



## Calculating BRFSS Small Area Estimates with Limited Resources

# BRFSS at VDH



- The BRFSS Program is in the Division of Health Surveillance
- Dedicated BRFSS Program Staff
  - ▣ Program Coordinator & Quality Specialist
- Analysis of BRFSS data performed by:
  - ▣ Program Coordinator, Quality Specialist & other topic specific analysts (tobacco, asthma, etc.)

# BRFSS at VDH

- Use two years of data for county-level estimates
  - ▣ 14 Counties, Stratify Sample by County
- Local offices of health, other stakeholders, etc. regularly want data for areas smaller than the county



# Unsuccessful attempt #1 by VDH Staff

- After hearing presentations on SAE at 2015 BRFSS conference began to review literature and think about developing SAE for Vermont.
- Helped begin to orient program staff to the concepts and statistical methods of SAE, but analysis was not started due to:
  - ▣ Staff turnover
  - ▣ Overwhelming in face of other priorities

## Unsuccessful attempt #2 by VDH Staff

- Re-invigorated to try again after release of CDC methods paper and CO Dept. of Health SAE
  - ▣ [A Methodological Approach to Small Area Estimation for the Behavioral Risk Factor Surveillance System](#)
  - ▣ Engaged CO DOH in conversation about their process, methods, etc.
- Difficult to work into existing workplans and work duties

## Unsuccessful attempt #3 by VDH Staff

- Realized that with current staff structure and workloads not likely to be able to focus appropriate energy into developing SAE
- University of Vermont (UVM) MPH program requires capstone projects for their students
  - ▣ Brought the idea of doing SAE to UVM, was decided it did not meet the requirements for the program.

# Success!



- If not an MPH student, are there other students at UVM that we could utilize to move SAE forward?
- VDH has an internship program with the UVM Statistics Department
  - ▣ Summer & school-year internships
  - ▣ Students typically focus on one “large” project either per internship or per semester.
- Identified 2016-2017 school year intern to focus on SAE during spring semester.

# Success!



- Identified 10 priority measures to include
- Intern worked 10 hours per week from late January through April 2017
  - ▣ Included review of literature
  - ▣ Reconnected with CO Dept. of Health for support
    - Online webinars with their methods
    - Shared their code
    - Answered questions on an ad hoc basis
  - ▣ Internal support from GIS/Mapping staff



# Success!



- Intern worked largely independently
- BRFSS program staff met with intern bi-weekly to discuss progress, issues, provide technical assistance
  - ▣ Available as needed between meetings
- When estimates complete presented method and results to broader VDH audience

# Results

- VDH uses Instant Atlas to display data online
  - HV2020 and EHPHT:  
<http://www.healthvermont.gov/stats/hv2020>
- Once intern finished SAE BRFSS staff had to put into Instant Atlas format and decide the layout
  - Color theme, type of data displayed (quartiles & estimate), data notes and interpretation for consumers
- During this time VDH launched a new website. As a result, getting finished product online took a long time

# Final Result

□ VT BRFSS SAE's are online!

<http://www.healthvermont.gov/ia/BRFSS/atlas/atlas.html>



## Small Area Estimation Percent of adults who are obese 2011-2015

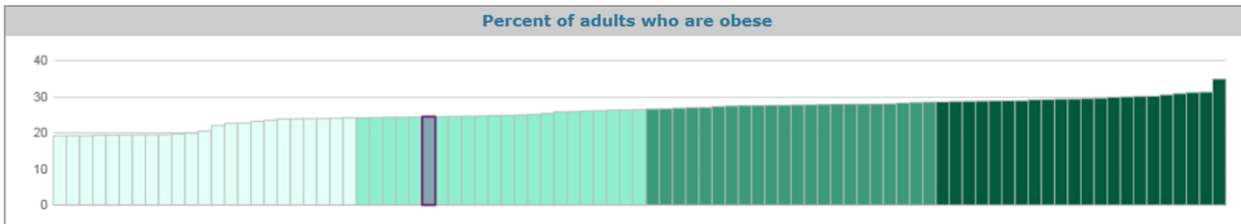
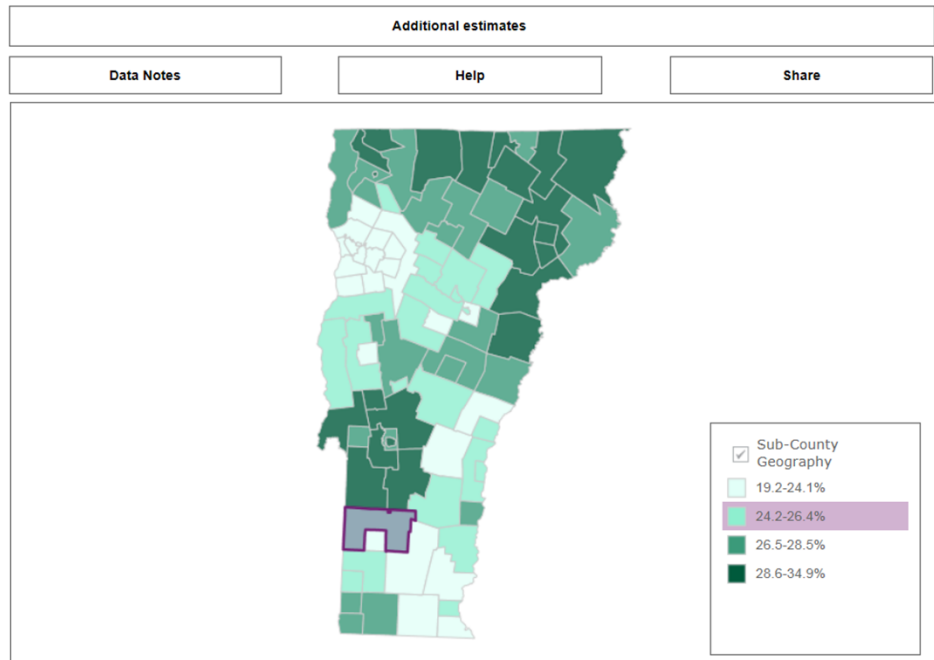
Percent of adults who are obese		
Sub-County Geography	Estimated Percent	Quartile Range
● Addison County Central	26	24.2-26.4%
● Addison County East	28	26.5-28.5%
● Addison County North	26	24.2-26.4%
● Addison County West	26	24.2-26.4%
● Barre City	26	24.2-26.4%
○ Barre Town	24	19.2-24.1%
● Bennington	27	26.5-28.5%
● Bennington County Central	25	24.2-26.4%
● Bennington County North	24	24.2-26.4%
● Bennington County South	27	26.5-28.5%
● Brandon	29	28.6-34.9%
● Brattleboro	24	24.2-26.4%
● Bristol	27	26.5-28.5%
○ Burlington	20	19.2-24.1%
● Caledonia County North	31	28.6-34.9%
● Caledonia County South	29	28.6-34.9%
● Caledonia County West	31	28.6-34.9%
● Castleton	28	26.5-28.5%
○ Charlotte	19	19.2-24.1%
○ Chittenden County East	20	19.2-24.1%
○ Colchester	19	19.2-24.1%
● Derby	28	26.5-28.5%
○ Essex	19	19.2-24.1%
● Essex County North	29	28.6-34.9%
● Essex County South	28	26.5-28.5%
● Fairfax	26	24.2-26.4%

**Data disclaimer**

Small Area Estimates are output from statistical models used to generate health condition and risk behavior estimates for smaller geographies than traditional surveillance systems report. The estimates are produced using a multilevel model that incorporates individual Vermont Behavioral Risk Factor Surveillance System (BRFSS) survey responses from the years 2011-2015 in addition to socio-demographic and contextual information from the American Community Survey. The individual survey responses related to a health condition or risk behavior from the Vermont BRFSS are nested within geographic boundaries (counties) where both individual characteristics (demographic) as well as sociodemographic characteristics can

**About this estimate**

Data represents an estimate of the percentage of adults within a geographical area who are obese.



# Challenges and Lessons Learned

- Internship program
  - ▣ Bi-weekly “check-ins” & communication was an issue
    - Knowing what questions to ask?
  - ▣ Asking for a detailed update rather than asking if they “need more support”
    - Walk you through their thinking process and coding – even if you don’t fully “get it”
- VDH
  - ▣ Well-trained and knowledgeable GIS and Instant Atlas experts were extremely valuable
  - ▣ Getting SAE pages online was a challenge, complicated by circumstances

# Future



- Despite challenges, intern was valuable in helping build VDH capacity for doing SAE
- BRFSS Staff will update results for subsequent years
  - ▣ Increased comfort with process used, resources available
  - ▣ Will refine process and methods
  - ▣ Responsibility built into staff workplans
  - ▣ In future will consider expanding number of measures included

# Contact Information



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Questions or comments?

**Thank you!**