The National Health Security Preparedness Index

Summary of Key Findings
April 2017

PREPARED✓
NATIONAL HEALTH SECURITY PREPAREDNESS INDEX

Robert Wood Johnson
Foundation

ational health security improved during 2016, but at a slow and uneven pace across the United States, leaving some states and regions with significantly fewer protections than others. Results from the **2017 National Health Security Preparedness Index** show that preparedness for disasters, disease outbreaks, and other emergencies improved each year since 2013, but current levels of health security remain far from optimal. The national Index reached 6.8 out of 10 in 2016, representing a 1.5% improvement over the prior year and a 6.3% improvement since 2013. Large differences in preparedness persisted across states, and those in the Deep South and Mountain West regions lagged significantly behind the rest of the nation. If current trends continue, the average state will require 9 more years to reach health security levels currently found in the best-prepared states, and 20 more years to reach a strong health security level of at least 9 out of 10. Consequently, health security threats may grow much faster than health security protections in the years to come.

Rising Threats to Health Security

Health security is a state in which the nation and its people are prepared for, protected from, and resilient to events that can adversely impact health status.[1] Hazardous events are unpredictable as to their location, timing, intensity, and geographic reach. For this reason, protections need to be available 'everywhere' in order to prevent disease and injury 'anywhere.' Many health security threats are increasing in frequency and intensity in the U.S. and globally due to a combination of factors:[2]

- Newly emerging and resurgent infectious diseases like Zika, MERS, and Ebola.
- Growing antibiotic resistance among infectious agents.
- Incomplete vaccination coverage.
- Globalization in travel and trade patterns.
- Political instability, violence and terrorism risks.
- Aging infrastructure for transportation, housing, food, water, and energy systems.
- Extreme weather events including storms, fires, floods, droughts, and temperature extremes.
- Cyber-security vulnerabilities.

1 | National health security increased consistently during 2013-16, but at a relatively slow rate. If current trends persist, the U.S. will require 20 years to achieve a strong health security level of at least 9.0
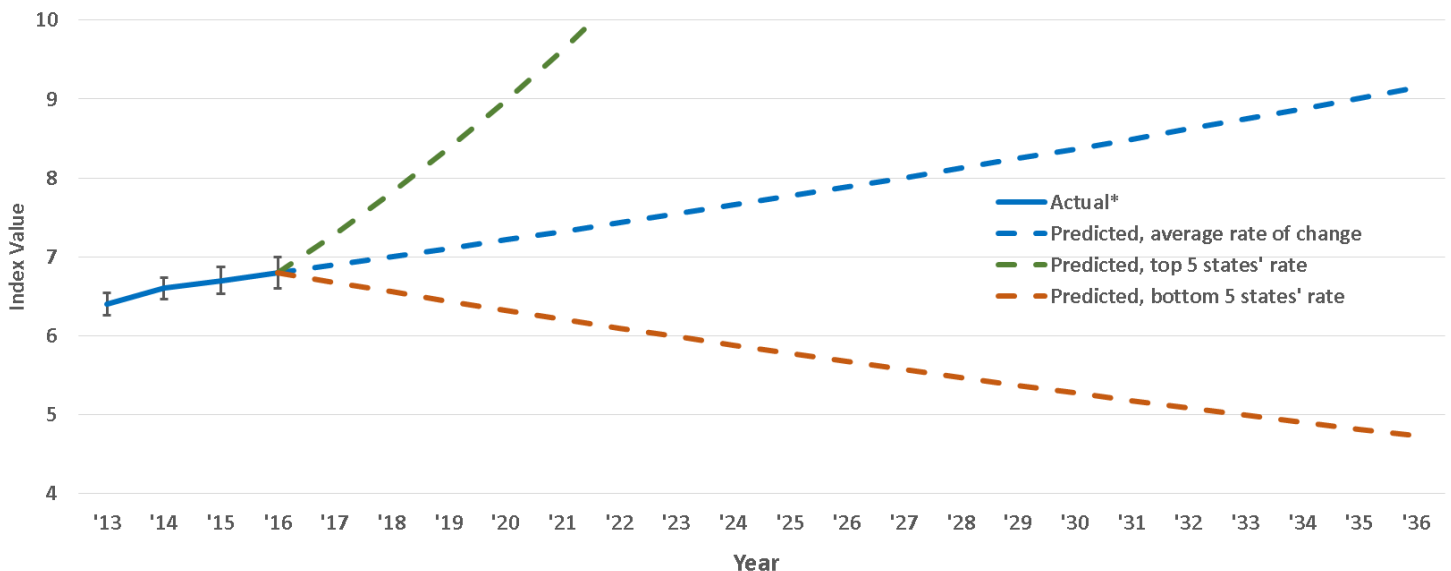
NOTE: Vertical lines indicate confidence intervals. *Four-year trend is statistically significant.

The Index tracks the nation's progress in preparing for, responding to, and recovering from disasters, disease outbreaks and other emergencies that pose risks to health and well-being. Because health security is a responsibility shared by many different stakeholders in government and society, the Index combines measures from more than 50 sources and multiple perspectives to offer a broad view of preparedness.[2] Aggregating large volumes of data from national household surveys, medical records, safety inspection results, and surveys of health agencies and facilities, the Index

produces composite measures of health security for each U.S. state and the nation as a whole. The Index reveals strengths as well as vulnerabilities in the protections needed to keep people safe and healthy in the face of emergencies, and it tracks how these protections vary across the U.S. and change over time.

Key Findings

■ **Consistent National Progress:** The U.S. posted a fourth consecutive year of gains in health security for disease outbreaks, disasters and other large-scale health emergencies, with the national Index reaching its highest level of 6.8 out of 10 in 2016 (**Figure 1**). This result represents a 1.5% improvement from the previous year, and a 6.3% improvement from 2013. The Index showed gains in a total of 33 states between 2015 and 2016, while it declined in 4 states and remained unchanged in 14 states.

■ **Sluggish Pace of Improvement**: The national Index increased by only a tenth of a point between 2015 and 2016, and by only four-tenths of a point since 2013. At current rates of improvement (1.5% per year), the U.S. as a whole will require 9 years to reach the 2016 health security levels enjoyed in the most-prepared states (7.7), and 20 years to achieve a *strong* health security level of at least 9.0 out of 10. By accelerating improvement to match the rates achieved in the 5 fastest-improving states, the U.S. as a whole could reach strong health security levels in as few as 4 years (**Figure 1**). Conversely, if national rates regress to the negative rates of change observed among the lowest 5 states, national health security could fall to its lowest level on record by 2020.

■ **Persistent Inequities in Protection:** The nation's health protections are not distributed evenly across the U.S., with a gap of 31% between highest and lowest states in 2016. States in the Deep South and Mountain West regions experienced significantly lower health security levels than their counterparts in the Northeast and Western Pacific (**Figure 2**). These low-protection regions contain disproportionate numbers of low and moderate income residents and rural residents who have fewer personal and community resources to draw upon in the event of an emergency. State inequities in preparedness were largest in environmental and occupational health, where the leading state achieved a preparedness level 2.4 times higher than the lowest state in 2016. Gaps between the highest and lowest states also exceeded 2.0 for community planning and engagement and for healthcare delivery (**Figure 6**). Large differences in health security across states weaken national preparedness by limiting the ability of state, federal and local stakeholders to work together and share information and resources, a function known as interoperability. These gaps are particularly troubling because they leave some communities more vulnerable to disasters and emergencies than others, contributing to inequities in population health and well-being. The Index results suggest a need for sustained national efforts focused not only on improving health security levels overall, but also on closing gaps in preparedness across states and communities.
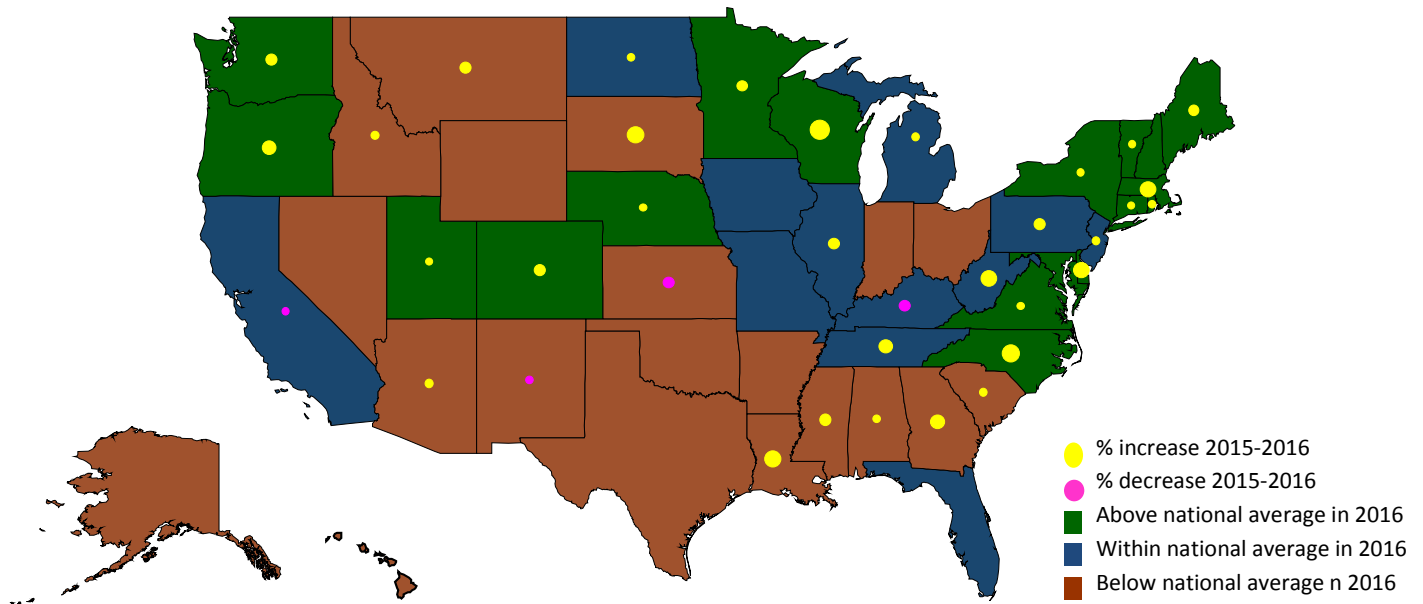
> **What the Index Measures**
>
> The Index includes 139 measures grouped into six broad domains of health security:
> - **Health security surveillance**: detecting and monitoring health threats, and identifying where hazards start and spread so that they can be contained rapidly;
> - **Community planning and engagement**: maintaining supportive relationships among government agencies, community organizations, and individual households; and developing shared plans for responding to hazards;
> - **Information and incident management**: deploying people, supplies, money and information to the locations where they are most effective in protecting health and safety;
> - **Healthcare delivery**: ensuring access to high-quality medical services across the continuum of care during and after emergencies;
> - **Countermeasure management**: storing and deploying medical and pharmaceutical products that protect against diseases and toxic agents, including vaccines, prescription drugs, masks, gloves, and medical equipment;
> - **Environmental and occupational health**: maintaining the security and safety of water and food supplies, testing for hazards and contaminants in the environment, and protecting

2 Geographic disparities in health security are large and persistent. States in the Deep South and Mountain West lag behind the Northeast and Pacific Coast states.

Legend:
- 🟡 % increase 2015-2016
- 🟣 % decrease 2015-2016
- 🟢 Above national average in 2016
- 🔵 Within national average in 2016
- 🟤 Below national average n 2016

■ **Significant Gains in Community Collaboration:** The largest gains in health security occurred in an area of historical weakness for the nation as a whole, that of *community planning and engagement*. Historically, the U.S. has struggled in its ability to develop supportive relationships among government agencies, community organizations, and individual residents and to develop shared plans for responding to emergencies. Relationships that connect people and organizations together make communities more resilient to disasters and can accelerate recovery after events occur. This domain stood out as the nation's weakest area of preparedness in the first Index released in 2013, but it improved by 16.3% as of 2016—more than any other domain monitored in the Index (**Figure 3**). If maintained over time, improvements in collaboration may help states and communities acquire new resources and expertise that strengthen other domains of health security.

■ **Durable Strengths in Emergency Management**: The nation's strongest capabilities in health security exist in *incident management*, the ability to follow a standardized approach in managing the response to emergency events. Strong incident management can lead to faster response times, fewer errors, and more efficient use of resources when emergencies occur. Health security in this domain held steady at 8.2 in 2016, significantly higher than any other area monitored in the Index (**Figure 3**). These results reflect more than a decade of national focus on training government agencies, health professionals and community leaders in the incident command process and in practicing these skills regularly through exercises, drills and real events.

■ **Health System and Environmental Vulnerabilities:** The U.S. failed to achieve significant improvements in healthcare delivery and in environmental/occupational health as of 2016, even as the nation grew stronger in other domains of activity (**Figure 3**). Healthcare providers in many states and communities are responding to shifts in health insurance coverage and adapting to new models of healthcare delivery and financing in the wake of the federal Affordable Care Act, while operating in an increasingly uncertain health policy environment. These developments make it more difficult for health system leaders to devote adequate attention and resources to the unmet health security needs within their communities.

At the same time, extreme weather events are increasing in frequency and intensity in many parts of the U.S. placing added stress on food and water systems, fire protection, housing, energy, transportation, and other key infrastructure.[4]

The lack of significant progress in healthcare and environmental aspects of health security over the past four years indicates a need for renewed attention to these elements of preparedness. States may be able to strengthen health security in these areas by building stronger community coalitions and networks.

3 | Health security trended upward in most domains during 2013-2016, except in healthcare delivery and environmental/occupational health. The largest gains occurred in community planning/engagement.
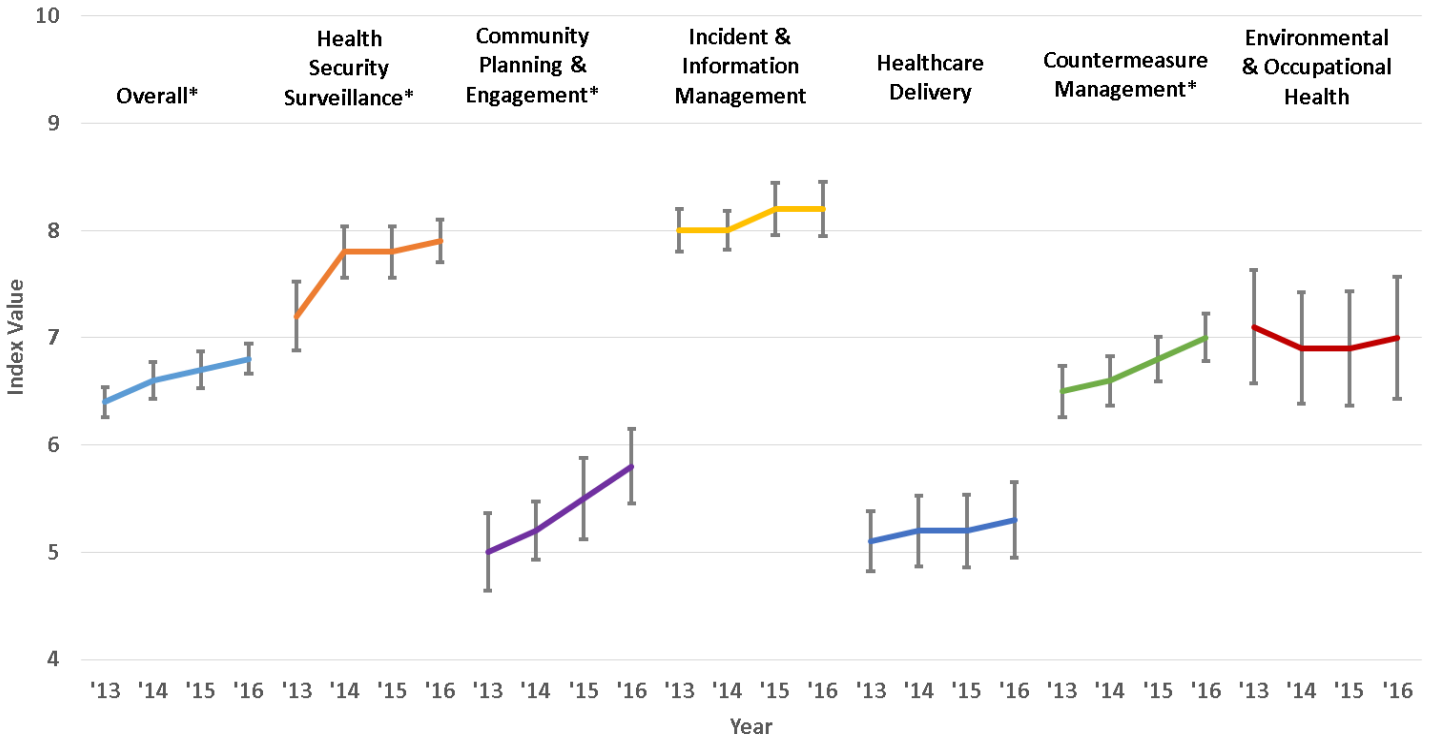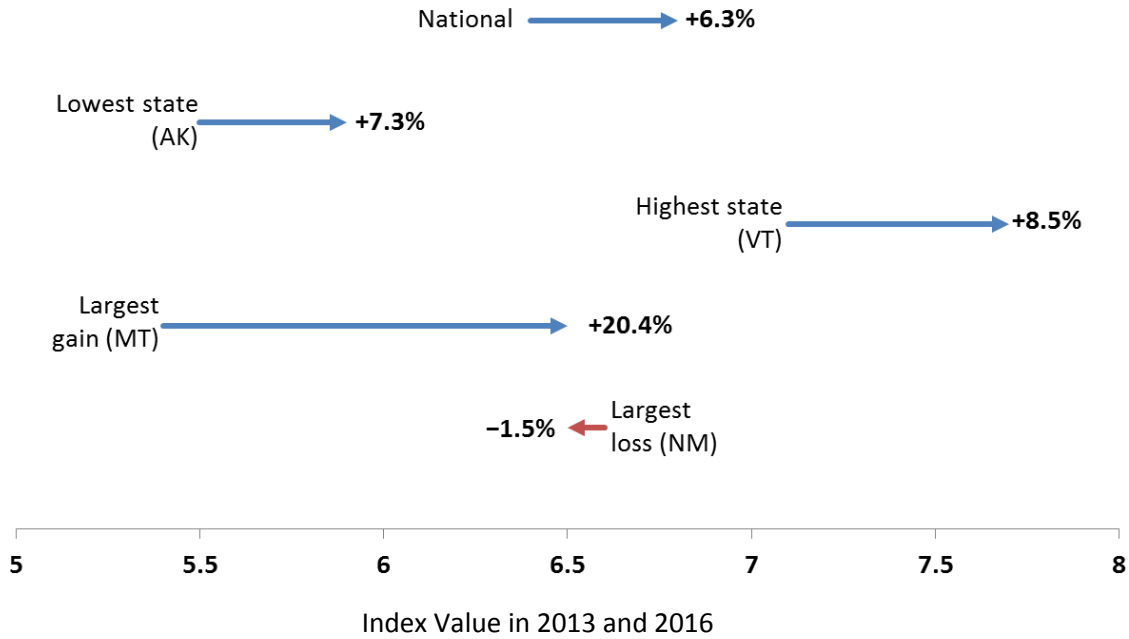

NOTE: Vertical lines indicate confidence intervals. *Four-year trend is statistically significant.

■ **Improvements in Leading and Trailing States:** Overall, gains in health security far surpassed losses among states during the period 2013-16, indicating that many stakeholders found ways to improve their operations and respond to emerging hazards despite ongoing resource constraints (**Figure 4**). States experiencing the largest gains in health security were distributed relatively evenly across the U.S., and included states that both lead and trail the nation in overall preparedness levels. These results demonstrate that improvements are possible in many different circumstances, including states that have already acquired robust health security capabilities as well as states that have many unmet needs (**Figure 5**).

■ **Prioritizing Areas of Stagnant and Declining Security:** A total of 18 states experienced stagnant or declining levels of health security between 2015 and 2016, even as the nation as a whole gained strength (**Figure 5**). Many other states failed to make progress in specific domains such as healthcare delivery and environmental health, even when they achieved improvements in other domains. The direction and magnitude of change in health security varied widely across states and domains (**Figure 6**), indicating a need for heightened attention to specific geographic areas and functional capabilities that show signs of vulnerability. Because each state's portfolio of strengths and weaknesses is relatively unique, individual states need to develop tailored approaches to health security priority-setting and improvement.

4 Gains in state health security far surpassed losses between 2013 and 2016. Montana's 20% gain moved the state within range of the U.S. average, while New Mexico's loss was less than 2%.
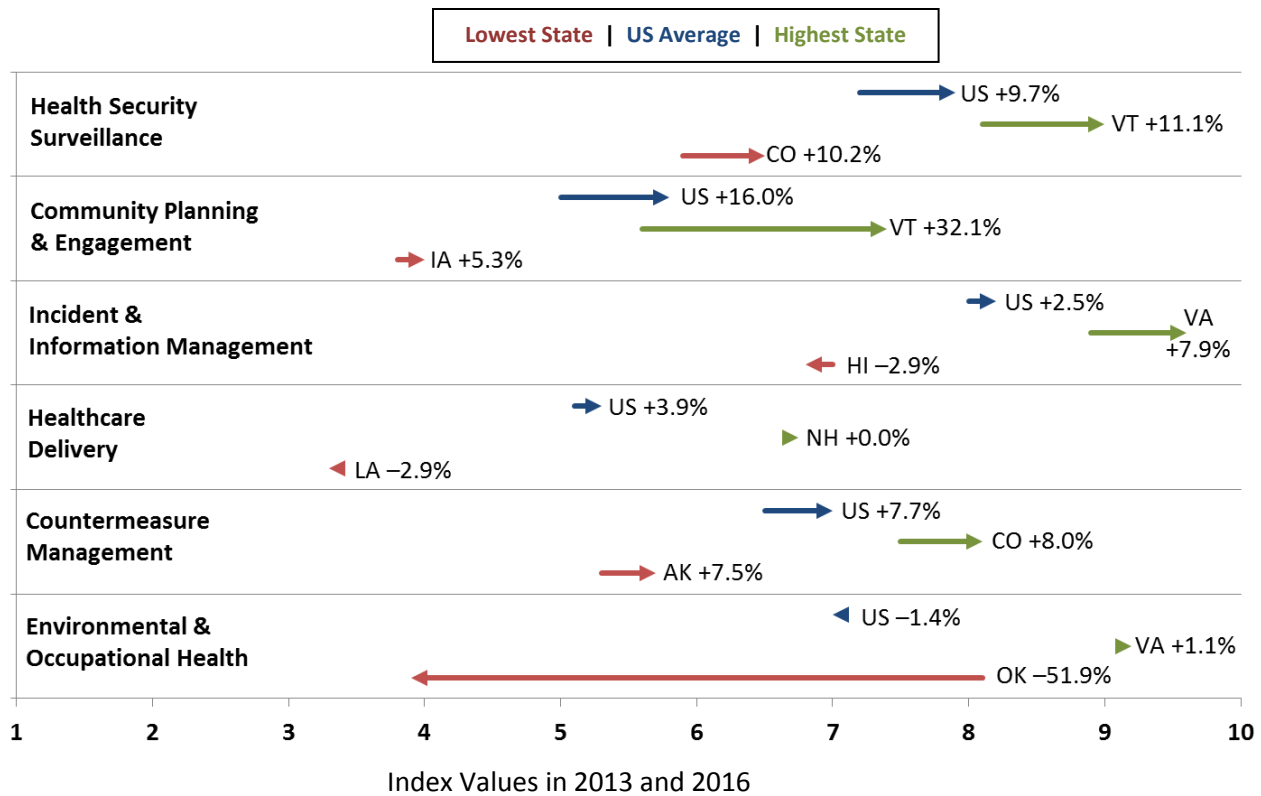

National ⟶ **+6.3%**

Lowest state (AK) ⟶ **+7.3%**

Highest state (VT) ⟶ **+8.5%**

Largest gain (MT) ⟶ **+20.4%**

−1.5% ⟵ Largest loss (NM)

Index Value in 2013 and 2016

5 Improvements in health security occurred throughout the U.S., including in states that both lead and trail the national average. However, some trailing states continued to lose ground.

Below national average   Within national average   Above national average

2016 Index Value
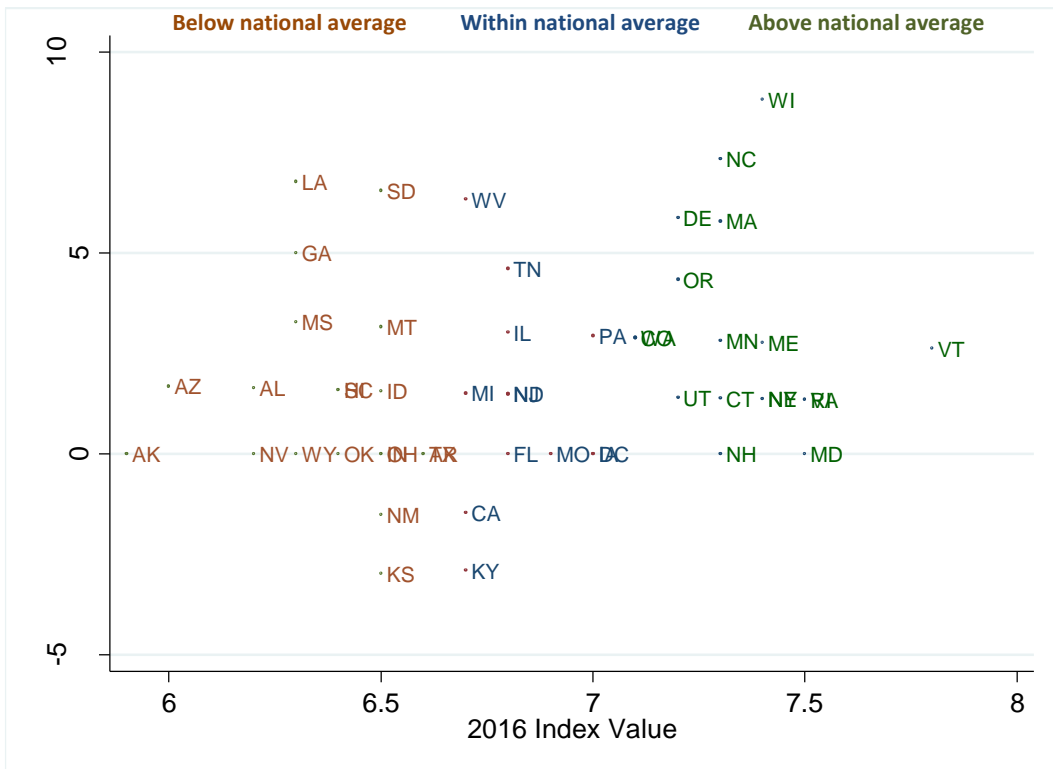
■ **Inequities Linked to Poverty and Coverage Gaps:** Poverty and health insurance coverage are strongly linked to state health security levels as measured by the Index (**Figure 7a**). States with higher poverty levels have fewer public and private resources available to invest in health protections, and these states also face many competing demands on their resources. Federal aid helps to reduce differences in fiscal capacity across states, but federal preparedness funding falls far short in eliminating the health security gaps that exist between affluent and poorer states. After a brief period of growth following the September 2001 terror attacks, dedicated federal funding for health security and preparedness has declined sharply over time.[2]

6 | **Changes in health security levels between 2013 and 2016 varied widely across states and domains. Vermont and Virginia were the only 2 states that led the nation in more than one domain.**

Lowest State | US Average | Highest State

| Health Security Surveillance | US +9.7% | VT +11.1% | CO +10.2% |
Community Planning & Engagement	US +16.0%	VT +32.1%	IA +5.3%
Incident & Information Management	US +2.5%	VA +7.9%	HI −2.9%
Healthcare Delivery	US +3.9%	NH +0.0%	LA −2.9%
Countermeasure Management	US +7.7%	CO +8.0%	AK +7.5%
Environmental & Occupational Health	US −1.4%	VA +1.1%	OK −51.9%

Index Values in 2013 and 2016

Health security is stronger among states that have achieved higher rates of health insurance coverage among their residents (**Figure 7b**). Hospitals, physicians, and other healthcare providers are able invest more time and resources in health security activities when they face fewer obligations to provide free and discounted medical care for uninsured patients. When disasters occur, health insurance—along with property insurance and other forms of coverage – helps to spread the costs of recovery evenly across families, businesses, and governments.[5] By spreading risk broadly across society, insurance coverage promotes resiliency and helps communities bounce back faster from adversity. Federal and state efforts to expand health insurance coverage under the Affordable Care Act and other health reforms have strengthened health security significantly, but these gains have accrued unevenly across the U.S.

7 | Health security varies inversely with state poverty levels and the proportion of the population without health insurance coverage. Recent gains in coverage have strengthened health security in many states.

A. Poverty

B. Health Insurance
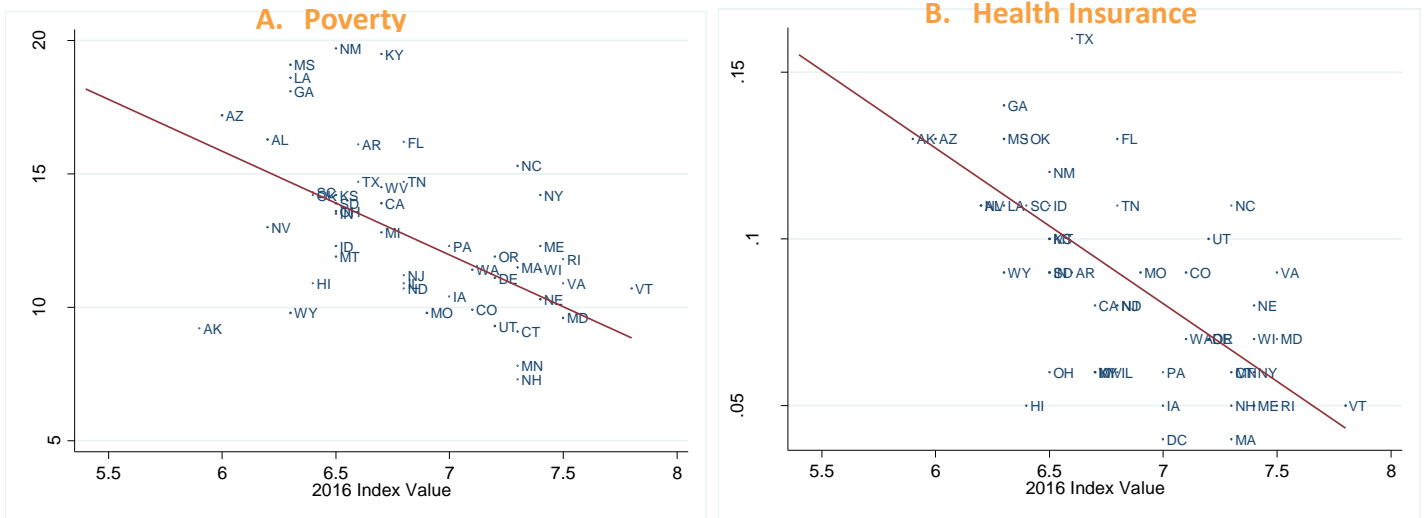
■ **Employment Policies and Workforce Health Security:** The proportion of American workers who receive paid time off from their employer trended downward over time (**Figure 8**), raising risks of disease transmission in the workplace and making it more difficult for workers to accommodate school or workplace closures in the event of an emergency.[6]

Conversely, workers who telecommute to their jobs at least some of the time have risen since 2014, preparing more workplaces to maintain core operations during emergencies. Low-wage workers are much less likely to be covered by these employment policies, giving rise to another source of inequity in health security.

8 | Employment policies and practices drive health security in the workforce. Workers with paid time off have trended downward, while telecommuting among workers is on the rise.
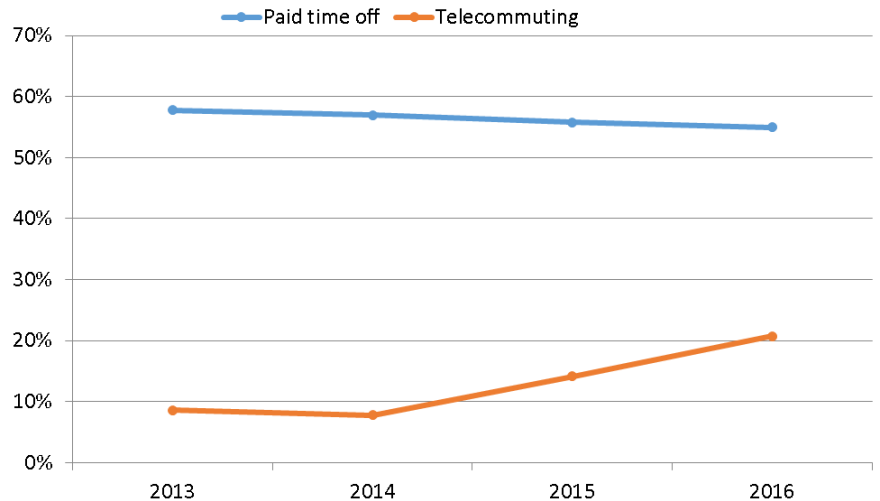

■ **Cross-Sector Networks Gain Strength:** Communities across the U.S. continued to make progress in developing strong multi-sector relationships among organizations in healthcare, public health, housing, transportation, and other social service sectors (**Figure 9**). As of 2016, more than 40 percent of U.S. communities had a multi-sector network in place that met the definition of a *comprehensive public health delivery system* by implementing a broad scope of nationally-recommended public health activities and engaging a diverse network of collaborating organizations in these activities. Research shows that communities with comprehensive systems experience improved health status and lower healthcare resource use over time.[7] These networks have been slower to develop in rural communities than in urban areas, contributing to rural/urban differences in health security.

9 | **Communities with strong multi-sector networks supporting public health activities have increased over time. However, these networks have been slower to develop in rural areas.**
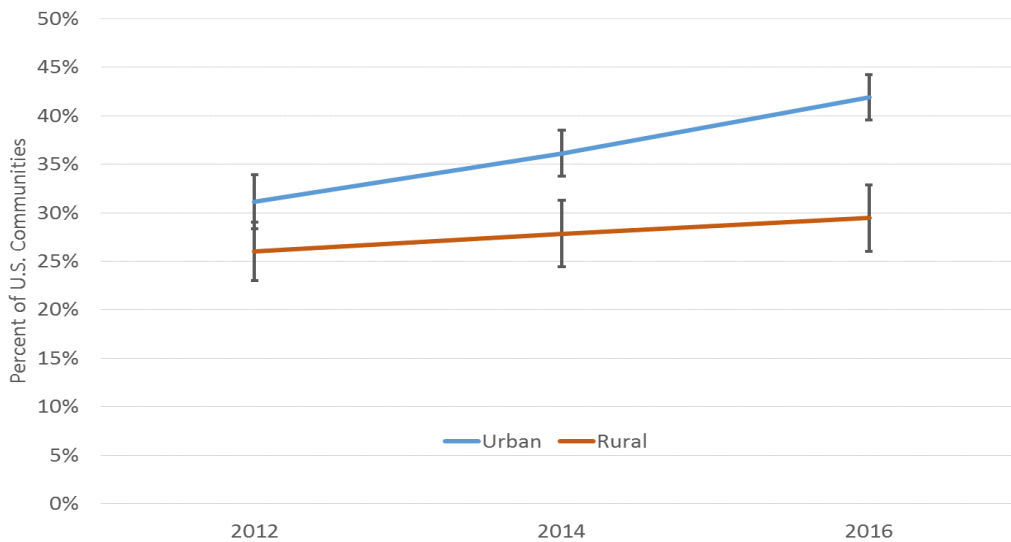
◼ **Preparedness Coalitions Expand Their Reach:** Healthcare preparedness coalitions have expanded their membership in many states and regions, engaging a growing share of organizations that help to bolster access to medical care during and after emergencies. The proportion of hospitals, emergency medical service (EMS) providers, local emergency management agencies, and local public health agencies that participate in a healthcare preparedness coalition increased steadily over time since 2013 (**Figure 10**). These coalitions, supported by the federal Hospital Preparedness Program of the U.S. Assistant Secretary for Preparedness and Response, help local healthcare and emergency organizations share resources, develop emergency plans and protocols, and coordinate responses to emergency events.[8] As such, coalitions provide a promising platform for organizing quality improvement initiatives in the healthcare sector that focus on health security and preparedness.

10 | **Participation in healthcare preparedness coalitions by hospitals, public health, and emergency agencies has trended upward since 2013.**
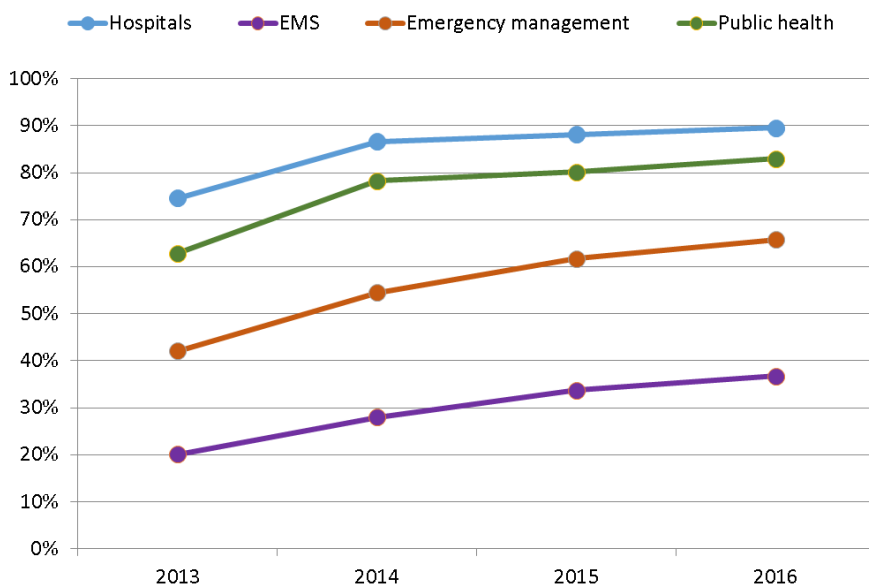
Implications for Policy and Practice

The nation's health protections have grown stronger over time, but they remain insufficient to keep all communities safe and healthy in the face of disasters and emergencies. Improvements in health security are occurring at a slow and uneven pace across the U.S., leaving large segments of the American population at risk. Closing current gaps and inequities in health security will require coordinated actions by government and the private sector. Stakeholders involved in the policy and practice of health security should consider the following strategies for accelerating the pace of progress:

■ **Strengthen and Connect Existing Networks and Coalitions:** Multi-sector networks and coalitions focused on health and social issues are growing steadily across the U.S., including preparedness coalitions that specialize in health security issues. This growth has contributed to rising Index values in many states. Many community networks that have formed outside the preparedness field lack awareness about health security needs in their communities and lack knowledge about strategies for building health security through community collaboration. Health security professionals should work to connect disparate networks and focus their activities on improving health security in geographic and functional areas where gaps and disparities exist. Multi-sector networks are uniquely positioned to leverage existing resources and expertise available in the public and private sectors.

■ **Engage the Private Sector in the Business of Health Security:** The Index demonstrates that key elements of national health security lie within the purview of private sector employers and businesses. Human resource policies involving paid leave and telecommuting options have the potential to boost health security while improving employee productivity, recruitment, and retention.[6] Similarly, employer support for health insurance coverage and household financial planning among their workers can strengthen employee productivity and health security. For these reasons, health security professionals should collaborate with the business community through entities like chambers of commerce and economic development councils to expand the adoption and use of beneficial workforce policies for health security.

■ **Include Health Insurance Coverage as a Security Strategy:** Index results demonstrate that federal and state efforts to expand health insurance coverage over the past four years have helped to boost health security across the U.S. The Affordable Care Act remains controversial and its future remains uncertain. Nevertheless, federal and state officials should continue to support policies that expand access to affordable and comprehensive health insurance coverage as an essential health security strategy for the nation.

■ **Expand Preparedness Planning and Training Across the Health System:** Healthcare delivery remains the weakest domain of health security measured in the Index. The U.S. Centers for Medicare and Medicaid Services recently proposed a set of new preparedness standards that apply to all types of healthcare providers participating in Medicare and Medicaid.[9] The standards require all providers to conduct an assessment of their risks and vulnerabilities to emergency events, develop an emergency response plan based on these risks, develop a communications plan to coordinate care in the event of emergencies, and conduct regular trainings and tests of the emergency plans. Federal and state officials should work to implement these new preparedness standards across the U.S. health system, monitor compliance with the standards, and provide regular feedback to healthcare providers on their progress.

■ **Develop a Health Security Emergency Response Fund:** Federal and state health officials currently lack an effective mechanism for rapidly deploying resources to address newly emerging health emergencies soon after they are detected, when hazards are easiest to contain. Recent U.S. experiences with Zika and Ebola outbreaks and the Flint water crisis demonstrated that emergency response times can be slowed considerably by administrative and political processes that must be followed in requesting new funding and in redirecting existing funding to combat new health threats. Creating a dedicated health security emergency response fund would circumvent these delays by allowing federal and state health officials to rapidly obtain funding for newly emerging health threats.

■ **Identify Costs and Funding Requirements for Equitable Health Security Infrastructure:** Health security requires resources not only for responding to disasters when and where they occur, but also for robust pre-event planning, training and preparation activities in all states and communities. Federal funding for pre-event health security activities has declined sharply in recent years, and the resulting gaps in funding are particularly problematic for low-resource and rural regions. The federal government should consider a phased approach for (1) estimating the costs required to establish a robust health security infrastructure across the U.S.; and (2) increasing federal, state, and local funding contributions to levels that meet these cost estimates. Intergovernmental matching funds requirements can be used to address inequities in resource availability across states and communities based on socioeconomic status and the rural-urban continuum.

■ **Allow for Flexibility in the Allocation and Use of Health Security Resources:** Index results demonstrate that each state's health security strengths and weaknesses are unique and influenced by local socioeconomic, demographic, and environmental circumstances. For this reason, individual states and communities need to develop tailored approaches to health security priority-setting and improvement. Health security funding mechanisms should allow states the flexibility to allocate and use their resources in ways that are responsive to local needs and circumstances.

About the Index

The 2017 Index is the fourth in a series of annual releases of data and analysis on national health security and preparedness. The initial Index releases in 2013 and 2014 were supported by the U.S. Centers for Disease Control and Prevention and developed through a collaborative effort of more than 30 organizations led by the Association of State and Territorial Health Officials (ASTHO), the Oak Ridge Associated Universities (ARAU), the University of Pittsburgh Medical Center, and Johns Hopkins University. This work generated broad stakeholder input that shaped the Index's overall design and structure, and demonstrated the overall utility of the Index concept. In January 2015, responsibility for the Index transferred to the Robert Wood Johnson Foundation, and key enhancements were made to the Index measures and methodology to extend its utility as a measurement tool. Results from the 2017 release of the Index are not directly comparable to prior releases of the Index; however, this Index release includes results for four consecutive annual periods dating back to 2013, thereby allowing for valid comparisons over time.

Index Content and Structure

The 2017 Index measures more than 130 individual capabilities that research and experience have shown to be important in protecting people from the health consequences of disasters, disease outbreaks and other large-scale hazards and emergencies. Because no single agency or organization has the ability to support all of the protections necessary to keep people safe and healthy in the face of these events, the Index reflects preparedness as a responsibility shared by many different stakeholders in government and society. Correspondingly, the Index combines measures from more than 50 different data sources and from multiple sectors in order to offer a broad view of the health security levels achieved for the nation as a whole and for individual U.S. states.

The Index measures are grouped into one of six domains representing broad areas of preparedness activity:

1. *Health security surveillance*: actions to monitor and detect health threats, and to identify where hazards start and spread so that they can be contained rapidly;
2. *Community planning and engagement*: actions to develop and maintain supportive relationships among government agencies, community organizations, and individual households; and to develop shared plans for responding to disasters and emergencies;
3. *Information and incident management*: actions to deploy people, supplies, money and information to the locations where they are most effective in protecting health and safety;
4. *Healthcare delivery*: actions to ensure access to high-quality medical services across the continuum of care during and after disasters and emergencies;
5. *Countermeasure management*: actions to store and deploy medical and pharmaceutical products that prevent and treat the effects of hazardous substances and infectious diseases, including vaccines, prescription drugs, masks, gloves, and medical equipment; and
6. *Environmental and occupational health*: actions to maintain the security and safety of water and food supplies, to test for hazards and contaminants in the environment, and to protect workers and emergency responders from health hazards while on the job.

The Index further divides these six domains into a total of 19 subdomains reflecting specific areas of practice and policy. Individual measures are rolled up into summary measures for each of the 19 subdomains, and then combined into summary measures for each of the 6 domains and an overall Index composite measure. All summary measures are scaled along a range from 0 to 10, with 10 representing the highest level of preparedness. The Index produces summary measures for each of the 50 U.S. states and the District of Columbia individually, and for the nation as a whole. In this fourth annual release, the 2017 Index includes annual measures for the years 2013, 2014, 2015 and 2016.

Index Methodology

Construction of the 2017 Index began with a pool of more than 200 individual measures identified by stakeholders involved in prior releases of the Index, and supplemented by a public call for new measures held during 2015 and 2016. We used a series of measurement validity and reliability tests to eliminate redundant measures and measures lacking a strong empirical association with the Index domain and subdomain areas. Measures for which updated data could not be obtained at least every 3 years for each U.S. state were also eliminated from the Index. The resulting set consisted of 139 individual measures, including a group of 19 measures defined as Foundational Capabilities because they reflect activities that are firmly ingrained in practice in all U.S. states and therefore do not vary across states or over time.

We convened expert panels to determine how much weight to give to each individual measure when rolling them up into summary measures for subdomains, domains, and the overall Index. Experts rated each measure based on its importance to health security and preparedness capabilities represented in each Index subdomain and domain. Before combining measures, each measure was standardized to a common scale using the min-max normalization method, and missing values were imputed using a regression-based multiple imputation method. Weighted averages were used to construct summary measures at the subdomain, domain, and overall Index levels for each state and each year. Foundational Capability measures were constructed as constants and averaged into the domain and overall summary measures using expert panel weights. State measures were then averaged to construct summary measures for the nation as a whole. All summary measures are scaled along a range from 0 to 10, with 10 representing the highest level of preparedness. Confidence intervals were estimated around each national summary measure in order to identify which states fall above, below, or in-line with the national measures.

For more information and full Index results,
visit the National Health Security Preparedness Index website at:
www.nhspi.org

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Appendix:

Measures and Data Sources Included in the 2017 Index

Measure ID, Data Source, and Limitations	Data Date(s)
Domain 1: Health Security Surveillance	
Subdomain 1.1: Health Surveillance & Epidemiological Investigation	
M17* - State participates in the Behavioral Risk Factor Surveillance System (BRFSS)	2012—2015
Source: Centers for Disease Control and Prevention (CDC), Behavioral Risk Factor Surveillance System Survey Questionnaire (BRFSS). Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. Survey data analyzed by PMO personnel.	
Limitations: The BRFSS has significant challenges related to acquiring data on a local scale. Not all states participate in the BRFSS at the same level.	
M18 - {Number of} epidemiologists {per 100,000 population}	2012—2015
Source: Bureau of Labor Statistics (BLS), Occupational Employment Statistics (OES)	
Limitations: This is not a measure of quality as epidemiologists can have varying levels of training and organizations may not always support sufficient continuing education. The measure does not include agency surge plans that can increase the number of epidemiologists available to respond to an event, nor mutual aid plans that can temporarily increase the number of epidemiologists.	
M19* - State participates in the Epidemic Information Exchange (Epi-X) System	2013
Source: Centers for Disease Control and Prevention (CDC), The Epidemic Information Exchange (Epi-X) Program	
Limitations: Participation in the system is inferred from membership of staff and managers in a state, but it may not represent the actual level of attention the organization gives to alerts from the system.	
M20* - State participates in National Electronic Disease Surveillance System (NEDSS)	2013—2015
Source: Centers for Disease Control and Prevention (CDC), Division of Health Informatics and Surveillance (DHIS), National Electronic Disease Surveillance System (NEDSS)	
Limitations: The measure only considers a state's participation in the National Electronic Disease Surveillance System (NEDSS). The measure does not consider the quality of a state's disease surveillance system.	
M22 - State health department has an electronic syndromic surveillance system that can report and exchange information	2012

Measure ID, Data Source, and Limitations	Data Date(s)
Source: Association of State and Territorial Health Officials (ASTHO), ASTHO Profile of State Public Health: Volume Three	
Limitations: Syndromic surveillance systems are an important tool for the early detection of potential disease outbreaks and other events. They rely on traditional disease surveillance and environmental monitoring systems to confirm events.	
M217 - Has your {state public health} laboratory implemented the Laboratory Information Management System (LIMS) capability to electronically receive and report laboratory information (e.g., electronic test order and report with hospitals and clinical labs, surveillance data from public health laboratory to epidemiology)?	2012 & 2014
Source: Association of Public Health Laboratories (APHL), Comprehensive Laboratory Services Survey (CLSS)	
Limitations: Since the introduction of LIMS, newer technologies and standards have been introduced to laboratories, including policies requiring uptake of electronic laboratory reporting (ELR).	
M220 - Does your state have any legal requirement for nongovernmental (e.g., clinical, hospital-based) laboratories within your state to send clinical isolates or specimens associated with reportable foodborne diseases to the state public health laboratory?	2012 & 2014
Source: Association of Public Health Laboratories (APHL), Comprehensive Laboratory Services Survey (CLSS)	
Limitations: The measure does not collect data on what diseases are reportable. States also have requirements to submit the isolates of reportable diseases to public health laboratories.	
M256* - Does your state public health laboratory participate in either of the following federal surveillance programs [Foodborne Diseases Active Surveillance Network (FoodNet) or National Molecular Subtyping Network for Foodborne Disease Surveillance (PulseNet)]?	2012 & 2014
Source: Association of Public Health Laboratories (APHL), Comprehensive Laboratory Services Survey (CLSS)	
Limitations: Participation is a "yes" or "no" determination, though from state to state the scope and quality of participation can vary significantly.	
M23 - {Proportion of} foodborne illness outbreaks reported to Centers for Disease Control and Prevention (CDC) for which an etiologic agent is confirmed	2012—2015
Source: Centers for Disease Control and Prevention (CDC), Foodborne Online Outbreak Database (FOOD)	

Measure ID, Data Source, and Limitations	Data Date(s)
Limitations: Certain states identify and report foodborne illness outbreaks more frequently than other states. This may increase the denominator and lower the state's percentage, creating a misleading view of the state's foodborne disease investigation program.	
M289* - State health department participates in a broad prevention collaborative addressing HAIs (healthcare-associated infections)	2013
Source: Centers for Disease Control and Prevention (CDC), National Healthcare Safety Network (NHSN), Prevention Status Reports	
Limitations: The measure indicates that the state health department is a participant in the prevention collaborative, but the measure does not describe the state's rates of various types of healthcare-associated infections or if the rates are in decline as a result of the prevention collaborative. The measure does not indicate the percentage of state hospitals participating in the prevention collaborative.	
M290 - State has a public health veterinarian	2014 & 2015, 2017
Source: National Association of State Public Health Veterinarians (NASPHV), Designated and Acting State Public Health Veterinarians	
Limitations: A "yes" response indicates that this expert resource is present at the state level, but only implies that the state public health veterinarian is integrated into an animal response plan or is working in coordination with other animal-related resources such as a board of animal health or the state animal response team. The data source provides a list of contact information for each state's public health veterinarian, but no job description details or related material. Also, this source list is maintained for helping direct and develop uniform public health procedures involving zoonotic disease in the U.S. and its territories, so planning for animals in an emergency in the context of the Health Security Surveillance domain may only be a secondary consideration.	
M265 - {State} uses an Electronic Death Registration System (EDRS)	2014—2016
Source: National Association for Public Health Statistics and Information Systems (NAPHSIS), Electronic Death Registration Systems by Jurisdiction (State)	
Limitations: The measure does not account for the quality of the death registration system, nor the timeliness with which deaths can be recorded. It also does not capture any redundant systems that might need to be used in place of the EDRS for certain scenarios such as cyber-attack and power outages.	
M801* - {In which} of the following federal surveillance programs does your {state public health} laboratory participate? [Influenza Centers for Disease Control and Prevention (CDC)/World Health Organization (WHO) Surveillance Network]	2012 & 2014

Measure ID, Data Source, and Limitations	Data Date(s)
Source: Association of Public Health Laboratories (APHL), Comprehensive Laboratory Services Survey (CLSS)	
Limitations: Participation is a "yes" or "no" determination, though from state to state the scope and quality of participation can vary significantly.	
Subdomain 1.2: Biological Monitoring & Laboratory Testing	
M1* - Ability of Public Health Emergency Preparedness (PHEP) Cooperative Agreement-funded Laboratory Response Network chemical (LRN-C) laboratories to collect, package, and ship samples properly during an LRN-C exercise	2011—2013
Source: Centers for Disease Control and Prevention (CDC), Office of Public Health Preparedness and Response (OPHPR), National Snapshot of Public Health Preparedness	
Limitations: In the exercise, all of the samples are simulated and real-life confounding issues like mislabeled specimens or specimens arriving at the laboratory at different times are not included. The current exercise is at best a demonstration of capability although it may not mimic real-life conditions.	
M1314 - Has your chemical terrorism/threat (CT) laboratory OR radiological terrorism/threat (RT) laboratory been certified or accredited by College of American Pathologists (CAP) or Clinical Laboratory Improvement Amendments (CLIA)? (1=Yes, 0=No)	2013—2016
Source: Association of Public Health Laboratories (APHL), All-Hazards Laboratory Preparedness Survey	
Limitations: Certification can be difficult because there are only simulated samples—at least for chemical agents.	
M208 - Does your state public health laboratory have a USDA/APHIS (U.S. Department of Agriculture/Animal and Plant Health Inspection Service) permit for the importation and transportation of controlled materials, organisms, and vectors?	2012 & 2014
Source: Association of Public Health Laboratories (APHL), Comprehensive Laboratory Services Survey (CLSS)	
Limitations: The measure looks at a point in time. The permit must be renewed every year. Specific language is required on the permit; laboratories may not have entered all of the right information.	
M8 - Does your state public health laboratory (PHL) have enough staffing capacity to work five 12-hour days for six to eight weeks in response to an infectious disease outbreak, such as novel influenza A (H1N1)? Or, does your PHL have a plan to handle a significant surge in testing over a six to eight week period in response to an outbreak or other public health event?	2013—2016
Source: Association of Public Health Laboratories (APHL), All-Hazards Laboratory Preparedness Survey	

Measure ID, Data Source, and Limitations	Data Date(s)
Limitations: The measure specifically concerns how a laboratory must surge, or ramp up, their workforce in order to meet the testing demand of an infectious disease outbreak. Laboratories may have different ways of managing surge capacity.	
M9 - Does your {state public health} laboratory have a documented continuity of operations plan (COOP) consistent with National Incident Management System (NIMS) guidelines?	2013—2016
Source: Association of Public Health Laboratories (APHL), All-Hazards Laboratory Preparedness Survey	
Limitations: The measure does not determine if the COOP is laboratory-specific or part of an agency plan. The measure does not evaluate the quality or comprehensiveness of the COOP.	
M11 - Does your {state public health} laboratory have a plan in place to receive samples from a sentinel clinical laboratory during nonbusiness hours?	2013—2016
Source: Association of Public Health Laboratories (APHL), All-Hazards Laboratory Preparedness Survey	
Limitations: The measure may reflect that a laboratory has a plan in place, but does not reflect the frequency with which this plan may be used or tested. The ability to receive samples is only one step among many that result in rapid, accurate testing, which helps inform policy decisions in a response.	
M12 - Does your state public health laboratory currently have the capacity in place to assure the timely transportation (pick-up and delivery) of samples 24/7/365 days to the appropriate public health Laboratory Response Network (LRN) reference laboratory?	2013—2016
Source: Association of Public Health Laboratories (APHL), All-Hazards Laboratory Preparedness Survey	
Limitations: The measure does not evaluate the time between pick-up and delivery. The measure does not look at the percentage of sentinel labs (i.e., hospital-based labs that have direct contact with patients) that are covered by the transport system.	
M211 - Does your {state public health} laboratory provide or assure the following laboratory tests? [arbovirus serology, hepatitis C serology, Legionella serology, measles serology, mumps serology, Neisseria meningitides serotyping, Plasmodium identification, Salmonella serotyping, Shigella serotyping, Varicella serology] The state's value is equal to the percentage of these tests performed.	2012 & 2014
Source: Association of Public Health Laboratories (APHL), Comprehensive Laboratory Services Survey (CLSS)	
Limitations: Laboratories will use a variety of methods to provide this testing, and it is not standard across all PHLs. Laboratories may have a difficult time answering the question, depending on how it is asked.	

Measure ID, Data Source, and Limitations	Data Date(s)
M216 - Does your {state public health} laboratory provide or assure the following laboratory tests? [antimicrobial susceptibility testing confirmation for vancomycin resistant Staphylococcus aureus, Anaplasmosis (Anaplasma phagocytophilum), Babesiosis (Babesia sp.), botulinum toxin—mouse toxicity assay, Dengue Fever, Hantavirus serology, identification of unusual bacterial isolates, identification of fungal isolates, identification of parasites, Klebsiella pneumoniae Carbapenemase (blaKPC) by PCR, Legionella by culture or PCR, malaria by PCR, norovirus by PCR, Powassan virus, rabies] The state's value is equal to the percentage of these tests performed.	2012 & 2014
Source: Association of Public Health Laboratories (APHL), Comprehensive Laboratory Services Survey (CLSS)	
Limitations: Laboratories will use a variety of methods to provide this testing; it is not standard across all PHLs. Laboratories may have a difficult time answering the question, depending on how it is asked.	
M2 - Proportion of Laboratory Response Network biological (LRN-B) laboratory proficiency tests successfully passed by Public Health Emergency Preparedness (PHEP) Cooperative Agreement-funded laboratories	2011—2014
Source: Centers for Disease Control and Prevention (CDC), Office of Public Health Preparedness and Response (OPHPR), National Snapshot of Public Health Preparedness	
Limitations: Proficiency tests are at best a test of a laboratory's capability. Proficiency tests are administered only a few times annually. Laboratories will lack proficiency tests for several years for many of the assays they are capable of performing.	
M3 - Percentage of pulsed field gel electrophoresis (PFGE) subtyping data results for E. coli submitted to the PulseNet (PN) national database within four working days of receiving isolate at the PFGE laboratory	2011—2014
Source: Centers for Disease Control and Prevention (CDC), Office of Public Health Preparedness and Response (OPHPR), National Snapshot of Public Health Preparedness	
Limitations: The measure is limited to time to perform PFGE and upload data. The measure does not look at transport time or identification time. The measure is limited to foodborne agents that have PFGE subtyping.	
M5 - Proportion of agents correctly identified and quantified from unknown samples during unannounced proficiency testing {during the Laboratory Response Network (LRN) Emergency Response Pop Proficiency Test (PopPT) Exercise}	2013—2016
Source: Centers for Disease Control and Prevention (CDC), Office of Public Health Preparedness and Response (OPHPR), National Snapshot of Public Health Preparedness	

Measure ID, Data Source, and Limitations	Data Date(s)
Limitations: A proficiency test is at best a demonstration of capability. The current proficiency testing does not measure the public health laboratory's ability to process a large number of samples.	
M7 - Number of additional chemical agent detection methods demonstrated by Laboratory Response Network chemical (LRN-C) Level 1/Level 2 laboratories	2011—2014
Source: Centers for Disease Control and Prevention (CDC), Office of Public Health Preparedness and Response (OPHPR), National Snapshot of Public Health Preparedness	
Limitations: The measure is only looking at additional methods and not all methods the laboratory is capable of testing. Proficiency testing is the best demonstration of capability.	
M286 - {Total number of} chemical threat and multi-hazards preparedness exercises {or drills} your state public health laboratory conducted or participated in {annually}	2013—2016
Source: Association of Public Health Laboratories (APHL), All-Hazards Laboratory Preparedness Survey	
Limitations: The measure includes all tabletop exercises, drills, functional exercises, and full-scale exercises for both chemical threats and multi-hazards (e.g., any combo of biological, chemical, and radiological threats).	
M287 - Percentage of pulsed field gel electrophoresis (PFGE) sub-typing data results for Listeria monocytogenes submitted to the PulseNet (PN) national database within four working days of receiving isolate at the PFGE laboratory	2011—2014
Source: Centers for Disease Control and Prevention (CDC), Office of Public Health Preparedness and Response (OPHPR), National Snapshot of Public Health Preparedness	
Limitations: The measure only evaluates the timeliness of identification and reporting of Listeria moncytogenes. The measure does not indicate how many samples are being processed per year, nor does it evaluate the quality of the PFGE results being submitted.	
M288 - Number of core methods (agents) demonstrated by Laboratory Response Network chemical (LRN-C) Level 1/Level 2 laboratories	2011—2014
Source: Centers for Disease Control and Prevention (CDC), Office of Public Health Preparedness and Response (OPHPR), National Snapshot of Public Health Preparedness	
Limitations: The measure focuses on standard laboratory procedures and fundamental tasks that are critical to the accurate identification of chemical agents. Standards set under the Clinical Laboratory Improvement Amendments (CLIA) and the College of American Pathologists (CAP) accreditation program are critical components, as is success in achieving proficiency annually in the methods necessary to meet these capabilities.	
M911 - Does your {state public health} laboratory provide or assure testing for soil?	2012 & 2014

Measure ID, Data Source, and Limitations	Data Date(s)
Source: Association of Public Health Laboratories (APHL). Comprehensive Laboratory Services Survey (CLSS). 2012 & 2014. Additional details about this measure are available from the source. Data have been compiled by APHL biennially since 2004. The CLSS covers the 50 states, the District of Columbia, and Puerto Rico. State-level data are not available to the public but can be accessed by public health laboratory directors, among others. Data were obtained directly from the source.	
Limitations: The measure only indicates whether the state public health laboratory has the capability to test soil in various environments. The measure does not evaluate if OTHER state laboratories have this capability. For example, Delaware and Oklahoma informed the program management office that other labs in their states do have this capability. Finally, this measure does not indicate whether the public health laboratory has the capacity to test the amount of samples necessary to respond to a health security event.	
M902 - An indication of whether the state has a Level 1 or Level 2 LRN-C Laboratory	2016
Source: Centers for Disease Control and Prevention (CDC), National Center for Environmental Health (NCEH), Division of Laboratory Sciences (DLS), Emergency Response Branch (ERB)	
Limitations: This measure notes the presence of a particular type of lab and nothing specific about its performance.	
Domain 2: Community Planning & Engagement Coordination	
Subdomain 2.1: Cross-Sector / Community Collaboration	
M87 - Is the state-level health department accredited by the Public Health Accreditation Board (PHAB)?	2014—2016
Source: Public Health Accreditation Board (PHAB), Health Departments in e-PHAB	
Limitations: Accreditation is still in the early stages and the preparedness component is still being refined. Health departments "in process" are not considered as accredited in this measure.	
M501 - Percent of population served by a comprehensive public health system (scope of services and inter-organizational connectedness)	2012, 2014, 2016
Source: National Longitudinal Survey of Public Health Systems (NLSPHS), National Association of County and City Health Officials (NACCHO), and Area Resource File (ARF) data analyzed by PMO and affiliated personnel.	
Limitations: This measure is not easily estimated.	
M9031 - Percentage of {hospitals} that participate in Health Care Coalitions supported through the federal Hospital Preparedness Program of the Office of the Assistant Secretary for Preparedness and Response.	2013—2016

Measure ID, Data Source, and Limitations	Data Date(s)
Source: Division of National Healthcare Preparedness Programs in the Office of the Assistant Secretary for Preparedness and Response (ASPR) at the U.S. Department of Health and Human Services	
Limitations: This measures does not provide information about the intensity of cooperation or quality of the coalition.	
M9032 - Percentage of {emergency medical service agencies} that participate in Health Care Coalitions supported through the federal Hospital Preparedness Program of the Office of the Assistant Secretary for Preparedness and Response.	2013—2016
Source: Division of National Healthcare Preparedness Programs in the Office of the Assistant Secretary for Preparedness and Response (ASPR) at the U.S. Department of Health and Human Services	
Limitations: This measures does not provide information about the intensity of cooperation or quality of the coalition.	
M9033 - Percentage of {emergency management agencies} that participate in Health Care Coalitions supported through the federal Hospital Preparedness Program of the Office of the Assistant Secretary for Preparedness and Response.	2013—2016
Source: Division of National Healthcare Preparedness Programs in the Office of the Assistant Secretary for Preparedness and Response (ASPR) at the U.S. Department of Health and Human Services	
Limitations: This measures does not provide information about the intensity of cooperation or quality of the coalition.	
M9034 - Percentage of {local health departments} that participate in Health Care Coalitions supported through the federal Hospital Preparedness Program of the Office of the Assistant Secretary for Preparedness and Response.	2013—2016
Source: Division of National Healthcare Preparedness Programs in the Office of the Assistant Secretary for Preparedness and Response (ASPR) at the U.S. Department of Health and Human Services	
Limitations: This measures does not provide information about the intensity of cooperation or quality of the coalition.	
Subdomain 2.2: Children & Other At-Risk Populations	
M52 - {State requires all child care providers to have} a plan for children with disabilities and those with access and functional needs	2013—2016
Source: Save the Children, U.S. Report Card on Children in Disasters	

Measure ID, Data Source, and Limitations	Data Date(s)
Limitations: The measure does not include nonlicensed providers. The measure does not reflect whether the plan has been tested or reviewed in the past two years or whether there are effective partnerships underpinning the plan.	
M53 - Hazard plan for all K-12 schools	2013—2016
Source: Save the Children, U.S. Report Card on Children in Disasters	
Limitations: The measure does not reflect how comprehensively the plan may engage partners or truly indicate a state's ability to manage multiple hazards in a school environment for a more robust response. Also, possession of a state plan does not ensure that it has been used or tested within the past two years. There is a lack of definition around what entails "multiple types of hazards" and which may or may not be appropriate for a state to plan for (accounting for regional differences).	
M163 - {Number of} pediatricians, general {per 100,000 adolescent population}	2012—2015
Source: Bureau of Labor Statistics (BLS), Occupational Employment Statistics (OES)	
Limitations: The measure does not indicate how healthcare facilities and jurisdictions may have mutual aid plans in place to supplement the number of pediatricians in the event of an emergency. Also, BLS and other national data sources on physician supply have been shown to under-count certain types of physicians. Specifically, BLS estimates may differ considerably from the estimates available from state medical licensing boards. These measurement errors in the national BLS data are expected to be relatively consistent across states, and therefore they should not cause significant bias in the Index state and national results.	
M164 - {Number of} obstetricians and gynecologists {per 100,000 female population}	2012—2015
Source: Bureau of Labor Statistics (BLS), Occupational Employment Statistics (OES)	
Limitations: Healthcare facilities and jurisdictions may have mutual aid plans in place to supplement the number of obstetricians and gynecologists in the event of an emergency. Also, BLS and other national data sources on physician supply have been shown to under-count certain types of physicians. Specifically, BLS estimates may differ considerably from the estimates available from state medical licensing boards. These measurement errors in the national BLS data are expected to be relatively consistent across states, and therefore they should not cause significant bias in the Index state and national results.	
M170 - Proportion of a state's children 19 and younger who reside within 50 miles of a pediatric trauma center (including pediatric trauma centers from neighboring states)	2011—2013
Source: American Hospital Association (AHA), AHA Annual Survey of Hospitals data and U.S. Census population data analyzed by PMO personnel.	

Measure ID, Data Source, and Limitations	Data Date(s)
Limitations: The measure reflects a population-adjusted number of pediatric trauma centers, but it does not indicate the number of available pediatric trauma beds or inpatient treatment beds for the care of pediatric patients.	
M50 - State requires that all childcare providers have a family-child reunification plan	2013—2016
Source: Save the Children, U.S. Report Card on Children in Disasters	
Limitations: There is a mix of templates/guidelines aimed at childcare centers/facility types and a variety of public website information intended for families. The target audience is not consistent and providing general information does not constitute having a family reunification plan in place.	
M51 - State requires that all childcare providers have a plan for evacuating and safely moving children to an alternate site	2013—2016
Source: Save the Children, U.S. Report Card on Children in Disasters	
Limitations: There is a mix of templates/guidelines aimed at childcare centers/facility types and a variety of public website information aimed at families. The target audience is not consistent and providing general information is not necessarily an indicator that the childcare facility preparedness plans have identified an adequate alternate site in the event of an emergency evacuation.	
Subdomain 2.3: Management of Volunteers during Emergencies	
M36* - State participates in Emergency System for Advance Registration of Volunteer Health Professionals (ESAR-VHP) Program {and has a state volunteer registry}	2014
Source: Assistant Secretary for Preparedness and Response (ASPR), The Emergency System for Advance Registration of Volunteer Health Professionals (ESAR-VHP)	
Limitations: The measure reflects whether a mechanism for a state volunteer registry exists, but not whether it has been managed well (e.g., kept current), leveraged effectively, or used at all during exercises or responses. The measure also may or may not accurately reflect a state's capacity for volunteer surge during emergencies.	
M266 - Percent of a state's population who live in a county with a Community Emergency Response Teams (CERT)	2012—2014
Source: Federal Emergency Management Agency (FEMA), Citizen Corps Community Emergency Response Teams (CERT), and U.S. Census data analyzed by PMO personnel.	
Limitations: The success of volunteer efforts like Citizen Corps depends on strong leadership, support from local and governmental entities and agencies, and the engagement of multiple sectors. As such, the activity levels, outreach, breadth of training, and access to financial support for Citizen Corps efforts and councils will vary from location to location.	

Measure ID, Data Source, and Limitations	Data Date(s)
M346 - Medical Reserve Corps members per 100,000	2012—2014, 2016
Source: Medical Reserve Corps (MRC), MRC Units Database and Census Bureau data analyzed by PMO personnel.	
Limitations: The MRC is not the only source of health and medical volunteers. Many states have alternate systems of registering, credentialing, and managing health and medical volunteers, including ESAR-VHP (Emergency System for the Advance Registration of Volunteer Health Professionals), and/or have other local, regional, or state-sponsored health and medical teams of volunteers not registered as MRCs. There may also be overlap or integration of these systems (e.g., MRC volunteers registered through ESAR-VHP systems). The measure may over-represent the number of active MRC volunteers and credentials. MRC units vary with regard to how current their registries of volunteers are, how many trainings or exercises volunteers have participated in, and how frequently credentials/licenses are verified.	
M176 - Proportion of MRC members who are physicians	2015—2016
Source: Medical Reserve Corps (MRC), MRC Units Database and Census Bureau data analyzed by PMO personnel.	
Limitations: The measure may over-represent the number of active MRC volunteer physicians and credentials. MRC units vary with regard to how current their registries of volunteers are, how many trainings or exercises volunteers have participate in, and how frequently credentials/licenses are verified.	
M179 - Percentage of Medical Reserve Corps volunteers who are nurses or advanced practice nurses	2015—2016
Source: Medical Reserve Corps (MRC), MRC Units Database and Census Bureau data analyzed by PMO personnel.	
Limitations: The measure may over-represent the number of active MRC nurses and their credentials. MRC units vary with regard to how current their registries of volunteers are, how many trainings or exercises their volunteers have participated in, and how frequently they verify volunteers' credentials/licenses.	
M186 - Percentage of Medical Reserve Corps volunteers who are other health professionals	2015—2016
Source: Medical Reserve Corps (MRC), MRC Units Database and Census Bureau data analyzed by PMO personnel.	
Limitations: The measure may over-represent the number of active MRC volunteers and their credentials. MRC units vary with regard to how current their registries of volunteers are, how many trainings or exercises their volunteers have participated in, and how frequently they verify volunteers' credentials/licenses.	

Measure ID, Data Source, and Limitations	Data Date(s)
Subdomain 2.4: Social Capital & Cohesion	
M172 - {Percentage of} residents doing favors for neighbors **Source:** Current Population Survey (CPS), Civic Engagement Supplement data analyzed by PMO personnel. **Limitations:** The measure is self-reported and may be subject to reporting bias; respondents may feel compelled to appear more connected to neighbors than they actually are.	2011 & 2013
M175 - Voting-eligible population highest office turnout rate **Source:** United States Election Project, General Election Turnout Rates **Limitations:** No noted limitations. The measure has been used repeatedly in multiple areas to assess social cohesion and, specifically, civic engagement.	2012, 2014 & 2016
M188 - {Annual adult} volunteer rate **Source:** Current Population Survey (CPS), Volunteer Supplement data analyzed by PMO personnel. **Limitations:** The measure may be subject to reporting bias; respondents may be inclined to over-report their rates of volunteerism. In addition, the measure doesn't reflect how often residents volunteer. The sustainability or regularity with which a person (or community) volunteers may translate into a stronger, more resilient community during and following a disaster.	2012—2015
M189 - Average volunteer hours per resident {per year} (15 Years Old and Older) **Source:** Current Population Survey (CPS), Volunteer Supplement data analyzed by PMO personnel. **Limitations:** The measure may be subject to reporting bias; respondents may be inclined to over-report the number of hours they perform volunteer work. Therefore, the benefits that extend to the rest of a community may not be accurate. In addition, this average may reflect lower numbers in certain communities that actually do have strong social cohesion, such as settings where both parents work full-time and may not have time to volunteer.	2012—2015
Domain 3: Incident & Information Management	
Subdomain 3.1: Incident Management & Multi-Agency Coordination	
M10* - Have you utilized a rapid method (e.g., Health Alert Network (HAN), blast e-mail or fax) to send messages to your sentinel clinical laboratories and other partners? **Source:** Association of Public Health Laboratories (APHL), All-Hazards Laboratory Preparedness Survey	2013—2016

Measure ID, Data Source, and Limitations	Data Date(s)
Limitations: The measure does not reflect the frequency with which a rapid method may be used regularly and/or in emergencies or whether this function has been tested by a jurisdiction. It mainly reflects an existing capacity to communicate via a single medium (electronic) and in one direction (outward).	
M70 - Degree to which state has a dispensing prophylaxis plan in place that accounts for all operational elements of a local mass prophylaxis/dispensing plan	2012—2014
Source: Centers for Disease Control and Prevention (CDC), Office of Public Health Preparedness and Response (OPHPR), Division of State and Local Readiness (DSLR)	
Limitations: The measure focuses narrowly on operational coordination topics and does not include other items such as mutual aid and resource planning. The measure is also incident-specific.	
M71 - Degree to which a state has a hospital and alternate care facilities coordination plan in place on how to procure emergency medical materiel	2012—2014
Source: Centers for Disease Control and Prevention (CDC), Office of Public Health Preparedness and Response (OPHPR), Division of State and Local Readiness (DSLR)	
Limitations: The measure only focuses on procurement of materiel and does not address additional multi-agency coordination facets such as information sharing between the public health and healthcare systems. Additionally, this measure is only a measure of the planning component of such coordination, not the implementation or quality of such a plan.	
M84 - State is Emergency Management Accreditation Program (EMAP)-accredited	2014—2016
Source: Emergency Management Accreditation Program (EMAP), Who Is Accredited?	
Limitations: Accreditation is voluntary. Some jurisdictions choose to not seek Emergency Management Accreditation Program (EMAP) accreditation for various state and local reasons. States with conditional accreditation are not considered as accredited for this measure.	
M333 - State has an animal (livestock and pet) disaster preparedness plan	2014—2016
Source: American Veterinary Medical Association (AVMA), Animal Disaster Plans and Resources by State	
Limitations: While a "yes" response regarding a state animal disaster preparedness plan indicates a commitment by the state to address the needs and other important considerations for animals during and following an emergency, the source data also captures additional information related to addressing animal needs that represent a commitment beyond a plan. This additional information varies from state to state and is not captured by "yes/no" responses; the information has the potential for a more quantifiable response.	

Measure ID, Data Source, and Limitations	Data Date(s)
M107 - Percentage of local health departments with an emergency preparedness coordinator {for states with local health departments, excludes Rhode Island and Hawaii} **Source:** National Association of County and City Health Officials (NACCHO), 2013 National Profile of Local Health Departments **Limitations:** The measure is collected less frequently than annually. Additionally, some states do not have local health departments and therefore no local health department emergency management coordinators. Lastly, leadership roles themselves do not determine the quality or robustness of an emergency management system.	2013 & 2016
M222 - State health agency participates in the Water Information Sharing and Analysis Center (WaterISAC) **Source:** Water Information Sharing and Analysis Center (WaterISAC), State Agencies Participating in WaterISAC **Limitations:** The measure itself focuses narrowly on information sharing pertaining to water-related incidents rather than intelligence information overall. The measure has no published target that specifically identifies that a state public health agency should participate. It does not take into account the other government or public/private water systems that participate in this program.	2013 & 2016
M229* - In case of an emergency, does your {state public health} laboratory have a 24/7/365 contact system in place? **Source:** Association of Public Health Laboratories (APHL), Comprehensive Laboratory Services Survey (CLSS) **Limitations:** The measure narrowly focuses on a system only for the state public health laboratory and does not include the quality of the system in place.	2012 & 2014
M150* - State participates in Hospital Available Beds for Emergencies and Disasters (HAvBED) Program **Source:** Assistant Secretary for Preparedness and Response (ASPR), National Hospital Available Beds for Emergencies and Disasters (HAvBED) System **Limitations:** The measure requires data entry into the secure platform from existing state and local reporting systems used to measure bed counts during emergencies. The measure does not replace the need to evaluate state and local bed count system development and implementation.	2012
M334 - Does state have a climate change adaptation plan? **Source:** Center for Climate and Energy Solutions (C2ES), State and Local Climate Adaptation	2014—2016

Measure ID, Data Source, and Limitations	Data Date(s)
Limitations: The measure is an indicator of state planning for climate change; however, it only indicates if a state has a plan. The quality of the plan is not evaluated. The degree to which the plan is being implemented is also not evaluated.	
M72 - {Degree to which} training, exercise, and evaluation plans are compliant with guidelines set forth by the Homeland Security Exercise and Evaluation Program	2012—2014
Source: Centers for Disease Control and Prevention (CDC), Office of Public Health Preparedness and Response (OPHPR), Division of State and Local Readiness (DSLR)	
Limitations: The measure does not address if adequate preparedness plans are in place. It also does not determine the degree to which response plans are tested and evaluated.	
M335 - State has statewide and/or county animal response team(s)	2013—2016
Source: Red Rover, Animal Response Teams	
Limitations: While a "yes" response indicates a state's commitment to addressing the issues that arise regarding animals and pets during and following an emergency, the extent to which a team is integrated into the overall state plan and activities is not clearly indicated, nor is the resource commitment toward this team and this issue. There may be some ambiguity when considering this measure. The title implies a yes/no with regard to "a state team," but the source listings include a mix of state, county, and local teams. In a few cases, it appears no state level team is indicated but one or more county teams are listed. A state that has answered "yes" should be interpreted to mean a state has any combination of state, regional, or county/local teams.	
M701 - Average number of minutes for state public health staff with incident management lead roles to report for immediate duty	2011—2014
Source: Centers for Disease Control and Prevention (CDC), Office of Public Health Preparedness and Response (OPHPR), National Snapshot of Public Health Preparedness	
Limitations: The measure has no apparent limitations.	
Subdomain 3.2: Emergency Public Information & Warning	
M64* - Degree to which a state has a public information and communication plan developed for a mass prophylaxis campaign	2012 & 2013
Source: Centers for Disease Control and Prevention (CDC), Office of Public Health Preparedness and Response (OPHPR), Division of State and Local Readiness (DSLR)	
Limitations: The measure only accounts for pre-event planning during a mass dispensing scenario and does not account for planning towards broader emergency scenarios. In addition, the	

Measure ID, Data Source, and Limitations	Data Date(s)
measures does not account for emergent, response-driven public information and risk communication strategies or the implementation of previously developed frameworks.	
M228 - Percentage of households with broadband in the home	2012—2015
Source: American Community Survey (ACS), 1-year estimate (GCT2801) and Current Population Survey (CPS), Computer and Internet Supplement data analyzed by PMO personnel.	
Limitations: The measure itself only focuses on fixed connections and in the health security context therefore relies upon the assumption that during a public health emergency broadband remain operational.	
Subdomain 3.3: Legal & Administrative	
M338* - State requires facility reporting of healthcare-associated infections to the Centers for Disease Control and Prevention's (CDC's) National Health Safety Network (NHSN) or other systems	2012 & 2013
Source: Centers for Disease Control and Prevention (CDC), National Healthcare Safety Network (NHSN), Healthcare—Associated Infections (HAI) Progress Report	
Limitations: The measure evaluates whether healthcare facilities are required to report healthcare associated infections to the NHSN. The measure does not evaluate the healthcare facilities' compliance with the reporting requirements.	
M340 - Who must report foodborne illness within the state? {Number out of the following reporting source types}: clinical laboratories, physicians, hospitals, nurses, physician assistants, and/or other healthcare provides (e.g., chiropractors, veterinarians)	2013
Source: Public Health Law Research (PHLR), Temple University. Robert Wood Johnson Foundation (RWJF), LawAtlas: State Foodborne Illness Reporting Laws Map	
Limitations: The measure is limited to if the state has a specific law that requires foodborne illnesses or related conditions be reported by these providers. The measure does not evaluate the completeness or timeliness of the disease reporting.	
M341* - State law include{s} a general provision regulating the release of personally identifiable information (PII) held by the health department	2013
Source: Public Health Law Research (PHLR), Temple University. Robert Wood Johnson Foundation (RWJF), LawAtlas: State Foodborne Illness Reporting Laws Map	
Limitations: The measure only assesses whether or not a law is in place. It does not capture the scope of the authorization. It does not measure the infrastructure in place to implement investigation, control, and other response strategies.	
M342* - State law requires communicable diseases to be reported to a health department	2013

Measure ID, Data Source, and Limitations	Data Date(s)
Source: Public Health Law Research (PHLR), Temple University. Robert Wood Johnson Foundation (RWJF), LawAtlas: State Foodborne Illness Reporting Laws Map	
Limitations: The measure only evaluates whether a state requires communicable disease reporting to state or local health officials. The measure does not evaluate the timeliness or completeness of the required reporting, nor how effective the state is in monitoring and enforcing the requirements. It does not evaluate the ability of the health department to receive and use the reported information.	
M344 - State has adopted the Nurse Licensure Compact (NLC)	2014—2016
Source: National Council of State Boards of Nursing (NCSBN), Nurse Licensure Compact (NLC) Member States	
Limitations: The measure covers only the reduced administrative burden states gain from membership in the Nurse Licensure Compact. It does not measure individual state capacity to incorporate out-of-state nurses into medical surge responses. Additionally, some states may have existing agreements in place, similar to but smaller in scope, than the Nurse Licensure Compact.	
M345* - State has adopted Emergency Management Assistance Compact (EMAC) legislation	2014
Source: National Emergency Management Association (NEMA), What is EMAC?	
Limitations: All states are signatory to the EMAC; therefore, this score cannot be improved.	

Domain 4: Healthcare Delivery	
Subdomain 4.1: Prehospital Care	
M140 - {Number of} emergency medical technicians (EMTs) and paramedics {per 100,000 population}	2012—2015
Source: Bureau of Labor Statistics (BLS), Occupational Employment Statistics (OES)	
Limitations: The measure may not distinguish licensed EMTs and paramedics from those that are licensed, practicing, and affiliated.	
M331 - What percentage of the state's local emergency medical services (EMS) agencies submit National EMS Information System (NEMSIS) compliant data to the state?	2014—2016
Source: National Highway Traffic Safety Administration (NHTSA), State NEMIS Progress Reports: State & Territory Version 2 Information	
Limitations: Some states may collect local and regional EMS data that provide some of the data in the national data set. These states may have the capability to conduct limited quality improvement and process improvement activities, but will be unable to compare themselves to national data.	

Measure ID, Data Source, and Limitations	Data Date(s)

Subdomain 4.2: Hospital and Physician Services	
M147 - Median time {in minutes} from emergency department (ED) arrival to ED departure for admitted ED patients (identifier ED-1)	2013—2016
Source: Centers for Medicare & Medicaid Services (CMS), Timely and Effective Care—State	
Limitations: There is unknown information about the nature of treatment between emergency department arrival and discharge.	
M148 - Median admit decision time {in minutes} to emergency department (ED) departure time for admitted patients (identifier ED-2)	2013—2016
Source: Centers for Medicare & Medicaid Services (CMS), Timely and Effective Care—State	
Limitations: The measure describes the pre-event capability to move patients from the emergency department to inpatient care but it does not describe the hospital's capabilities during a mass casualty or other event.	
M149 - Number of staffed beds {per 100,000 population}	2013—2016
Source: American Hospital Directory (AHD), Inc. American Hospital Directory	
Limitations: The measure does not include the total licensed beds for which a healthcare facility maintains a license to operate. The measure also does not consider plans for creating additional beds through hospital surge plans.	
M152 - Percentage of a state's population who live within 50 miles of a trauma center (including trauma centers from neighboring states)	2011—2013
Source: American Hospital Association (AHA), AHA Annual Survey of Hospitals data and U.S. Census population data analyzed by PMO personnel.	
Limitations: The quality of care provided by the trauma centers is not considered in this measure.	
M160 - {Number of} physicians and surgeons {per 100,000 population}	2012—2015
Source: Bureau of Labor Statistics (BLS), Occupational Employment Statistics (OES)	
Limitations: This measure may not reflect that healthcare facilities and jurisdictions may have mutual aid plans in place to supplement the number of physicians and surgeons in the event of an emergency. Also, BLS and other national data sources on physician supply have been shown to under-count certain types of physicians. Specifically, BLS estimates may differ considerably from the estimates available from state medical licensing boards. These measurement errors in the national BLS data are expected to be relatively consistent across states, and therefore they should not cause significant bias in the Index state and national results.	

Measure ID, Data Source, and Limitations	Data Date(s)
M167 - Number of active registered nurse (RN) and licensed practical nurse (LPN) licenses {per 100,000 population}	2013—2016
Source: National Council of State Boards of Nursing (NCSBN), National Nursing Database	
Limitations: The measure may underrepresent the number of RNs or LPNs available to surge to provide care during an emergency. States that do not participate in the National Council of State Boards of Nursing include Alaska, Hawaii, and Oklahoma. Louisiana does not report data regarding PNs. Further, mutual aid protocols may exist to bring additional RNs and PNs into the jurisdiction to respond to an emergency requiring medical surge.	
M168 - Percent of population who live within 100 miles of a burn center (includes burn centers in other states)	2014
Source: American Burn Association (ABA) data on Burn Care Facilities analyzed by PMO personnel.	
Limitations: The measure may underrepresent the specialized resources needed for an emergency that requires mass care of burn patients.	
M296 - {Percentage of} hospital facilities {in the state} that provide geriatric services (includes general as well as specialized geriatric services, such as psychiatric geriatric services/Alzheimer care)	2011—2013
Source: American Hospital Association (AHA), Annual Survey of Hospitals	
Limitations: The measure considers geriatric services that are owned or provided by the hospital or by the hospital's health system (i.e., doesn't require a contractual agreement). Hospitals may provide competent care to geriatric patients without having a specialty care program.	
M297 - {Percentage of} hospital facilities {in the state} that provide palliative care programs (includes both palliative care program and/or palliative care inpatient unit, but excludes pain management program, patient-controlled analgesia, and hospice program)	2011—2013
Source: American Hospital Association (AHA), Annual Survey of Hospitals	
Limitations: The measure only evaluates whether or not a hospital provides the service. The quality of care and the capacity of the program to provide services during an emergency are not considered.	
M298 - Number of airborne infection isolation room (AIIR) beds {per 100,000 population} (including hospitals with AIIR rooms within 50 miles from neighboring states)	2011—2013
Source: American Hospital Association (AHA), Annual Survey of Hospitals	
Limitations: There are no obvious limitations to this measure.	
M299 - Risk-adjusted 30-day mortality among Medicare beneficiaries hospitalized for heart attack, heart failure, or pneumonia	2008-11, 2009-12, 2010-13

Measure ID, Data Source, and Limitations	Data Date(s)
Source: The Commonwealth Fund, Aiming Higher: Results from a Scorecard on State health System Performance	
Limitations: Variations in state populations (e.g., obesity or smoking rates) may have a greater effect on this measure than public health programs, mitigating the measure's use for this purpose.	
M300 - Percentage of {grade} "A" hospitals {in a state} for Hospital Safety Score	2013—2016
Source: The Leapfrog Group, Hospital Safety Score (HSS)	
Limitations: More than 2,600 hospitals received a score. Hospitals excluded from receiving a score include critical access hospitals, specialty hospitals, pediatric hospitals, hospitals in Maryland, territories exempt from public reporting to CMS, and others.	
M906 - The percentage of short-term general and Critical Access hospitals that have demonstrated meaningful use of certified electronic health record technology (CEHRT). This includes the demonstration of meaningful use through either the Medicare and Medicaid EHR Incentive Programs. Critical Access hospitals are facilities with no more than 25 beds and located in a rural area further than 35 miles from the nearest hospital, and/or are located in a mountainous region.	2013—2015
Source: The Office of the National Coordinator for Health Information Technology, a division of the U.S. Department of Health and Human Services	
Limitations: This is a survey estimate.	
M907 - The percentage of all office-based medical doctors and doctors of osteopathy that have demonstrated meaningful use of certified electronic health record technology (CEHRT). This includes the demonstration of meaningful use through either the Medicare and Medicaid EHR Incentive Programs.	2013—2015
Source: The Office of the National Coordinator for Health Information Technology, a division of the U.S. Department of Health and Human Services	
Limitations: This is a survey estimate.	
Subdomain 4.3: Long-Term Care	
M303 - {State requires that} long-term care and nursing home facilities must have a written disaster plan	2013
Source: American College of Emergency Physicians (ACEP), America's Emergency Care Environment, A State-by-State Report Card	
Limitations: The measure does not evaluate the quality or feasibility of the emergency preparedness plan. Simply having a plan is a not enough; it is the quality and detail of the plan and actively planning with the community that provides a deeper context. Also, according to state public health personnel in Vermont, this 2013-2014 data source does not accurately reflect that state's administrative regulations dating to 2000-2001. The ACEP Report indicates that Vermont	

Measure ID, Data Source, and Limitations	Data Date(s)
does not require a written disaster plan for long-term care and nursing home facilities, but in fact this was a requirement when the ACEP Report was published. We have changed Vermont's item measure value for M303 from "0" to "1" according to this feedback.	
M308 - {State average} reported registered nurse (RN) staffing hours per resident per day	2014—2016
Source: Centers for Medicare & Medicaid Services (CMS), Nursing Home State Averages	
Limitations: The measure is an average that does not include more detail on the range/distribution, thus limiting its descriptive value. Data are collected during a specific two-week period; variations related to season, region, resident acuity, skill mix of other care providers, and other factors are not taken into account.	
M309 - {State average} reported certified nursing assistant (CNA) staffing hours per resident per day	2014—2016
Source: Centers for Medicare & Medicaid Services (CMS), Nursing Home State Averages	
Limitations: The CNA capacity in a state does not guarantee that they are available during a disaster. Those CNAs that are available also need to have disaster-specific education.	
M307 - Percent of long-stay residents assessed and appropriately given the seasonal influenza vaccine	2013—2016
Source: Centers for Medicare & Medicaid Services (CMS), Nursing Home State Averages	
Limitations: The additional protection gained and the reduced demand on the healthcare system is of some value but may be marginal in the context of a major disaster. Also, the effectiveness of the vaccine varies as a function of the accuracy in predicting the strains used to make each year's vaccine.	
M310 - {State average} reported licensed practical nurse (LPN) staffing hours per resident per day	2014—2016
Source: Centers for Medicare & Medicaid Services (CMS), Nursing Home State Averages	
Limitations: The measure is an average that does not include more detail on the range/distribution, thus limiting its descriptive value. Data are collected during a specific two-week period; variations related to season, region, resident acuity, skill mix of other care providers, and other factors are not taken into account.	
Subdomain 4.4: Mental & Behavioral Healthcare	
M315 - {Percentage of} hospital facilities {in the state} that provide chaplaincy/pastoral care services	2011—2013
Source: American Hospital Association (AHA), Annual Survey of Hospitals	

Measure ID, Data Source, and Limitations	Data Date(s)
Limitations: Chaplaincy/pastoral care services may not be available in adequate numbers to respond to a surge and services are not solely focused on fatalities.	
M316 - {Percentage of} hospital facilities {in the state} that provide psychiatric emergency services	2011—2013
Source: American Hospital Association (AHA), Annual Survey of Hospitals	
Limitations: Respondents to the American Hospital Association (AHA) survey (the source for this measure) may have varying definitions of emergency psychiatric services covering a broad range. In effect, all hospitals that provide emergency medical services provide emergency psychiatric services. At the same time, fewer may have more complete, specialty-staffed, comprehensive psychiatric emergency services. Positive responses to this measure will cover a very wide range of capability. A negative may reflect the complete absence of emergency psychiatric services or the respondent's view that a positive response requires a separate, identifiable, comprehensive service when, in fact, some capacity exists. The measure does not indicate the extent of the hospital's or emergency psychiatric services integration with other disaster preparedness and response efforts (including health). It does not measure the type of services provided such as at hospital, mobile crisis response capacity, telephone-based crisis services, etc. In some cases, this measure may tend to duplicate and/or overlap with another measure that asks about licensing and certification of behavioral health and substance abuse providers.	
M317 - Percent of need met in mental health professional shortage areas {in the state}	2014 & 2016
Source: The Henry J. Kaiser Family Foundation, Mental Health Care Health Professional Shortage Areas (HPSA)	
Limitations: This measure is based solely on the availability of psychiatrists. While psychiatrists often play an important role in the array of services provided following disasters, the vast majority of behavioral health services following disasters are provided by behavioral health professionals other than psychiatrists (e.g., psychologists, social workers, licensed counselors, pastoral counselors, psychiatric nurses). The extent to which this measure serves as a proxy for shortages in these other professional groups will likely vary across jurisdictions. The measure does not account for the ability of a state to temporarily move mental health resources within the state in times of disasters. For example, many states have established trained and certified crisis teams that can be activated and deployed to disaster zones, thus enabling rapid supplementation of local resources. The measure does not reflect the availability of existing resources (many providers have waiting lists and/or are legally and contractually obligated to serve particular populations and may not be available for alternative service in times of disasters). The measure does not reflect the status of skills and training necessary for optimal performance in disasters.	

Measure ID, Data Source, and Limitations	Data Date(s)
M800 - Population (% of state total) living in a HRSA designated Mental Health Professional Shortage Area	2015 & 2016
Source: U.S. Census Bureau and Health Resources & Services Administration (HRSA) data analyzed by PMO personnel.	
Limitations: While this measure has no apparent limitations, it can be difficult to estimate.	

Subdomain 4.5: Home Care	
M291 - How often the home health team determined whether the patient received a flu shot for the current flu season {as an average percentage of home health episodes of care in the state}	2013—2016
Source: Centers for Medicare & Medicaid Services (CMS), Home Health Care-State by State Data	
Limitations: How often {average percentage of home health episodes of care in the state} the home health team determined whether the patient received a flu shot for the current flu season as an average percentage of home health episodes of care in the state is not in itself useful to determine population-level health resiliency.	
M292 - How often the home health team began their patients' care in a timely manner {as an average percentage of home health episodes of care in the state}	2014—2016
Source: Centers for Medicare & Medicaid Services (CMS), Home Health Care-State by State Data	
Limitations: The measure is a statewide average and does not indicate the lengths of delays, nor does it identify if this is a regional or statewide problem. These issues limit the usefulness of the measure.	
M293 - {Number of} home health and personal care aides per 1,000 population aged 65 or older	2012—2015
Source: American Community Survey (ACS), 1-year Public Use Microsample (PUMS) data analyzed by PMO personnel.	
Limitations: The number of home health and personal care aides per 1,000 population aged 65 and older gives an indication of the total capacity of home health aides available. However, that information in itself does not describe their availability during a health emergency or the number of providers that have emergency care plans for their clients.	

Measure ID, Data Source, and Limitations	Data Date(s)
Domain 5: Countermeasure Management	
Subdomain 5.1: Medical Materiel Management, Distribution, & Dispensing	
M60* - Degree to which state has developed a plan including Strategic National Stockpile (SNS) elements	2012—2014
Source: Centers for Disease Control and Prevention (CDC), Office of Public Health Preparedness and Response (OPHPR), Division of State and Local Readiness (DSLR)	
Limitations: The measure only considers the content and adequacy of a written plan and does not evaluate if the state has the resources and ability to implement the plan in a timely and effective manner.	
M61 - Degree to which a state has demonstrated ability to manage the Strategic National Stockpile (SNS), including updated staffing, call-down exercises, Incident Command System (ICS) integration, testing, and notification of volunteers	2012—2014
Source: Centers for Disease Control and Prevention (CDC), Office of Public Health Preparedness and Response (OPHPR), Division of State and Local Readiness (DSLR)	
Limitations: The measure considers a roster and notification protocol for key staff and volunteers needed to implement the state's SNS plan. It does not measure the number of staff or volunteers that would actually be available during an emergency.	
M62 - Level of completeness and utility of state plans and procedures in place for requesting Strategic National Stockpile (SNS) material from local authorities	2012—2014
Source: Centers for Disease Control and Prevention (CDC), Office of Public Health Preparedness and Response (OPHPR), Division of State and Local Readiness (DSLR)	
Limitations: The measure considers the completeness of state plans to distribute SNS assets to local health departments but it does not measure if the state and local health departments have the capacity to implement the plan.	
M63 - Degree to which a state has communications plans in place for Strategic National Stockpile (SNS) usage	2012—2014
Source: Centers for Disease Control and Prevention (CDC), Office of Public Health Preparedness and Response (OPHPR), Division of State and Local Readiness (DSLR)	
Limitations: A limitation of the measure, which is a state-level score reported by the Centers for Disease Control and Prevention (CDC) after conducting technical assistance reviews with states, is that important variations in local readiness across the state may not be readily apparent. Additionally, the measure indicates the degree to which the state has completed a plan, but it does not address the quality of that the plan or whether it has been tested and improved.	

Measure ID, Data Source, and Limitations	Data Date(s)
M65 - Degree to which a state has completed security planning for coordination of medical countermeasures dispensing, management, and mass prophylaxis	2012—2014
Source: Centers for Disease Control and Prevention (CDC), Office of Public Health Preparedness and Response (OPHPR), Division of State and Local Readiness (DSLR)	
Limitations: The measure indicates the degree to which the state has completed a plan, but it does not address the quality of that the plan or whether it has been tested and improved.	
M66 - Degree to which a state has demonstrated receipt, stage, and store (RSS) plans and procedures developed to coordinate all logistics concerning Strategic National Stockpile (SNS) materiel	2012—2014
Source: Centers for Disease Control and Prevention (CDC), Office of Public Health Preparedness and Response (OPHPR), Division of State and Local Readiness (DSLR)	
Limitations: The bulk of on-the-ground work to receive, stage, store, move, track, and keep secure SNS supplies happens at the local level and depends on people and technology in many different places throughout the state. A limitation of the measure, which is a state-level score reported by the Centers for Disease Control and Prevention (CDC) after conducting technical assistance reviews with states, is that important variations in local readiness across the state may not be readily apparent.	
M67 - Degree to which state is observed to have a controlling inventory procedure in place, including an Inventory Management System (IMS) to track Strategic National Stockpile (SNS) materiel	2012—2014
Source: Centers for Disease Control and Prevention (CDC), Office of Public Health Preparedness and Response (OPHPR), Division of State and Local Readiness (DSLR)	
Limitations: The bulk of on-the-ground work to receive, stage, store, move, track, and keep secure SNS supplies happens at the local level and depends on people and technology in many different places throughout the state. A limitation of the measure, which is a state-level score reported by the Center for Disease Control and Prevention (CDC) after conducting technical assistance reviews with states, is that important variations in local readiness across the state may not be readily apparent.	
M69 - Degree to which state has distribution plans and procedures in place for physical delivery of Strategic National Stockpile (SNS) assets from the receipt, stage, and store (RSS) facility to sites	2012—2014
Source: Centers for Disease Control and Prevention (CDC), Office of Public Health Preparedness and Response (OPHPR), Division of State and Local Readiness (DSLR)	

Measure ID, Data Source, and Limitations	Data Date(s)
Limitations: The bulk of on-the-ground work to receive, stage, store, move, track, and keep secure SNS supplies happens at the local level and depends on people and technology in many different places throughout the state. Although the measure addresses the state's responsibility to tackle the cross-jurisdictional challenges and barriers, a limitation is that it is a state-level score reported by the Centers for Disease Control and Prevention (CDC) after conducting technical assistance reviews with states and important variations in local readiness across the state may not be readily apparent.	
M161 - {Number of} pharmacists {per 100,000 population}	2012—2015
Source: Bureau of Labor Statistics (BLS), Occupational Employment Statistics (OES)	
Limitations: The measure may underrepresent the number of pharmacists available to respond during an emergency. The measure is a ratio of the number of pharmacists per 100,000 people in the state, not the total number. It does not account for any mutual aid arrangements with neighboring states that could boost the number of pharmacists available for disaster response.	
M270 - {Percentage of} hospital facilities {in the state that} participate in a group purchasing arrangement	2011—2013
Source: American Hospital Association (AHA), Annual Survey of Hospitals	
Limitations: There is no single factor that affects shortages of drugs and/or other medical supplies. There are combinations of economic and non-economic factors that create gaps in the supply chain.	
Subdomain 5.2: Countermeasure Utilization & Effectiveness	
M24 - The average percentage of children ages 19-35 months who have received these individual vaccinations: four or more doses of diphtheria, tetanus, and pertussis vaccine, three or more doses of poliovirus vaccine, one or more doses of any measles-containing vaccine, and three or more doses of Hepatitis B vaccine	2012—2015
Source: Centers for Disease Control and Prevention (CDC), National Center for Health Statistics (NCHC), National Immunization Survey (NIS)	
Limitations: The measure is for routine vaccine preventable disease in pre-school age children and may not reflect the vaccination rates for a severe emerging disease.	
M32 - Senior seasonal flu vaccination rate	2013—2016
Source: Centers for Disease Control and Prevention (CDC), National Immunization Survey (NIS) and the Behavioral Risk Surveillance System (BRFSS), FluVaxView State, Regional, and National Vaccination Report	

Measure ID, Data Source, and Limitations	Data Date(s)
Limitations: The measure has no apparent limitations.	
M33 - Senior pneumococcal vaccination rate	2012—2015
Source: Centers for Disease Control and Prevention (CDC), Behavioral Risk Factor Surveillance System Survey Questionnaire (BRFSS). Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. Survey data analyzed by PMO personnel.	
Limitations: The measure has no apparent limitations.	
M34 - Pediatric seasonal flu vaccination rate	2012—2016
Source: Centers for Disease Control and Prevention (CDC), National Center for Health Statistics (NCHC), National Immunization Survey (NIS)	
Limitations: This measure only includes children aged six months to four years old, so coverage of the pediatric population is incomplete. The measure is for routine seasonal influenza and may not reflect the coverage rates for a severe emerging disease.	
M35 - Adult seasonal flu vaccination rate	2013—2016
Source: Centers for Disease Control and Prevention (CDC), National Immunization Survey (NIS) and the Behavioral Risk Surveillance System (BRFSS), FluVaxView State, Regional, and National Vaccination Report	
Limitations: This measure is for routine seasonal influenza and may not reflect vaccination coverage rates for a severe emerging disease.	
Subdomain 5.3: Non-Pharmaceutical Intervention	
M530 - Percent of employed population with some type of paid time off (PTO) benefit	2012—2015
Source: Current Population Survey (CPS), Annual Social and Economic Supplement (ASEC) data analyzed by PMO personnel.	
Limitations: This is survey data and can require special skill to estimate and interpret.	
M531 - Percent of employed population engaging in some work from home by telecommuting	2011—2013, 2015
Source: Current Population Survey (CPS), Work Schedules Supplement data analyzed by PMO personnel.	

Measure ID, Data Source, and Limitations	Data Date(s)
Limitations: This is survey data and can require special skill to estimate and interpret.	
M705 - Percent of employed (16 and older) who work from home	2012—2015
Source: American Community Survey (ACS), 1-year estimate (Table B08128)	
Limitations: This measure might not fully capture the number of individuals who can work at home on a "part-time" basis.	
Domain 6: Environmental & Occupational Health	
Subdomain 6.1: Food & Water Security	
M275_DW - Does your laboratory provide or assure testing for the following environmental matrices (Drinking water)?	2012 & 2014
Source: Association of Public Health Laboratories (APHL), Comprehensive Laboratory Services Survey (CLSS)	
Limitations: The measure only indicates whether the state public health laboratory has the capability to test water in various environments. The measure does not evaluate if OTHER state laboratories have this capability. For example, Delaware and Oklahoma informed the program management office that other labs in their states do have this capability. Finally, this measure does not indicate whether the public health laboratory has the capacity to test the amount of samples necessary to respond to a health security event.	
M275_PWW - Does your laboratory provide or assure testing for the following environmental matrices (Private well water)?	2012 & 2014
Source: Association of Public Health Laboratories (APHL), Comprehensive Laboratory Services Survey (CLSS)	
Limitations: The measure only indicates whether the state public health laboratory has the capability to test water in various environments. The measure does not evaluate if OTHER state laboratories have this capability. For example, Delaware and Oklahoma informed the program management office that other labs in their states do have this capability. Finally, this measure does not indicate whether the public health laboratory has the capacity to test the amount of samples necessary to respond to a health security event.	
M275_REC - Does your laboratory provide or assure testing for the following environmental matrices (Recreational water)?	2012 & 2014
Source: Association of Public Health Laboratories (APHL), Comprehensive Laboratory Services Survey (CLSS)	

Measure ID, Data Source, and Limitations	Data Date(s)
Limitations: The measure only indicates whether the state public health laboratory has the capability to test water in various environments. The measure does not evaluate if OTHER state laboratories have this capability. For example, Delaware and Oklahoma informed the program management office that other labs in their states do have this capability. Finally, this measure does not indicate whether the public health laboratory has the capacity to test the amount of samples necessary to respond to a health security event.	
M275_SUR - Does your laboratory provide or assure testing for the following environmental matrices (Surface water)?	2012 & 2014
Source: Association of Public Health Laboratories (APHL), Comprehensive Laboratory Services Survey (CLSS)	
Limitations: The measure only indicates whether the state public health laboratory has the capability to test water in various environments. The measure does not evaluate if OTHER state laboratories have this capability. For example, Delaware and Oklahoma informed the program management office that other labs in their states do have this capability. Finally, this measure does not indicate whether the public health laboratory has the capacity to test the amount of samples necessary to respond to a health security event.	
M275_UST - Does your laboratory provide or assure testing for the following environmental matrices (Underground storage tanks)?	2012 & 2014
Source: Association of Public Health Laboratories (APHL), Comprehensive Laboratory Services Survey (CLSS)	
Limitations: The measure only indicates whether the state public health laboratory has the capability to test water in various environments. The measure does not evaluate if OTHER state laboratories have this capability. For example, Delaware and Oklahoma informed the program management office that other labs in their states do have this capability. Finally, this measure does not indicate whether the public health laboratory has the capacity to test the amount of samples necessary to respond to a health security event.	
M275_WST - Does your laboratory provide or assure testing for the following environmental matrices (Waste water)?	2012 & 2014
Source: Association of Public Health Laboratories (APHL), Comprehensive Laboratory Services Survey (CLSS)	
Limitations: The measure only indicates whether the state public health laboratory has the capability to test water in various environments. The measure does not evaluate if OTHER state laboratories have this capability. For example, Delaware and Oklahoma informed the program management office that other labs in their states do have this capability. Finally, this measure does not indicate whether the public health laboratory has the capacity to test the amount of samples necessary to respond to a health security event.	

Measure ID, Data Source, and Limitations	Data Date(s)
M276 - For which of the following organisms or their toxins does your {state public health} laboratory provide or assure testing for food and or water samples to assist with foodborne disease outbreak investigations: Bacillus cereus, Brucella sp., Campylobacter sp., Clostridium botulinum, Clostridium perfringens, Cryptosporidium sp., Cyclospora cayetanensis, Listeria monocytogenes, norovirus, Salmonella, Shigella, Staphylococcus aureus, STEC non-O157, STEC O157, Vibrio sp., Yersinia enterocolitica. The state's value is equal to the percentage of these tests performed.	2012 & 2014
Source: Association of Public Health Laboratories (APHL), Comprehensive Laboratory Services Survey (CLSS)	
Limitations: The measure indicates that the state public health laboratory either has these testing capabilities or assures that the tests can be done by agreement with another laboratory. Agreement laboratories may not be located to facilitate rapid transport and timely testing.	
M195 - Percent of population {in the state} whose community water systems meet all applicable health-based standards through approaches that include effective treatment and source water protection	2013 & 2014
Source: Environmental Protection Agency (EPA), Safe Drinking Water Information System Federal (SDWIS/FED) Drinking Water Data	
Limitations: The measure does not cover drinking water supplies that are non-public (private) and does not directly provide information on community water supplies that were adversely affected by emergencies or disasters.	

Subdomain 6.2: Environmental Monitoring	
M202 - Does your {state public health} laboratory provide or assure testing for air?	2012 & 2014
Source: Association of Public Health Laboratories (APHL), Comprehensive Laboratory Services Survey (CLSS)	
Limitations: The measure is limited to one environmental matrix and does not specify what kind of testing should be performed. The measure does not address how many of these types of samples could be tested.	
M257_AIHA - Does the American Industrial Hygiene Association (AIHA) provide certification or accreditation of your state public health laboratory?	2012 & 2014
Source: Association of Public Health Laboratories (APHL), Comprehensive Laboratory Services Survey (CLSS)	
Limitations: The measure has no apparent limitations.	

Measure ID, Data Source, and Limitations	Data Date(s)
M257_EPA - Does the U.S. Environmental Protection Agency (EPA) provide certification or accreditation of your state public health laboratory?	2012 & 2014
Source: Association of Public Health Laboratories (APHL), Comprehensive Laboratory Services Survey (CLSS)	
Limitations: The measure has no apparent limitations.	
M257_NELAC - Does the National Environmental Laboratory Accreditation Conference (NELAC) provide certification or accreditation of your state public health laboratory?	2012 & 2014
Source: Association of Public Health Laboratories (APHL), Comprehensive Laboratory Services Survey (CLSS)	
Limitations: The measure has no apparent limitations.	
M197 - Does your {state public health} laboratory provide or assure testing for radiologic agents in environmental samples?	2012 & 2014
Source: Association of Public Health Laboratories (APHL), Comprehensive Laboratory Services Survey (CLSS)	
Limitations: The measure only indicates if the state public health laboratory has the capability, or assures it through agreement with another laboratory. It does not measure the capacity of the laboratory to process the number of samples that would be required for a response. The measure does not indicate if the agreement laboratory is appropriately located to minimize sample transport time.	
M196* - Does your {state public health} laboratory provide or assure testing for environmental samples in the event of suspected chemical terrorism?	2012 & 2014
Source: Association of Public Health Laboratories (APHL), Comprehensive Laboratory Services Survey (CLSS)	
Limitations: The measure is based on a response to the Comprehensive Laboratory Services Survey distributed to the 51 state laboratories represented by the Association of Public Health Laboratories (APHL), and the response is subject to the objectivity of the survey responder. The survey question asks if the laboratory provides or assures testing of environmental samples in the event of suspected chemical terrorism, which may or may not include air, food, and/or water.	
M272 - Does your {state public health} laboratory test for contaminants {in environmental samples}: asbestos, explosives, gross alpha and gross beta, inorganic compounds (e.g., nitrates), metals, microbial, lead, persistent organic pollutants, pesticides (including organophosphates), pharmaceuticals, radon, or volatile organic compounds? The state's value is equal to the percentage of these tests performed.	2012 & 2014

Measure ID, Data Source, and Limitations	Data Date(s)
Source: Association of Public Health Laboratories (APHL), Comprehensive Laboratory Services Survey (CLSS)	
Limitations: The measure only indicates that a state public health laboratory has the ability to test these contaminants. The measure does not indicate the quality of the testing or the through-put or capacity of the laboratory testing. Because this measure only evaluates state public health laboratories, another laboratory in a state may provide these testing services.	
M273 - Does your {state public health} laboratory provide or assure testing for hazardous waste?	2012 & 2014
Source: Association of Public Health Laboratories (APHL), Comprehensive Laboratory Services Survey (CLSS)	
Limitations: The measure only considers the ability to test for substances, not the overall capacity for timely response and characterization of the release of hazardous waste to the environment.	
M274* - State participates in the National Plant Diagnostic Network (NPDN)	2014
Source: National Plant Diagnostic Network (NPDN), National Plant Diagnostic website	
Limitations: A "yes" response to this measure indicates that a state is participating in the NPDN. The limitation is that it there is no indication as to what level or how effectively the state is participating (i.e., how many resources has the state committed, or how successful the state is in meeting the goal of quickly detecting and identifying pathogens).	
M904 - {Number of} Environmental Scientists and Specialists, Including Health {per 100,000 population}	2012—2015
Source: Bureau of Labor Statistics (BLS), Occupational Employment Statistics (OES), OES 19-2041	
Limitations: This is not a measure of quality as environmental and health scientists can have varying levels of training and organizations may not always support sufficient continuing education. The measure does not include agency surge plans that can increase the number of environmental and health scientists available to respond to an event, nor mutual aid plans that can temporarily increase the number of environmental and health scientists.	

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Index Workgroups:

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Cover Art:

A super-cell thunderstorm over the plains of eastern Colorado.

For More Information:

National Health Security Preparedness Index Program Management Office
Center for Public Health Services and Systems Research
University of Kentucky
111 Washington Avenue, Suite 201
Lexington, KY 40536

Telephone: 859-257-2912
Email: NHSPI@uky.edu
Web: www.nhspi.org