

Unstable Estimates

What Do Empty Data Cells and Unstable Estimates Mean?

In some queries, especially those limited to a small population subset, AskCHIS© may not report any information (through empty cells) or may report an unstable estimate (marked by a red star).

- Unstable estimates, characterized by asterisks (*) in AskCHIS© are of concern to data users because they reflect percentages based on a small sample size.
- Empty data cells, characterized by a dash (--) in AskCHIS©, are of concern because the data were not reportable due to a lack of responses to a certain question or small sample sizes (i.e., cell has a population estimate less than 500 individuals).
- If the query produces a table with asterisked values, the UCLA Center for Health Policy Research and CHIS team do not recommend using these values for purposes of policy development, program planning or advocacy.
- Consideration should be given to the use of unstable data. For example, you may not want to plan an entire program or secure funding based on a small sample that may not accurately reflect the behaviors, health conditions, or health services issues of the population. This may result in inappropriate allocation of limited resources.
- Nearly all query systems should give an indicator of data that are unusable, not available because of sample size issues or unstable.
- **To avoid unstable estimates or missing data in your results, do not limit the population too narrowly.** Try removing or changing the demographic variables that define your subset. In other words, broaden your query to include a larger population segment. For example, include a larger geographic area, larger age range, males and females or all race/ethnicities. For more information on strategies for handling unstable estimates please refer to Worksheet #3 in Appendix C.

Stability and Pooling

The coefficient of variation is defined as the ratio between the standard error of the point estimate and the point estimate. The coefficient of variation (CV) was calculated for each estimate to assess statistical stability. A point estimate with $CV \geq 30\%$ is considered unstable. Unstable estimates and estimates for areas with a population universe of less than 15,000 are suppressed.

For unstable estimates, or estimates for areas with a population universe of less than 15,000, geographic locations may be combined to produce stable estimates or to achieve a sufficiently large population. The pooled point estimate and variance are population-weighted averages of

the original point and variance estimates. The confidence intervals and coefficient of variations are adjusted accordingly.

What does a confidence interval tell you?

The confidence interval tells you more than just the possible range around the estimate. It also tells you about how stable the estimate is. A stable estimate is one that would be close to the same value if the survey were repeated. An unstable estimate is one that would vary from one sample to another. Wider confidence intervals in relation to the estimate itself indicate instability. For example, if 5 percent of voters are undecided, but the margin of error of your survey is plus or minus 3.5 percent, then the estimate is relatively unstable. In one sample of voters, you might have 2 percent say they are undecided, and in the next sample, 8 percent are undecided. Although the difference in percentage of undecided voters may seem large, both samples have values within the margin of error of the initial survey sample.

On the other hand, narrow confidence intervals in relation to the point estimate tell you that the estimated value is relatively stable; in other words, repeated polls would give approximately the same results.