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Measuring Preparedness: The National Health Security Preparedness Index

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Measuring preparedness has been a challenging concept as long as preparedness has been a focus of public health. Preparedness is a dynamic and complex field, requiring scalable and diverse capabilities and functional partnerships across and beyond the field of public health. It is particularly difficult to measure, in part, because it is hard to know how systems will function in an emergency without an actual emergency, but research is often the last thing on anyone's mind during an actual response.

In partnership with the Centers for Disease Control and Prevention (CDC), ASTHO engaged a broad range of critically important stakeholders to develop the National Health Security Preparedness Index (NHSPI). Because of the complexity of the task and the importance of partnerships in the field of preparedness, full participation of these stakeholders in a transparent process was key to the success of this project.

The NHSPI is a first of its kind tool to annually measure and advance our preparedness. It summarizes the state of health security preparedness in each state in a consistent, standardized way. The index gives objective information about how well states and the nation are prepared for public health and other emergency situations, and it can be used to guide efforts to achieve a higher level of health security preparedness. The NHSPI represents the most comprehensive set of health security preparedness measures to date.

The NHSPI mission is to provide an accurate portrayal of our nation's health security using relevant, actionable information. The intended uses include strengthening preparedness, informing decision making, guiding quality improvement, and advancing the science behind community resilience.

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Developing NHSPI

The development of NHSPI was deliberate and transparent from the outset. To maximize stakeholder engagement and confidence in the process, NHSPI partners drafted a set of guiding principles early in the process. These principles are as follows:

1. The NHSPI should accurately and fully reflect health security preparedness of states and the nation.
2. Our nation's health security is influenced by many factors.
3. Responsibility for our nation's health security is shared among the whole community, including all sectors and jurisdictions that work together to prepare for, respond to, and recover from health security threats.
4. The NHSPI aligns with existing national health security and preparedness frameworks.
5. The NHSPI is a "preparedness" index and uses the broad definition of preparedness outlined in Presidential Policy Directive-8* and must be aligned with existing national preparedness frameworks such as the National Preparedness Goal† and the National Health Security Strategy.‡
6. The index should be practical and of greater use than what we currently have.

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*https://www.dhs.gov/presidential-policy-directive-8-national-preparedness
†http://www.fema.gov/national-preparedness-goal
‡http://www.phe.gov/Preparedness/planning/authority/nhss/strategy/Pages/default.aspx

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7. The NHSPI is built on public use data; it does not add data collection burdens to practitioners.
8. Well-organized groupings of information provide a more meaningful picture than the simple sum of its parts.
9. The NHSPI is a call to advance the science of measuring health security preparedness.
10. NHSPI development is a transparent process that includes continuous improvement, stakeholder involvement, and real-world experience.

After building consensus on the guiding principles, the NHSPI team organized itself into committees and workgroups to leverage stakeholder experience and commitment. The steering committee leads the NHSPI development and implementation, including final approval of the measures, with support from the project management office (ASTHO and CDC). The governance workgroup supports the steering committee by managing key predecisional matters and is leading the transition of NHSPI ownership to an organization that can manage the project long-term and ensure its sustainability and growth. The model design workgroup selects candidate NHSPI measures, has developed the initial index structure, and is validating and further developing the index. The stakeholder communications workgroup shares information with and gathers feedback from stakeholders and continues to engage stakeholders as the index is used and refined.

The NHSPI team researched, identified, and vetted many influencing factors, or measures, of our nation's health security. Hundreds of potentially relevant public use data sources were examined to determine whether they met quality criteria (ie, accuracy, reliability, and sustainability). After examining more than 3000 already established measures from more than 120 sources, 128 measures were selected for the first version of the NHSPI coming from more than 35 sources. In December 2013, the NHSPI was launched after a 2-year development process incorporating the practical experience and index development knowledge of more than 25 organizations and 75 individuals representing federal, state, and local agencies, academia, and private sector experts. ASTHO was very fortunate to have the direct involvement of several senior state public health leaders including Dr David Lakey, the Commissioner of the Texas Department of State Health Services, who serves on the steering committee. In addition, feedback was gathered through state health agencies and partner associations including a formal 60-day review period for states of the developmental draft of the index, as well as through the NHSPI Web site and through discussion at meetings attended by the preparedness community. Through this process, approximately 18 000 individual comments were received and considered from more than 125 individual respondents before finalizing and publicly releasing the index.

The development of the index is, itself, a continuous improvement process, whereby measures are selected through research and examination against quality criteria, the structure is developed including domains and subdomains, stakeholders provide input, and the index is revised.

Using NHSPI

The NHSPI is of practical use for both policy makers and practitioners. The index is intended for use at local, state, and national levels to improve quality, inform resource and policy decisions, strengthen collaboration and shared responsibility, and advance the science of measuring preparedness.

While the primary focus and utility of the index is on state results, there is also much to gain from the national results. The 2013 results (available at www.nhspi.org) show that the nation has made great progress in the areas of health surveillance, incident and information management, and countermeasure management. The nation showed particular strength in the areas of health security surveillance and epidemiologic investigation, laboratory testing, incident management and multiagency coordination, emergency public information and warning, medical materiel management, distribution and dispensing, and countermeasure utilization and effectiveness. Community planning and engagement and surge management are areas in the greatest need of improvement, particularly in the areas of cross-sector/community collaboration, management of volunteers during emergencies, acute and primary care, and mental and behavioral health (Figure).

Since its release in December, the NHSPI was:

- mentioned in the 2014 Omnibus Spending Bill for CDC to coordinate with other federal agencies and provide an update in fiscal year 2015 budget requests to identify needs for public health emergency preparedness and the strategic national stockpile;
- identified by FEMA for it potential for future use as the public health measure in the National Preparedness Report;
- used by several states in budget requests to their state legislatures; and
- received the CDC 2013 *Excellence in Partnering* Award recognizing the contributions of public health partnerships in advancing the mission of CDC/ATSDR by developing relationships and leveraging resources for the effective and efficient delivery of public health programs.

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FIGURE ● The 2013 National Health Security Preparedness Index Domains and Subdomains

The Future of NHSPI

The NHSPI will continue to evolve with real-world input from the stakeholder community. Future versions will incorporate additional domains, subdomains, and concepts that influence the health security preparedness and resilience of states and the nation. As health security preparedness demands change, the index will incorporate new data sources and revisions to its structure. Future releases may incorporate additional sectors such as emergency management, explore additional data sources, add tools to support index use, and consider more advanced model design features such as systems dynamics to more accurately reflect the relationships between the index parts as well as weighting of its components.

We encourage you to engage in the iterative development of NHSPI by going to www.nhspi.org, learning more, and submitting comments and suggestions on the index.

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