



Model-Based Early Estimates Update

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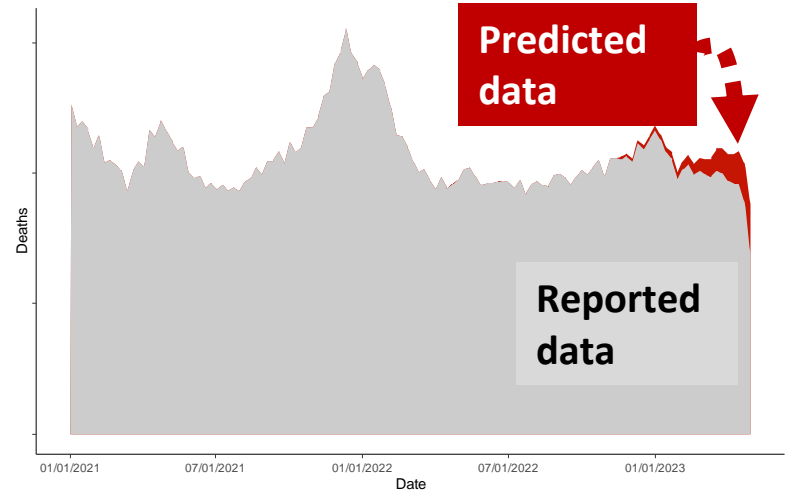
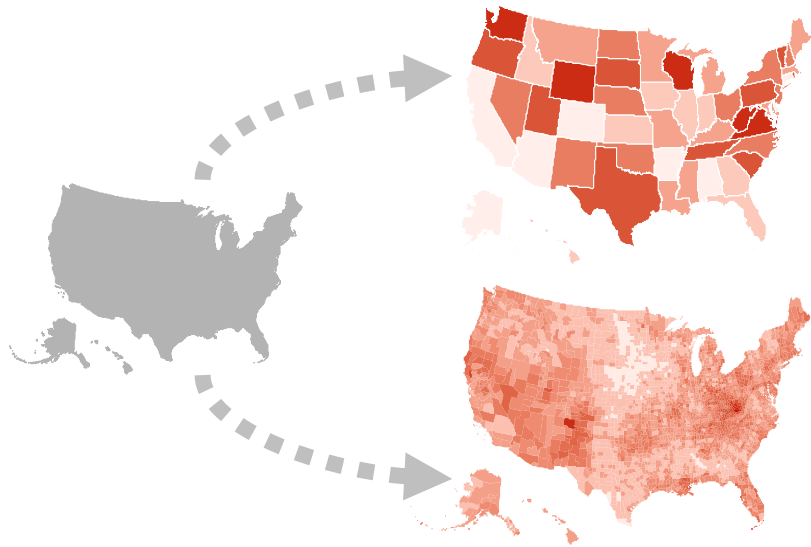
Division of Research and Methodology

NCHS Board of Scientific Counselors

March 6, 2024

Model-Based Early Estimates: Goals

- Improve the timeliness and granularity of data
- Enable data to action



Model-Based Early Estimates: Timeline

September 2023

- ▶ Analytic tool for small domain estimation

January 2024

- ▶ County-level estimates of deaths, births
- ▶ State-level estimates from the National Health Interview Survey (NHIS)

September 2024

- ▶ Analytic pipelines for other data systems
- ▶ Evaluation of methods for combining non-probability and probability data

Ongoing Research and Development

- ▶ Continuous evaluation of estimates and methods
- ▶ Analytic support to data divisions and data users
- ▶ Research on new and emerging data science methods

Model-Based Early Estimates: Progress Update

Goal:

- ▶ Production of state-level estimates from NHIS, by demographic group

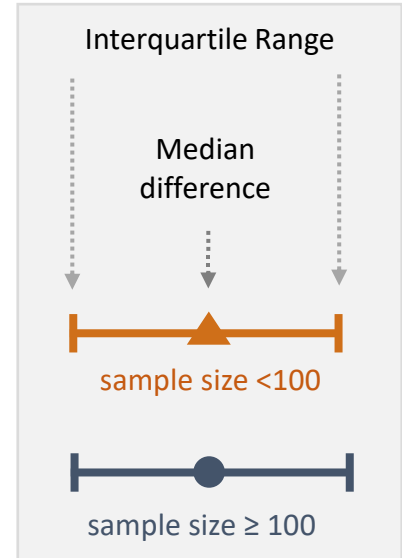
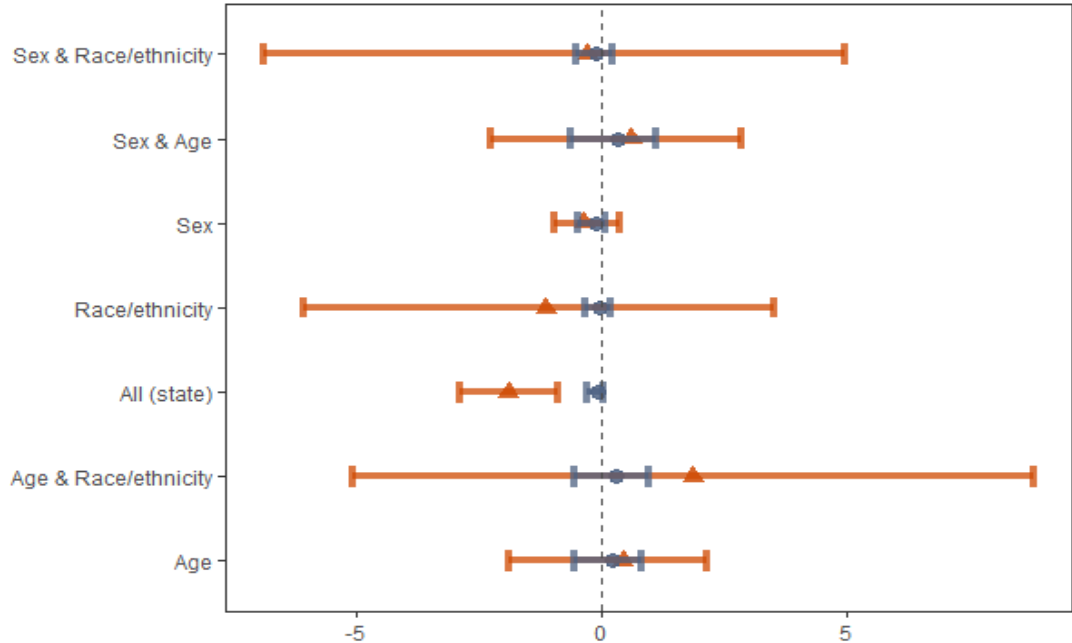
What we did:

- ▶ Implement small area estimation models
 - ▶ Similar to Census Small Area Income and Poverty Estimates program
 - ▶ Area-level models
- ▶ Develop automated programs for estimation
- ▶ Evaluate estimates
- ▶ Develop data visualizations and dissemination products

Model-Based Early Estimates: Progress Update

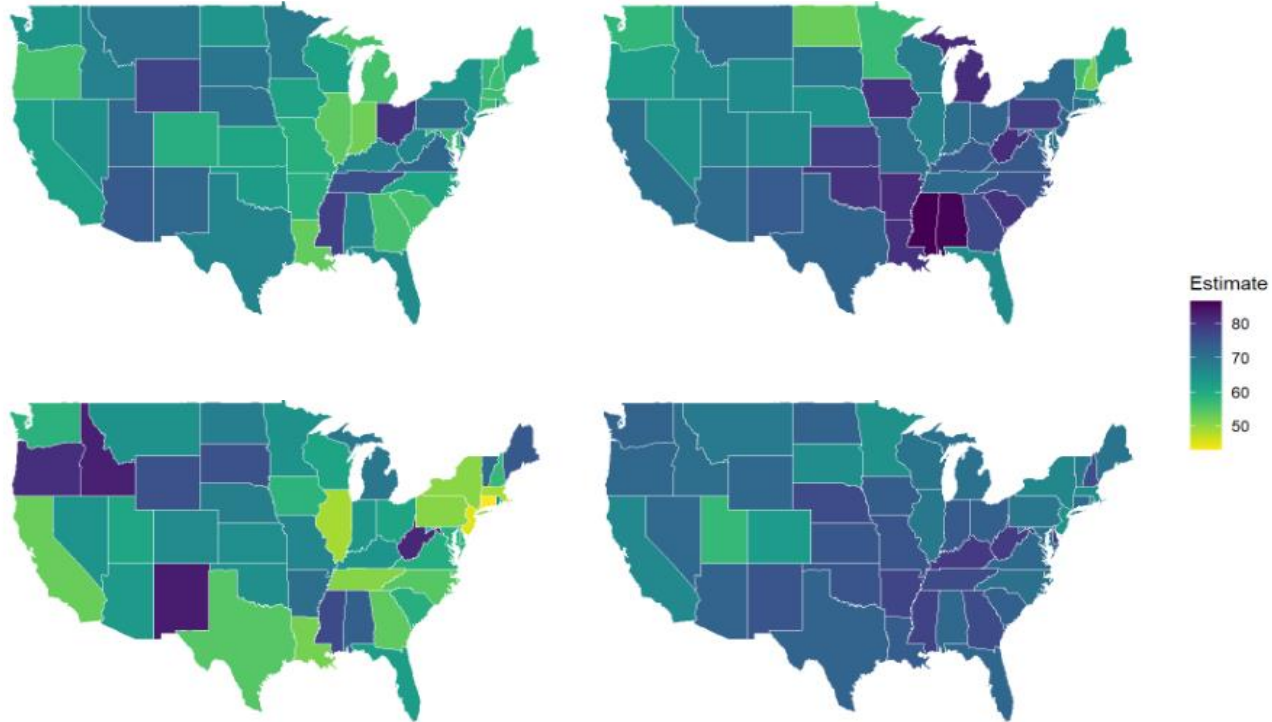
Median percentage point difference between direct estimate and SAE, by demographic stratification

Percentage of the population with 2 or more health conditions



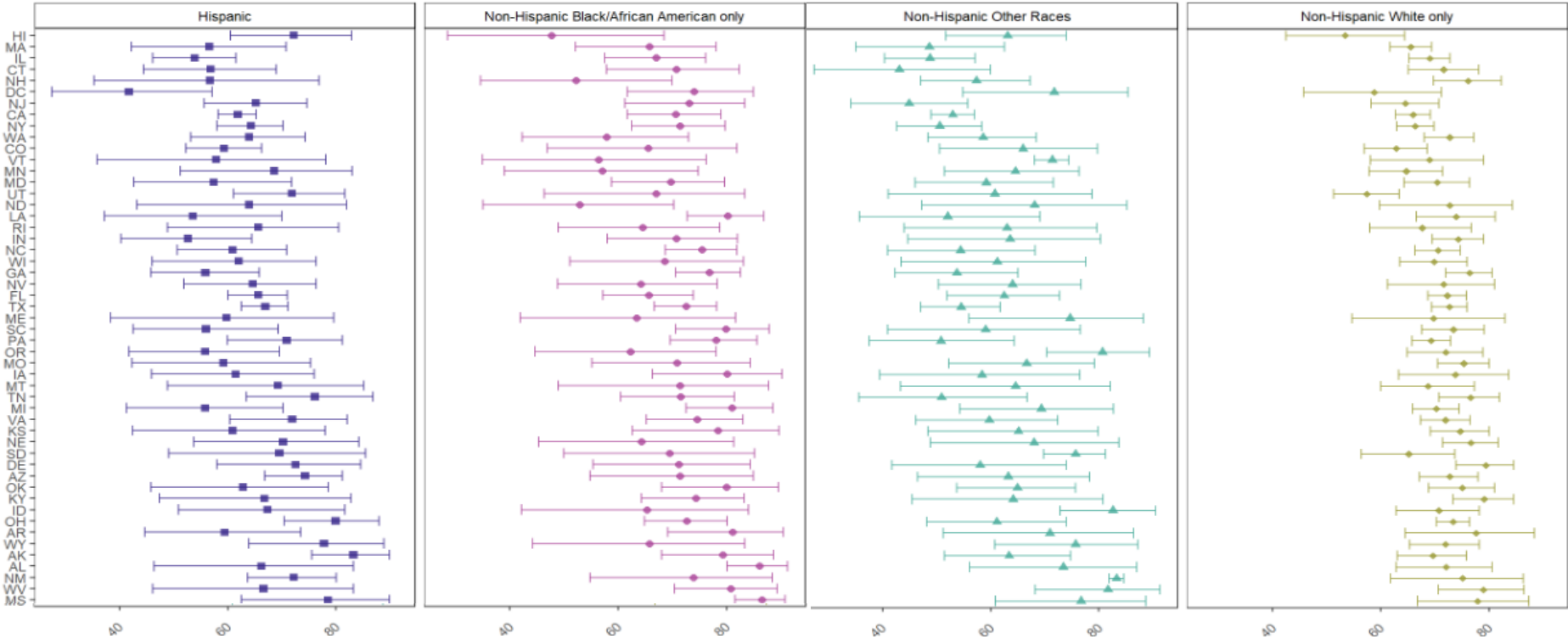
Model-Based Early Estimates: Progress Update

Estimated percentage of the population with 2 or more health conditions, by racial and ethnic group and state, 2021



Model-Based Early Estimates: Progress Update

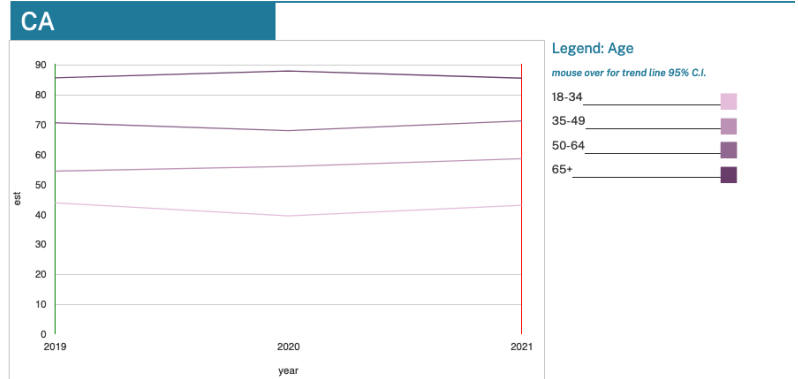
Percentage of the population with 2 or more health conditions (and 95% CIs) by state and racial and ethnic group



Model-Based Early Estimates: Progress Update

Sample data visualization dashboards:

- Estimates by age group



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National Health Interview Survey (NHIS): Model-based Estimates

Primary selections

State of Residence
CA

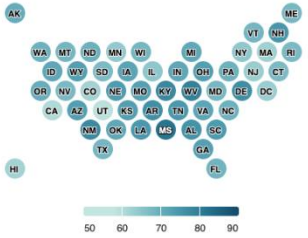
Year
2021

Outcome group
Number health co...

Outcome estimate
Having 2 or more ...

Demographic 1
Age

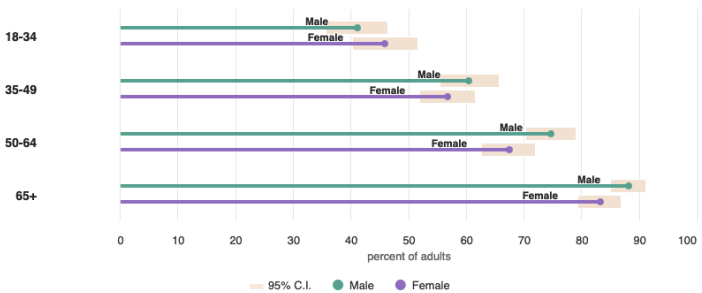
Number health comorbidities, Having 2 or more comorbidities
subtitle test



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Number health comorbidities: Having 2 or more comorbidities, by Age, 2021
subtitle test



Highcharts.com

Model-Based Early Estimates: Progress Update

Sample data visualization dashboards:

- Estimates by racial and ethnic group

National Health Interview Survey (NHIS): Model-based Estimates

Primary selections

State of Residence
TX

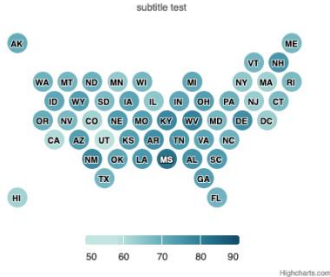
Year
2021

Outcome group
Number health co...

Outcome estimate
Having 2 or more ...

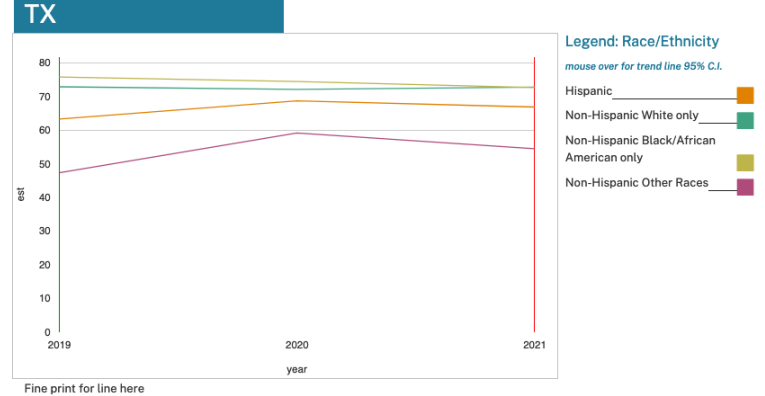
Demographic 1
Race/Ethnicity

Number health comorbidities, Having 2 or more comorbidities

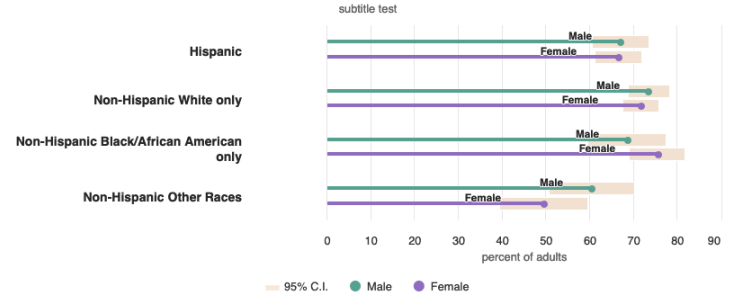


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Number health comorbidities: Having 2 or more comorbidities, by Race/Ethnicity, 2021



Model-Based Early Estimates: Next Steps

- Documentation and dissemination products
 - Evaluation and testing
 - Further development of data visualization dashboards
- Expansion to other data systems
- Continue to develop implementation strategy
 - Guidance and technical assistance
 - Where should estimates be released?
 - Integrated into existing programs?
 - Separate 'experimental estimates' page?
 - How much uncertainty is too much?

Questions?

For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the National Center for Health Statistics, Centers for Disease Control and Prevention.

