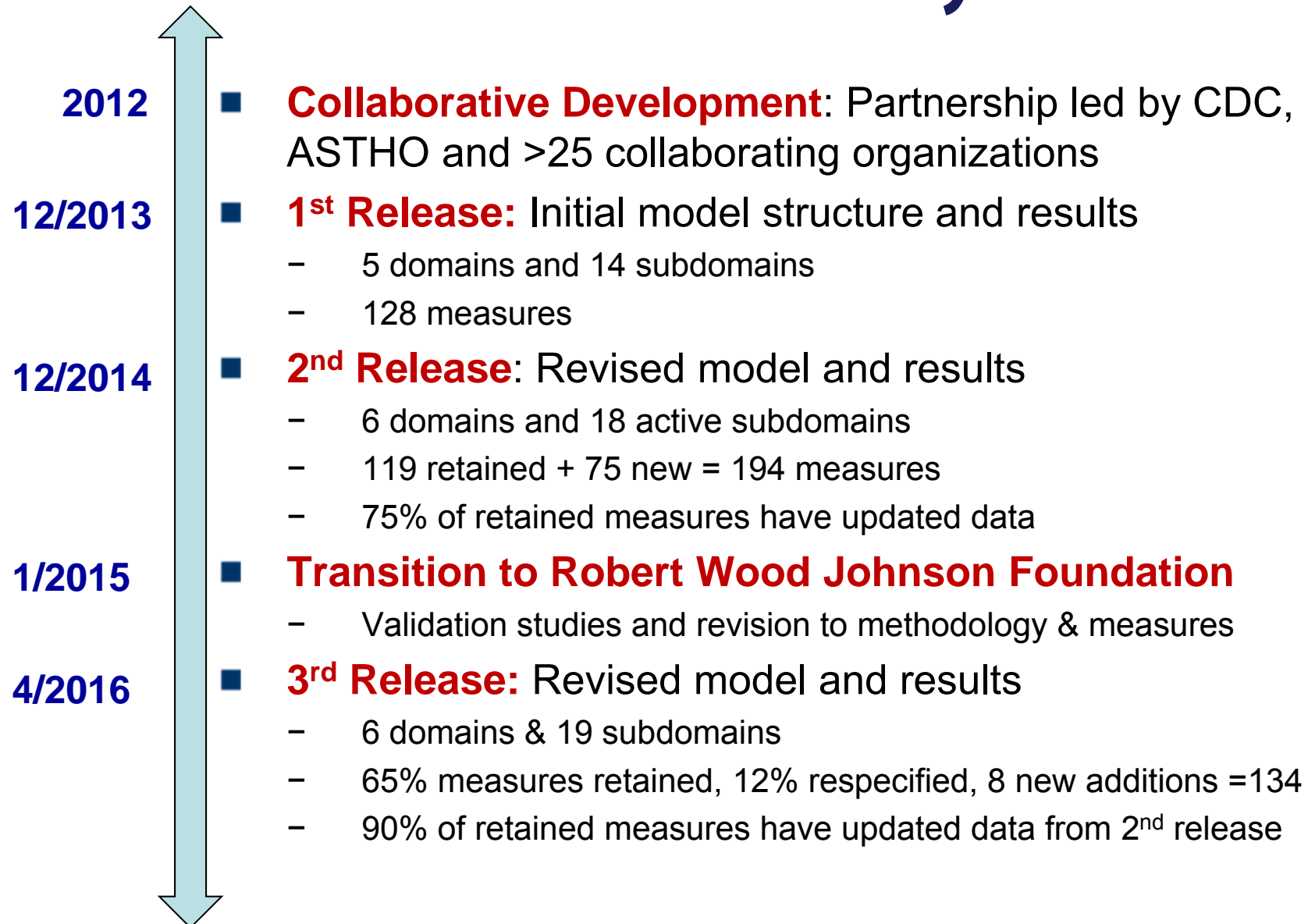


The 2016 National Health Security Preparedness Index: An Update and Review

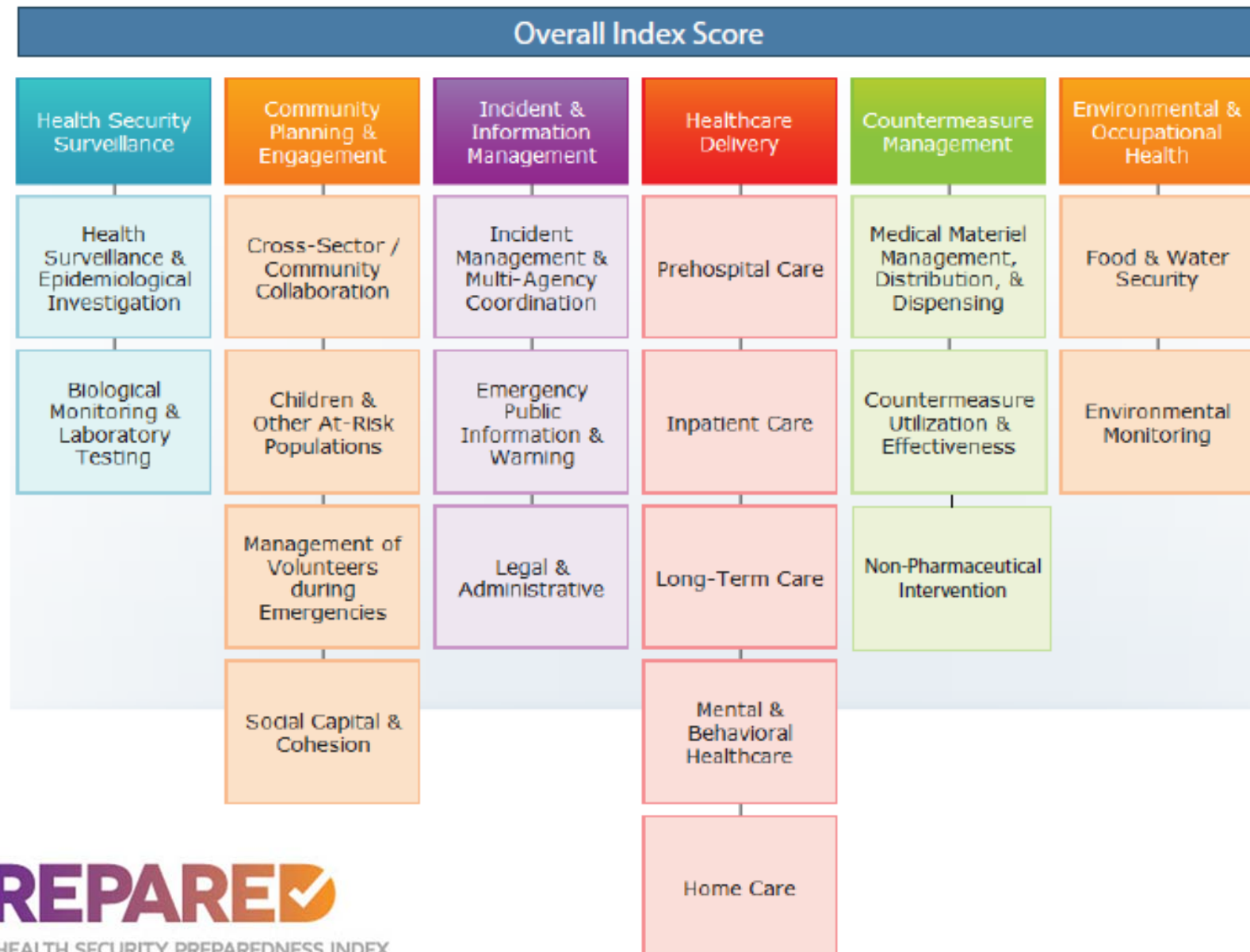


Glen Mays, PhD, MPH
University of Kentucky

A Brief History



Current Index Structure



NATIONAL HEALTH SECURITY PREPAREDNESS INDEX

2016 Methodological Enhancements

- ***Consolidation***: reduce correlated, redundant & noisy measures
- ***Composition***: expand social, environmental economic indicators of preparedness & resiliency
- ***Grouping & weighting***: use empirical methods for internal consistency, discriminant power
- ***Scaling***: reflect distributional properties
- ***Comparisons***: address accuracy and uncertainty
- ***Trending***: apply new methods/measures retrospectively



2016 Changes in Measure Set

- 42 measures eliminated due to data periodicity >3 years
- 29 measures eliminated due to poor construct validity
- 22 measures respecified to improve construct validity
- 8 newly added measures

Domain	Construct Validity	
	2014 Alpha	2016 Alpha
Health security surveillance	0.377	0.712
Community planning & engagement	0.382	0.631
Incident & information management	0.455	0.734
Healthcare delivery	0.354	0.596
Countermeasure management	0.231	0.654
Environmental/occupational health	0.546	0.749

Staiger D, Dimick JB, Baser O, Fan Z and Birkmeyer JD. Empirically derived composite measures of surgical performance. Medical Care 2009;47: 226- 233. Hays RD, Hayashi T. Beyond internal consistency reliability: rationale and user's guide for multitrait analysis program on the microcomputer. Behavioral Research Methods 1990;22(2):167-75.

Current Index Structure and Methodology

- 134 individual measures



- 19 subdomains



- 6 domains



- State overall values

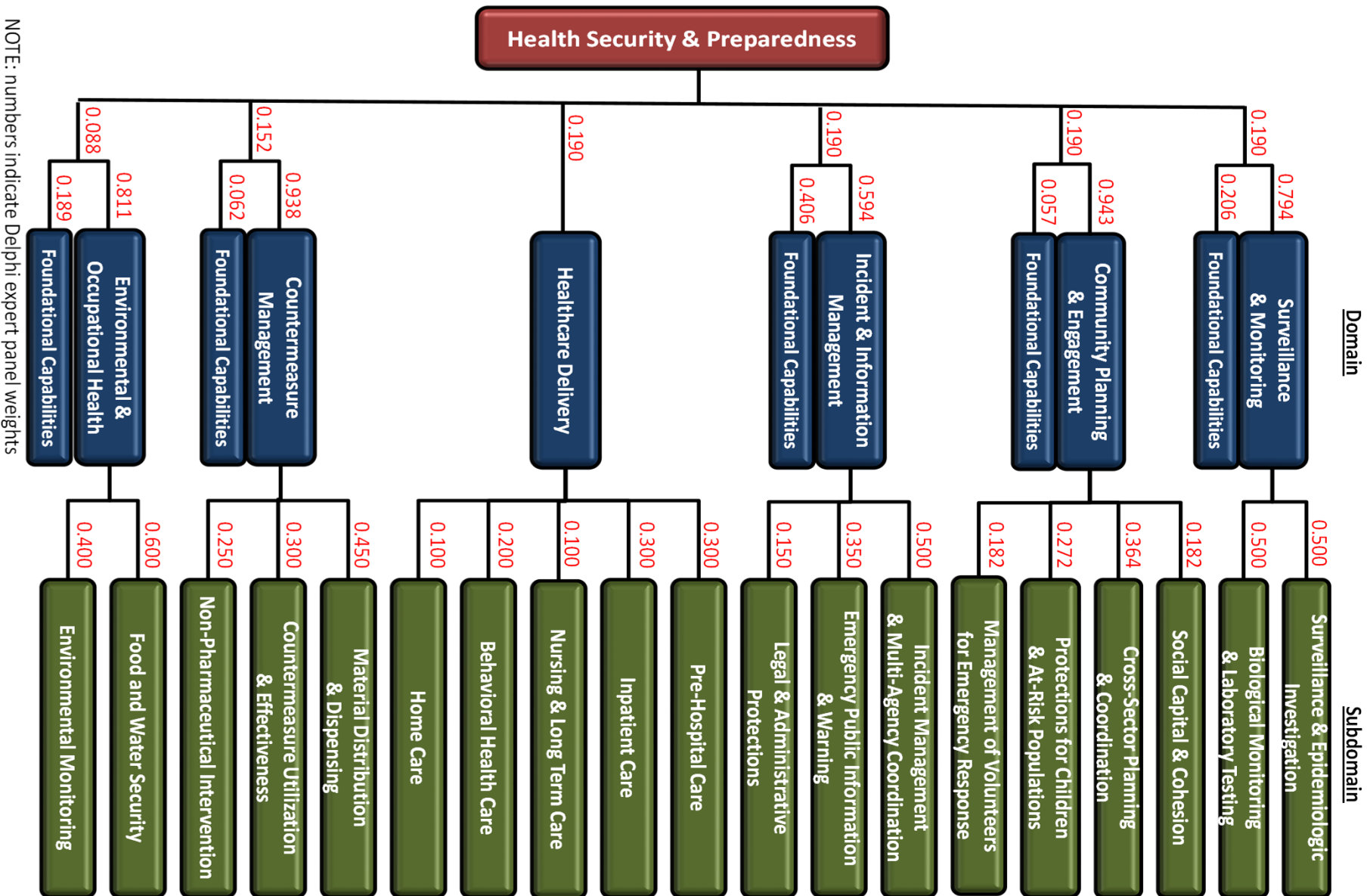


- National overall values

- Normalized to 0-10 scale using min-max scaling to preserve distributions
- Imputations based on multivariate longitudinal models
- Empirical weights based on Delphi expert panels
- Confidence intervals reflect sampling and measurement error
- Annual estimates for 2013, 2014 and 2015

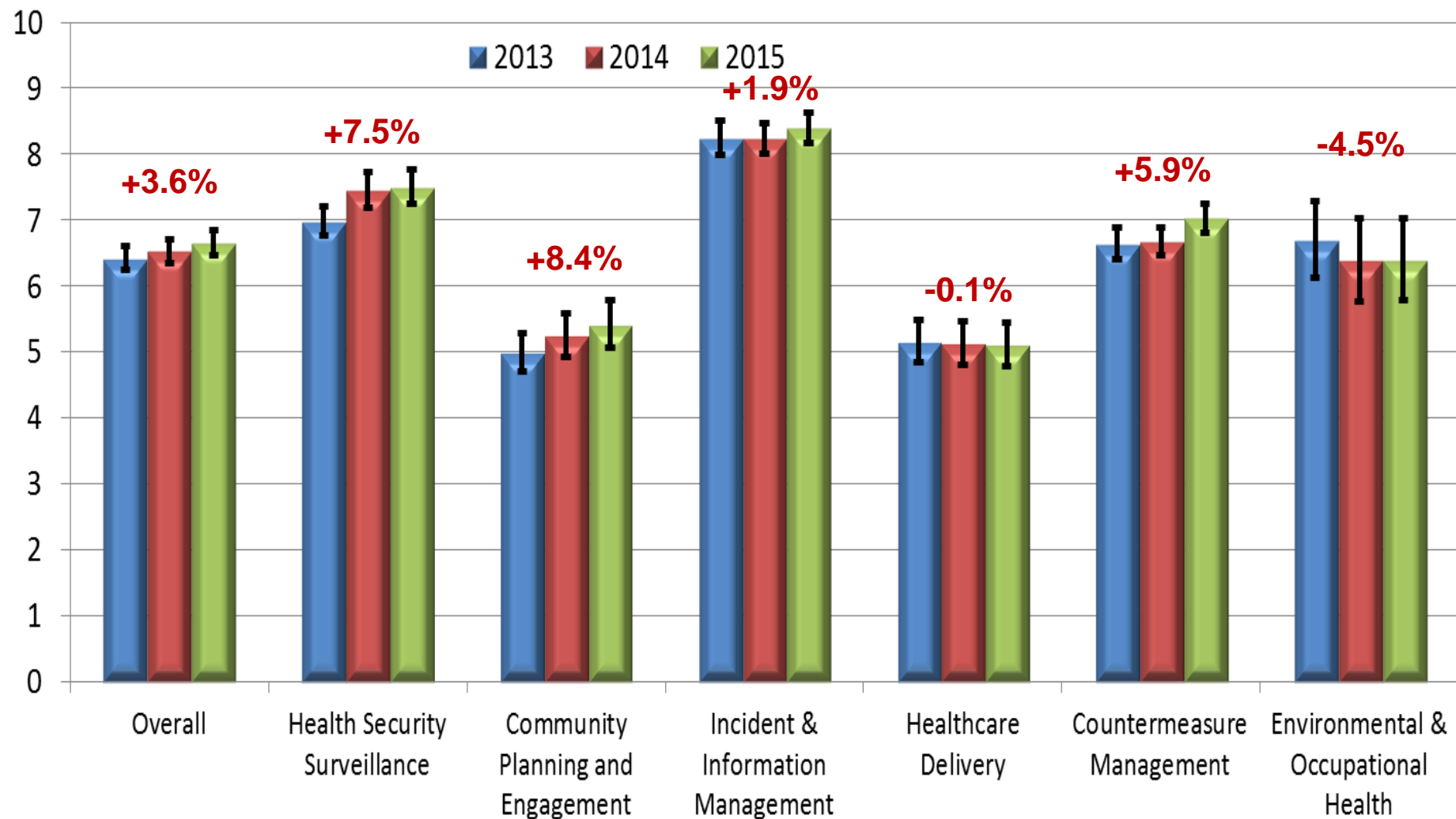


Index Delphi Weights & Foundational Capabilities



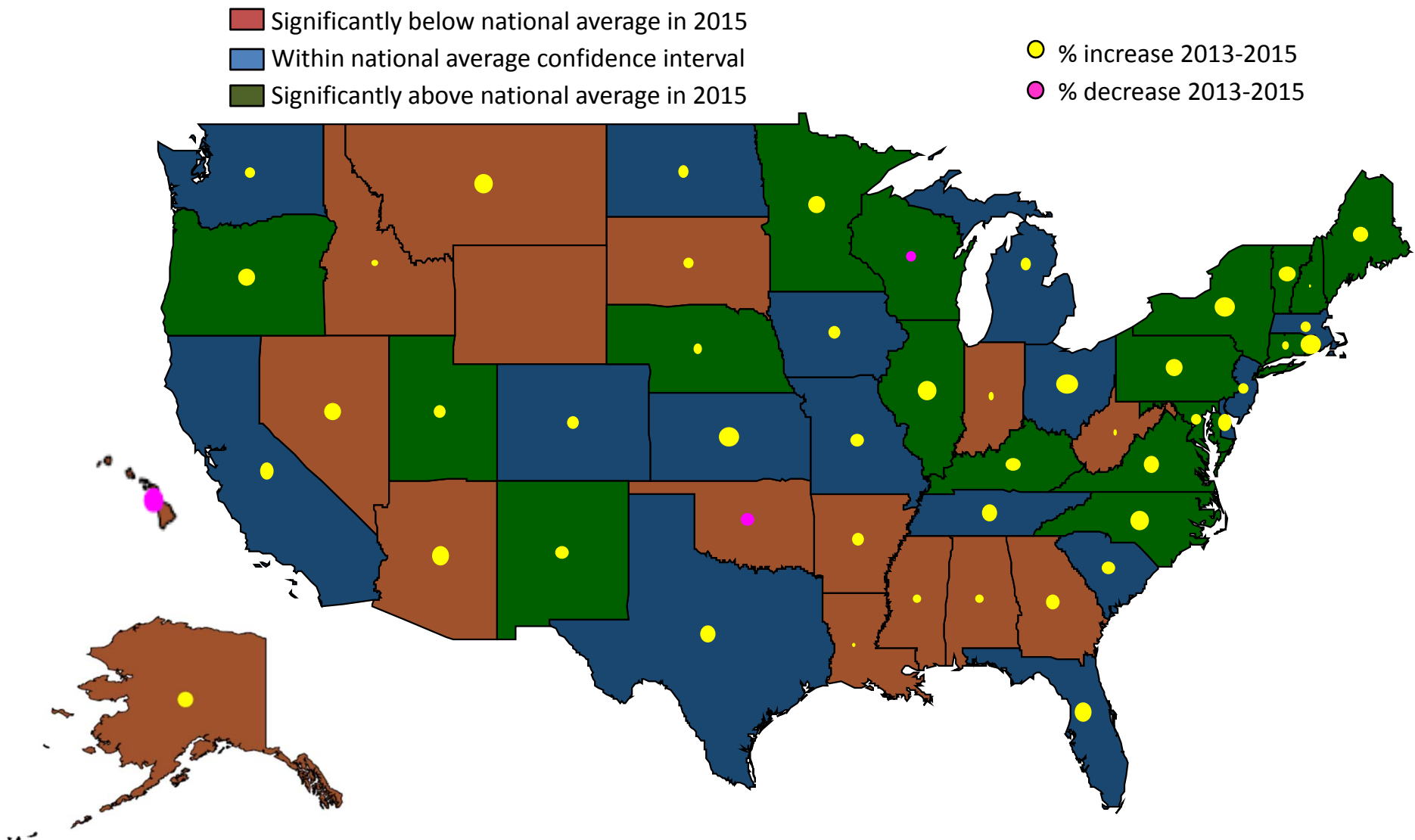
Results

1. National preparedness trended upward in most functional areas during 2013-15, except in environmental health and healthcare delivery



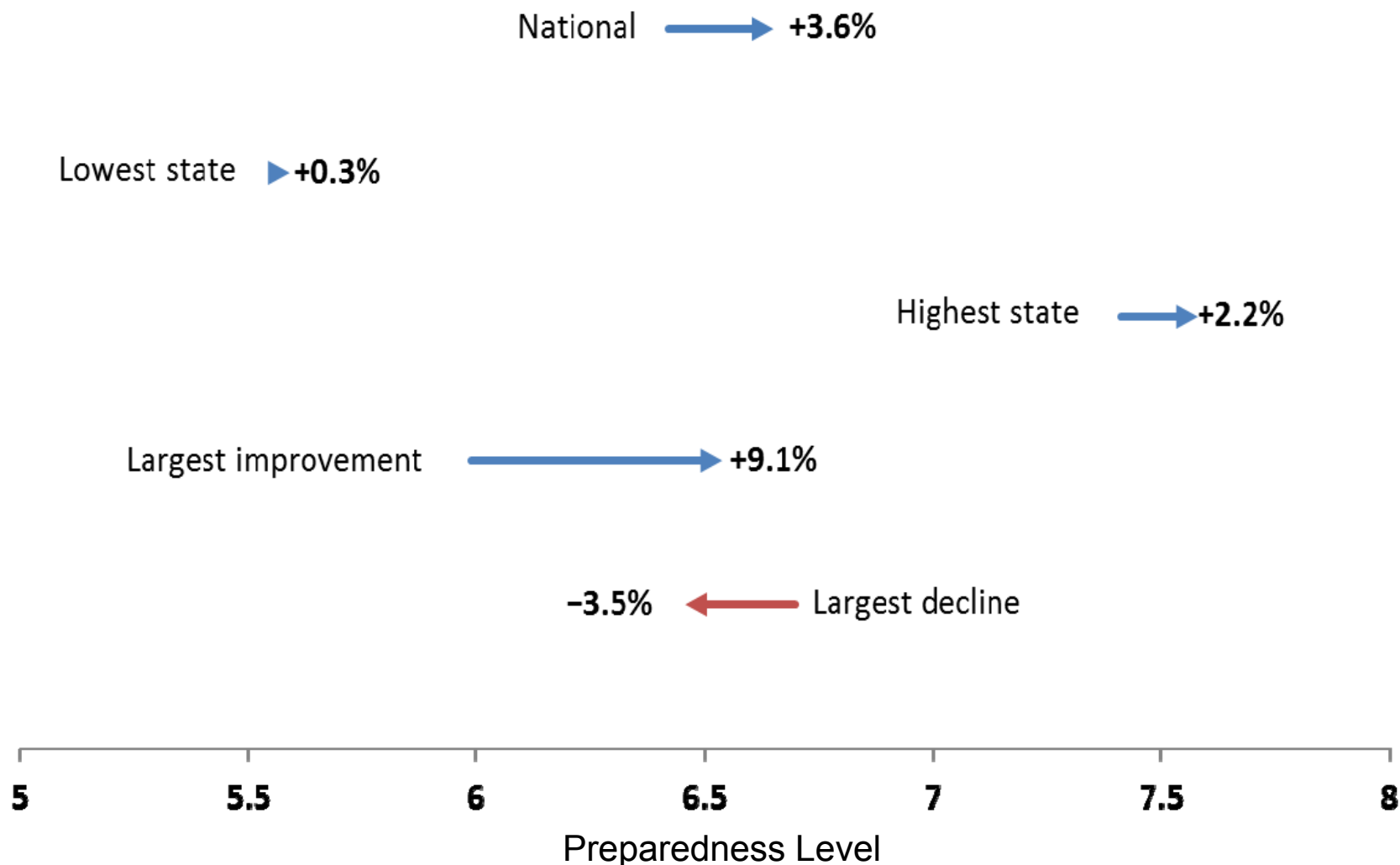
Results

2. Preparedness improved in most states during 2013-15, but significant geographic differences remain.



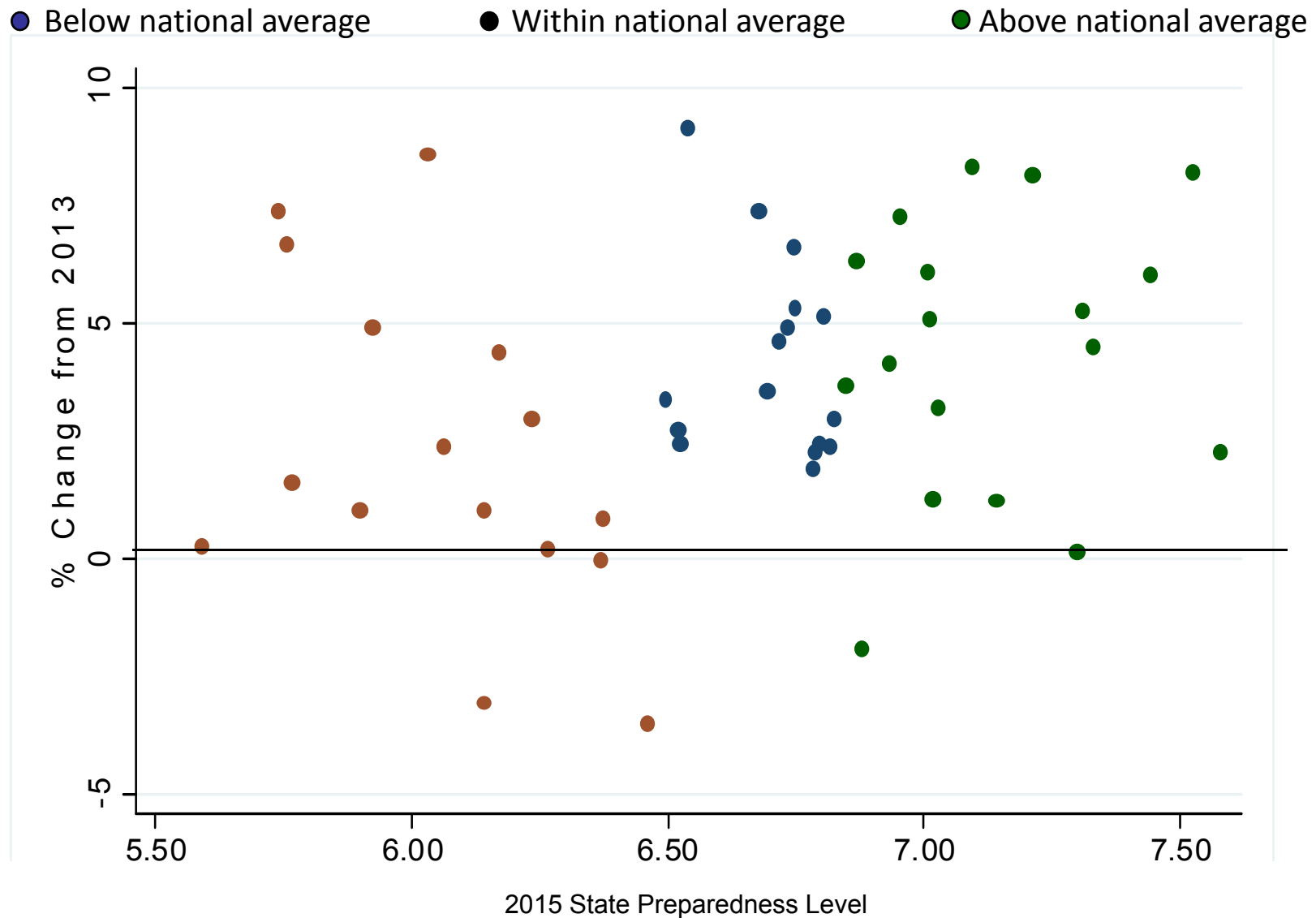
Results

3. Preparedness levels improved by an average of 3.6% between 2013 and 2015. Individual state trends ranged from a 9.1% improvement to a 3.5% decline.



Results

4. Improvements in preparedness occurred across the U.S. in both above-average and below-average states. However, some below-average states continued to lose ground.



Results

5. An increasing number of states score above the national average preparedness level.

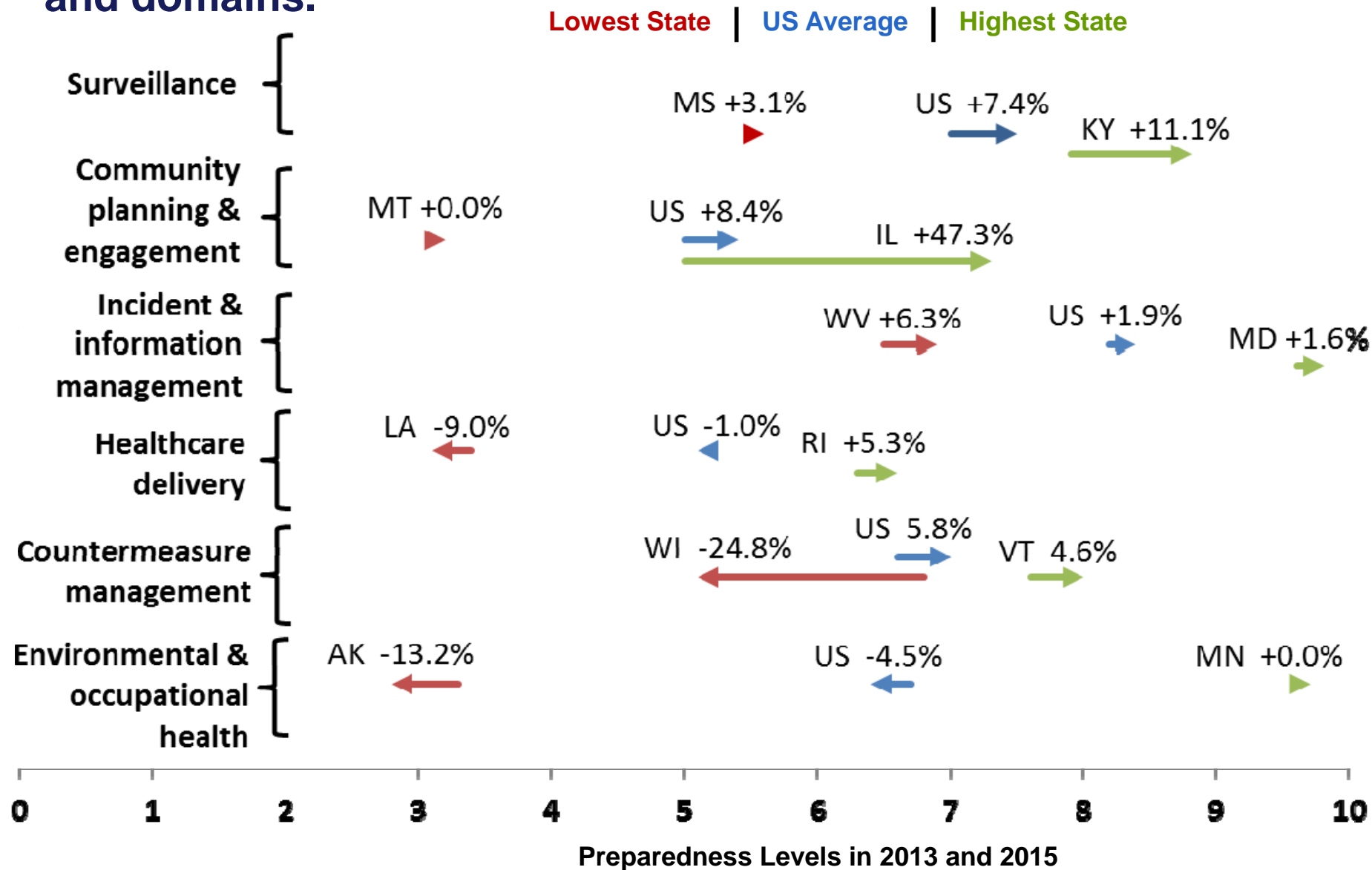
2016 National Health Security Preparedness Index Results



NOTE: Dotted lines represent statistical confidence intervals for the national average Index score.

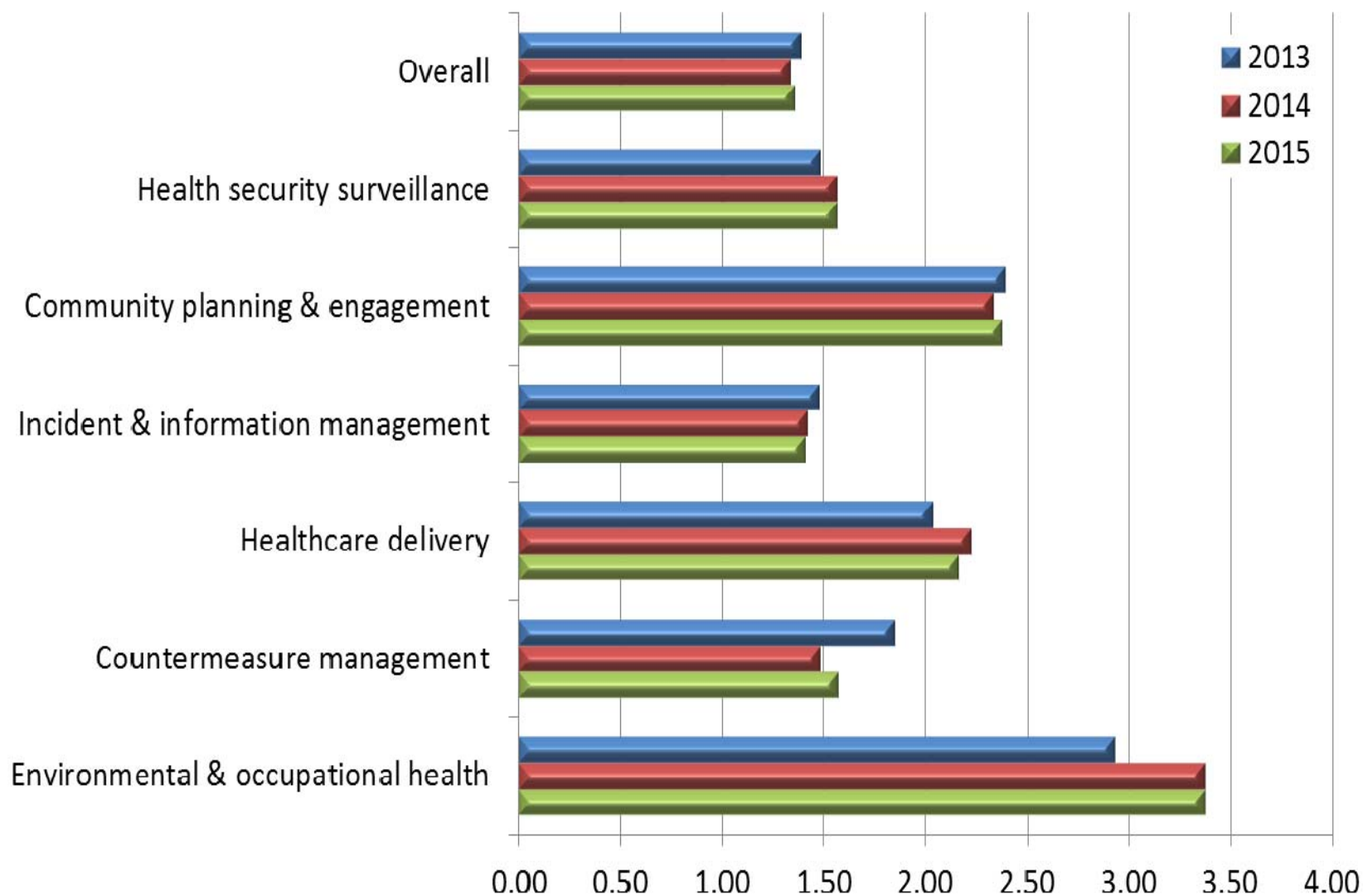
Results

6. Changes in preparedness levels varied widely across states and domains.



Results

7. Gaps in preparedness between the highest and lowest states are large and persistent, and they have increased in environmental health and in healthcare delivery.



Caveats and cautions

- Imperfect measures & latent constructs
- Missing capabilities
- Timing and accuracy of underlying data sources



NATIONAL HEALTH SECURITY PREPAREDNESS INDEX

Next Steps

- 2016 Public Release was on April 26, 2016
www.nhspi.org
- National convening to showcase uses: Fall 2016
- Continued work to incorporate advances in measurement: ASPR, CDC, NIH, AHRQ, HP2020
- Additional analysis to understand causes and consequences of change
- In-person Work Group meeting to establish a path forward



NATIONAL HEALTH SECURITY PREPAREDNESS INDEX

In Person Work Group Meeting

- What?
 - Joint in-person meeting of the Analytic Methodology & Model Design Work Groups
- When?
 - Monday, July 25, 2016 (one day meeting)
- Where?
 - RAND, Santa Monica, CA (1776 Main Street)
- Why?
 - Identify future enhancements



For More Information



National Program Office

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