The National Health Security Preparedness Index:

Analytic Methodology Workgroup
Virtual Meeting

February 10, 2016
Agenda

- Summary of Delphi Results
- Weighting
- Imputation
- Confidence Intervals
- In-Person Meeting
Overview of the Delphi process

- Separate panel convened for each of 6 domains
- Item Measure Assessment
  - Measures in each domain rated on importance
  - Use Visual Analog Scale (VAS) ratings
  - Results reported back to panelists with opportunity to revise ratings
  - Three waves used for each panel
- Subdomain/Domain Assessment
  - Similar approach
    - distribution of 100% instead of VAS
Assessing convergence in Delphi scores

- Discrimination Coefficient of Variation
- Only 5 measures exceed critical value of 0.5
- Most measures are well within the range of convergence (average = 0.18)
Distribution of Delphi Weights (All measures)

Mean = 7.78
Distribution of Delphi Weights
(only measures in Index)

Mean = 8.0
Implementing the Delphi Results: Weighting

• 2016 Index
  – Delphi assessment of importance to preparedness
  – Weights derived from expert assessments
Implementing the Delphi Results: Weighting
Implementing the Delphi Results: Weighting

NHSPA Item Measure Weights, 2014 and 2016
Implementing the Delphi Results: Weighting

Comparing NHSPI Item Measure Weights, 2014 and 2016

M228 - % Broadband in the home
Dealing with Missing Values: Imputation

• Using multiple regression analysis to estimate missing values

• Just over a third of the item measures having missing data
  – Most are estimated using regression
  – Using 2014 Index data for others (e.g., APHL)
    • Still working on getting updated data
Imputation: What’s in the Equation?

- Other item measures in the domain
- Geographic identifiers
  - Climate region, land area, % urban
- Socioeconomic/demographic measures
  - Age distribution, educational attainment, population, personal income
Confidence Intervals

• Frequentist approach for now, but will explore Bayesian method for the future

• Point estimates (states and U.S.)
  – Item measures, subdomains, domains, overall

• Confidence Intervals (90%) for the U.S.
  – Subdomains, domains, overall

• Three different time periods
Confidence Intervals
Identify Notable Changes

• Is a state’s Index value (overall, subdomain, or domain) **above** the U.S., **below** the U.S., or the **same** as the U.S.?

• Is a state’s Index value (overall, subdomain, or domain) showing notable changes over time (relative to the U.S.)?
  – Will display 3 time periods
In-Person Meeting

• Joint meeting of Analytic Methodology and Model Design Workgroups
• RAND, Santa Monica, CA
• Wednesday, **July 27, 2016**
For More Information

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