



Environmental and Occupational Health Think-Tank Meeting Report

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National Health Security Preparedness Index

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Background

The [National Health Security Preparedness Index](#) (“the Index”) tracks national and state progress in supporting the systems and activities that help keep people safe and healthy in the face of natural disasters, disease outbreaks, and other large-scale health threats. Through four annual releases since 2013, the Index has shown improvement in national health security across most domains that it tracks; however, **the Index’s Environmental and Occupational Health domain has pointed to national stagnation, state declines, and substantial variation across states in environmental health protections.**

To explore these findings in depth and elucidate both practice and measurement implications, the **National Conference of State Legislatures and the Index Program Office at the University of Kentucky jointly convened a think-tank of environmental and occupational health experts** in Washington, D.C., in August 2017. This report documents the discussion and recommendations arising from that think-tank while also providing updates of relevant activities that have occurred in the ensuing period.

The Index: History and Methodology

Initially funded by the Centers for Disease Control and Prevention, the Index was developed in a collaborative effort with more than 30 organizations. From 2013-2014, this effort was led by the Association of State and Territorial Health Officials (ASTHO), the Oak Ridge Associated Universities (ORAU), the University of Pittsburgh Medical Center, and Johns Hopkins University. Together these organizations generated extensive stakeholder input from subject matter experts that shaped Index design and structure, ultimately producing the first two Index releases. In 2015, the Robert Wood Johnson Foundation (RWJF) assumed responsibility for Index production. With leadership from RWJF, a new Index program management office at the University of Kentucky, a new National Advisory Committee, and workgroups comprising dozens of subject matter experts, the Index received key enhancements to measurement and methodology to support tracking protections over time prior to its third and fourth releases in early 2016 and 2017.

Because the Index explicitly recognizes health security as a shared responsibility across many different stakeholders in government and society, it measures capabilities and activities related not only to professional practices and policies but also to community partnerships and social capital. The 2017 release included 139 measures drawn from 59 data sources, together populating 19 subdomains and, ultimately, six domains: 1) Health Security Surveillance; 2) Community Planning and Engagement; 3) Incident and Information Management; 4) Healthcare Delivery; 5) Countermeasure Management; and 6) Environmental and Occupational Health. Since 2015, an expert panel process has been utilized to develop and assign explicit weights to Index measures to inform construction of subdomain, domain, and overall health security composite measures. (See Figure 1.)

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Each Index release since the 2015 production transition has been informed by an annual online open Call for Measures. Disseminated widely through public health, emergency management, voluntary organizations, and other health security and preparedness networks, the Call for Measures seeks to strengthen the Index through identification and consideration of potential new measures in conjunction with the following criteria:

- 1) **Importance:** the measure must reflect an activity, skill, resource or capability that contributes to improved preparedness for minimizing adverse health consequences caused by disasters, outbreaks, and/or other emergencies.
- 2) **Validity:** the measure must be tested for validity and reliability.
- 3) **Coverage:** data for the measure must be available for each U.S. state and the nation as a whole, with valid solutions available for resolving missing data problems.
- 4) **Periodicity:** data for the measure must be collected consistently over time at least once every 3 years.
- 5) **Timeliness:** the most recent year of data available for the measure must be no more than 3 years older than the Index release year.
- 6) **Accessibility:** data for the measure must be in the public domain or agreements must be formed with owners to access data for inclusion in the Index.
- 7) **Parsimony:** the measure must add new or superior information to the Index compared to that of other measures included in the Index, and should not duplicate or compete with other measures.

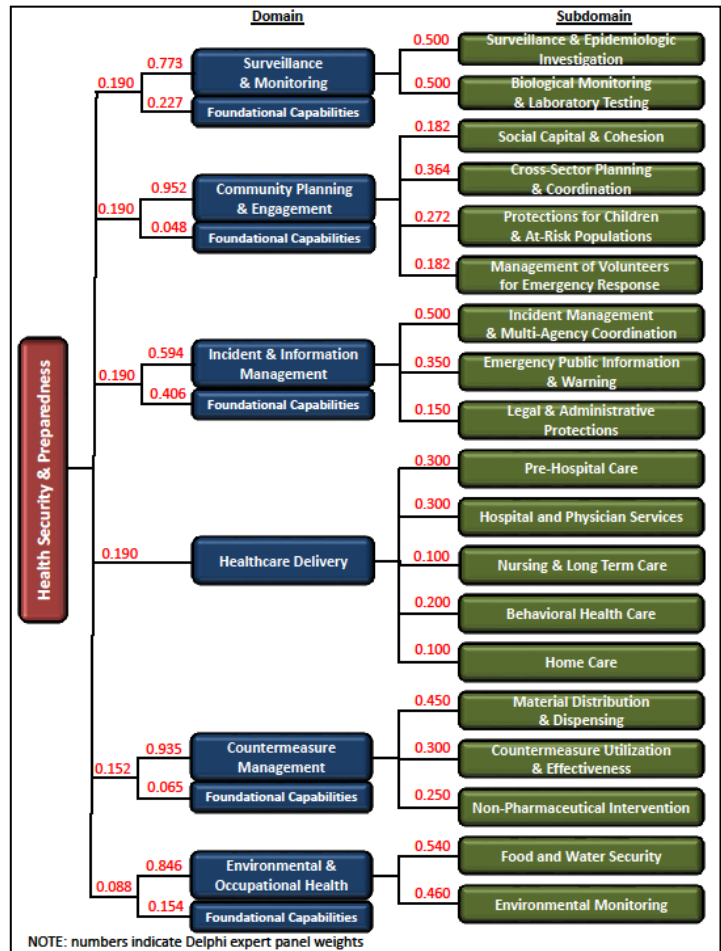


Figure 1. Index Delphi Panel Weights. Source: [Methodology for the 2017 release of the National Health Security Preparedness Index](#).

In addition, the Call for Measures provides an opportunity for stakeholders to recommend and provide rationale for modifications to and/or deletions of existing measures within the Index. Following the Call for Measures, an annual [Public Comment Period](#) encourages stakeholders to share their insights on the suggested Index modifications.

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2013-2016 Environmental and Occupational Health Trends

The Index's Environmental and Occupational Health (EOH) domain tracks the nation's progress in maintaining the security and safety of water and food supplies, testing for hazards and contaminants in the environment, and protecting workers and emergency responders from hazards while on the job. First incorporated by the CDC/ASTHO/ORAU team into the Index's second release in 2014, the initial EOH domain drew heavily from measures transferred from the Health Security Surveillance domain's prior Environmental and Biological Monitoring subdomain, along with data from the U.S. Environmental Protection Agency's Safe Drinking Water Information System and the USDA-supported National Plant Diagnostic Network. These measures, along with the 2017 release addition of a measure tracking Environmental Health Specialists within states via the Bureau of Labor Statistics, comprise two EOH subdomains: 1) Food and Water Security and 2) Environmental Monitoring. **From 2013 to 2016, national EOH domain performance shifted slightly from 7.1 to 6.9 to 7.0**, even as most other domains across the Index have seen significant improvement.

In addition to 18 measures currently within the EOH domain itself, the Index incorporates more than a dozen other measures related to environmental and occupational health in non-EOH domains. For example, Health Security Surveillance tracks relevant laboratory and information-sharing capabilities; Incident and Information Management measures climate change planning and Water Information Sharing and Analysis Center (WaterISAC) participation; and Countermeasure Management incorporates occupational health data related to paid-time off and telecommuting policies. Thus a comprehensive understanding of *all* environmental and occupational health data within the Index requires looking beyond the EOH domain alone. Nevertheless, trends in protections currently tracked in the EOH domain merit thoughtful consideration.

From 2013 to 2016 more than 40% of all U.S. states experienced declines in EOH protections tracked by the Index. An additional 25% of states essentially have held steady, seeing neither declines nor improvement. Yet during the same period, states across the country have experienced steady improvements in most other health security domains tracked by the Index. Furthermore, variation across states is wider for EOH protections than in any other Index domain, with **the leading state achieving protections 2.4 times greater than its lowest-scoring counterpart**. Interestingly, EOH challenges are not confined to states that experience lower levels of overall health security; rather, **more than one-third of the top-tier states in overall health security have experienced declines in EOH performance** over the life of the Index.

2017 Environmental and Occupational Health Think-Tank

Recognizing the significance of concerning trends in this vital domain of health security, the National Conference of State Legislatures (NCSL) and the University of Kentucky's (UK) Index Program Office jointly convened the Environmental and Occupational Health Think-Tank in Washington, D.C. in August 2017. The meeting brought together environmental and occupational health experts to explore drivers and implications of Index findings in the EOH domain. In addition to NCSL and UK, think-tank participants included representatives from the Centers for Disease Control and Prevention, the National

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Environmental Health Association (NEHA), the National Institute of Environmental Health Sciences, the National Governors Association, the Association of State and Territorial Health Officials, the Association of Public Health Laboratories, the National Association of County and City Health Officials, state environmental health leadership, and community-based organizations. The meeting's purpose was threefold: 1) to identify specific policies, practices, and/or measurement issues contributing to variation and declines within the domain; 2) to discuss policy and practice implications for addressing potential drivers; and 3) to develop strategies for strengthening the domain in ways that can more accurately and completely measure environmental and occupational health contributions to health security. In addition to receiving background materials on the Index in advance of the meeting, participants spent the first portion of the day walking through Index history, methodology, and findings in detail prior to tackling the three primary action areas.

Drivers of EOH Domain Findings

Because the current EOH domain in the 2017 release focuses largely on measures of state public health laboratory capabilities, Index findings largely reflect survey data that captures whether state public health departments “provide or assure” specific laboratory testing capabilities. The “provide or assure” standard used in these measures indicates that a state public health agency can achieve the capability either by directly performing the test in its laboratory, or by assuring that another laboratory entity adequately performs the test and reports the results to the public health laboratory. In some states, selected laboratory tests are performed not by the state public health laboratory but by an alternative state government laboratory located outside the state health agency, such as an environmental or agricultural laboratory. In these cases, the public health laboratory must assure that the testing is performed adequately and that the results are reported adequately by the alternative laboratory in order to meet the “provide or assure” standard.

Importantly, the “provide or assure” standard in public health laboratory testing reflects long-standing federal recommendations and national consensus expert opinion about the nation's public health laboratory system. Specifically, this “provide or assure” standard is recommended by the U.S. Centers for Disease Control and Prevention (CDC) and the U.S. Department of Health and Human Services, and is reflected in the nation's Healthy People 2020 goals concerning access to comprehensive public health and environmental health laboratory testing (see: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2846798/>). These national recommendations specify that health-related laboratory testing capabilities are strongest when the designated state public health authority is engaged in the testing and reporting process at some level – either by directly performing the tests or by assuring that alternative laboratories perform the tests adequately. According to these recommendations, the “provide or assure” standard ensures that health-related laboratory testing and reporting is guided by appropriate levels of specialized public health knowledge and expertise found within the state public health agency. This standard provides protection against the possibility that laboratory test results could be misinterpreted as to their public health implications, or that delays could occur in implementing effective public health interventions based on reporting of laboratory test results.

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Practice and Policy Implications of EOH Domain Findings

Even if data were readily available regarding environmental monitoring by non-health state agencies or private entities, such data likely would not adequately provide state-by-state clarity about the role of health agencies in the environmental laboratory communication chain, nor about how this communication chain might affect the speed of taking protective action should non-health laboratory results identify a public health threat. By raising such issues, the Index's current EOH domain composition points to the importance of state-level discussions about public health's assurance role in environmental monitoring.

Measurement Implications of EOH Domain Findings

Think-tank participants also discussed the need for the EOH domain to reflect a more comprehensive assessment of environmental and occupational health protections that extend beyond state public health laboratory capabilities. Additional potential EOH subdomains suggested for consideration include the Built Environment; Responder Safety and Health; Occupational Health and Safety; Hazardous Materials and Waste Management; Vector Control; the Natural Environment; Climate Adaptation; and Extreme Weather Capabilities. Unfortunately, data sources meeting all Index inclusion criteria for a sufficient number of candidate measures to populate all of these subdomains have not been identified to date. Think-tank participants recommended potential data sources for exploration. Among those sources were environmental public health tracking data, FEMA and EMS data, and training and credentialing records from such organizations as NEHA, the American Board of Toxicology, and the Public Health Foundation's TRAIN Learning Network. Participants also noted the need to build expanded environmental health security data collection opportunities into new and existing federal, state, and local activities. In addition, participants strongly recommended incorporating into the Index an assessment of environmental, occupational, and other health security capabilities at the local jurisdiction level to better reflect the U.S.'s tiered preparedness framework.

Formal Recognition of EOH Roles in Protecting Citizens and Communities

The participants discussed a concern that the value provided by EOH professionals in preparedness and response activities often is not adequately recognized. EOH professionals have substantial roles in any major disaster event, beginning with preparedness and continuing through all phases of the disaster management cycle. However, the EOH skill set is not recognized yet as a separate capability in the CDC's Public Health Emergency Preparedness (PHEP) cooperative agreement, which provides funding and standards for preparedness activities in state, local, tribal, and territorial public health departments. For example, EOH activities or protective postures range from providing safe shelter facilities to disaster survivors and responders, to ensuring that potable water systems are rebuilt. The lack of focus as a PHEP capability has delayed recognition of EOH domain value, some of these actions are taken for granted, and the underfunded programs in this area lack clear focus.

Multi-Sectoral Stakeholder Engagement

More generally, think-tank participants discussed the need to better engage and translate Index findings for a broader range of stakeholders beyond public health and emergency management to ensure a more comprehensive picture of and approach to environmental health security. By engaging and ensuring Index

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relevance for more diverse stakeholders, the Index could generate dialogue across the many sectors that relate to environmental health security. Additionally, the Index itself provides an important tool for bringing together multiple public and private partners to assess health security gaps and identify opportunities to improve environmental health protections.

Post-Meeting Activities

Measurement

In the period since the EOH Think-Tank, Index partners have undertaken a number of activities aimed at addressing concerns and recommendations from the group. The Call for Measures launched soon after the meeting specifically requested the submission of measures and data sources related to environmental and occupational health security. By combining recommendations from the think-tank with suggestions from the Call for Measures, nine potential new measures emerged, were preliminarily investigated, and were included in the fall 2017 Public Comment Period before being presented to the Index National Advisory Committee in November. Further investigation of these measures and data sources is now underway to assess their alignment with Index inclusion criteria, as well as the feasibility and utility of their incorporation into the 2018 Index release. The measures – some of which would contribute to two new subdomains – 1) Built Environment and 2) Occupational Health and Safety - have been included in the Delphi survey of subject matter experts to assess their potential weighting in the 2018 Index release. Experts from the think-tank also have been recruited to serve on this Delphi panel.

Engagement

Environmental and Occupational Health trends identified by the Index were highlighted at three national meetings during the months of October and November: 1) the ASTHO Directors of Public Health Preparedness and Response Annual Meeting; 2) the American Public Health Association Annual Meeting; and 3) the National Healthcare Preparedness Coalition Conference. These activities have led to follow-up engagement requests on EOH concerns from both CDC and ASPR regional offices. In addition, another think-tank was conducted in March 2018 to explore the above-mentioned recommendation to incorporate local jurisdiction measures into the Index. Additional opportunities to delve further into the issues highlighted in this report will occur through panels at the April 2018 Preparedness Summit and the 2018 National Environmental Health Association Annual Education Conference.

A national Index-sponsored webinar was conducted in January 2018 to highlight the centrality of environmental health security to overall preparedness. This webinar featured subject matter experts from both practice and research. Webinar promotional activities included outreach to public and private sector audiences; the event was well attended, and a [recording](#) is available on the [Index website](#). The Index Program Office will continue working closely with RWJF and the National Advisory Committee, as well as Think-Tank and workgroup members, to identify additional opportunities to engage representatives from outside public health and emergency management in the Index.

Two [Index blogs](#) have been published to describe the Index [environmental and occupational health protection measures](#) and to encourage discussion on the [public health laboratory “provide or assure” standard](#). Publications in development that related to the Think-Tank include an NCSL informative white

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paper for state legislators that presents both Index background and EOH considerations for policymakers. Other publications in preparation include a journal commentary highlighting the importance of environmental health protections to overall health security and preparedness against the backdrop of recent extreme weather and wildfire events, with think-tank participants invited to contribute as co-authors prior to its submission to a relevant journal.

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