

## Interpreting and Reporting BRFSS Data

### Introduction

The Behavioral Risk Factor Surveillance System (BRFSS) is an annual telephone survey that assesses health status and behavioral risk factors of residents 18 years of age and older in Montana. Data produced by the survey help provide a snapshot of the health of the State and are used for program evaluation. It is important that BRFSS data are reported accurately and with the proper documentation to prevent misinterpretation of the data. The following standards should be used when reporting BRFSS data.

### Denominator Size

Analyses using data with an unweighted denominator less than 50 can never be reported because the estimates are not precise. Multiple years of data may have to be concatenated in order to reach a denominator of 50. Concatenating multiple years requires recalculating the weight variable and ensuring the analysis variables are the same. Due to changes in weighting methodology and the incorporation of cell phone sampling, survey years prior to 2011 cannot be combined with any future years.

### Confidence Intervals

Confidence intervals (CIs) are a measure of the reliability of the estimate and should always be reported with an estimate. Unless otherwise noted, the Montana BRFSS program uses a 95% CI; the range of values within which the true value falls with 95% certainty. 95% CIs can be found in all of the MT BRFSS publications and on our interactive data query web system. A narrow CI indicates that the estimate is fairly precise. Most commonly, you will see the estimate followed by the 95% CI in parentheses. For example, 84.6% (83.6%-85.6%) of Montana residents reported having good or better health. BRFSS guidelines recommend not reporting estimates when the CI half-widths are greater than or equal to 10. The CI half-width is the difference between the estimate and one side of the CI, i.e.  $84.6 - 83.6 = 1$  or  $85.6 - 84.6 = 1$ .

### Relative Standard Error

As of 2011, BRFSS guidelines require not reporting estimates when the relative standard error (RSE) is greater than 30%. RSEs are calculated by dividing the standard error by the estimate. A lower RSE means the estimate is more precise because there is less variance around the mean.

### Significance Testing

Significance testing determines whether the differences between two estimates are due to random sampling or because a true difference does exist in the population. Chi-square tests are used to compare differences in nominal data (male vs. female) and trend tests are used when comparing estimates of ordinal variables (increasing age groups). The results of the tests are reported as a p-value, which can

range from 0 to 1, with 1 meaning there is absolutely no statistical significance. The Montana BRFSS program considers the results significant if the p-value is less than 0.01. We have chosen 0.01 rather than the conventional 0.05 because the large sample size of the BRFSS increases the chances of finding a significant difference. If the p-value is greater than 0.01, the results are reported as not significant (NS).

## Citations

All estimates should have a citation which indicates the original source of the data. Montana BRFSS estimates should be cited as data from the Montana BRFSS program. [**Montana Behavioral Risk Factor Surveillance System**, [year(s)] Behavioral Risk Factor Surveillance System Office, Montana Department of Public Health and Human Services. The contents are the sole responsibility of the authors.] Data taken from annual reports or surveillance reports should cite the original report. National BRFSS estimates should be cited using the Centers for Disease Control and Prevention (CDC) citation. [**Centers for Disease Control and Prevention (CDC)**. *Behavioral Risk Factor Surveillance System Survey Data*. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, [appropriate year].]

## Conclusion

Data are only as reliable as their interpretation and the interpretation is only as reliable as the reporting. As the field of survey work grows, data suppression techniques and testing methods will change. BRFSS data from different time periods may be reported differently due to past changes in reporting standards. The Centers for Disease Control and Prevention (CDC) produce a Comparability of Data report each year which contains the suggested reporting regulations for that survey year. Please contact the Montana BRFSS program with any further questions regarding proper data reporting and interpretation.

**Background:** *The Montana Behavioral Risk Factor Surveillance System (BRFSS) has been collecting state-specific, population-based estimates of health-related data since 1984. The purpose of this statewide telephone survey of Montana residents aged 18 and older is to gather information regarding personal health risk behaviors, selected medical conditions, and the prevalence of preventive health care practices among Montana adults. A full set of Montana yearly questionnaires and health indicators can be found on the Department of Public Health and Human Services (DPHHS) BRFSS database query system website at [www.brfss.mt.gov](http://www.brfss.mt.gov).*

**Survey Limitations:** *The BRFSS relies on self-reported data. This type of survey has certain limitations: many times, respondents have the tendency to underreport some behaviors that may be considered socially unacceptable (e.g., smoking, heavy alcohol use); conversely, respondents may over report behaviors that are desirable (e.g., physical activity, nutrition). Cross-sectional design makes causal conclusions impossible. In addition, the sample sizes used to calculate the estimates in this report vary as respondents who indicated, "don't know," "not sure," or "refused" were excluded from most of the calculation of prevalence estimates. BRFSS data collected through 2008 excludes households without landline telephones.*

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