Local Data for Action

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"Exploring Access to Small-area Population Health Data and Data Resources"
National Committee on Vital and Health Statistics
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Washington, DC

CDC's Division of Population Health

- Located in the National Center for Chronic Disease Prevention and Health Promotion
- Provides cross-cutting and cutting edge public health programs
- Behavioral Risk Factor Surveillance System
- Geospatial analyses and small area estimation
- Other CDC Programs with small area estimation
  - Diabetes
  - Heart Disease and Stroke
  - Cancer Prevention and Control
  - Oral Health

Questions

- What are current activities underway to improve access to county and sub-county level data? Please also describe whether/how these activities will produce public use files or access via some other means.
  - BRFSS substate data
    - SMART visualizations with data download
    - Approved access through Research Data Center
  - 500 Cities data visualizations and data download

- What additional strategies are being developed/proposed in the near and long term?
  - Expanding beyond 500 Cities
    - Still examining quality/ validity/ trends/ impact

- Are federal health agencies pursuing new data technologies, such as synthetic data, to provide health information without threatening privacy?
  - Already doing with 500 Cities project

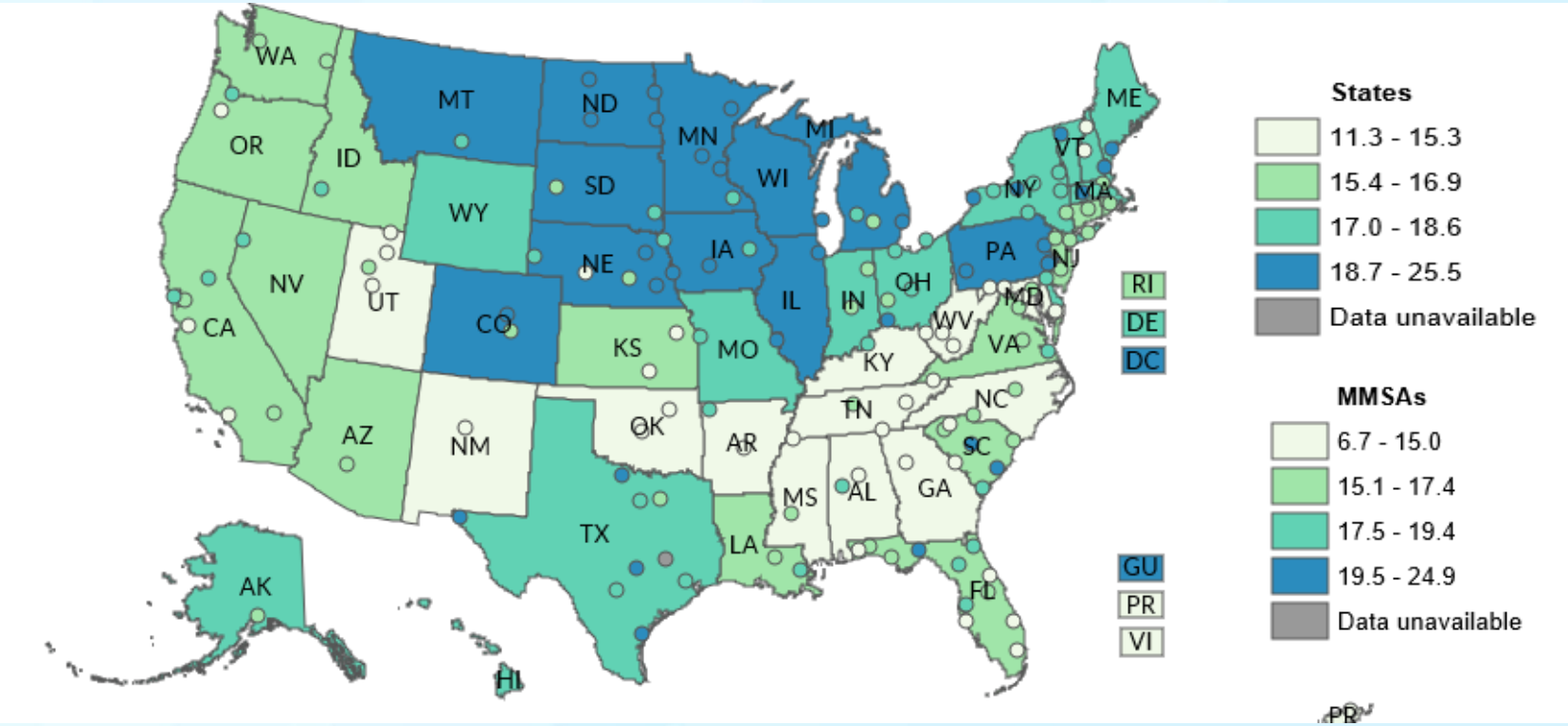
Behavioral Risk Factor Surveillance System

- **Largest phone based health survey in the world**
  - Continuous, state-based surveillance system
  - information about modifiable risk factors for chronic diseases and other leading causes of death.
  - Both landline and cell phone
  - More than 400,000 respondents per year
  - All states, DC, and several territories each year
- **Designed for State-based estimates**
- **Some states have targeted counties or other sub-state geographic areas**
- **Previously provided estimates for select counties and metropolitan areas with sufficient sample sizes (500 or more respondents)**
  - Only a small percentage of areas available per year

Behavioral Risk Factor Surveillance System: Issues affecting availability of sub -state data

- **Cooperative Agreement with state health departments**
  - States determine their health surveillance needs
  - States determine sampling plans
  - Agree to a common core survey
  - Elect to include optional standardized modules
  - State added questions
  - Sponsorship of questions/modules
- **Growth of survey, topics, program interest, privacy issues**
  - Privacy and confidentiality concerns
  - 2015 OMB approval
  - 2012 HHS Guidance Regarding Methods for Deidentification of Protected Health Information in Accordance with the Health Insurance Portability and Accountability Act (HIPAA) Privacy Rule
- **Changing technology and assuring quality data**
  - Increasing ability to stratify cell phones samples by geographic areas
  - Multimode surveys

Behavioral Risk Factor Surveillance System Select Metropolitan Area Risk Trends (SMART)



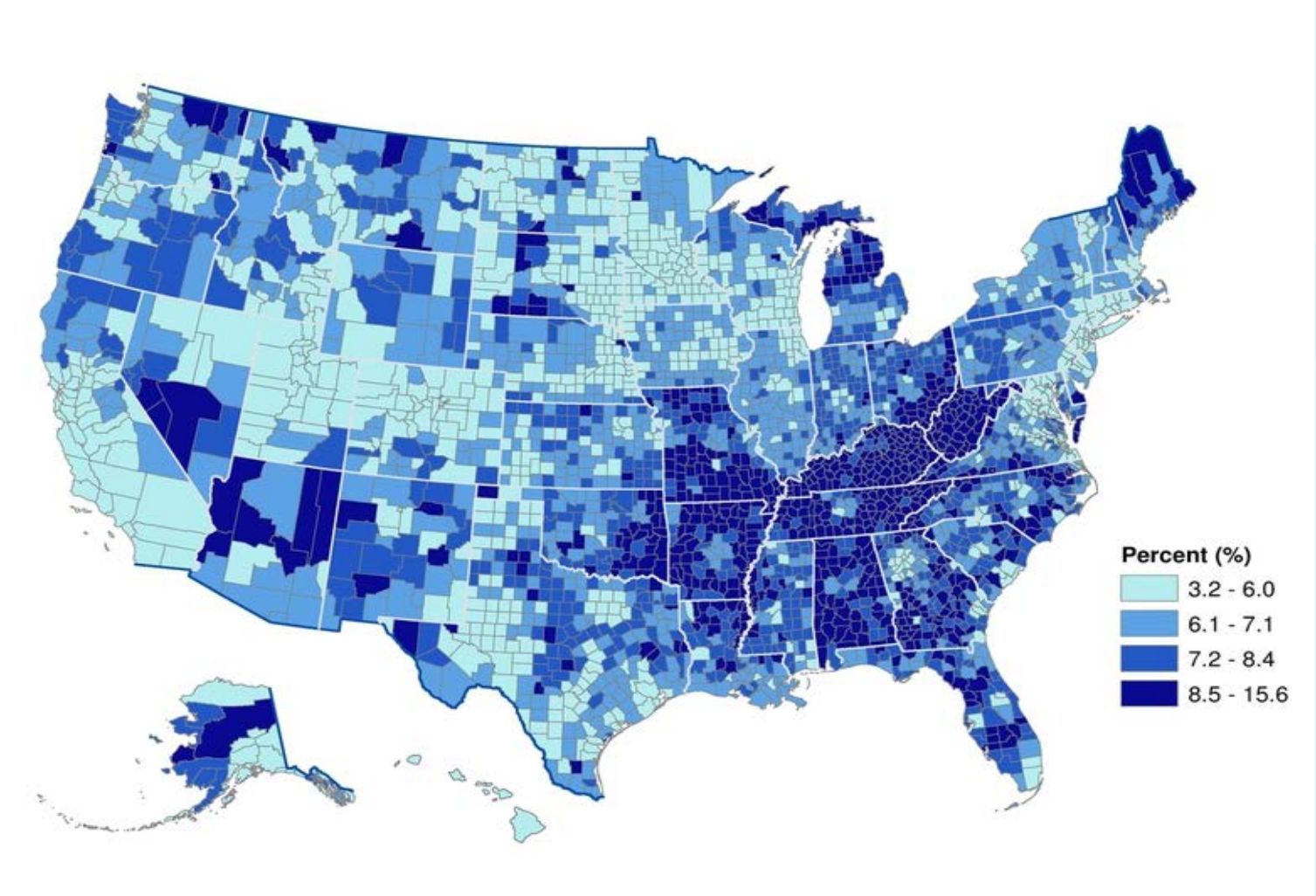
Options for accessing BRFSS substate data

- **Continue to provide aggregated estimates**
  - Visualization: https://www.cdc.gov/brfss/brfssprevalence/index.html
  - Documentation: https://www.cdc.gov/brfss/data_documentation/index.htm
  - Data download: https:// chronicdata.cdc.gov
- **BRFSS restricted individual data (county identifiers)**
  - Research Data Center: https ://www.cdc.gov/RDC/
- **Work directly with state health departments**
- **Examining other options for providing county and sub -state data**
  - E.g., Aggregated county estimates
  - E.g., Small area estimation for all counties

Geospatial Analyses

- **Applied Statistical methods**
  - Area Based estimates combining years of BRFSS
  - Bayesian estimates
  - Multilevel Regression and Poststratification (MRP)
  - Other
- **Division of Population Health estimates**
  - Use MRP method
  - Have conducted a number of external validation studies
  - Flexible
  - Used for several projects
- **Data visualization for local estimates**
  - 500 Cities
- **Other collaborations**
  - County Health Rankings and Reports

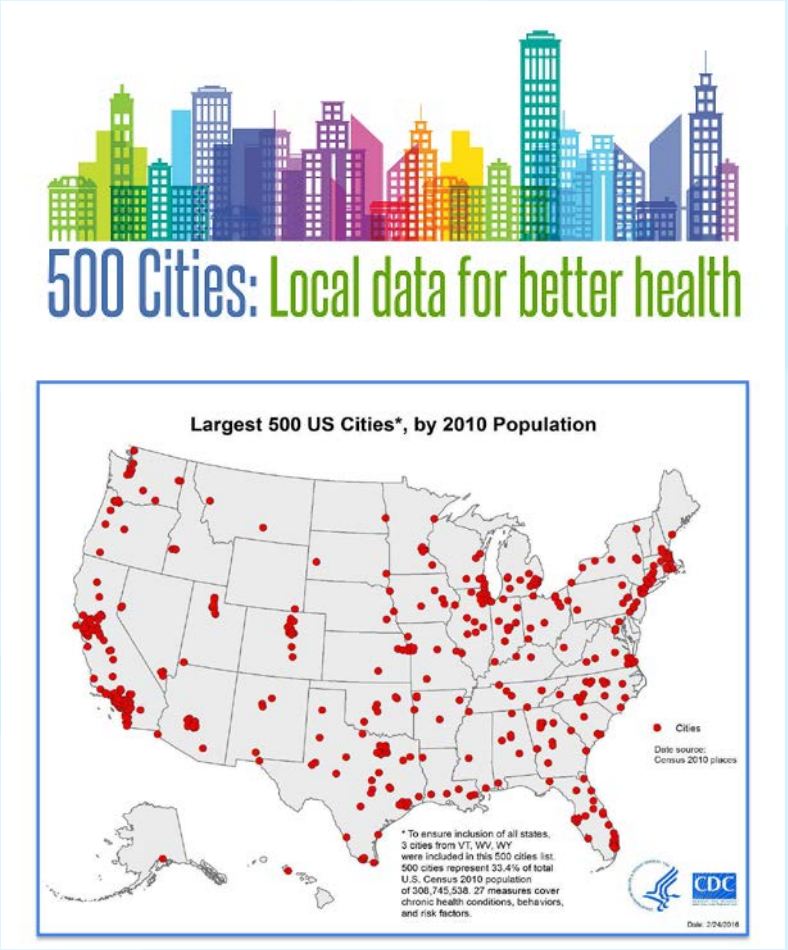
Prevalence of doctor -diagnosed COPD, U.S. Counties, 2016



Source: CDC. *MMWR* 2018;67(7):205-211.

500 Cities Local Data for Better Health
https:// www.cdc.gov/500cities

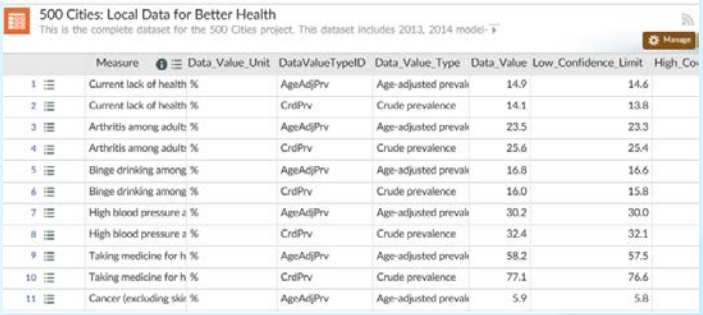
- CDC, Robert Wood Johnson Foundation, and CDC Foundation 2015-2019
- Small area estimates for 27 chronic disease measures related to
  - Unhealthy behaviors (5)
  - Health outcomes (13)
  - Prevention (9)
- 500 largest US cities and their census tracts

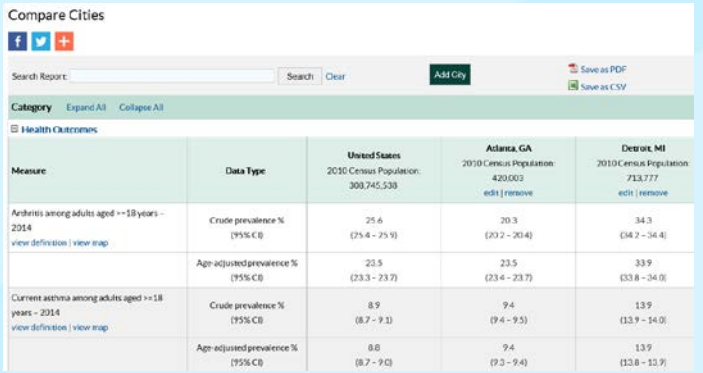


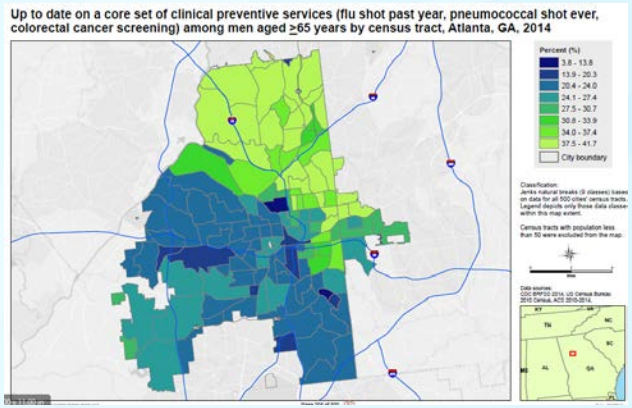
500 Cities Homepage
https://www.cdc.gov/500cities

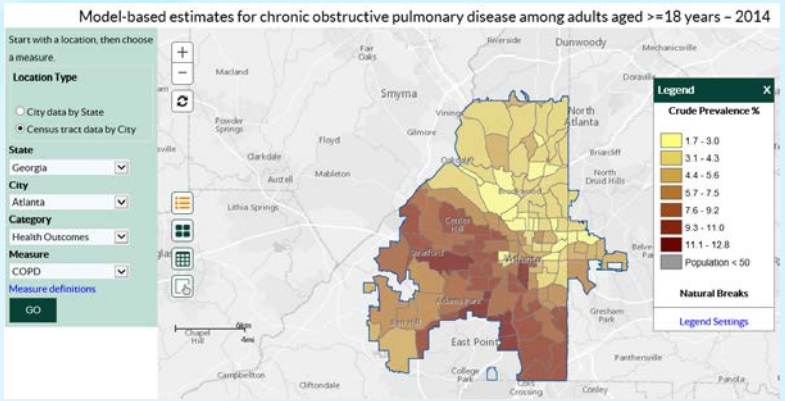
- Dataset - Open Data
- Mapbooks (PDFs)
- Comparison Reports
- GIS-enabled Interactive Maps
- Open data compliant
- Data available at

  https ://chronicdata.cdc.gov









Uses and Limitations of Synthetic estimates

- Assurance of quality estimates
- Validated models can be used for reliable estimates for health program planning
  - Several validation studies of MRP methods
- Small area estimates do not replace direct estimates; small area estimates supplement direct estimates.
- Not currently recommended (still assessing) for
  - Assessing changes over time
  - Evaluation of program impacts

Future Considerations - Geospatial Analyses

- Continue to assess and validate use of SAEs from state data
- Expand beyond 500 Cities
- Other geographies (e.g., counties, census tracts, incorporated places, zip code areas)
- Integrating population health data from BRFSS with other data (e.g., health care specialists, built environment, premature mortality)

Thank You!