

# Act with Foresight to Protect Health and Prevent Pollution

## Policy Paper #6 for the Louisville Charter

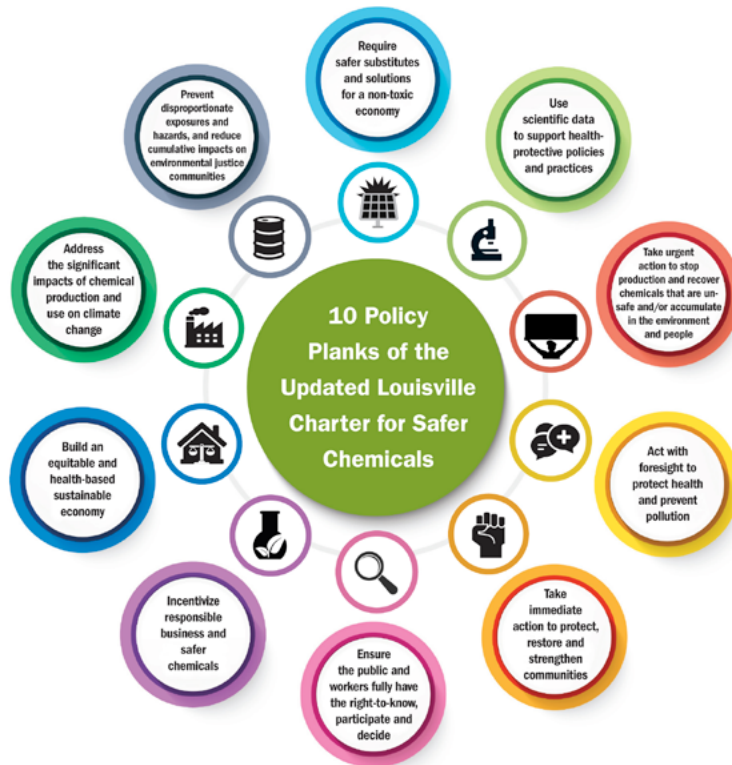
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# SUMMARY

**Chemical policies and practices in the United States – in both government and business - have failed to keep many hazardous chemicals out of widespread use, even after overwhelming evidence of exposure and harm is clear.** If examined at all, early signals of toxicity are often ignored or questioned. Against the urging of environmental health and justice organizations, under the 2016 amendments to the Toxic Substances Control Act it remains extremely difficult to restrict production, transportation and use of even the most harmful and most studied chemicals already in commerce.

In addition, new chemicals are commonly approved for commercial production without full independent safety testing, such as chemical-specific toxicity testing, which is not legally required in most instances. The U.S. Environmental Protection Agency (EPA) relies heavily on information submitted by the chemical manufacturers requesting approval of their products. Risk assessments conducted by the Agency for proposed new chemicals are primarily based on extrapolation from chemicals that are believed to be analogues, combined with modeling. Inevitably, some of the new chemicals that enter the marketplace based on this limited data turn out to be harmful to humans and the environment.

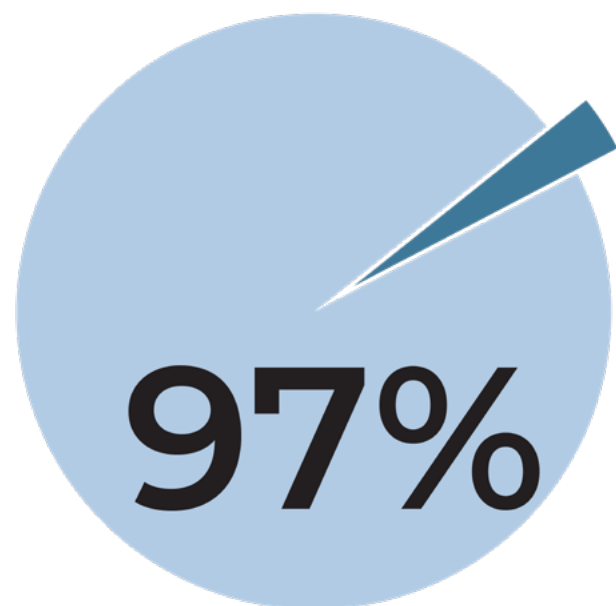
Louisville Charter for Safer Chemicals plank 6 - Act with Foresight to Protect Health and Prevent Pollution - calls for action to prevent harms.<sup>1</sup> The goal of this background paper is to identify criteria and considerations to guide the timing of protective actions that should be taken to safeguard communities, workers, and others from exposure to a chemical or class of chemicals before serious or irreversible harm has occurred. As the background paper for plank 4 of the Louisville Charter for Safer Chemicals (Use Scientific Data to Support Health-Protective Policies and Practices) notes, “we now understand that we have more than enough information on many types of hazardous chemicals to limit or eliminate their use now, and do not need the type of comprehensive data required for a risk assessment to take protective action.”<sup>2</sup>

**Chemical management policies and practices should be transformed at all levels to identify hazards proactively and require quick action to prevent exposures, when credible evidence shows that harm is likely to occur, even when information about the exact nature, scope or distribution of harm is incomplete.** New policies and practices are especially needed to protect communities and populations from ongoing harm due to multiple, cumulative, and disproportionate hazardous exposures.<sup>3</sup>

Regulatory agencies should have, or be linked to, programs that can detect / predict possible harm and entities that can report and develop responses to emerging problems. Most importantly, processes should not only be able to gather ‘sufficient information’ but also enable wise and timely decisions. This goes beyond data gathering and warning transmission to encompass decision making that explicitly addresses the needs of the groups and individuals most overburdened by pollution by varying the level of evidence required to take an action based on 1) the nature and distribution of the costs and impacts of being wrong, 2) the current necessity of the chemical in its application, or 3) availability of known safer alternatives.

# LEARNING FROM PAST FAILURES TO PREVENT HARM

Twenty-twenty hindsight shows the inadequacy of our efforts to detect and prevent harm from chemical exposures.<sup>4</sup> In case after case, long periods of time have elapsed between the emergence of the first credible scientific evidence of harm in people, wildlife, or ecosystems and the first action taken to address the problem. Lead, DDT, benzene, asbestos, and PCBs are some of the best-known examples historically. We are still learning about the true extent of exposures and harms caused by the widespread use of per- and polyfluorinated alkyl substances (PFAS) in various consumer products long after warnings were raised because of the known physico-chemical and toxic properties of many members of this class of chemicals. According to the National Health and Nutrition Examination Survey (NHANES), 97% of Americans have measurable levels of PFAS in their blood or urine, and in many people levels are above those known to cause harm.<sup>5</sup>



**of Americans have measurable levels of PFAS in their bodies.**

Source: National Institute of Environmental Health Sciences

Often, as concerns are raised, industries producing and selling products containing hazardous chemicals, and the chemical manufacturers themselves, work to manufacture doubt about the risks of harm, allowing these chemicals to remain on the market.<sup>6</sup> In some instances, chemical manufacturers conceal evidence of toxicity by claiming key information is “confidential business information” or otherwise failing to disclose evidence as required by law.<sup>7</sup>

In some cases, such as stratospheric ozone-layer damage from chlorofluorocarbons, scientific intelligence systems failed: harm was discovered late because we didn’t know what to look for, or we weren’t looking for harm at all. More often, however, the failures have come in interpreting and acting upon emerging information - not heeding early warnings and taking preventive, precautionary action.

Heeding early warnings and acting with foresight to prevent harm are foundational to what is known as the precautionary principle, derived from the German *Vorsorgeprinzip*.—or “foresight principle”. The precautionary principle is often described as follows: “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.”<sup>8</sup>

Contrary to some critiques, precautionary chemical policies need not stifle innovation. Rather, exercising foresight can stimulate aggressive development of or transition to safer alternatives. This approach guides the development of pharmaceuticals, for example, where early laboratory evidence of likely unintended adverse effects triggers a search for alternatives. This approach can help us get the benefits we seek from materials and products with less risk to human health and the environment. To prevent harm, chemical regulatory policies and activities should therefore include:

- Sufficient and timely measures to gather and evaluate evidence to determine if a chemical is likely to have harmful effects *before* it gains market access;
- Specific guidelines or standards for acting to prevent harm, including robust bio- and environmental-monitoring programs; and
- The development of systems that avoid reliance on toxic chemicals and drive the use of safer alternatives (including non-chemical alternatives).

Working from a **precautionary framework** shifts the focus of decision-making (and the questions asked by decision-makers) from uncertain risks, which are typically difficult to estimate, toward solutions that can provide a greater level of certainty and safety.

**Credible evidence indicating that a substance or class of substances is potentially hazardous, and therefore could cause harm with current or foreseeable exposures, constitutes an early warning that should be acted upon, despite unresolved scientific uncertainties.** Credible evidence that a substance or class of substances is potentially hazardous need not be based on comprehensive data. Rather, when data evaluation and integration show that a chemical or chemical class can cause biological changes that can result in harm, or if a poorly evaluated chemical is likely to result in human or

ecosystem exposures, action to prevent exposures should be taken. Acting on early warnings is justified based on the ethical need to prevent harm and suffering, as well as a recognition that establishing all-encompassing scientific proof of cause and effect relationships is often extraordinarily time and resource intensive. The action undertaken in the face of scientific uncertainty should be influenced by the nature of potential harm as well as its extent and distribution. Precautionary, preventive actions can be revisited as more data become available, potentially reducing scientific uncertainty.

## Acting On Early Warnings

Although toxic chemicals can cause varying kinds of harm, linking harmful outcomes in specific individuals or communities to specific chemicals that may have caused them is often complicated, and often impossible. Here are some reasons why:

- A long latency period may follow early manifestations of altered biological functioning before more obvious and conclusive evidence of harm emerges. For instance, some cancers have latency periods of up to several decades.
- The earliest manifestations of damage are sometimes not, in themselves, easily classified as harmful. For example, a chemical exposure may alter levels of hormones or other compounds in an organism. These changes may increase the risk of a variety of adverse effects, but the effects themselves can be non-specific and may not be easily linked to the original exposure.
- Manifestations of damage may lie within “normal variability” of individuals or populations. For example, individuals or populations may have reduced brain or reproductive function as the result of chemical exposures, although measures of their neurological or reproductive function may still lie within “normal” ranges.

- The manifestations of harm are often not unique to a single specific cause. For example, diet, lack of exercise, genetics, high blood pressure, exposure to air pollutants, some industrial chemicals, and cigarette smoking can all contribute to heart disease. These factors act alone and in many different combinations to increase risk. Individual or community-level social or economic variables, such as poverty or racism, can also make harm from environmental agents more likely, due to higher exposures or increased biologic susceptibility and diminished capacity to respond. Quantifying the contribution of any one of them to the ultimate risk of disease in an individual or population is filled with uncertainty. Regardless, concerns about health impacts connected to chemical exposures raised by communities of color, low-income communities, and Indigenous communities are often ignored by government agencies, and the communities themselves are often blamed for their own health problems due to “poor diet” or other factors. This practice needs to end.

A causal link between a chemical exposure and harmful outcome is generally considered to be established when the association is statistically significant, fairly consistently confirmed in well-designed studies, and when at least some of a number of other criteria that establish causation have been met (Bradford-Hill criteria).<sup>9</sup> When met, these criteria roughly translate into “beyond a reasonable doubt.” It is, however, often difficult to draw conclusions about cause and effect relationships in complex biological systems without acknowledging some degree of uncertainty. Factors that contribute to uncertainty include the following.

- Lack of data – This may be temporary and addressed by requiring additional health and safety data when missing, and using all available data, as recommended by the Louisville Charter for Safer Chemicals plank 4, “Use Scientific Data to Support Health-Protective Policies and Practices.”
- System complexity – Interacting variables, cumulative impacts, delayed effects, or the difficulty of extrapolating from controlled conditions to real-world conditions. Uncertainties arising from these complexities may be reducible, but reaching certainty about causal relationships can be increasingly difficult.
- Ignorance – We often do not know how much we do not know, or even what questions to ask, especially where novel and emerging technologies are concerned. Novelty itself must be considered a potential risk factor, because harmful effects or unexpected exposures resulting from new technologies may not be detected or predicted by tests developed for older technologies. Emerging technologies require special scrutiny, both pre-market and post-market, including surveillance for early warnings of hazards, exposures, and harms.
- Controversies and conflicts influence scientific opinion and investigations, for example:
  - Conflicting values, especially regarding what constitutes harm or an adverse effect;
  - Conflicts of interest that influence scientific study design and data interpretation;
  - Economic pressures within the scientific community;
  - Economic and political pressures from industry to discourage health and environmental investigations or protective actions.

## Identifying “Credible Evidence” for Protective Action

Sources of evidence of toxicity, exposure and harm are numerous. They vary from unverified suspicions of an association between an exposure and harm, to anecdotal evidence, to case studies, to experimental *in vitro* (experiments or tests done outside of a living organism) or *in vivo* (experiments or tests done in a living organism) evidence, to well-designed epidemiologic studies.

Despite the challenges posed by scientific uncertainty, we know enough to act when we have credible evidence that harm is occurring, or likely to occur, as a result of chemical exposures. See the background policy paper for Louisville Charter plank 4, Use Scientific Data to Support Health-Protective Policies and Practices, for a full discussion of how available scientific evidence should be used to advance health protections. Credible evidence that may link a chemical exposure to harm sufficient to trigger protective or preventive action includes any or some combination of the following:

- Independent scientific evidence of harm to human health or ecosystems;
- Emerging scientific evidence of harm to human health or ecosystems;
- Verifiable evidence of changes in exposed organisms or validated *in vitro* systems likely to lead to harmful outcomes, such as damage to DNA or adversely-altered physiological or cellular functions;
- Evidence of adverse impacts observed in comprehensive or partial toxicity testing, including *in vitro* or *in vivo* studies;

- Extrapolation from chemicals with known toxicity to similar but poorly studied chemicals in the same class, based on structural-activity relationships or other defined class boundaries (see policy paper for Louisville Charter plank 4 for more on this topic);
- Observations from health, environmental, or wildlife monitoring of exposures and health status;
- Epidemiological evidence;
- Health surveys or verifiable observations of and by workers;
- Observations by medical personnel;
- Observations, experience, or community health surveys by people living near industrial facilities, waste sites, or other sources of contamination;
- Predictive models based on empirical data;
- Some New Approach Methods (NAMs), also discussed in the Policy Paper for plank 4.

The duty to consider all relevant information from multiple sources is a fundamental principle of good science. The best scientists keep their minds open to all relevant information, including factors that lie outside the scope of their investigations. Yet, when science is translated to policy, this aspect of scientific learning is often forgotten or ignored. Too often, policy makers have limited the data they examine to industry-sponsored “guideline studies” conducted for the purpose of gaining regulatory product approval while disregarding non-industry studies and other credible research findings. Or they look to science for conclusive “proof” without considering the skepticism and uncertainty embedded in science itself - the hesitancy to draw hard and fast conclusions - and respond with calls for endless research (a process encouraged by the chemical industry).<sup>10</sup>

**People who are not technical experts, especially people living in communities disproportionately affected by chemical contamination and workers exposed to hazardous chemicals - such as chemical manufacturing workers and farmworkers - may have an even keener sense than other experts do of what kinds of evidence of harm must be considered, and they can provide critical information.**

Community and worker validation of evidence and conclusions about their exposures and experiences is an essential component of understanding and addressing chemical hazards.<sup>11</sup>

While increasing our understanding of complex biological systems, in the absence of complete understanding we must do what we can to protect the integrity of such systems, including people with differing susceptibility to adverse impacts of chemical exposures. We must keep alert to the political and social influences on our knowledge, the limits of that knowledge, and the potential costs, including the human health costs, of transgressing those limits.

As noted elsewhere, Louisville Charter Policy Paper #4: Use Scientific Data to Support Health-Protective Policies and Practices, explains how existing knowledge, data, and methods can and should be used to address exposures and harms occurring now. And Policy Paper #5: Take Urgent Action to Stop Production and Recover Chemicals that are Unsafe and/or Accumulate in the Environment and People, explains why and how chemicals that present immediate threats based on their characteristics should be aggressively restricted.

## When do we know enough to act?

Preventive, protective measures require acting on early evidence, while being open to gathering more data if necessary to make a more informed decision. The sources and kinds of evidence listed above differ considerably. As a result, the weight of evidence underlying a suspicion or claim of a causal relationship between a chemical exposure and harm can vary considerably.

Two minimal conditions that establish a threshold for taking some kind of protective action are:

- 1. Credible** evidence that a chemical can cause biological changes that are known to result in harmful outcomes. That is, the chemical has at least some hazardous property or is similar to a chemical known to have that property. (See Louisville Charter Policy Paper #4)
- 2. Exposures** to that chemical are known or could plausibly occur in workers, consumers or communities directly or indirectly through purposeful or unplanned releases.

The protective, preventive action indicated when these conditions are met will be context specific but should be transparent and protective of the most susceptible individuals, populations, or communities.

Choices along a spectrum of actions that could be undertaken with varying weights of evidence might include exposure mitigation, a requirement for more safety data, exposure monitoring, limited chemical uses, necessity evaluation, alternatives assessment, or outright bans. Early but unvalidated evidence of harm should at least trigger exposure mitigation

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while more evidence is required and collected. Preventive, protective action means “acting” on early evidence, while being open to gathering more evidence if necessary to make a more informed decision.

The best way to protect people and ecosystems from the impacts of hazardous chemical exposures is through chemical policies that:

- 1. Require** at least a minimum set of verifiable hazard data before chemicals are approved for production and use;
- 2. Eliminate** or limit the production, transport, storage, release, and use of all biologically active chemicals, as well as chemicals that are flammable, explosive, or could otherwise cause destruction of life and property; and
- 3. Because** it is impossible to predict all toxic properties of chemical substances, give priority to the health and well-being of humans and the environment by monitoring exposures and health effects in the real world even after a full hazard-testing regime is in place.

# ACTING WITH FORESIGHT: PUTTING THESE PRINCIPLES INTO PRACTICE

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As noted at the beginning of this paper, public policies and corporate practices have completely failed to keep harmful chemicals out of widespread use, and have failed to stop widespread exposures and use of toxic chemicals even as overwhelming evidence of harm has accumulated. The U.S. EPA has often approved 500 to 1,000 or more new chemicals each year, most often without using its existing legal authority to require adequate testing.<sup>12</sup> Many of these chemicals are structurally almost identical to known harmful chemicals. EPA has also failed to use its legal authority to restrict chemicals, even once they are proven to cause harm. Instead, we need policies and practices that *require* action to protect health and the environment when there is credible evidence of harm (as described above and in the background policy paper for Louisville Charter plank 4); that prioritize the development of safer substitutes and solutions that support a non-toxic economy (see Louisville Charter plank 3); and that implement rapid action to stop production of chemicals that are unsafe and/or accumulate in the environment and people (see Louisville Charter plank 5).

We can act to recognize and prevent harm from chemicals through a wide variety of measures, some of which are described below and many of which are described in other parts of the Louisville Charter for Safer Chemicals and other background policy papers.

The policies and actions described in the recommendation sections below complement the recommendations in those other background papers, but apply especially to:

- Gathering early warnings of harm;
- Taking protective action based on credible evidence that demonstrates a likelihood of harm even when data are not comprehensive; and
- Bridging the gap between the present and future. Many of the principles and actions described here may be implemented immediately to prevent harm now, and also serve as a bridge to a chemical regime based on comprehensive safety testing and inherently safer technologies.

# RECOMMENDATIONS:

## Create and Strengthen Health and Environmental Programs to Detect and Predict Possible Harm

- **Require credible, independent, verifiable scientific hazard data for all chemicals. Use all existing scientific data to identify potential hazards justifying early action as the most important system to detect and predict possible harm. (See Louisville Charter background paper #4 for a full discussion of how existing data should be used in this way.)**
- **Expand and Strengthen State and Federal Health Monitoring Programs.**

Public and occupational health agencies at the state and local levels should systematically broaden the scope of programs designed to monitor exposures to biologically active chemicals used in products as well as manufacturing and disposal processes. In the period before full hazard testing, these agencies must also be alert for the presence of any inadequately evaluated chemicals. Environmental health experts should establish monitoring best practices and encourage state and local agencies to conduct monitoring in a consistent manner, with public input and annual reports available to the public. Note that these tasks could have been taken up by the U.S. Centers for Disease Control and Prevention (CDC) and the National Institute of Occupational Safety and Health (NIOSH), but at the time of writing those and other federal health and safety agencies are suffering severe budget cuts and staff losses, resulting in a halt to critical government-funded programs that served the public good.

State and local governments should support expanded environmental monitoring programs to include a broader range of chemicals that are being released inadvertently or purposely into air, water,

and soil that could result in unintended exposures in humans or wildlife. This will be particularly important in fenceline, downstream, and environmental justice communities whose members can be disproportionately exposed and affected. As above, we note that federal agencies that would have been most likely to support this necessary work - such as the U.S. Geological Survey (USGS) and the U.S. EPA have suffered budget cuts and lost much of the scientific and technical expert staff that served these important functions.

Biomonitoring should be expanded to include breast milk, infant meconium, cord blood, or other appropriate biological tests depending on the physicochemical properties of the substance(s) of interest. The goal of biomonitoring is to identify the nature and degree of exposures at various life stages and in various communities. Pilot testing will help determine what the size, scope and direction of ongoing monitoring programs should be. Biomonitoring results should be conveyed to participants using validated, ethical reporting methods.<sup>13</sup>

Breastfeeding advocates and community members should participate in monitoring breast milk and infant meconium or cord blood. When breast milk is tested, support systems and information on the health benefits of breastfeeding over formula feeding should be offered to women who are tested and to low-income communities where breastfeeding rates may be below the national average.

Health effects, disease, and disability tracking can be pursued separately from exposure monitoring. Examples include environmental health tracking, state-wide cancer and birth defect registries, community-focused epidemiology, and community health surveys.

Data from federal, state, and local investigations should be readily available in user-friendly formats. Exposure monitoring data should be systematically

integrated with health effects data in order to identify potential correlations early and to trigger follow up investigations. Findings of credible evidence of harm should be reported immediately to appropriate Early Warning Committees or other authorities for action (see number 3 below). Advisory Committees need to be established, where they are not already in place, to provide public input to federal and state agencies conducting such monitoring programs.

- **Establish Early Warning Committees.**

Ideally, every state could have an Early Warning Committee of health, environmental, and wildlife experts. Committees could include county and state environmental and health department staff; representatives of community, environmental, health, and occupational safety & health organizations; representatives from fenceline and environmental justice communities; and health practitioners experienced in environmental health issues. The primary purpose of Early Warning Committees is to collect and analyze relevant statewide and more granular data to identify bio- and environmental-monitoring trends as well as health-related trends that could provide an early warning of increasing levels of known or potentially hazardous substances and potential links to adverse effects, indicating a need for investigation and appropriate preventive action, including transition to safer alternatives. This is particularly important when a hazardous chemical or its metabolite(s) is found in the biomonitoring population at concerning levels. All biomonitoring results should be regularly and publicly disclosed with appropriate safeguards to protect personal privacy.

A multi-state task force could be established with its primary purpose to collect and analyze bio- and environmental-monitoring data from various states and regions to inform programmatic work within and across the agencies, within their statutory authority. It would also highlight the need for taking cumulative exposures into account when a chemical substance is used for various purposes that fall under the regulatory authority of different agencies and statutes. (See also #4 below.)

The state Early Warning Committees would ideally serve as channels both for reporting emerging problems and acting upon them. The committees would report immediately to the national interagency Early Warning Task Force any troubling health or environmental monitoring trends or credible evidence of harm that may be resulting from chemical exposures. The reports and subsequent action recommendations of these state committees would be the authoritative trigger for timely health-protective action by the appropriate state and federal agencies and/or industry. The national interagency Task Force could encourage consistent action to be taken to address similar problems in different regions.

- **Expand & Strengthen State and Federal Environmental and Fish & Wildlife Monitoring Programs.**

Environmental agencies at the state and local levels should broaden the scope of monitoring fish, wildlife, and environmental contamination of air, soil, and water (groundwater and drinking water, including private wells) to:

- Include more robust and regular air monitoring of chemicals from nearby industries in fenceline communities and where subsistence fishing and hunting is common, with results publicly available;
- More promptly identify chemicals on the Safe Drinking Water Candidate list that should be regulated and establish regulatory limits expeditiously;<sup>14</sup> and
- In the period before full safety testing, be alert for the presence of any novel or untested chemicals.

Government agencies should establish monitoring standards and ensure that all agencies are conducting monitoring in a consistent manner, with public input and annual reports available to the public. These agencies should issue a comprehensive annual

report summarizing monitoring data from federal, state, and local investigations. Upward trends or identification of novel chemicals should be reported immediately to the Early Warning Committee for action. Advisory Committees need to be established, where they are not already in place, to provide public input to federal and state agencies conducting such monitoring programs.

- **Redirect the Public Interest Research Agenda.**

While scientific research has produced beneficial advances of many kinds, failure to give appropriate attention to preventing consequences of the complex interactions of multiple chemical exposures and other health factors has resulted in untold, unintended harm to people, fish, wildlife and the environment. Moreover, this harm has large and growing economic impacts on health care costs and environmental remediation, while efforts aimed at primary prevention are more likely to maximize the value of expended resources.<sup>15</sup> In the twenty-first century it is no longer appropriate for science and technology to continue to produce innovations in a vacuum of knowledge about such consequences.

Public funding, therefore, must shift significant resources to science investigating complex biological systems and relationships; broad, long-range effects in biological systems; factors that promote public health and a healthy environment; and inherently safer technologies and practices that take into account cumulative exposures and environmental injustices. Community-based, participatory research has demonstrated utility in addressing this complexity and should be prioritized with public funding. Publicly-funded research should be required to be published in open-access journals.

These steps should be prioritized by the president, governors of states, and federal and state legislatures. Research advisory committees with broad representation should be formed in every institution where such committees do not already exist at the federal and state level.

## Consider Clusters of Health Problems to Be Early Warnings

The impacted public should not have to prove harm before protective action is taken when:

- any biological or environmental monitoring shows, in a specific population or location, elevated, excessive levels of hazardous substances including synthetic chemicals or pollutants; or
- apparently higher incidence of unusual cancers, birth defects, poisonings, or other diseases or disorders appear in a population.

In addition to ongoing and established disease surveillance programs, lay and local knowledge can be useful and should be encouraged to identify disease clusters when they arise. The question should not be whether a cluster of elevated body burdens or unusual diseases is statistically significant before action is taken. Rather, the question should be whether any of the occurrences might be preventable by taking action. With the appearance of clusters, both the public and private sector must act immediately to reduce exposures that are plausibly contributing to the greatest extent possible.

The background paper for Louisville Charter plank 4 provides guidance on how existing scientific data can and should be used to enact and implement health-protective policies and practices to reduce and eliminate toxic exposures.

## Listen to Affected Workers and Communities

The first warnings of danger and harm usually come from those who work with or around harmful chemicals (including chemical manufacturing workers and farmworkers), from family members who are indirectly exposed (such as by chemicals brought home on work clothing or tools), or from community members who live, work, or attend school or religious services near polluting facilities or industries (such as neighborhoods at the fence-line of facilities that make, store, or use hazardous chemicals; or schools, homes, or businesses near agricultural fields where toxic pesticides are sprayed).

Governments at all levels should provide easily accessed and anonymous systems for workers and community members to report possible chemical exposures and related health concerns. Worker and community reports, especially in significant numbers or clusters, must be considered as an early warning and as evidence of potential harm, which should trigger investigation and action. Workers of all types (including farmworkers) should be fully educated about chemicals they may be exposed to and about their rights, and given “stop work” authority to prevent exposures and disasters.<sup>16</sup>

## Open Toxic Tort Records

Too often, important information about toxic chemicals and health effects has been sealed in protective orders issued by courts in specific cases. In exchange for a generous settlement, plaintiffs and their attorneys may agree to keep secret information that is detrimental to a defendant. But this secrecy means the offenses may be repeated and other victims may suffer in apparent isolation. In order to protect the public, court records, including

settlements, should be opened for all toxic tort cases (with personally identifying information redacted to protect individual privacy).

## Take Immediate Action when Credible Evidence of Harm Is Found

When credible evidence shows that a chemical is biologically active and can cause harm in people, fish and wildlife, or the soil, air, and water, or harm the climate, timely action should be taken to prevent harm. Such action may include, but is not limited to:

- Widespread distribution of a public health or environmental warning (such as easily understandable labels where possible) advising people to avoid or limit exposure and explaining how; and
- Steps to prevent, eliminate, limit or mitigate exposure, such as:
  - Restrict potentially unsafe uses;
  - Begin aggressive environmental and biomonitoring to document that mitigation measures are effective;
  - Quickly transition to safer alternatives;
  - End manufacture and use of the hazardous chemical, technology, or practice;
  - Provide healthcare consultations and assistance for people who have been exposed;
  - Fully clean up any contaminated soil or water;
  - Address similar chemicals with presumed similar properties as a class.

Specific policy and practice recommendations to implement this approach to preventing harm based on early warnings can be found in other Louisville Charter policy papers, and in a wide variety of reports, briefs, and model policies.

## On the State and Local Level: Supporting Communities to Take Action

Although there are opportunities for progress on the national level, many communities have made a strategic choice to focus their efforts on state and local change. Work at these levels is less dependent on the politics of the current White House or Congress, can be more grounded in community experience, and can lead to more direct accountability from local and state elected officials and polluting industries.

Over the past twenty-five years, public policy elements that allow - or require - federal, state, or local authorities to consider and act on early warnings have been included in many local and state laws and regulations. The chemical and fossil fuel industries, and their allies, have consistently opposed these policies and provisions, and defended existing - failed - approaches to chemical assessment and regulation.

Following the rise in international attention to the precautionary principle in the 1990s, several U.S. communities incorporated the principle specifically into local law in order to provide explicit authority to act on early warnings. The cities and counties of San Francisco, Berkeley, and Marin County CA; Portland OR; Seattle WA; and Buffalo, NY all passed precautionary principle laws or ordinances.<sup>17</sup> In San Francisco, for example, city purchasing of goods and services is guided by precaution. Local policy requires assessments and selection of alternatives

that present the least potential threat to human health and the city's natural systems. The ordinance recognizes that public participation and an open and transparent decision-making process are critical to finding and selecting alternatives.<sup>18</sup>

For decades, communities have acted with foresight to heed early warnings if laws and regulations are not protecting people and the environment. Many communities have prevented harm and stopped exposures to toxic chemicals and radioactive substances from hazardous technologies and practices through local organizing and campaigning, despite gaps in federal or state protective policies and enforcement. Grassroots groups have shut down or halted the siting of numerous medical, solid, and hazardous waste incinerators; and hazardous and radioactive waste landfills.<sup>19</sup> In other cases, community organizing has blocked new or expanded polluting facilities.<sup>20</sup>

When both federal and state action have been lacking even when robust evidence has established harm, cities and counties have adopted policies to protect health and the environment by acting with foresight to prevent harm. Some localities have adopted, or are developing, policies to address the cumulative impact of multiple sources of pollution and toxic hazards as a measure to prevent additional harm. For example, the Newark, NJ "Environmental Justice & Cumulative Impacts Ordinance" requires developers proposing facilities that could add to pollution burdens to submit impact assessments, which can influence permitting decisions.<sup>21</sup> Many towns and cities have adopted local policies to protect people and the environment from toxic pesticides.<sup>22</sup>

More policies and programs that support community involvement in taking local precautionary action are also needed. For instance, technical assistance grants, meaningful community participation plans, and Advisory Committees that truly represent impacted communities are needed at every level

of government. Non-profit groups can provide resources and model policies, share successful strategies, offer guidance on fundraising, and otherwise support an expansion of community-based precautionary actions around the country.

States are also acting to prevent harm. In the absence of meaningful federal safety testing and regulation of chemicals, many states have adopted precaution-based laws to identify and restrict “chemicals of concern” and encourage or require “safe substitution” (to avoid replacing harmful chemicals with equally harmful or untested chemicals). These include laws passed in Maine, Minnesota, New York, Oregon, Washington, and Vermont.<sup>23</sup> These state laws generally use a hazard-based approach, focusing on identifying chemicals with inherent hazardous properties and driving replacement with safer chemicals, rather than assuming that there must be an “acceptable” level of harm. Some states restrict entire classes of chemicals (as recommended in Louisville Charter plank 4) to avoid substitution with a structurally similar (and therefore definitely or likely hazardous) chemical.

Some states have adopted or proposed statewide programs to prevent additional toxic exposures being added to already overburdened communities. For example, New Jersey’s 2020 Environmental Justice law requires the state agency “to evaluate the environmental and public health impacts of certain facilities on overburdened communities and issue decisions on those facilities’ permit applications.”<sup>24</sup> Permits for polluting facilities should be denied if they would add to already high cumulative environmental and health burdens.<sup>25</sup> This law, and the Newark local ordinance, are among the nation’s strongest policies addressing cumulative impacts on EJ communities (see Louisville Charter plank 2 for more details). These, and other, policies to address cumulative impacts are good examples of acting on existing hazards to prevent more harm in the future.<sup>26</sup>

## Conclusion

Government policies, and scientific and regulatory processes, have too often been paralyzed by confusion and doubt manufactured by the industries that profit from toxic chemicals, and by an insistence on comprehensive data, including full documentation of every cause and effect relationship, before action can be taken - even when overwhelming evidence of harm already exists.<sup>27</sup> In this broken model, toxic industries continue to profit, and workers, communities, the environment, and the climate continue to suffer. The corporate attack on public health is so well-accepted that it has a name, the “Commercial Determinants of Health” (CoDH), and programs to try to address private sector impacts on health exist in universities and even at the World Health Organization.<sup>28</sup>

Plank 6 of the Louisville Charter for Safer Chemicals calls for acting with foresight and taking protective action to prevent harm based on credible evidence that provides early warnings of harm, even when comprehensive evidence is not yet available, or the exact mechanisms of harm are not yet fully understood. Similarly, plank 4 of the Charter calls for use of existing scientific data to establish health-protective policies and practices, while plank 2 calls for preventing disproportionate exposures and addressing cumulative impacts, and plank 7 calls for immediate action to protect exposed workers and communities.

Taken together, these planks, and the Charter as a whole, demand a chemical management system that prioritizes the health of people and the planet above the profits of toxic industries; that acts quickly and aggressively to prevent harm based on early warnings and credible evidence without waiting for comprehensive understanding; and that fully protects the health of those most at risk.

# ENDNOTES

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- 13 For example, the four principles of bioethics: patient autonomy; beneficence (“doing good”); non-maleficence (“doing no harm”); and justice, as here: <https://www.cdc.gov/niosh/learning/safetyculturehc/module-5/11.html>.
- 14 For more information on the SDWA Contaminant Candidate List, see [Overview of the CCL 5 Approach | US EPA](#) and [Draft Contaminant Candidate List 6 - CCL 6 | US EPA](#)
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