Citizens Environmental Coalition

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To the Scientific Understanding Workgroup:

Re: Comments on the Scientific Understanding Workgroup Report

The vision for this workgroup was particularly important and it was disconcerting to find a key sentence stating the vision of a successful system poorly constructed, so that it was impossible to read and fully understand the meaning. (See 2nd paragraph under III Vision of a Successful System, p. 5.)

In general we are very disappointed in the output of this workgroup, while knowing some of the members, we realize they have put in substantial efforts to improve this report. While we agree with and fully support seven of the recommendations- 1,2,3,7,8,9,12- we are dismayed that so many important issues were not addressed in these recommendations, and issues of lesser importance taken up. If the issues listed below were covered there would be a need for 14 recommendations. We believe that the output is a result of too few NGOs being involved in this workgroup, or their ability to affect the outcome limited.

We were looking for strong recommendations on the following issues of critical importance:

1. Children's exposure to chemicals from conception to childhood through adolescence,
2. Total human exposure to a single chemical from all sources,
3. Cumulative exposures and impacts,
4. The evaluation of exposure to mixtures,
5. Endocrine Disruption and mechanisms,
6. Addressing the need for independent science, that is not influenced by industry and their funding support,
7. Addressing the promotion of green chemistry.

This workgroup did express that it would not deal with policy issues. All of the issues in the above list have significant scientific issues associated with them and need detailed recommendations to address research and scientific questions.

Sincerely,

Barbara J Warren

Barbara Warren, R.N., M.S.
Executive Director

CEC Comments on the Scientific Understanding Workgroup Report

Children's exposure to chemicals from conception to childhood through adolescence
Children are often described as a vulnerable subpopulation, but it is critical to understand that children are an entire population of the future. There can be no adult without passing through childhood, and a healthy childhood can be a key determining factor of the adult's future health and ability to function. The scientific community has a great deal to catch up on in their understanding of child development. Many of the other issues we listed above impact the unborn, the infant and the child. We don't fully understand detoxification mechanisms in the adult, and these are often not developed in a child. This changes the dose to the child. If a chemical is toxic in an adult, how is that same exposure similar or different to the child? The over 200 toxic chemicals a child is born with are not normal blood levels-- they were not present 100 years ago-- and they are not vitamins and nutrients, but known to be toxic. Shouldn't we have a better understanding of a child's exposure to multiple different neurotoxic chemicals and the effects on the still developing nervous system? How much time do we have to identify and conduct the research that is needed given that the entire future of humans might be at stake? (This is not intended to be comprehensive, but to briefly describe the seriousness of the problem).

Total human exposure to a single chemical from all sources
Rarely have we seen efforts to assess human exposure to a single chemical from all possible sources. Instead we have risk estimates of air pollutants or drinking water contaminants or skin absorption OR food intake. To assess Total exposure we need to obtain information on all sources of exposure and add them up to get a total dose. Total exposure is a sum of exposures. If we are not even attempting to understand total exposures how do we know that any margin of safety exists? In fact we may already be in a situation where health effects are occurring, but no health or environmental agency is conducting sufficient assessments to be aware of the situation.
If we are not regularly assessing total human exposure to single chemicals, how can we possibly get a handle on mixtures and cumulative exposures? And how could we hope to understand the special impacts on the developing child?

Endocrine disruption is a whole emerging field, with far more questions arising as we study more. Significantly this involves extremely small signals yielding large effects and there are many mechanisms and interactions with the nervous system.

We are not going to discuss every topic on this list since each one deserves pages of discussion. However, we do want to note a disturbing and increasing trend of science endeavors being taken over by private self-interests. In the area of health this is particularly alarming, and we need government to establish strong independent scientific institutions that can conduct science related to health free from corporate influence.

The goal of the National Conversation is to develop an action agenda with clear, achievable recommendations to protect the public from harmful chemical exposures. To accomplish that goal all of the topics listed above should have received major attention in a document from this important workgroup.

Review of the Report Recommendations

We fully support Recommendations 1 & 2

We don't believe that Recommendation #3 as briefly summarized is complete and reflective of the text which follows. We hope the workgroup will add language so that it reflects the full discussion. We support this Recommendation.

Recommendation #4 regarding indoor air quality. While important, we don't think it is as important as other issues not discussed.
Reference is made to obtaining a history of indoor environmental exposure. We believe this will be difficult to obtain for those not living in owner-occupied housing, but key questions should always be about occupational exposures which can be brought home on clothing and household hobbies. For apartments-- co-location with commercial and industrial users such as dry cleaners. For homeowners, proximity to contaminated sites or industry becomes important.

Section B. In general we are very concerned about this section as written. Too much of it seems geared to identifying individual susceptibility and thereby the suggestion of responsibility for illness. The title of Section B suggests a discussion of multiple and cumulative chemical exposures, which should have been the focus, but all of the subsequent recommendations in this section never address this issue.

Recommendation #5 and the discussion that follows focuses almost exclusively on cultural and social practices and non-chemical stressors. At best the section following Rec #5 is poorly worded; at worst it contains a hidden agenda that seeks to blame the victims. Since there is a discussion of Native Americans and ethnic communities we are particularly concerned. Environmental justice communities are often excessively burdened by environmental contaminants from multiple sources. EJ communities have been recommending for sometime the importance of addressing cumulative impacts.
It would have been very appropriate for this report to have addressed cumulative exposure issues, as this is a critically important research area and one that EJ communities have been stressing. If social factors need to be studied, then the qualifications of the scientists should be established-- sociologists and anthropologists for example-- not risk assessors dabbling in sociology.
Recommendation #5 references NRC's 2009 report that recommended better tools to support cumulative risk assessment, but the discussion here fails to really talk about cumulative risk assessment, instead focusing on social factors.
There is mention of a destructive social process that develops in contaminated communities. Given the terribly poor response by government to contaminated communities this should not be a surprise. Given years, even decades, of stonewalling, delays, lies or misrepresentations, and only very limited responses or actions, this is to be expected. It is appropriate to assess where communities are in their response to their situation and to plan accordingly, but it is essential to separate out the response to living in a contamination situation from social factors that may have played a role.
This questionable recommendation #5 definitely poses ethical issues but instead it is recommended for implementation by multiple federal agencies, state health depts., and the Indian Health Service.
We recommend the deletion of #5, as presented.

Recommendation #6 regarding gene-environmental interactions while an appropriate area of research takes us into ethical territory, that must be carefully considered. Chemical exposures can cause epigenetic effects as well as gene mutations and these should be studied. Inherited susceptibility needs to be approached with more caution. Identifying unique susceptibility based on race, ethnic or familial background could be used to restrict employment opportunities or affect health and life insurance rates. As a result care needs to be taken to select multiple target populations representative of the full range of the US population, in order to be study the full range of susceptibility present in the population.

Recommendation #7 relates largely to chemical intolerance. We support recommendation #7. We have seen studies that suggest that large percentages of the population when questioned in detail report reactions to particular chemical exposures. Most of these are mild reactions but we think study of the prevalence of

reactions to exposure in the overall population is important to our overall understanding of the range of responses.

We fully support Recommendation #8 .
We also support Recommendation #9 which related to the precautionary principle. We urge inclusion of a public health framework in this section. While the words precautionary principle are relatively new, the principles and practice of public health are not and can be integrated here.
What is different is that we are talking about chemical exposures versus more traditional health threats. For example, we have health inspectors who regularly inspect restaurants for signs of rodent infestation. Health inspectors when they find rat feces do not usually propose studies of which bacteria are present in the rat feces at the particular restaurant or propose studying which pathway of exposure is most important in this particular restaurant-- air, food, water, or clarifying which population might be most exposed-- workers or diners (unless there have been reports of illnesses). Instead health inspectors issue violations, or shut the restaurant down and require measures for the restaurant to come into compliance. Action is what is not discussed in Recommendation #9 and should be.
The precautionary principle must become more aligned with the public health approach, that utilizes professional judgment to take appropriate action to protect the public's health from potential threats. It is action which is most needed and action that is missing from Recommendation #9. We recommend incorporating the words public health in this section and adding a discussion of possible public health actions that could be taken based on the precautionary principle.

Recommendation #10 relates to Alternatives assessment. In general we support the recommendations, however, we caution against prescriptive standardized scientific protocols. The experiences with alternatives assessment are new and the approaches are different depending on the chemical and the particular use being examined. We need to fund government entities doing this work and document what works and what doesn't as well as emerging thoughts on best practices. Rigid frameworks are less needed than some flexibility at this time.

Recommendation #11 seeks to improve Risk Assessment. Given the large number of critically important issues that were ignored by these recommendations, we are disturbed to see a return to risk assessment, even though it is suggesting ways to improve it.
Given the time, we could write pages on what is wrong with risk assessment. For the moment we will be brief:

- Risk assessments take years to produce & lots of personnel & funding resources
- RAs suit industry's desire for regulatory delay perfectly
- As stakeholders industry is often invited to participate
- Industry has full time individuals to press their opinions
- The NGO community and the public cannot afford this level of participation, even though they represent far more people.
- Risk assessments cover adverse effects most studied and known, ignoring huge data gaps and failing to list them in the final report. For example, neurotoxicity -not studied, reproductive/developmental-not studied, etc.
- Uncertainty regarding precise dose-effect relationship can limit actions even where population exposures are very high and no margin of safety exists, ie., diesel exhaust RA
- RAs as a result hinder timely action to address public health threats.

Recommendation #12 is excellent.