AMERICAN CHEMISTRY COUNCIL
LONG-RANGE RESEARCH INITIATIVE

Adapting an Interactive Infographic to Communicate Disease Risk Factors in Environmentally Disadvantaged Communities

REQUEST FOR PROPOSALS

The Long-Range Research Initiative (LRI) of the American Chemistry Council (ACC) promotes innovations in chemical safety assessment. It invests in science essential for understanding the impact of chemicals on human health and the environment. Learn more at: https://www.americanchemistry.com/better-policy-regulation/research/long-range-research-initiative-lri

The following four principles are the basis of the LRI program and ensure that any funded research meets the highest quality standards:

- **Scientific Excellence.** The best research proposals and most-qualified scientists will be selected for funding.
- **Transparency.** Research will be conducted openly, and the results will be publicly available.
- **Fair and Unbiased Conduct.** Potential conflicts of interest will be rigorously evaluated.
- **Relevance to the Chemical Industry.** Research will address the potential health and environmental impacts of chemicals.

ACC LRI research agreements obligate the contracted researchers to full public disclosure of scientific information developed under or through such agreements. Researchers are contractually obligated to develop and submit manuscripts for open access publication(s) in a peer-reviewed journal. If the researcher fails to do so, or fails to secure an extension of time within which to submit a manuscript for publication to a peer-reviewed journal, or if the manuscript is not accepted for publication, the ACC LRI will publicly release the researcher's final report, or a research summary report, which will include the objectives of the study, the methodology employed, relevant data summaries, the statistical methods used to analyze the data, and a discussion of the study's results and conclusions.

1. RfP TITLE: Adapting an Interactive Infographic to Communicate Disease Risk Factors in Environmentally Disadvantaged Communities (LRI2024-01, issued on May 7, 2024)

2. PROPOSAL DUE DATE: September 6, 2024

3. INTRODUCTION

The ACC LRI supports research to better understand the potential impacts of chemicals on human health and the environment. The LRI supports research in various ways, one of the most important of which is through a competitive research project program of which this Request for Proposals (RfP) is a part.

4. DESCRIPTION OF RfP

A. Background

For several decades, the United States Environmental Protection Agency (EPA) has taken the lead on Environmental Justice (EJ)[1] issues. Under the Biden administration, EPA's efforts on EJ have been given higher priority and greater urgency. Executive Order 14008 of January 27, 2021 (Federal Register Vol. 86 No. 19 Sect. 219) states: "Agencies shall make achieving environmental justice part of their missions by developing programs, policies, and activities to address the disproportionately high and adverse human health, environmental, climate-related and other cumulative impacts on disadvantaged communities, as well as the accompanying economic challenges of such impacts." In response, EPA has taken steps to better serve historically marginalized communities using cumulative impact assessment (CIA). EPA's elements of CIA include:

- combined impacts across multiple chemical and non-chemical stressors;
- multiple sources of stressors from the built, natural, and social environments;
- multiple exposure pathways across media;
- community vulnerability;
- past exposures, especially during vulnerable ages or life-stages;
- individual variability and behaviors;
- health and well- being benefits/mitigating factors; and
- evaluation of potential interventions that reduce cumulative impacts and improve community health and well-being.

EPA's Office of Research and Development (ORD) draft report (USEPA, 2022) entitled "Cumulative Impacts: Recommendations for ORD Research" was developed to inform ORD's 2023-26 Strategic Research Action Plans. The resulting recommendations fall into five (5) broad categories, one of which is to "Support science translation and delivery." Included in this category are:

> (1) Translate ORD community-based research approaches and results across geographic and social/political/environmental contexts; and
> (2) Increase usability and user-focused (human-centered) design of scientific tools, products, and communication methods. (emphasis added)

As explained in further detail below, ACC believes its LRI program can make a meaningful contribution to EPA's efforts to "Support science translation and delivery", particularly toward increasing "usability of user-focused (human-centered) design of scientific tools, products and communication methods," especially in the interests of improving the lives of those in disadvantaged communities (DACs).

B. Developing an Interactive Infographic Tool to Communicate Disease Risk Factors

Community-based Cumulative Impact Assessments could inadvertently raise concerns that certain human health risk factors could be overstated or overestimated, and at the same time others are understated or underestimated. It is axiomatic that unless the major contributors of health impacts are addressed, actions taken on lessor contributors would have substantially less,

[1] EPA defines EJ as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies" (https://www.epa.gov/environmentaljustice/learn-about-environmental-justice).

or perhaps no, measurable effect on improving health. Stated differently, actions on a set of overstated putative risk factors, or conversely, lack of actions on major putative risk factors, would be expected to have little likelihood of successfully improving community health.

For most infectious diseases, etiologies are well established. However, for many chronic diseases, current understanding of the relative contributions that different determinants of health have on specific health impacts and disease causation is often limited. Since quantitative understanding of the differing contributions that chemical and non-chemical stressors have on community health impacts and disease development is lacking, there is a challenge, and opportunity, to explore qualitative approaches capable of displaying and communicating the relative contributions of various factors make to a specific health effect or disease state.

One qualitative method to evaluate and display the nexus of risk domains (biological, behavioral, social, and physical (including chemical and environmental) potentially contributing to health impact / disease is that developed by Dr. Robert Hiatt and colleagues at the University of California, San Francisco (Hiatt et al. 2014; Hiatt et al. 2023).[2] An intuitive interactive infographic (see Figure 1 from https://www.cbcrp.org/causes/) was developed from this model that allows users, with different levels of expertise and skills in risk concepts and evaluation, to explore each of these various domains and risk factors.

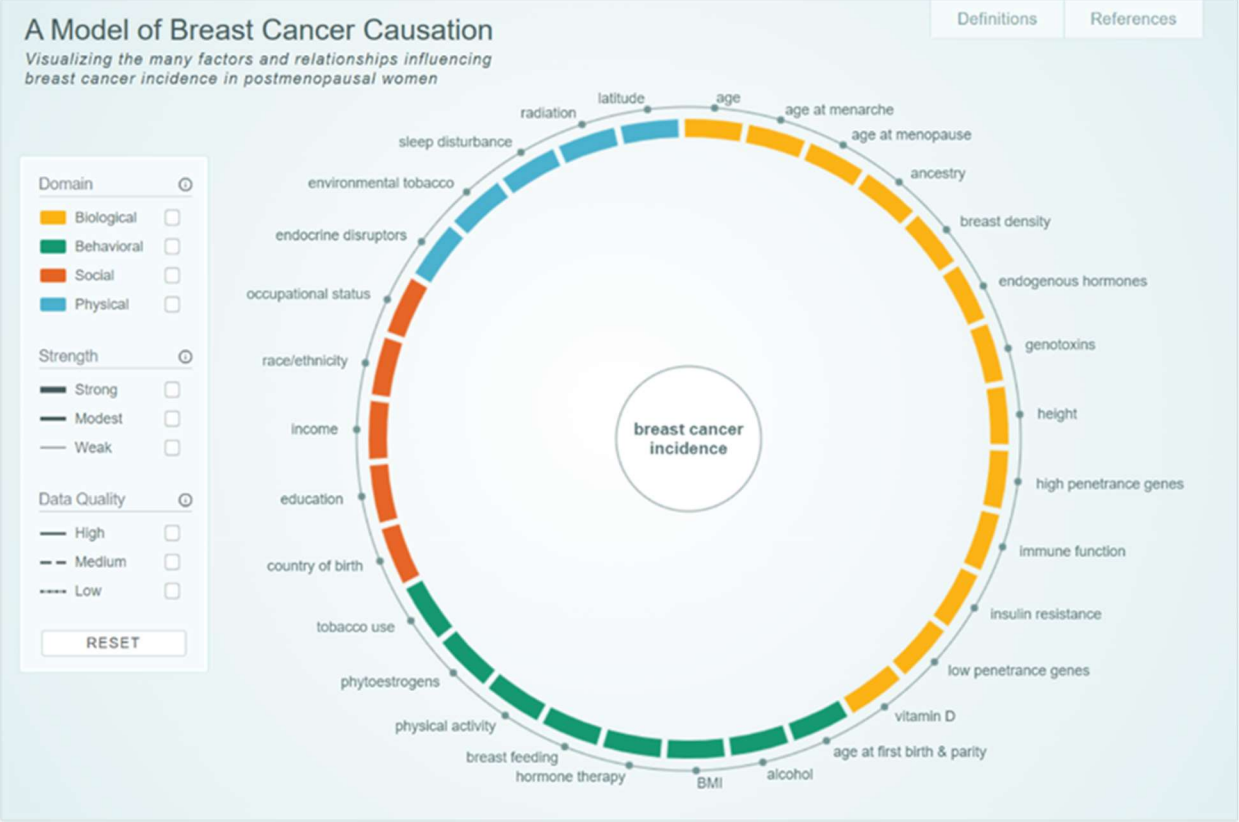

Figure 1. The Hiatt et al. (2014) breast cancer causation interactive infographic tool (https://www.cbcrp.org/causes/#; University of California © 2014).

[2] For Community Impact Assessment purposes, the title of this UCSF model is inappropriate and would need to be changed to something along the lines of "A Model of Putative Risk Factors" since the scientific and public health communities are unlikely to surmount the high burden of establishing causation within Community Impact Assessments in the foreseeable near term.

C. Steps Used in Developing the Hiatt et al. Model

- This model first uses expert evaluation of the scientific literature to identify specific putative risk factors in each of the 4 "risk domains" (biological, behavioral, environmental (chemical and physical), and social).
- Each putative risk factor is then evaluated in terms of the strength of association from epidemiological evidence associating the putative risk factor (e.g., strong, modest, weak) to the health outcome, indicated by line thickness and type.
- When no or only weak human epidemiologic studies are available, then biological plausibility designations (strong or modest) are assigned based on animal or mechanistic studies.
- Quality of evidence scores (high, medium, low) are assigned for each relationship to reflect the strength of study design and research execution and reporting.
- The scientific "weight of the evidence" underpinning each putative risk is illustrated graphically using different line thickness and line types (e.g., solid, dashed, dotted). In this way, the visual intensity and pattern of each line communicates to users the scientific evidence and knowledge of the relationship between each specific putative risk factor and the health outcome.

Importantly, alternative visualization approaches to those proposed by Hiatt et al. (2014, 2023) exist. For example, EPA's recent schematic of a "Response-Based Conceptual Model" (Figure 2) presented in the Agency's 2023 Draft Guidelines for Cumulative Risk Assessment Planning and Problem Formulation[3] illustrates a model that may be less sophisticated and time-consuming to construct, but also may be more challenging for the public to interpret. Applicants are encouraged to consider the strengths and weaknesses of these models and to propose development of a model (or models) that incorporates the approaches that will maximize communication value.

The ACC LRI is interested specifically in exploring the potential to adapt the Hiatt et al. (2014, 2023) "conceptual model" and a similar derivative interactive infographic (Figure 1, https://www.cbcrp.org/causes/) as a step towards EPA's recommendation (USEPA, 2022) to increase the "… user-focused (human-centered design) of scientific tools, products and communication methods." Although Hiatt et al. addresses breast cancer, the approach to build a "conceptual model" and interactive infographic has the potential to be adapted and applied to other health outcomes, including those most relevant to EJ communities that also have likely chemical and non-chemical risk factors.

In recent discussions held by the ACC LRI RfP development team with experts in risk communication and community outreach in an EJ context, the Hiatt et al. "conceptual model" and interactive infographic were seen to be especially useful for communicating with both technical and non-technical audiences. For technical audiences, the model and communication tool were seen as helping guide conversations and stimulating further research about specific risk factors and their relationships among and between them and with specific health outcomes. For non-technical audiences, such as EJ communities, the model and tool were seen to facilitate learning and to help communicate the complexity of risk factor- and health outcome-relationships. This also could empower leaders and members of these communities, increase their engagement, and contribute to building trust so that collaborative approaches and solutions can be pursued. Compared to a static table or written narrative, this interactive infographic can more readily communicate the scientific evidence for up to 20-30 major and minor putative risk

[3] See pages C17-C18 in USEPA 2023.

factors, including exposures to environmental chemicals and chemical products, highlighting the nexus of such relationships potentially involved in influencing health outcomes.

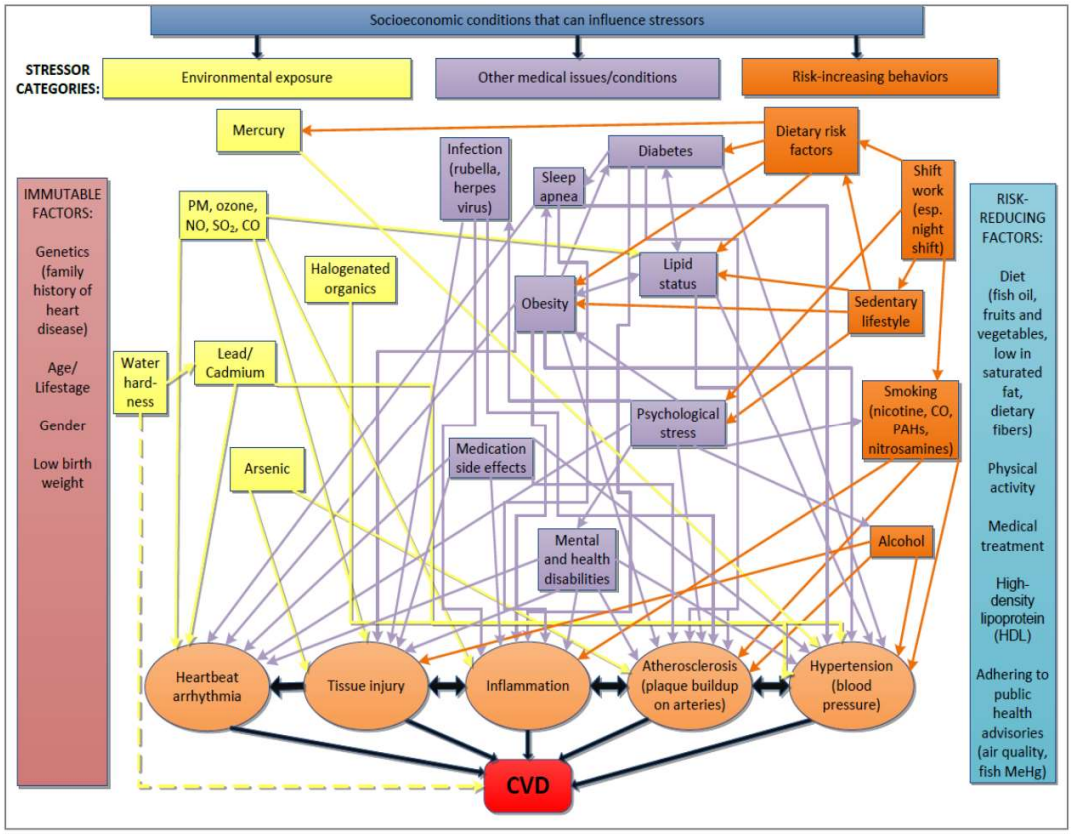

Figure 2. EPA's example of a "Response-Based Conceptual Model" (from EPA's "Guidelines for Cumulative Risk Assessment Planning and Problem Formulation. May 2023; Page C-18)

D. Research Objectives and Scope

The ACC LRI is soliciting proposals for accomplishing a four-phase plan that meets the following objectives:

- Phase I – development of a "conceptual model" and derivative infographic communication tool modeled after Hiatt et al., 2014, 2023 for an applied case study and using a specific health outcome of EJ interest.
- Phase II – interactive demonstration of an alpha version of the improved interactive infographic to others and hands-on pilot testing (e.g., with a focus group representing the intended users).
- Phase III – modification of the model/infographic based on feedback from Phase II.
- Phase IV – preparation of a comprehensive final report of Phases I-III, and public dissemination of the research project work products through publication(s) of open access paper(s) in the scientific literature, and presentation(s) at scientific meetings.

Additionally, it is expected that the model be developed cognizant of how it might be built upon and/or applied to other health EJ community relevant outcomes, and that the final project documentation should include recommendations for successfully doing so.

E. Specific Research Activities (It is recommended that proposals submitted in response to this RfP are structured similar to the following steps):

Step	Description
1	Identification of the Research Team with relevant expertise, including providing the rationale for proposing each Team member and their anticipated contributions to the effort.
2	Carefully choose an adverse health outcome that is relevant to EJ communities and has potential associations with all four of the risk domains of health determinants (biological, behavioral, physical (including chemical and environmental) and social) for developing the "conceptual model" and the infographic. Ideally, selection of this health outcome should be based on published systematic reviews and other reliable evaluations, and clear justification provided for its selection.
3	Initiate development of the Conceptual Model by appointing the Expert Group. The mission of the Expert Group should be singularly focused on developing the Conceptual Model.
4	Identify a list of probable risk factors for the chosen adverse health outcome. These shall include risk factors in each of the four (4) domains: biological, behavioral, physical (chemical and environmental), and social. The selection of probable risk factors should consider the availability of published systematic reviews of good quality. The rationale being that the research team need not divert resources to reviewing the primary literature to identify probable risk factors.
5	Apply a pragmatic systematic review type approach (comprehensive, transparent, replicable, etc.) to searching the literature - including recent published systematic and critical reviews of good quality - for relevant scientific evidence of relationships among and between the risk factors and the chosen adverse health outcome.
6	Conduct a rigorous and transparent integrated assessment of the quality of evidence supporting relationships among and between each identified risk factor and the adverse health outcome and assign categorical scores (e.g., insufficient evidence, poor, fair, good). Explicit criteria for evaluating the quality and sufficiency of evidence and for assigning categorical scores shall be described and applied.
7	Conduct an integrated and transparent assessment of the strength of association(s) (e.g., based on relative risk estimates) among and between identified risk factors and the adverse health outcome and assign categorical scores (e.g., insufficient evidence, weak, moderate, strong). Explicit criteria for categorical scores shall be described and applied.
8	Develop and incorporate means to visualize the weight of evidence associated with specific risk factors and their interrelationships. Such visualization is in the context of developing the conceptual model and the infographic.
9	Determine whether sufficient evidence of dose-response (see 5D. below) exists for each relevant risk factor and if it does, explore ways this information could be incorporated into the conceptual model and the infographic, e.g., different indicators for relationships between exposures at low, moderate and high exposures and the health outcome
10	Develop a draft of the conceptual model and a prototype of the interactive infographic.
11	Subject the draft conceptual model and the interactive infographic prototype to some form of independent peer review and then incorporate reviewer suggestions into the revised conceptual model and the prototype of the interactive infographic.
12	Demonstrate an alpha version of the interactive infographic to others and conduct hands-on pilot testing (e.g., with a focus group representing the intended users).
13	Obtain and incorporate feedback from the focus group into a final version of the interactive infographic that is fully described and documented in the project report.
14	Provide a summary of recommendations for building upon and enhancing the model as well as approaches to adapting it for use with other health endpoints.

In preparing proposals in response to this RfP, applicants should take account of the following considerations:

1) THE RESEARCH PROJECT TEAM

Applicants should:

a) Include in their proposal a summary of the relevant expertise and experience of each project team member with an explanation of how such expertise and experience contributes to the project. Please provide copies of all core team members' CV's.
b) Include in their proposal DAC[4] engagement, or DAC-representative knowledge and/or perspectives at one or more levels of the project, for example:
   i) providing evidence of the project team members' experience/expertise in conducting outreach to DACs;
   ii) providing a roadmap for how the project team will engage DAC perspectives in various phases of the project (e.g., design phase, alpha testing phase, etc.);
   iii) how DAC member cultural and/or local knowledge and or perspectives can influence health risk perceptions and how this might then modify the development of the conceptual model and interactive infographic tool; and/or
   iv) forming and using a project advisory group that includes/represents multiple perspectives within DACs (e.g., community leaders, business leaders, religious and/or service organizations, medical or public health organizations, etc.).

2) DEVELOPING THE CONCEPTUAL MODEL BY AN EXPERT GROUP

a) An Expert Group will develop the Conceptual Model. Although there can certainly be an overlap between the members of the Research Project Team and this Expert Group, the mission of the Expert Group should be singularly focused on developing the conceptual model.
b) Transparency in the selection of experts is essential (see Kirman et al, 2019). Respondents must be explicit about what justifies the expertise/experience that is chosen, and the qualifications and experiences of each expert. There is a need to consciously balance perspectives and biases.
c) Ensure any relevant (actual or likely perceived) conflicts of interest or biases (e.g., financial, political) are disclosed.
d) While the size of the Expert Group is to be determined by the applicant, it is recommended that the group include all relevant areas of expertise while maintaining both efficiency and effectiveness. Experts whose input would be more narrowly focused may not need to be part of the core Expert Group but could be engaged on an *ad hoc* basis as needed.
e) Criteria for participating in the Expert Group should include expertise in the underlying biology/cellular mechanisms of the health outcome chosen (for help in assessing biological plausibility of relationships). Consideration should also be given to including subject matter experts in key disciplines, such as epidemiology, toxicology, biostatistics, physical and behavioral risk factor assessment, systematic review of the literature, schema data mapping, evidence weighting and integration, causal models, and EJ assessments.

[4] Please consider a wide spectrum of types of DACs including those which are urban, rural, and include representation from various historically marginalized groups (e.g., African American, Hispanic, indigenous populations, etc.), other.

3) PROBLEM STATEMENT, OBJECTIVES, APPROACH, SCOPE

a) A well-written problem statement and a list of key objectives should be included with an emphasis on creating the "conceptual model" and an interactive infographic tool for communication purposes rather than for determining causation or informing specific prevention or intervention strategies.
b) The scope of the project is intended, at this time, to only include generation of the "conceptual model", and not the "mathematical model" as described by Hiatt et al., 2014, 2023 because only the former was used to develop the infographic tool.
c) An important objective is to generate a highly interactive semi-quantitative infographic tool (e.g., the visual intensity and pattern of each line communicates to users the scientific evidence and knowledge of the relationship between each specific putative risk factor and the health outcome).
d) Explanation of how risk factors considered are intended to reflect current scientific knowledge of the relationships/associations. While for some there may be sufficient evidence to conclude causation, others will not have such evidence, so the guidance provided to users needs to be clear that all of the relationships evaluated and incorporated into the visualization tool are not to be interpreted necessarily as "causal" associations.
e) The main points to be communicated via the model and infographic tool are as follows:
    i) The current state of science as it relates to probable risk factors and the chosen adverse health outcome.
    ii) The complexity of the relationships among and between factors and the chosen adverse health outcome which reflects the four domains of health determinants (biological, behavioral, physical (including chemical and environmental) and social).
    iii) Confidence in the scientific evidence (perhaps specific factors vs. others) reflecting quality of and weight of evidence.
    iv) The relative strength of associations between the risk factors and the chosen adverse health outcome.
    v) Other innovative aspects the applicant might wish to propose.
f) The intended audiences for the model and tool should be specified (e.g., "trusted and scientifically competent" local health department and public health officials; community leaders; business leaders; advisors, community members, etc.).

4) SELECTION OF ADVERSE HEALTH OUTCOME(S)

a) Applicants have the freedom to choose the health outcome relevant to EJ/DAC communities that they use for developing the conceptual model (see for example Maantay et al, 2010, Casey et al, 2023). However, the choice should be relevant to both environmental chemical exposures and non-chemical stressors and be predicated on the availability of existing, quality published systematic reviews/meta-analyses for identifying important probable risk factors.
b) All four health risk domains (i.e., biological, behavioral, physical (including chemical and environmental) and social) should be adequately reflected in the choice, and at least one physical and/or behavioral domain factor should have been demonstrated to be strongly related, including one or more industrial chemicals or pollutants.
c) Other reasons affecting the choice of outcome and inclusion/exclusion criteria should be transparently described and justified.
d) Summarize how (and how validly) health outcome information typically is obtained and describe the potential for incomplete or biased reporting in its ascertainment.

e) Examples of potential health outcomes for consideration that reflect the characteristics described in a & b above, in particular the availability of existing systematic reviews, include, but are not necessarily limited to, the following:
   i) Asthma
   ii) Adverse pregnancy outcomes (e.g., low birthweight, neonatal and infant death)
   iii) Childhood cancers (e.g., leukemia, brain cancer)
   iv) Diabetes
   v) High blood pressure

5) IDENTIFICATION AND EVALUATION OF RISK AND "CAUSAL" FACTORS (BASED ON PUBLISHED REVIEWS) FOR THE CONCEPTUAL MODEL AND INFOGRAPHIC

a) The scope of the literature search and evaluation should extend to all available relevant scientific evidence (e.g., mechanistic, toxicological, epidemiological, etc.) and follow current standards for weight-of-evidence evaluation (see Lynch et al, 2022; Wycoff et al, 2020)
b) A pragmatic approach (comprehensive, transparent, replicable, etc.) should be applied to searching the literature, and explicit inclusion/exclusion decision criteria should be specified for selecting systematic review papers and meta-analyses where possible, as well as any key individual studies (see next point).
c) An integrated review framework that incorporates biological plausibility, human relevance and causal evaluation criteria (Hill, 1965; Phillips and Goodman, 2006; Weed, 2018; Shimonovich 2021) should be specified for pragmatically assessing, weighting and categorizing the quality of individual studies. A summary or table of key inputs to the Conceptual Model should be generated as part of the model documentation.
d) Explore opportunities for treating risk factors more than just binary (yes/no), and address exposure-response relationships including low-exposure risks as well as demonstrated exposure thresholds for risk. There is an important need to address this in how associations are depicted in both the conceptual model and the infographic tool, as exposures demonstrated to cause the outcome of interest under high exposure conditions may not do so at environmental contamination levels. Realistic exposure scenarios involving dose, duration, timing, and episodic, short-term, peak exposures should be considered in the core team's deliberations and final work products.
e) Articulate a clear approach to integrating evidence based on quality weighting; systematic review papers and meta-analyses and the overall quality of evidence (e.g., insufficient evidence, poor, fair, good).
f) An integrated set of criteria that considers both point, and interval estimates of risk (e.g., confidence intervals) and risk of bias will be pragmatically applied for assessing, weighting and assigning categories of strength of association (e.g., weak, moderate and strong).
g) Identify and evaluate combinations of factors for which evidence indicates important (not theoretical) interactions or effect modification. (e.g., race & poverty, etc.).
h) Consideration should be given to submitting the conceptual model developed by the core team to some type of efficient and effective peer-review (e.g., a peer review similar to a journal article) to validate and improve it prior to using the output to develop the interactive infographic tool.

6) DEVELOPING THE INFOGRAPHIC COMMUNICATION TOOL

a) The conceptual model and tool should retain as much complexity (e.g., inclusive of potential risk factors and their inter-relationships, even if weak or from lower quality studies) as is considered scientifically plausible and pragmatically possible. This will help ensure they are scientifically comprehensive and credible, and that users of the tool feel empowered and have the flexibility to focus and filter them as they so choose.
b) An infographic communication tool that can address exposure-response relationships and examine a range of reasonable environmental exposures (i.e., not just experimental exposure conditions) is preferred.
c) Although Hiatt et al. (2014, 2023) treated physical and behavioral risk factors as simple binary variables, strong consideration should be given to methods for incorporating exposure timing and intensity, as is feasible to do so.
d) If possible, incorporate 'pop-up' summary information or definitions for risk factors as part of the infographic (especially those that might not be commonly understood among laypersons) with example references to the scientific literature.
e) Applicants should also identify who on the research project team or by subcontract to the team, will provide the technical graphical expertise/experience required for creating the web-based interactive infographic tool and their qualifications/experience (e.g., IT, Informatics expert that can help with the human and scientific evidence interface, graphic artist, user-centered design expert, etc.) based on the conceptual model developed by the core team of experts.

7) DELIVERABLES

a) A comprehensive final report of Phases I-III, including background for the project, problem statement, objectives, methods for reviewing the published literature to select the health outcome and assessing its risk factors and for developing the conceptual model, results including the model itself and the science behind the conceptual model;
b) The interactive, publicly available, infographic web-based tool and a presentation of its features and functionality;
c) A PowerPoint deck of slides summarizing the full report that can be used to present to the ACC LRI Strategic Science Team,
d) A presentation at a scientific meeting, and a manuscript summarizing the full report suitable for submission to a peer-reviewed journal and a commitment to seek timely publication in a reputable journal; and
e) Recommendations for further development and/or applications and discussion of key learnings and recommended next steps.

5. SPECIAL REQUIREMENTS

A goal of the LRI is to share the results of funded projects broadly. Thus, it is expected that results be submitted for publication in peer-reviewed scientific journals and presented at scientific meetings, conferences, and/or symposia. The ACC's policy is to support the public release of research findings from LRI-sponsored projects.

All proposals should include costs for preparing open access manuscripts for submission to peer-reviewed scientific journals and for open access publication of these manuscripts. Brief (250-word) annual progress reports are required. The final report can be an assembly of peer-reviewed publications, printed abstracts, and any other related material not submitted for publication (e.g., additional data or analyses too detailed for publication). Quarterly meetings of the PI will be organized by the LRI to discuss research progress with the LRI Project Monitoring Team. Any other reporting requirements will be negotiated as part of the development of the research contract.

All proposals should include reasonable and necessary travel and related expenses. Please include in the proposed travel plan at least one trip per year (for the cost proposal, assume it will be to Washington, DC) for the purpose of presenting research results to ACC, as well as to other scientific meetings. Foreign travel costs (defined as any travel outside the country of the Contractor's principal place of business) will require additional approvals.

The Office of Management and Budget (OMB) has issued rules and guidelines regarding data and information used in regulations, which require that all data developed with federal funding and used in regulations be available to the public upon request. In addition, quality standards apply to information used for these purposes. The application of these guidelines to federally funded research is clear; however, the application to "third party" supported research (e.g., research sponsored by the American Chemistry Council) has not yet been decided. To help ensure that research pursuant to this Agreement is fully eligible for consideration by the EPA, the Council will require the Contractor to comply with the standards set forth in OMB Circular A-110 (65 *Federal Register* 14406-14417 (March 16, 2000)). In addition, the Council may require the Contractor to abide by additional OMB or other regulatory information guidelines applicable to research data. To the extent that this latter requirement imposes additional costs, the budget will be adjusted as mutually agreed to by the parties.

6. ELIGIBILITY

Proposals may be submitted by any domestic or foreign for-profit, not-for-profit, or non-profit organization, public or private entities, such as universities, colleges, laboratories, and contract research organizations; units of federal, state, and local governments with the necessary laboratory facilities; and research cooperatives.

7. FUNDS AVAILABLE/PROJECT DURATION

It is anticipated that the award from this solicitation will be a single award fixed price contract. The total cost for this project has currently been budgeted in the range of $350,000 to $400,000. The project costs are expected to be commensurate with project scope. Proposals should include funds necessary to complete the full scope and deliverables described earlier, including direct and indirect costs (e.g., direct labor, fringe benefits, materials, subcontracts, purchased parts, shipping, indirect costs and rates, fees, status reports, publications, meeting presentations, travel expenses). Projects are expected to begin immediately upon execution of a contract. The duration of the project is expected to be commensurate with the goals of the project.

8. PROPOSAL GUIDANCE

Proposals must be received electronically by the ACC no later than close of business on September 6, 2024. Receipt of the electronic version is deemed to be in confidence. The Project Plan section must be no longer than 15 pages in length, not including literature cited, attachments, and appendices. All proposals must be prepared using the RfP Proposal Submission Form.

- Please e-mail Dr. Richard Becker, rick_becker@americanchemistry.com, to request the RfP Proposal Submission Form.

Budgets, biographies (curricula vitae) for the Principal Investigator and all other key personnel, and other submissions specified in the Proposal Form are not part of the 15-page limit. The electronic copy of the proposal should be sent to the following address:

Richard A. Becker Ph.D. DABT
Long-Range Research Initiative
American Chemistry Council
700 2nd St. NE
Washington, DC 20002
rick_becker@americanchemistry.com
202-249-6405

The proposal must be signed by an individual who is authorized to sign on behalf of and bind your organization to the proposed rates (including indirect costs). Incomplete or non-responsive proposals will be returned to applicants without further review.

Proposals that are complete and within the framework of the RfP will be peer-reviewed for scientific merit by scientists with expertise appropriate to the subject RfP. The following criteria will be used by peer reviewers to evaluate proposals:

- Scientific merit and feasibility relative to RfP;
- Expertise of investigator(s); and
- Quality Assurance (QA) and Good Laboratory Practices (GLP) processes, animal care/human subjects, and ethical considerations, as applicable.

Peer reviewers will also assign each proposal an overall rating of "Excellent," "Very Good," "Good," "Satisfactory," or "Unsatisfactory." Only proposals that receive an overall rating of "Excellent" or "Very Good" by the peer reviewers will be considered for funding as part of a relevance review, according to the following programmatic criteria:

- Relevance to the chemical industry, as described in the RfP;
- Proposed milestones/timelines;
- Appropriateness of the budget/cost-effectiveness;
- Use of collaborators/leveraging; and
- Communication and outreach plans to disseminate research results.

9. AWARD CRITERIA AND TYPE OF AWARD

The criteria that will be used in making awards include receipt of a sufficient number of proposals of scientific merit and programmatic merit, as described in criteria above, availability of funds, and LRI program balance. The ACC reserves the right to make no awards under this RfP. The form of award under the LRI is a fixed-price contract between the ACC (or ACC's Foundation for Chemistry Research and Initiatives) and the awardee.

10. PROPOSAL REVIEW FEEDBACK PROCEDURES

Each applicant will receive an electronic notification of receipt of their proposal. All applicants will receive an electronic notification regarding the award/non-award decision from the ACC within 90 days after close of the RfP.

11. INQUIRIES

Questions regarding this RfP should be directed in writing, preferably by e-mail, to the following address:

Richard A. Becker Ph.D. DABT
Long-Range Research Initiative
American Chemistry Council
700 2nd St. NE
Washington, DC 20002
rick_becker@americanchemistry.com

12. REFERENCES

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