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Public Health and Health Care Partner Workshop

SUMMARY REPORT
SUMMER 2020

Office of Research and Development
Office of Science Advisor, Policy and Engagement

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United States
Environmental Protection
Agency

Public Health and Health Care Partner Workshop

Summary Report
Summer 2020

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Executive Summary

From August 31 – September 2, 2020, the U.S. Environmental Protection Agency's Office of Research and Development (EPA-ORD) held a virtual workshop with public health, health care, and health care system practitioners to discuss environmental health priorities within their fields and with their organizational members and to build relationships for future dialogue and collaboration on specific topics. Using a mind mapping exercise, workshop participants identified six environmental areas of concern: built environment; climate change; environmental justice and equity; natural environment; occupational environment; and research, data, and implementation. Conversations during the workshop around the mind mapping results led to a greater understanding of how environmental health concerns are intensified during public health crises (such as the COVID-19 pandemic) and existing cross-cutting environmental health issues that impact each area of concern [which include lead (Pb), environmental justice and equity, children's health, mental health, and community design]. Opportunities were also identified for cross-sector and cross-disciplinary communication, engagement, and collaboration (such as establishing partnerships in non-emergency times to help weather public health crises, training and workforce development, information sharing, and communication and risk communication). The information from this workshop can help EPA-ORD and its partners better understand mutual areas of interest and identify opportunities for more targeted cross-disciplinary discussions around the specific environmental health topics of mutual concern.

Disclaimer

This document reflects the proceedings of the Public Health and Health Care Partner Workshop, including mind mapping results, the discussions consequent to those mind mapping results, and summaries of the individual breakout groups. Statements included in this document reflect discussions among participants in the workshop and should not be interpreted as official views of the U.S. Environmental Protection Agency.

Introduction

The environment provides us many life-sustaining services including the air we breathe, the water we drink, shelter, and sustenance. However, there is an existing and growing body of scientific evidence that associates environmental stressors to adverse health impacts. As examples, stressors may include pesticides, poly- and perfluorinated compounds, wildland fire smoke, air pollution, and contaminants in drinking water. Addressing these environmental stressors and protecting against health concerns requires expertise from many sectors and disciplines. For example, public health professionals identify and assess the extent of exposure to such stressors and attendant health impacts at a population-level. Health care professionals treat the resultant clinical disease or recommend preventive measures or treatments for their patients. Mental health professionals, social workers, and others also play important supportive and interventional roles in addressing environmental health concerns.

Health care and public health professionals are often on the front lines of discovering and addressing these environmental health concerns. Health care providers, health care system leaders, and clinical case managers address clinical diseases at the individual level, while public health practitioners are concerned with community and population health. Cross-disciplinary dialogue can foster improved understanding of mutual areas of concern and potential action between the healthcare and public health professional communities.

As a case example, particulate matter (PM) is a ubiquitous environmental pollutant recognized as a major risk factor for adverse clinical health outcomes. The U.S. Environmental Protection Agency's (EPA) Office of Research and Development (ORD) and the broader scientific community have conducted research on the health effects of PM, specifically fine particulate matter (PM2.5; particles with an aerodynamic diameter less than or equal to 2.5 μm), and provided and evaluated a vast body of scientific evidence that, when taken in its totality, yields a conclusion that both short-term and long-term exposure to particulate increases the risk of adverse cardiopulmonary health outcomes (U.S. EPA, 2019). The scientific evidence of how inhaled PM can impact human health has informed development of regulatory actions such as the National Ambient Air Quality Standards (NAAQS) for particulate matter (U.S. EPAa, 2021). Implementation of this regulation has a population-level impact on public health. In parallel with these policies, health care providers, have unique opportunities to support the health of their patients with respect to air pollution exposures. To raise awareness about the connection between air quality and health with health care professionals, and to provide resources to help these providers share this information with their patients, EPA's Office of Air and Radiation (OAR) and ORD, and the Centers for Disease Control and Prevention (CDC) developed two web courses that have been certified for continuing education for health care professionals: "Particle Pollution and Your Patients' Health" (U.S. EPA, 2020) and "Wildfire Smoke and Your Patients' Health" (U.S. EPAb, 2021). Additionally, through cross-disciplinary engagements on this topic, the Million Hearts® initiative jointly led by CDC and the Centers for Medicare and Medicaid Services (CMS) has incorporated messaging on PM into their program, which identifies "avoiding exposure to particulate matter" as recommended advice for patients and their caregivers who have had a heart attack or stroke (Centers for Disease Control and Prevention, 2021).

Based on the success of the cross-disciplinary dialogues around PM, in Summer 2020, EPA-ORD convened a meeting with partners from public health, health care, and health care systems to identify environmental health concerns of mutual interest and build relationships for future dialogue and collaboration on specific topics. Figure 1 identifies the range of sectors or organization types represented during the meeting, that was held virtually due

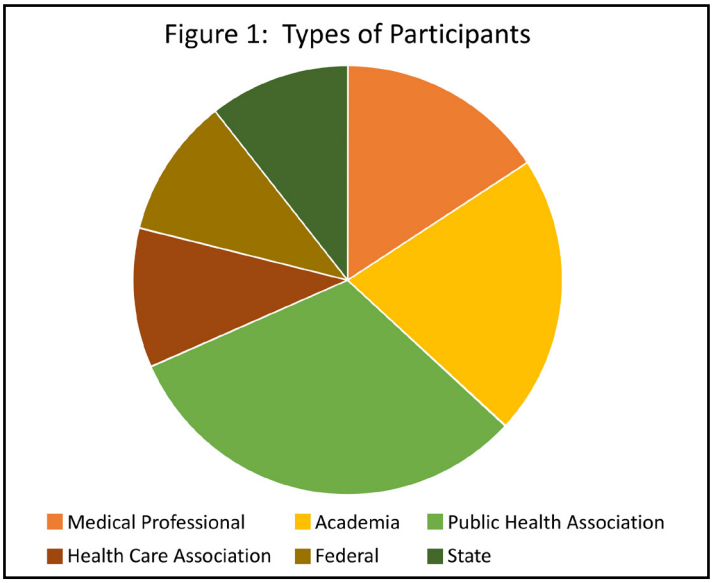

Figure 1. Sectors of individuals and organizations represented in the public health and health care professional partner meeting.

to the COVID-19 pandemic. The purpose of the workshop was to share examples of how the public health community has worked with health care professionals and/or health care systems experts on environmental health issues of mutual interest; provide a platform for participants to identify and discuss current issues of mutual interest; and brainstorm innovative and cross-disciplinary ideas for potential future collaboration.

Workshop Approach

Mind mapping was chosen as the approach used to identify partners' environmental health topics and issues of concern, build a common language across participants, and foster a focused discussion before and during the workshop. Mind mapping is a tool that is used to visually organize information in a hierarchical manner using nodes and branches to illustrate relationships between different topics (Crowe and Sheppard, 2012). It is important to note that the mind map exercise was not done in a way to prioritize one area over another or to distinguish organizational or funding priorities versus local priorities. Additionally, the mind map does not illustrate the strength of cross-cutting themes.

Each participant was asked to create their own mind map centered around "Environmental Health Topics of Concern." To ensure a robust representation of perspectives, participants were asked to work with colleagues from their own organizations to brainstorm or collect feedback on their mind map. Individual mind maps were then collected, and organized into a "Master Mind Map" that was synthesized using the following systematic process:

1. Each "primary node" (or central theme) from individual mind maps was identified and recorded.
2. Nodes (or themes) with exact or similar language were grouped
3. These resulting groups were then evaluated and consolidated under the primary nodes in the Master Mind Map.
4. These node (or theme) groups became secondary (or tertiary, quarternary) nodes under the primary nodes.

Figure 2 provides the Master Mind Map developed for the meeting. It displays six primary nodes, denoting

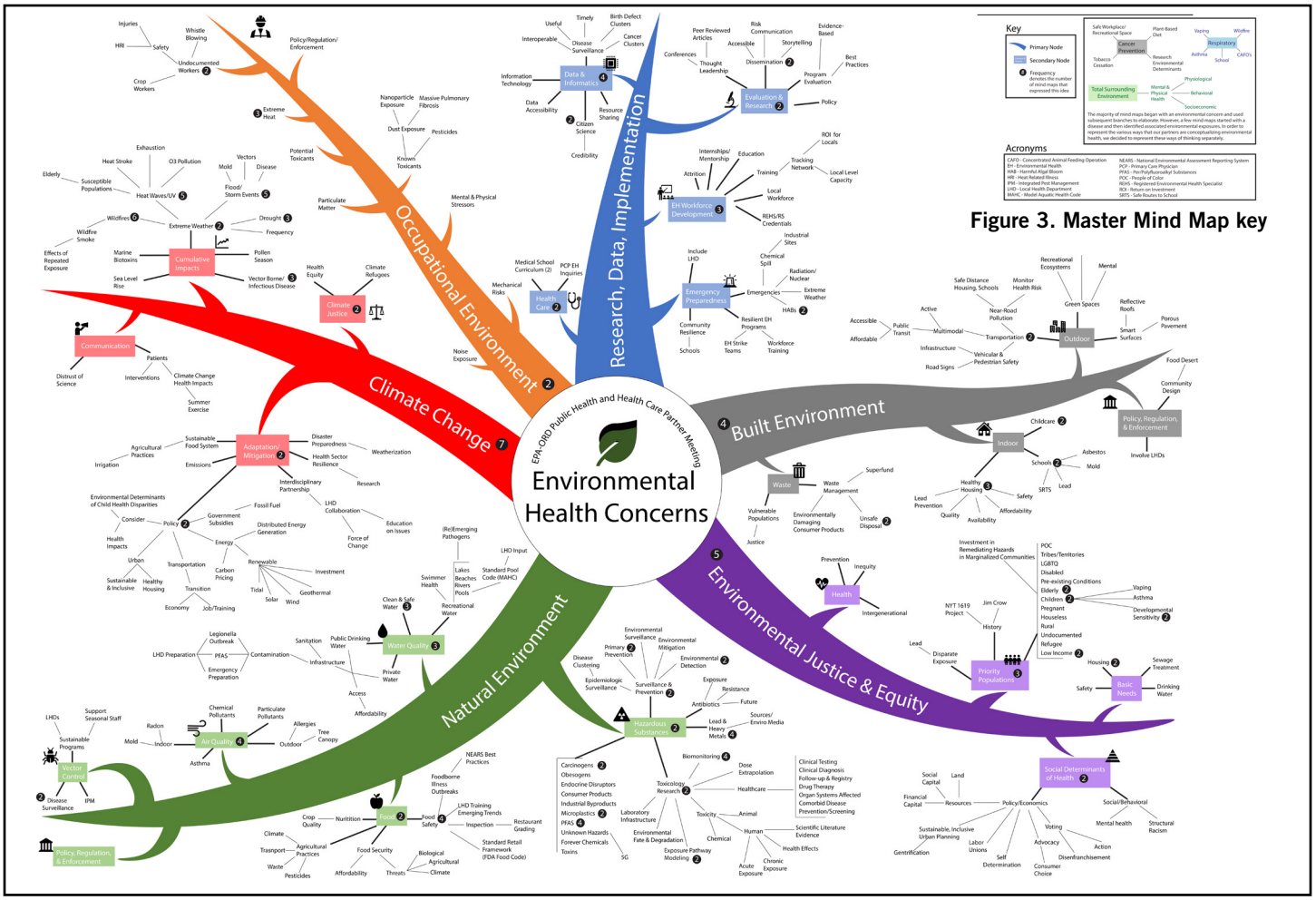

Figure 3. Master Mind Map key

Figure 2. Master Mind Map

environmental health areas of concern: 1) built environment; 2) climate change; 3) environmental justice and equity; 4) natural environment; 5) occupational environment; and 6) research, data, and implementation. See Appendix A for a closer look at each primary node. To facilitate discussion at the workshop participants received this Master Mind Map prior to the meeting.

The virtual workshop spanned three days with two-hour sessions each day. The first day included an orientation to the workshop goals, a case example presentation of particle pollution (i.e., PM) as an environmental health issue, an overview of the mind mapping process, and a presentation describing the details of the master mind map that was created for the workshop. The second and third days were structured as focused break-out group discussions followed by report-out sessions for all meeting participants.

Table 1 provides the discussion questions for break-out session one. Table 2 provides the discussion questions for break-out session two.

Table 1. Questions used to guide discussion during break-out session one, which focused on the mind map.

Question 1	You submitted your mind map in February 2020. Since then, would anything change on the mind map that you submitted, and if so, what?
Question 2	Looking at the master mind map, identify one element that makes the most sense to you or that you think is a high priority.
Question 3	Looking again at the master mind map, identify one element that surprises you and explain why.
Question 4	Are there any elements missing from the master mind map?
Question 5	EPA staff identified a few topics that are in our purview but that seem to be missing from the master mind map. Do you think any of these topics are important, and if so, where might they fit on the master mind map?
Question 6	Are there any other impressions from the mind mapping exercise you would like to share?

Table 2. Questions used to guide discussion during break-out session two, which focused on collaboration opportunities.

Question 1	One of the purposes of mind mapping is to find areas of potential mutual interest. Do you have examples from your own experience and organization where you have worked with professionals from other disciplines to address an environmental health concern? If so, what was the topic and what made it successful (or not successful)?
Question 2	What sources do you trust and go to for help in understanding the following environmental health topics: emergencies, toxic chemicals, water contamination, soil/land contamination, air pollution, community environmental health concerns, environmental justice, children's health.
Question 3	In what forms is environmental health information easiest to access and digest (i.e. monthly emails, blogs, publications, workshops or meetings, other)?
Question 4	What are possible ways to help the public understand the connections between the environment and public health?
Question 5	What topics are you/your organization focused on right now?
Question 6	What outlets do you currently use to engage with others around these topics?

Discussion

This workshop was originally planned for March 2020 but was postponed due to travel restrictions and health concerns related to the COVID-19 pandemic. The mind mapping exercise, which was conducted in February 2020 (prior to the originally scheduled date of the workshop in March 2020), highlighted environmental health topics of concern at that time for the public health and health care professionals attending the workshop and served as the foundation for discussion throughout the meeting. After the decision was made to postpone the workshop, participants were not asked to revise their mind maps with respect to the pandemic and any issues that may have arisen in that time. Instead, it was decided to include COVID-19 related issues into the discussion during the workshop.

During the first break-out discussion, workshop participants reviewed and discussed the master mind map, guided by the questions in Table 1.

Break-Out Session One

Following is a high-level summary of each primary node and major discussion points during break-out session one.

COVID-19: Participants discussed how the pandemic did not lessen the importance of the environmental health priorities they had identified. Rather, they noted that reacting to the pandemic further elevated the prominence of environmental exposures and environmental health concerns. Participants discussed the growing importance of health equity issues in light of the pandemic and other environmental topics that have become more important as a result of the pandemic, such as the indoor environment (indoor air quality, environmental exposures in the home), community design, and access to green space. However, the pandemic also brought to light additional environmental health considerations that were not previously included in the mind map. Such environmental health topics include the need for robust public health surveillance systems to identify future pandemics, the importance of cleaning/disinfection practices and guidance for the workforce (including essential workers and those inspecting or visiting outside worksites), buildings, schools, and daycares. Environmental guidance for building reopening (for example, guidance for HVAC system cleaning and flushing stagnant water pipes) was also highlighted as a unique environmental health need.

Climate Change: Participants discussed the special challenges facing communities and populations dealing with the physical effects of climate change, such as flooding, sea level rise, drought, and/or thawing permafrost. Participants also noted that the impacts of climate change may be disproportionately experienced by minority and low-income communities or populations with existing environmental justice concerns. Participants noted that some health care professionals do not view climate change as a health issue; however, this could be addressed by the incorporation of environmental health modules into health care-related degree programs, post-graduate residency training, and continuing education, and maintenance of certification programs.

Built Environment: The conversation centered on community design and green space, noise pollution, the indoor environment, and infrastructure. Home and business disinfection practices were also discussed, especially in the context of COVID-19. Some participants noted that the built environment – especially the indoor environment – has become even more important during a global pandemic where many individuals are working from home and spending more hours per day inside their house.

Natural Environment: The discussion of this primary node covered vector control surveillance, emerging pathogens, and environmental policy and regulation to protect air, water, and land quality. Food and nutrition, food security and food safety also emerged as themes on the mind map and during discussion.

Occupational Environment: Discussion under this primary node focused on workplace exposures to dust, chemicals, and other pollutants, personal protective equipment, work-life balance, and mental and physical stressors in the workplace. Preparing workers for potential or unanticipated exposures when visiting or inspecting outside organizational spaces (and therefore beyond their control) was another area of interest, such as when food inspectors visit various restaurants and the exposures at each location may vary. Participants also discussed the importance of occupational data and electronic health records for informing epidemiology and understanding of disease. Finally, participants noted that health protection should be a primary consideration in occupational policy development.

Research, Data, and Implementation: Participants discussed the importance of data collection consistency and transparency and data accessibility (providing data in an organized way) to inform exposure and disease surveillance. Development of the environmental health workforce was discussed, and participants noted the need to train health care professionals on environmental health topics.

Environmental Justice and Equity: Environmental justice and equity was a thread that ran throughout the break-out group discussions across all topics. Participants highlighted the need to address the environmental health concerns of vulnerable and at-risk populations and discussed the important role of social determinants of health. Participants also discussed the distribution of environmental health services, equitable housing, and environmental justice considerations in environmental protection policies.

Cross-cutting Issues: The mind mapping exercise and related discussions also led to the identification of cross-cutting environmental issues, or issues that were related to, or impacted by, other topics within the mind map. These cross-cutting issues included lead (Pb), environmental justice and equity, children's health, mental health, and community design. Lead relates to many environmental media (air, water, soil) and exposures can come from various sources (e.g., drinking water, food, lead paint, dust, and soil). Lead exposure is a concern for children's health and has ties to community design and environmental justice issues. Environmental justice cuts across all nodes of the mind map, with participants noting special connections to climate change impacts and the built and natural environment. Finally, participants discussed community design as a cross-cutting issue related to pollutant exposure, environmental equity, climate change, and the indoor environment.

Break-Out Session Two

Discussion during the second break-out session focused on opportunities for cross-sector and cross-disciplinary communication, engagement, and collaboration. Several themes emerged during these discussions.

COVID-19: Participants discussed the current global pandemic within the context of fostering cross-sector and cross-disciplinary interactions by necessity that otherwise might not have occurred. Participants noted benefits of proactively pursuing cross-sector and cross-disciplinary collaborations in non-emergency times so those trusted relationships already exist when public health emergencies arise. Participants also noted the importance of expanding professional networks to include individuals from other disciplines. It was noted that the COVID-19 pandemic created an opportunity for these cross-sector/disciplinary collaborations, and they should be fostered and strengthened.

Training and Workforce Development: The theme of workforce development and training was a thread throughout the break-out sessions. Participants discussed the need for continued investment in the public health workforce, and the need for training was identified as a priority by all participants. The health care providers at the meeting noted that environmental health is not frequently a focus in health care training programs, and participants identified this as an opportunity. Participants also noted the importance of workforce investment and development considering the COVID-19 pandemic.

Information Sharing: Participants discussed trusted sources of environmental health information and noted the reliance on the published peer-reviewed scientific literature as a primary source of information. Participants also noted that workshops, professional meetings, blogs, and newsletters were platforms that foster information sharing and dialogue. An underlying theme was the importance of seeking sources of information that are scientifically rigorous and unbiased.

Communication and Risk Communication: Communication and risk communication were strong themes throughout the second break-out session focused on collaboration opportunities. Participants noted that cross-disciplinary efforts can strengthen risk communication messaging to the public. It was noted that scientifically rigorous information must be communicated in an unbiased manner and may often need to be communicated to populations with varying levels of expertise. Participants noted the importance of providing health information in various formats (written, verbal, graphic) to address the differing preferences of recipients of the information. Overall, collaboration across disciplines on communication and risk communication was identified as an opportunity. For example, clinicians participating in the workshop noted the need for plain language summaries of environmental health topics that they could share with patients and caregivers. They noted that a resource library of environmental health topics relevant to patient concerns could be helpful. Other participants noted the importance of consistent messaging across different sectors' disciplines, further highlighting a need for cross-sector/disciplinary collaboration.

Conclusions and Next Steps

EPA-ORD convened this workshop to better understand the environmental health priorities of various public health and health care professionals and to inform approaches to coordinate with these partners as prevention (public health) and treatment (healthcare professionals) all play a role in protecting and improving our nation's environmental health.

The mind mapping approach and subsequent workshop provided a visual and interactive way to identify and discuss mutual environmental health issues of concern across disciplines and explore collaboration opportunities around these common areas. Major themes that emerged were:

- There are multiple environmental health topics that are common priorities for public health practitioners, health care professionals, and public health agencies. Cross-sector/disciplinary network building and dialogue should be fostered over time and not emerge only during times of public health crisis.
- The emergence of a global pandemic did not diminish the environmental health priorities of the participants. Rather, the importance of these environmental health priority areas was illuminated and strengthened because of the pandemic.
- Communication and risk communication are themes that cut across the entire workshop. There may be opportunities to convene topic-specific cross-sector/disciplinary dialogue around the idea of communicating risk on specific issues.
- Actionable information is an important resource. Federal agencies with an environmental health mandate may be well-positioned to play an important role in developing and sharing this information with public health and health care professional partners.

While the workshop had to be rescheduled due to the pandemic, it became a critical discussion point about lessons learned and areas of opportunity illuminated by the pandemic for closer collaboration in the future. The information from this workshop can help EPA-ORD inform research plans and outreach strategies and may lead to further, more refined cross-disciplinary and cross-organization discussions, research, and action around the specific environmental health topics of mutual concern.

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Appendix A – Master Mind Map Primary Nodes

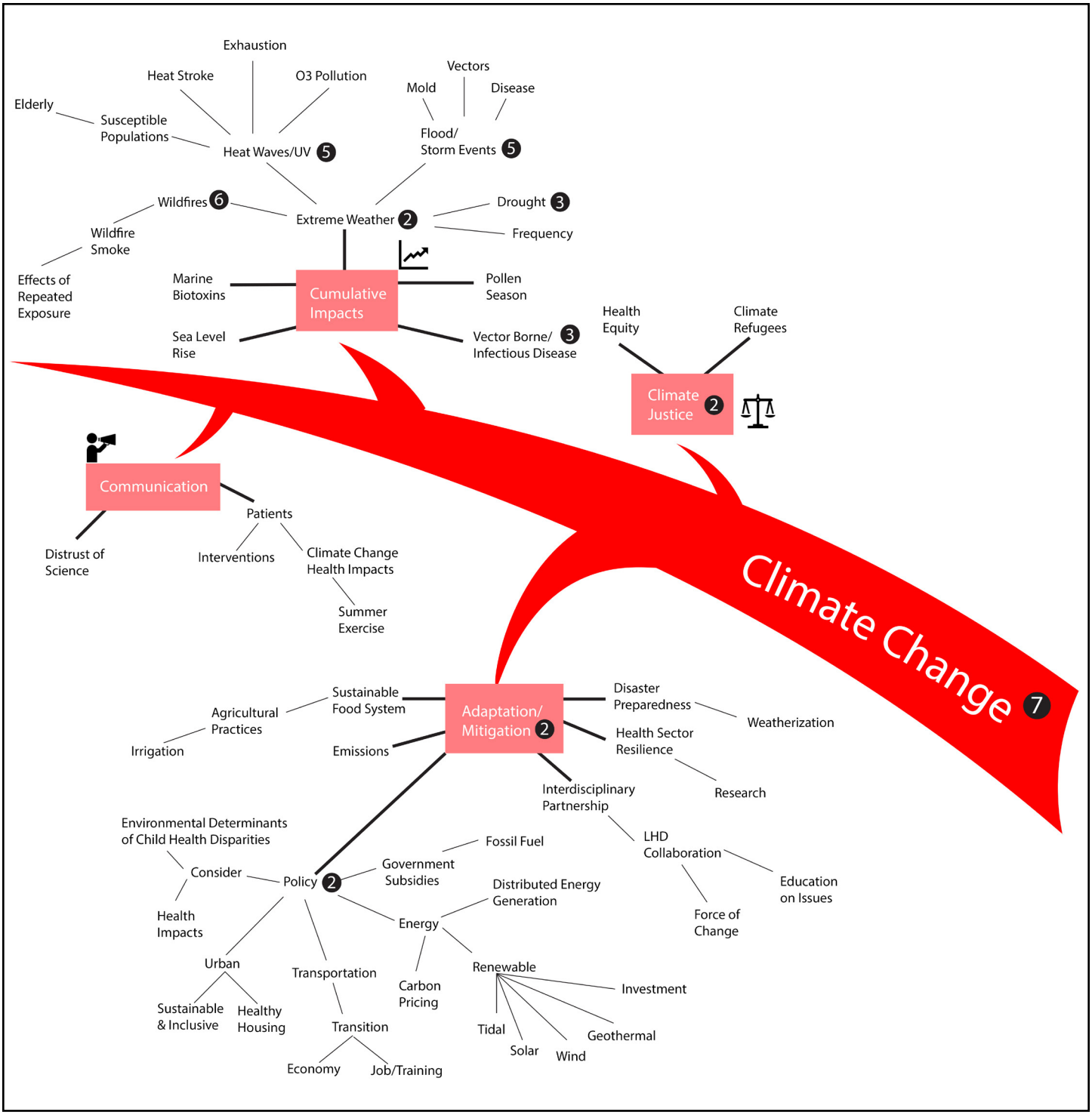

Figure 4. Primary Node – Climate Change

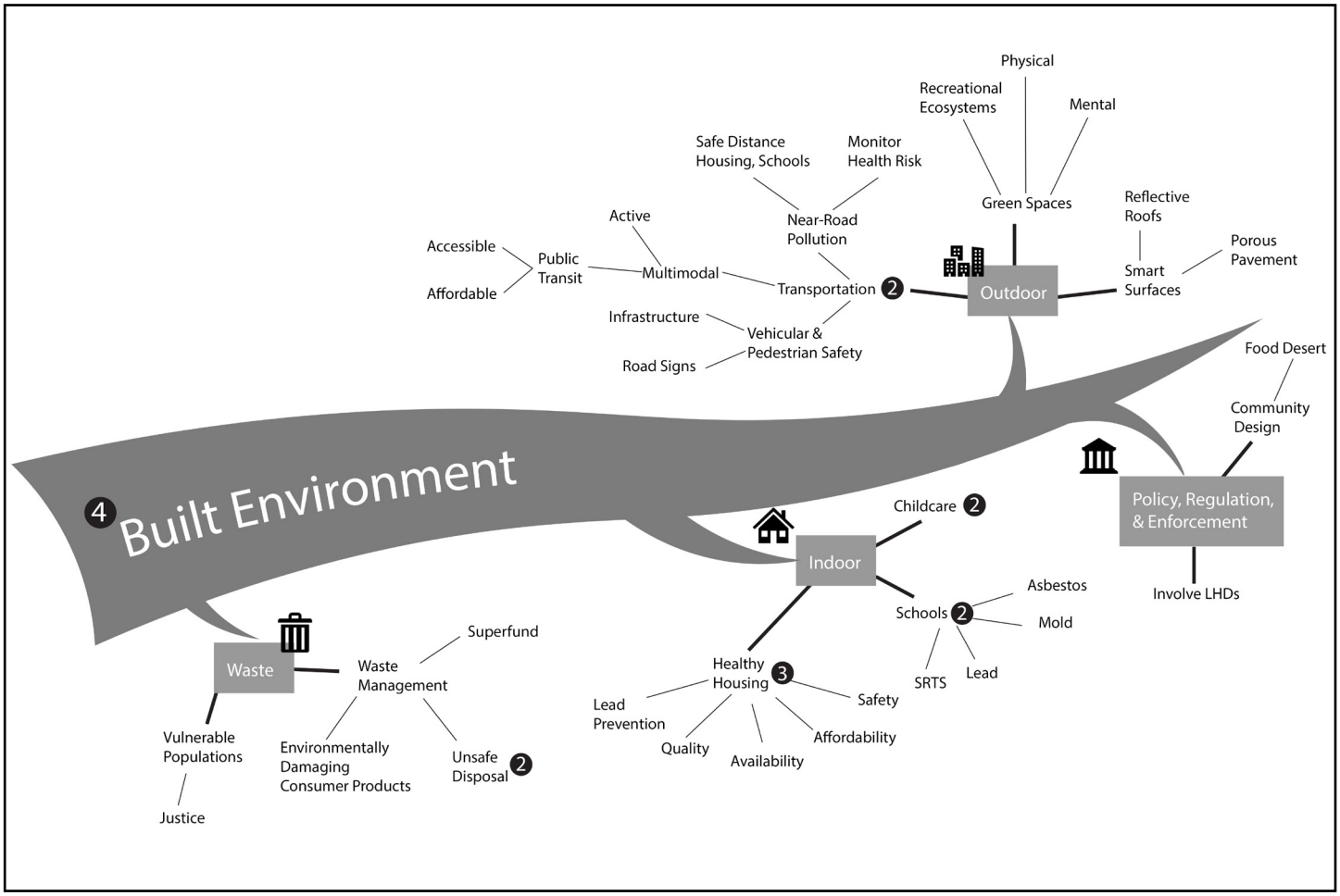

Figure 5. Primary Node – Built Environment

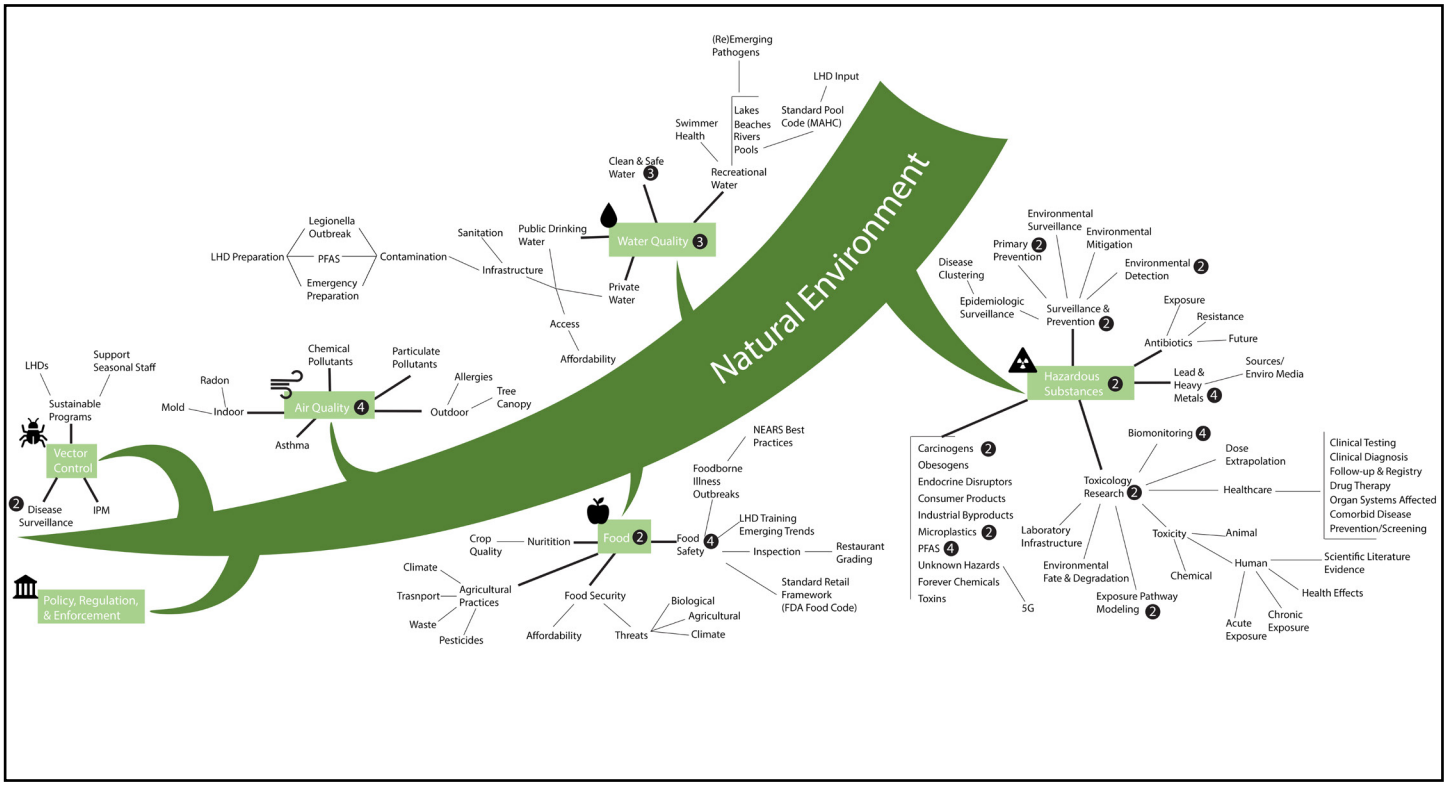

Figure 6. Primary Node – Natural Environment

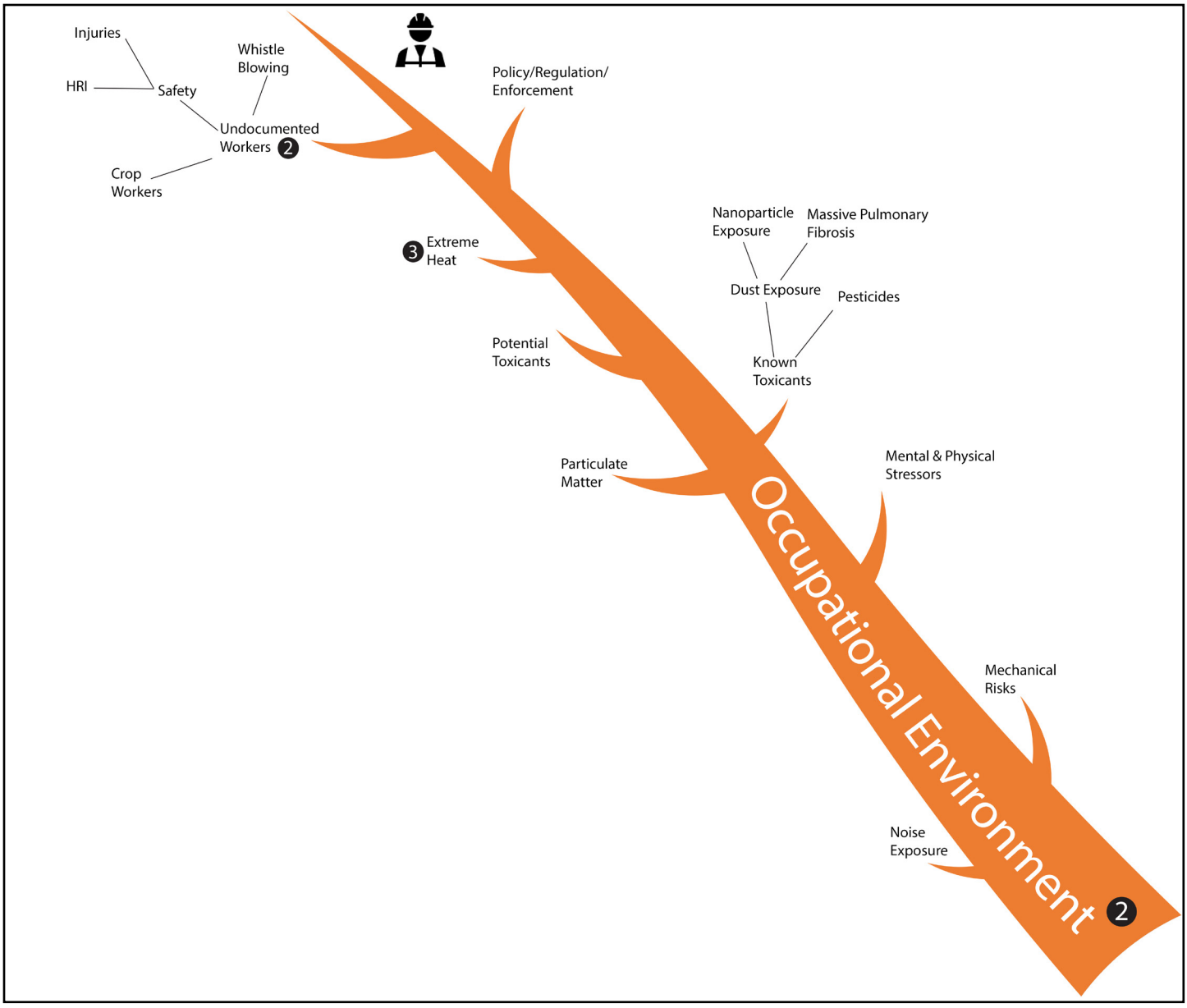

Figure 7. Primary Node – Occupational Environment

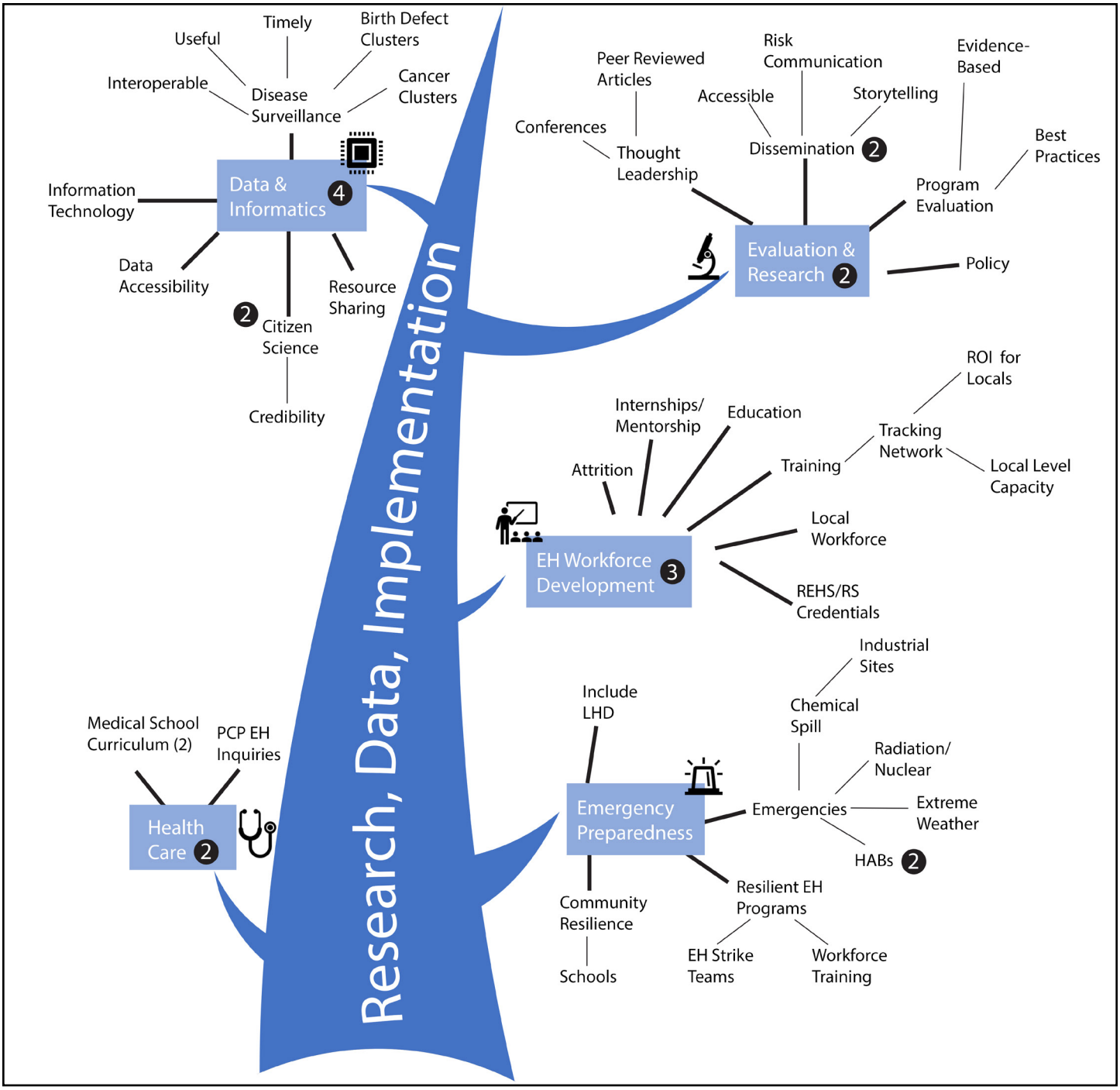

Figure 8. Primary Node – Research, Data, & Implementation

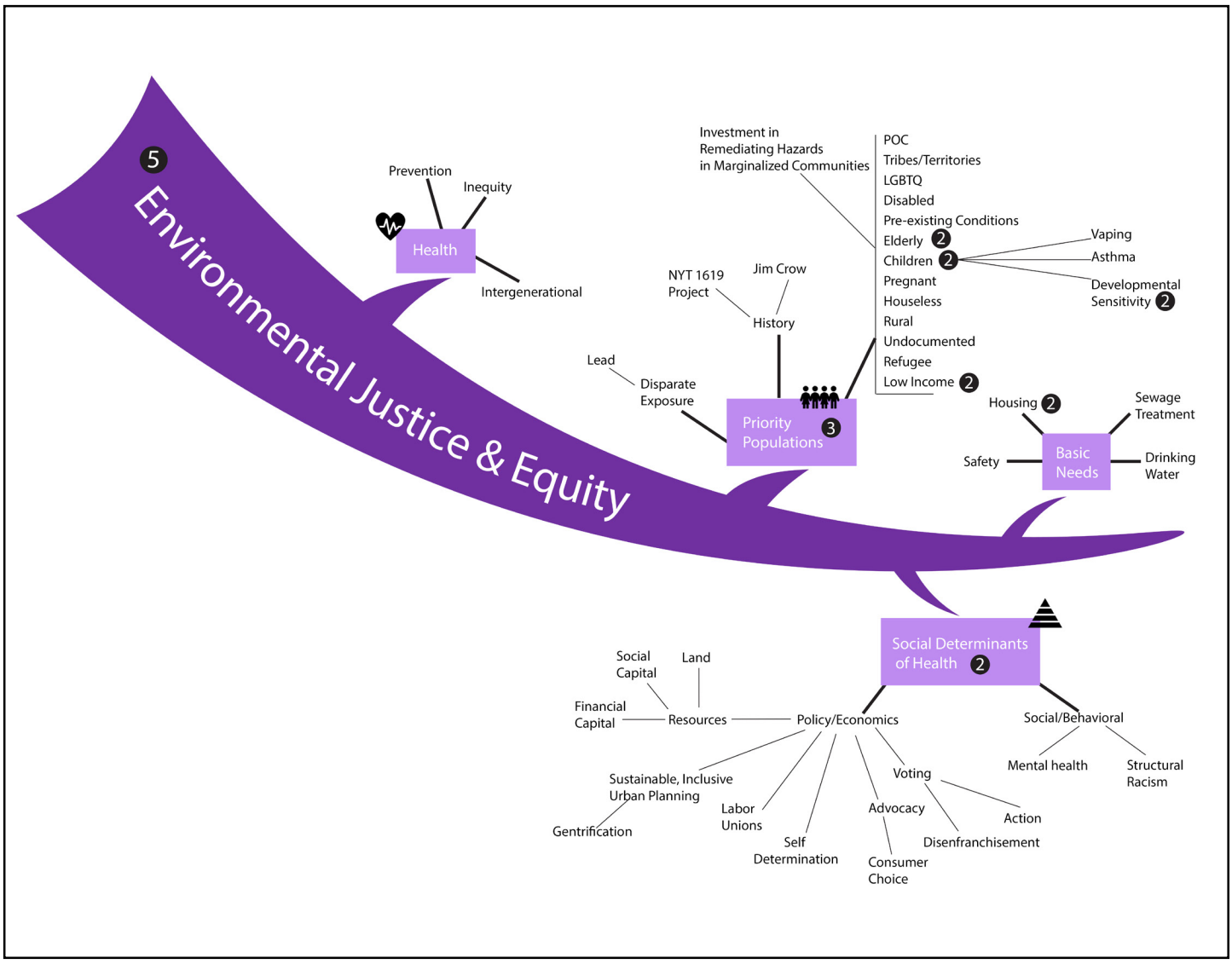

Figure 9. Primary Node – Environmental Justice and Equity

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