

Tutorial: Measure of Variability (MOV)

Measure of Variability Definition

Measure of Variability (MOV)— the probable range of values resulting from random fluctuations in the number of events.

Addresses this question:

- *Is the difference between a county's health statistic and the statewide statistic within the range of random variation?*

Measure of Variability (MOV)

MOV is useful for comparing county rates to statewide rates.

If the county rate is higher or lower than the statewide rate and the county's MOV range of variability **does not** include the statewide rate, then the difference between the county rate and the statewide rate is statistically significant.

If the county's MOV range of variability **does** include the statewide rate, then even if the county's rate is higher or lower than the statewide rate, the rates are not considered to be statistically significant.

MOV on FLHealthCHARTS

To see MOV in data tables, select “Crude” from the Rate Type dropdown menu on an indicator page.



Deaths From Cancer

Death Indicators
Deaths From Cancer

Cancer (medical term: malignant neoplasm) is a class of diseases in which a cell, or a group of cells display uncontrolled growth (division beyond the normal limits), invasion (intrusion on and destruction of adjacent tissues), and sometimes metastasis (spread to other locations in the body via lymph or blood).

Cancer is a leading cause of death in the United States and Florida. The most common cause of cancer-related death is lung cancer.

In 2021, the **age-adjusted rate per 100,000 population of Deaths From Cancer (All) in Alachua** County was **142.1** compared to Florida at **137.7**. Since the oldest age at death varies, an ending age of 999 is used to retrieve all records up to and including the oldest age.

The map illustrates county data by quartile. A **quartile** map is presented when there are at least 51 counties with data for this measure.

Resources: [Healthy People 2030](#) | [Other](#)

Rate Type: Age-adjusted | Measure Type: Single Year | Age Range (0 to 999): Select Ages | [View 10 Year Report](#) | [View Monthly Data](#)

ALACHUA COUNTY

County: Alachua | Year: 2021 | Count/Rate: Counts and Rates | Group: All

Age-adjusted Deaths From Cancer, Single Year

FLORIDA

Group: All | Year: 2021

Age-adjusted Deaths From Cancer, Rate Per 100,000 Population, 2021

MOV in FLHealthCHARTS Tables

MOV is the probable **range** of values resulting from random fluctuations in the number of events.

In this example, the crude death rate for Alachua County is 169.7 and the MOV is 15.5. Therefore, the probably range of values is 154.2—185.2 cancer deaths per 100,000 population.

Deaths From Cancer, Rate Per 100,000 Population, 2020

County	Count	Denom	Rate	MOV
Florida	45,723	21,640,766	211.3	1.9
Alachua	459	270,405	169.7*	15.5
Baker	48	28,588	167.9	47.5
Bay	362	175,776	205.9	21.2
Bradford			169.7*	15.5
Brevard				12.7
Broward	3,321	1,946,104	170.6*	5.8
Calhoun	40	14,894	268.6	83.1
Charlotte	664	185,392	358.2*	27.2
Citrus	625	149,781	417.3*	32.6
Clay	438	219,925	199.2	18.6
Collier	894	386,478	231.3*	15.1
Columbia	163	70,694	230.6	35.4
Miami-Dade	4,289	2,864,600	149.7*	4.5
Desoto	98	36,388	269.3*	53.3
Dixie	56	16,704	335.2*	87.7
Duval	1,784	988,783	180.4*	8.4

In data tables that include MOV, an asterisk (*) indicates rates that are statistically significantly different from the state rate.

Deaths From Cancer, Rate Per 100,000 Population, 2020			Rate	MOV
County	Count		Rate	MOV
Florida	45,723		211.3	1.9
Alachua	459		169.7*	15.5
Baker	48		167.9	47.5
Bay	362		205.9	21.2
Bradford	66		229.0	55.2
Brevard	1,548		256.2*	12.7
Broward	3,321		170.6*	5.8
Calhoun	40		268.6	83.1
Charlotte	664		358.2*	27.2
Citrus	625		417.3*	32.6
Clay	438		199.2	18.6
Collier	894		199.2	15.1
Columbia	163		231.3*	35.4
Miami-Dade	4,289		230.6	4.5
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			335.2*	

Deaths From Cancer, Rate Per 100,000 Population, 2020

County	Count	Denom	Rate	MOV
Florida	45,723	21,640,766	211.3	1.9
Alachua	459	270,405	169.7*	15.5
Baker	48	28,588	167.9	47.5
Bay	76	370,000	205.9	21.2
Bradford	18	81,000	229.0	55.2
Brevard	34	132,000	256.2*	12.7
Broward	44	244,000	170.6*	5.8
Calhoun	40	14,894	268.6	83.1
Charlotte	664	185,392	358.2*	27.2
Citrus	625	149,781	417.3*	32.6
Clay	438	219,925	199.2	18.6
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Click "MOV" at the top of the data table (bottom right of the indicator page) to see the MOV graph.

MOV Graphs

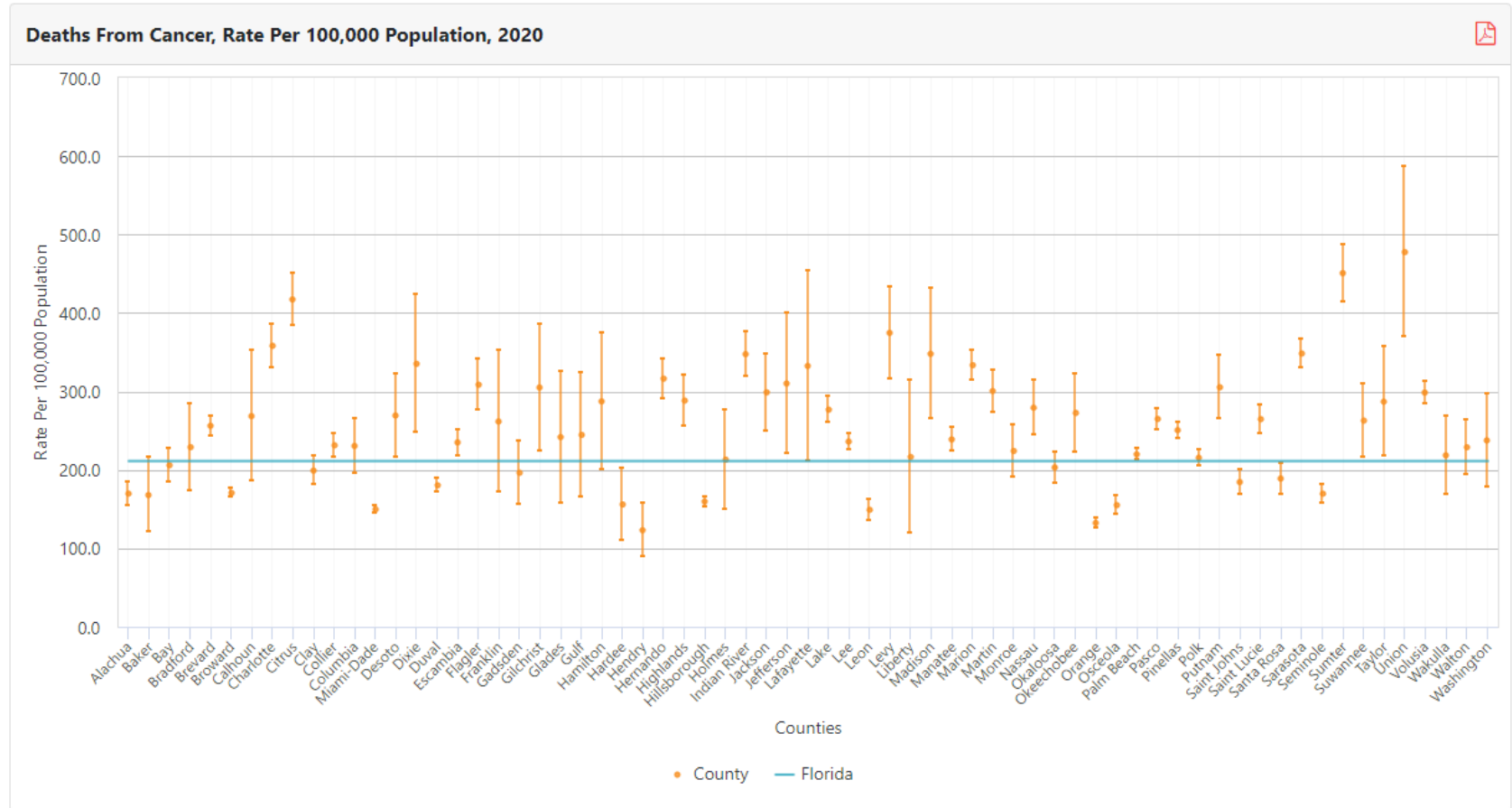
The state rate is represented by a horizontal blue line.

County rates are represented by orange dots.

The MOV is represented by the vertical orange end bars.

MOV graphs can be exported to PDF to print or save.

Measure of Variability (MOV) graph

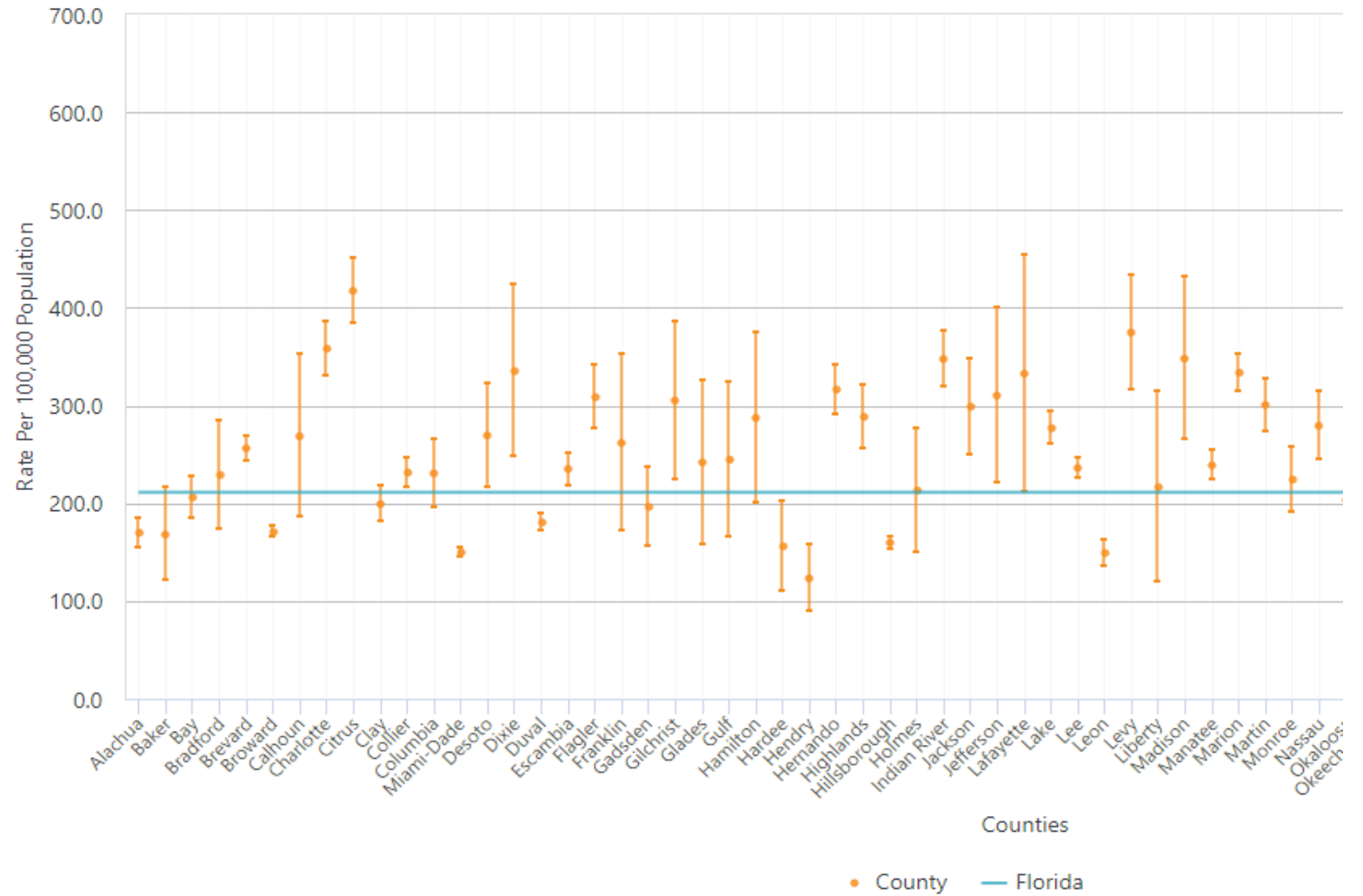


Interpreting MOV Graphs

Example: Brevard, Charlotte, Citrus and Collier counties' rates are statistically significantly higher than the state rate because they are both *above the state rate* and *do not overlap the state rate* line.

Baker, Bay, Bradford, Calhoun and Clay counties' rates are not statistically significantly different because they overlap the state rate line.

Deaths From Cancer, Rate Per 100,000 Population, 2020



Technical Note

MOV is not calculated when the numerator is below 5 or the denominator is below 20.

The MOV is calculated using the normal approximation to the binomial distribution, 2-tailed test at the 95% confidence level.

This method was tested and validated with simulations.