provide community members with education on chemistry and health so they can interpret test results without government or industry aid. Participants called for non-profits and community activists to work on the community level by “going door-to-door to discuss environmental concerns,” and provide guidance on purchasing healthy products.
- **Media ethics:** Media should adopt an ethics clause and commit to not “promoting products and medicines that have been proven to harm public health or cause chemical injuries.”

Research and Monitoring

Many participants saw research and monitoring activities related to public health and chemical exposures as a way to change government and industry policy, influence personal action, and engage communities in health protection activities. However, others expressed concerns that government and industry were not doing enough to use research findings to take actions and limit harmful exposures. While some participants questioned the extent to which current research and monitoring practices benefit communities, many suggested that communities would benefit from a public health system that collected, analyzed, and utilized data for community outreach and prevention activities. Such a system, they noted, would help build stronger relationships between researchers, public health officials, and community members. Community conversations addressed the following research and monitoring issues:

- Research and monitoring needs
- Engaging communities in research
- Roles that government, independent scientists, and industry play

Research and Monitoring Needs

Participants noted needs relating to (1) research on the health effects of chemical exposures, (2) understanding children’s and workers’ exposures, (3) data on chemicals in homes and surrounding environments, and (4) funding.

Research on the health effects of chemical exposures

Participants expressed a strong desire for research that furthers our understanding of the health implications of chemical exposures. Concerns were often linked to the perceived increase in certain health conditions, including chronic, auto-immune, and neurological disorders. Many participants felt that current science underestimates the relationship between environmental factors and poor health conditions and utilizes faulty and incomplete methods.

Children's and workers' exposures

Participants noted specific research and monitoring needs related to children's and workers' exposures. They suggested that research be conducted to better understand growth and developmental effects of children's exposures to medicines, disinfectants, sunscreens, and insect repellents. They also noted occupational monitoring needs, including the need for employers to establish health surveillance programs in order to track disability and chronic illness in their workforce. Specific groups of concern were military personnel exposed to chemicals at bases, workers in the chemical and petroleum industries, and farm workers exposed to pesticides.

Data on chemicals in homes and surrounding environments

Participants noted concerns about the levels of chemical contamination and potential health effects in their homes and their surrounding environment (air, soil, and water). Several participants from self-described lower-income and immigrant communities implored researchers to determine what chemicals are present and at what levels in their homes. Participants also noted that more research and testing was needed to determine the safety of products utilized in building homes, including paints, bleaches, finishes, and other materials. Many participants shared the sense that environmental health research was needed outside the home to determine the types and amounts of chemicals that have or could contaminate local air, water, and soil.

Funding

In order to fulfill participants' suggested actions, multiple participants noted the need to increase funding and build the infrastructure for expanded research and monitoring efforts. Participants also suggested that the research community invest in developing new methods that would revolutionize chemical safety testing. Further, participants noted the need to fund studies that analyze the life-cycle of chemicals and their environmental persistence.

Conversation participants mentioned solutions to these research and monitoring needs, including:

- Use clinicians as allies in exposure tracking (especially for children and workers) and creating effective surveillance systems.
- Incorporate doctors in the "systematic collection of data on disease," to help better understand the health effects of chronic, acute, low level, and cumulative exposures on multiple segments of the population.
- Provide low-cost testing of home environments and known or suggested exposure sites.
- Monitor air contamination "real time on local, state, and national scales, and report any activity that could [affect] air quality to the general public."
- One convener suggested investing in Environmental Medical Units that "can facilitate both research and treatment" and act as a liaison between environmental public health specialists and environmental medicine practitioners.

Engaging Communities in Research

Participants noted that research and monitoring information is useful for communities because it allows them to pursue smarter and more informed decision making. In this way, participants viewed engaging community members in research as a strategy for health promotion and community empowerment. Participants recommended that researchers report personal exposure information (e.g., biomonitoring or other exposure assessment results) to study participants in an effort to "focus on exposures that relate directly to them" and take steps to live

more healthfully. Participants expressed that learning their exposure levels engaged their interest, and could inspire other people as well. Furthermore, multiple communities envision research and monitoring data as a part of the process leading to more informed legal and political decisions on toxic chemical exposures. Better data can lead to “greater accountability, proper standards and regulations, and policy change.”

Roles of Government, Scientists, Industry, and Media

Communities addressed the roles of multiple entities in meeting research and monitoring needs, including government, independent scientists, and industry. Multiple participants stated that the federal government needed to perform research that would help set exposure standards to prevent disease. This research to set exposure standards would involve an interagency, federal, state, and local regulatory process. Multiple participants requested, however, that monitoring and research involve “qualified impartial university-based researchers,” suggesting that government research could be undermined by financial limitations and industry interests. Participants noted multiple roles for industry, including monitoring the chemicals used at facilities, and researching health effects in local populations and environments. The need for increased research on safer alternatives was stressed in many conversations. One participant stated that when money is “set aside for research and development [of new chemicals, it] should also be set aside for risk reduction of current chemicals.”

Conclusion

Community conversations provided rich input into the *National Conversation* process, with interested members of the public convening 52 conversations across the country, involving more than 1000 people. There was diversity in where these conversations were held as well as in the participants themselves. Conversations were convened in urban, suburban, and rural communities, including tribal communities. Several conversations were held via teleconference. Participants were diverse in terms of age, race and ethnicity, class, profession, and knowledge about the issues being discussed. Community conversations were conducted in English, Spanish, and Korean.

Participants identified both concerns they had about chemical exposures as well as proposed solutions about how to better protect public health from chemical exposures. Participants’ concerns were largely focused on five topics: (1) concerns about personal health and safety, (2) preventing exposures and ensuring accountability, (3) environmental justice and community health hazards, (4) building a knowledgeable public, and (5) research and monitoring.

Input from the community conversations will be shared with the *National Conversation’s* Leadership Council as it develops its action agenda. This input will help inform the Leadership Council about the concerns people have about chemical exposures in communities across the country.