

Addressing Public Health and Chemical Exposures: An Action Agenda

Executive Summary

National Conversation on Public Health and Chemical Exposures

Leadership Council | June 2011



NOTE: This report was developed as part of the *National Conversation on Public Health and Chemical Exposures*. This was a voluntary, independent process involving multiple sectors, which was facilitated by RESOLVE, a neutral non-profit consensus building organization. This report reflects the consensus of the Leadership Council. Consensus is defined as each member being able to “live with” or abstains from the report taken as a whole, rather than as agreement with each recommendation. Members of the Leadership Council were asked to participate as individuals, rather than on behalf of their organizations or constituencies. Recommendations for action are directed to a wide range of public and private actors, who have full latitude to consider them through the appropriate decision making procedures for implementing changes within their organization. While participants were involved with their organization’s knowledge and provided important insights from that perspective about respective roles in addressing chemical exposures, individual membership on the Leadership Council does not constitute organizational endorsement of the recommendations. The Centers for Disease Control and Prevention’s National Center for Environmental Health and the Agency for Toxic Substances and Disease Registry provided funding for the facilitation, member travel, meetings, web dialogues, community conversations, and other costs associated with the *National Conversation*. This report does not necessarily reflect the views of the Centers for Disease Control and Prevention, the Agency for Toxic Substances and Disease Registry, RESOLVE, or other organizations involved in the *National Conversation*.

EXECUTIVE SUMMARY

People in the United States encounter thousands of different chemicals in their daily lives and have questions and concerns about how these chemicals may affect their health. Are the products I use every day safe? Are they safe for my children? What is in the air I breathe, water I drink, and food I eat? What accounts for the health problems I see in my community or in my workplace? Where can I go for information I can understand and trust? Despite decades of research and many notable public health protection achievements, there are still significant gaps in our understanding of chemicals and health, and the United States lacks a comprehensive system that fully protects the public's health from harmful chemical exposures. The recommendations described in this Action Agenda illustrate how we can enhance and continue to build such a system in the United States.

The *National Conversation on Public Health and Chemical Exposures* was born out of a widely shared desire to spur the United States toward the vision of using and managing chemicals in ways that are safe and healthy for all people. Many shared the perception that a broad, grass-roots "call to action" was needed. Achieving the *National Conversation* vision will require acting with common purpose to overcome many scientific, economic, political, and practical challenges. Collectively, we often fail to prevent health effects from chemical exposures before they occur. Although environmental justice concerns are well understood, we often fail to protect the most vulnerable populations who disproportionately suffer the health effects of some chemical exposures. Our scientific understanding of chemicals and their health effects is incomplete, although new toxicological testing methods offer promise. Public health officials and members of the public are sometimes unprepared to communicate and learn from each other as equal partners in efforts to understand the sources, pathways, and impacts of, chemical exposures and what is needed to protect health.

Addressing Public Health and Chemical Exposures: An Action Agenda calls for an increased emphasis on preventing harmful chemical exposures, reforming outdated and ineffective policies, promoting the health of children and other vulnerable populations, and improving our ability to make or engage in difficult decisions, often in the face of uncertainty. The Action Agenda also recommends improving data access and management, expanding systems for monitoring chemical exposures and health outcomes, and building scientific knowledge on many fronts, such as through faster evaluation of chemical hazards. Several recommendations highlight ways to build health professionals' capacity related to chemical exposures, enhance public education on chemicals and health, and improve communication among diverse parties. The Action Agenda also offers ideas for reducing harm from chemical emergencies. Acting on these recommendations will require many people and organizations to collaborate, innovate, and invest significant time, energy, and resources beginning now and into the future.

Authored by the *National Conversation* Leadership Council, the Action Agenda reflects the input of thousands of individuals bringing the experience and perspectives of communities, businesses, health professional groups, non-government organizations, academic institutions, and government agencies. The Leadership Council was privileged to learn from expert work group reports (which can be found at <http://www.nationalconversation.us>), health professional forums, and many members of the public who participated in the *National Conversation's* community conversations, web dialogues, and comment

opportunities.¹ Recommendations are organized in the following seven public health outcome-oriented chapters.

PROTECT PUBLIC HEALTH BY PREVENTING HARMFUL CHEMICAL EXPOSURES

Protection of public health traditionally emphasizes primary prevention, which is the elimination or reduction of the causes of health problems. The current lack of emphasis on primary prevention in U.S. chemicals policy creates missed opportunities to avoid harmful effects from chemical exposures. Instead, the U.S. approach to chemical exposures emphasizes minimizing the potential for exposure or harm (through early detection and control) or relies on treatment after harm has occurred. Preventing health problems before they occur requires a paradigm shift.

A more effective approach to preventing harmful chemical exposures would begin with using inherently safer chemicals, reforming the Toxic Substances Control Act (TSCA), and protecting children's health. Government and industry can and should support the substitution of hazardous chemicals with less toxic alternatives through multiple means, based on the principles of "green chemistry." Reform of TSCA should incorporate a preventive, partnership-based approach emphasizing alternatives assessment and encouraging industry action to provide essential health and safety information on all chemicals in commerce. The effects of chemical exposures on children and other vulnerable populations need greater policy attention, and interventions must protect such populations.

Standard scientific criteria and protocols also are needed for applying a common-sense, precautionary approach to decisions about chemicals and health that would promote the design and use of safer chemicals.² Other recommendations call for enhancing occupational health protections, ensuring industry compliance with existing laws, and improving federal risk assessments, in line with the the 2009 report of the National Research Council (NRC), *Science and Decisions: Advancing Risk Assessment*.

COLLECT AND USE INFORMATION ON CHEMICALS AND POPULATION HEALTH TO ENABLE EFFECTIVE PUBLIC HEALTH PROTECTION

The prevention and control of adverse health outcomes related to chemical exposures requires the ongoing collection, integration, analysis, and interpretation of data about chemicals, including their sources, uses, associated exposures, and potential health outcomes. Although many entities collect, analyze, and interpret data on presence and uses of chemicals in the United States, the nation's knowledge is partial, difficult to access, and minimally integrated. To protect public health, the United States needs to enhance information collection in at least four areas: chemical use and release, environmental concentrations, levels within humans and other species, and health outcomes.

¹ Each work group produced a detailed report with recommendations related to their topic. These reports are available at <http://www.nationalconversation.us>. Appendix 2 provides additional information on accessing work group reports. Appendix 3 provides a fuller description of the *National Conversation* process.

² The most widely-used definition of the precautionary approach comes from the Wingspread Statement on the Precautionary Principle, which states, "When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically." See <http://www.sehn.org/wing.html> for additional information.

Priorities for action are to improve health outcome data quality, quantity, and availability, expand the use of biomonitoring,³ and improve reporting of information on chemical source, use, discharge, and manufacturing volume. Health outcome data should be improved by oversampling vulnerable populations, expanding nationally reportable conditions to include those with environmental links, and standardizing and integrating data collection and interpretation through a single internet portal. A national state-based biomonitoring network is needed to provide better information on human exposures to chemicals in different parts of the United States. To improve reporting of information on chemical source, use, discharge, and manufacturing volume, the Action Agenda calls for enhancing the Toxics Release Inventory and increasing the frequency of the TSCA Inventory Update Reporting Rule. In addition, environmental public health tracking and state-based occupational health surveillance should be expanded and mechanisms established for nonfederal government officials and the public to provide input into national monitoring activities.

ACHIEVE A MORE COMPLETE SCIENTIFIC UNDERSTANDING OF CHEMICALS AND THEIR HEALTH EFFECTS

Protecting the public from harmful chemical exposures requires continuous improvement in knowledge and understanding of chemical toxicity, modes of action, sources of exposures, and potential adverse health effects. Despite significant research efforts to date, the United States continues to lack critical information in key areas including: 1) health effects of chemicals, including low-dose, multiple, and cumulative exposures; 2) individual susceptibility/intolerance including, but not limited to, the interplay between genes and environment; 3) community vulnerability and disproportionate effects from past exposures; and 4) effectiveness of interventions to protect public health.

Progress can be made by developing and using novel, validated analytical tools to more quickly evaluate chemical hazards, filling critical data gaps to prioritize chemicals for further assessment, and developing tools for characterizing chemical exposures across product life cycles and human life stages. Advances in chemical hazard testing, as suggested in the 2007 National Academy of Sciences' report *Toxicity Testing in the 21st Century*, are needed to support preventive decision making. Data gaps must be filled quickly to allow federal agencies to identify chemicals posing the greatest potential hazards. Additional exposure assessment protocols and tools should be developed to understand and predict when and where exposures occur along chemical product and process life cycles and across human life stages. Public health professionals in all sectors need better access to existing information across multiple databases, improved understanding of variations in individual susceptibility/intolerance to chemical exposures, and understanding of how gene-environment interactions relate to chemical exposures. Potential links between indoor air quality and fetal and human development should be evaluated, and better scientific methods should be developed for investigating the public health effects of exposures to toxic substances at the community level.

PROMOTE HEALTH AND WELLNESS IN VULNERABLE COMMUNITIES AFFECTED BY ENVIRONMENTAL CHEMICAL EXPOSURES

Although people expect a safe and healthy environment, many across the country live, work, and play in circumstances that are neither safe nor healthy. Those disproportionately exposed to and affected by

³ Biomonitoring is the measurement of chemicals or their metabolites in human samples (e.g. blood, urine, and tissues).

harmful chemicals are often from low-income communities, communities of color, and indigenous communities. Children, the elderly, those sensitive to or previously harmed by chemical exposures, and persons who are immune-compromised are among the special populations with particular vulnerabilities to the health effects of chemical exposures.

To promote health and wellness in communities and populations affected by environmental exposures, government at all levels must implement policies and practices that overcome environmental injustice and improve the resiliency, safety, and health of vulnerable communities. Immediate action should be taken to protect the health of disproportionately affected communities. Developing simplified cumulative risk assessment tools that allow for screening-level assessments can help identify disproportionately affected communities and inform the public. To enhance community health protection, the Agency for Toxic Substances and Disease Registry (ATSDR) should broaden the scope of the actions it takes and supports in communities. Changes are needed to better coordinate federal interagency chemical and health activities and to identify and define the characteristics of communities that make them more or less vulnerable to chemical exposures. Formal partnerships should be created between tribal groups and various agencies for health monitoring, tribal capacity building, and tribal access to state and federal data sources. Enhanced training for all relevant partners will support the success of community-engaged environmental health projects.

STRENGTHEN THE PUBLIC'S ABILITY TO PARTICIPATE EFFECTIVELY IN ENVIRONMENTAL HEALTH DECISION MAKING

The public is an essential partner in achieving the vision of using chemicals in ways that are safe and healthy for all. However, the public's ability to engage in environmental health decision-making processes can be limited by inadequate education and communication about chemical exposures. Government agencies often consider the public a passive target of information and disseminate the findings and conclusions of their investigations without providing members of the public with meaningful opportunities to participate in the process. Trust is a critical element in efforts to educate, communicate with, and engage the public about chemical exposures and health. A multidirectional exchange is needed to fully understand community concerns and context, as well as to identify community-based sources of critical information. Further, widespread scientific and environmental health illiteracy slows assimilation of the information people need to become informed and responsive community participants. In addition, some populations face language, health, economic, technological, and other barriers that limit their ability to engage in communication or education efforts.

Government agencies should develop and implement a multidirectional model for communication efforts concerning chemical exposures and health. Government and industry should improve public access to information on chemicals used or present in products throughout the supply chain. Environmental and occupational health educational opportunities for adults and children should be enhanced to build environmental health literacy. In addition, a comprehensive federal internet portal should be created through which the public can access information on chemicals and health. Public access to data also can be increased by balancing confidentiality and data quality concerns, providing study participants with the results of tests performed on them, and providing access to quality local studies on chemical exposures. Trust can be built in federal agencies' chemical exposure work by ensuring scientific integrity and creating ombudsman positions.

STRENGTHEN THE CAPACITY OF THE PUBLIC HEALTH AND HEALTH PROVIDER WORKFORCE TO ADDRESS THE NEEDS OF PEOPLE EXPOSED TO HARM FROM CHEMICALS

The public depends on healthcare providers and other health professionals to manage health effects of chemical exposures. Most healthcare providers have little, if any, formal training in environmental health or chemical exposures and thus are not prepared to address these issues effectively for their patients. In addition to clinicians, the nation relies on a large cadre of other health professionals, working in many sectors to help protect and promote the health of humans, animals, and the environment who also would benefit from similar training in environmental health in general and the health effects of chemical exposures in particular. Public health agencies often lack sufficient resources to build capacity in this area.

Environmental health should be better integrated into public health, medical, and nursing education. The nation should establish a model for career-long learning for health professionals and, by engaging the interest of students early, build a pipeline of future, well-trained public health professionals and health care providers. Further, increased opportunities should be developed to fill the ranks of environmental public health professionals from under-resourced and historically marginalized communities. The nation needs to endorse and support public health agency accreditation standards related to chemical exposures, develop clinical practice guidelines for diagnosing and addressing harmful chemical exposures, expand environmental health professional training opportunities, and support reimbursement for environmental healthcare services.

REDUCE HARM FROM CHEMICAL EMERGENCIES THROUGH PREVENTION, PLANNING, AND COORDINATION

A chemical emergency is any actual or imminent threat of a hazardous chemical release with potential to cause harm to people, plants, animals, property, or the environment. Chemical emergencies differ from other incidents and disasters in their high risk of secondary contamination, toxic effects, and potential to cause chemical poisoning of large numbers of people, including the people who respond to them. Although major improvements in chemical emergency response have been instituted since the events of September 11, 2001, the capacity of the existing system to respond to chemical emergencies is currently hampered by limited funding, inadequate coordination, deficient laws, insufficient communication, and lack of needed data.

Actions should be focused on supporting effective preparedness and response to chemical emergencies through prevention, planning, comprehensive training, and coordination. The nation's response capabilities would be improved by prioritizing hands-on, real-time training for local chemical emergency response professionals and core competency training for responders and receivers. Relevant response agencies should develop and use chemical exposure guidance values that better represent risks faced by responders and the public during emergencies. The federal government should identify an office or program to create consistency and avoid redundancy of information on chemical emergencies. In addition, the government should coordinate chemical emergencies better, assess and improve the healthcare response to hazardous chemical releases, and develop a toxicologic hazard-vulnerability assessment planning tool for local response. Finally, community partnerships should be required for projects receiving federal funding and ongoing training provided for emergency planners and responders.