Measure of Variability for Rates on Florida CHARTS

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Measure of Variability definition:

- MOV - Measure of Variability: Probable range of values resulting from random fluctuations in the number of events.
- Not calculated when numerator is below 5 or denominator is below 20 because the statistical formulas are not valid for very low numbers.

- The MOV is useful for comparing rates to a goal or standard.
- For example, if the absolute difference between the county rate and the statewide rate is less than the MOV, the county rate is not considered to be significantly different from the statewide rate (alpha level = 0.05).
- When the absolute difference between the county rate and the statewide rate is greater than the MOV, the county rate is significantly different from the statewide rate.

The measure of variability addresses the question:

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

The MOV has been added to the standard rate tables in Florida CHARTS.

Old CHARTS Table

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Live Births Under 1500 Grams (Very Low Birth Weight), 2014		
County	Count	Rate (%)
Florida	3,550	1.6
Alachua	65	2.2
Baker	8	2.2
Bay	39	1.7
Bradford	5	1.8
Brevard	69	1.3
Broward	431	1.9
Calhoun	5	3.8
Charlotte	11	1.1
Citrus	11	1.1
Clay	33	1.6
Collier	40	1.2
Columbia	14	1.7

New CHARTS Table

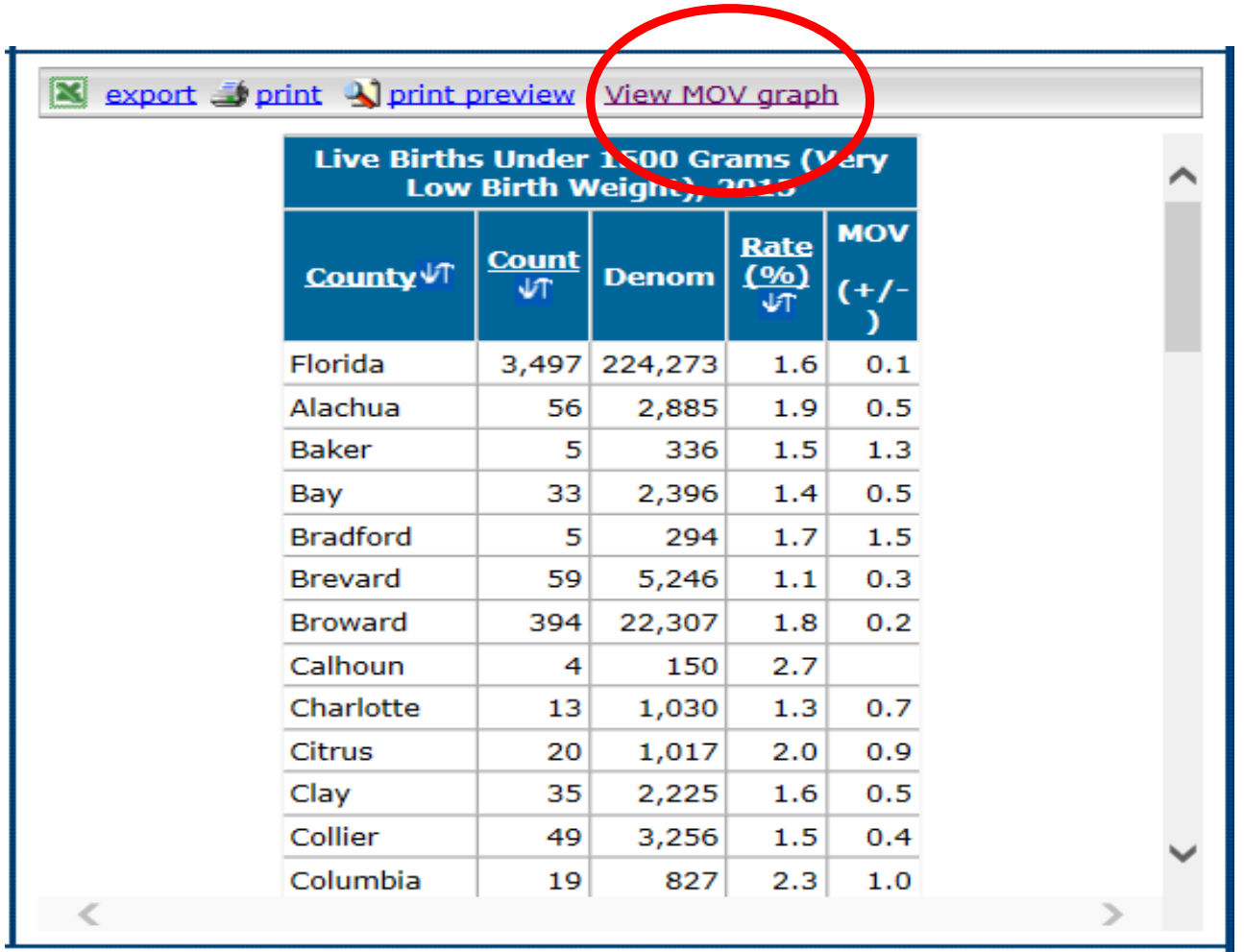
Note the 2 new columns: “Denom” and “MOV”

export print print preview View MOV graph

Live Births Under 1500 Grams (Very Low Birth Weight), 2015				
County	Count	Denom	Rate (%)	MOV (+/-)
Florida	3,497	224,273	1.6	0.1
Alachua	56	2,885	1.9	0.5
Baker	5	336	1.5	1.3
Bay	33	2,396	1.4	0.5
Bradford	5	294	1.7	1.5
Brevard	59	5,246	1.1	0.3
Broward	394	22,307	1.8	0.2
Calhoun	4	150	2.7	
Charlotte	13	1,030	1.3	0.7
Citrus	20	1,017	2.0	0.9
Clay	35	2,225	1.6	0.5
Collier	49	3,256	1.5	0.4
Columbia	19	827	2.3	1.0

The graph of the MOV is also available in CHARTS.

Click on the circled item below to get the graph on the next slide.



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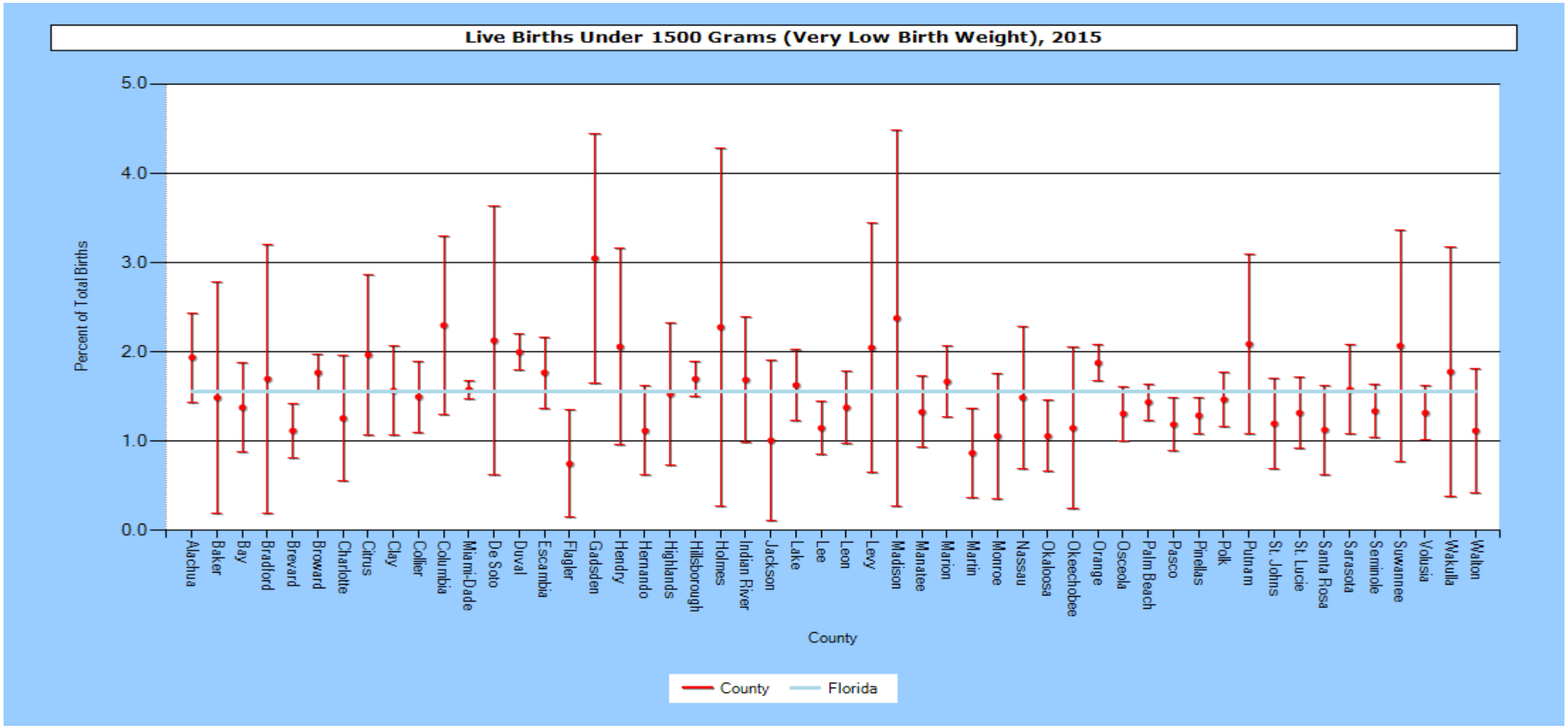
Live Births Under 1500 Grams (Very Low Birth Weight), 2015
Percent of Total Births
5.0
4.0
3.0
2.0
1.0
0.0
Alachua
Baker
Bay
Bradford
Brevard
Broward
Charlotte
Citrus
Clay
Collier
Columbia
Miami-Dade
De Soto
Duval
Escambia
Flagler
Gadsden
Hendry
Hernando
Highlands
Hillsborough
Holmes
Indian River
Jackson
Lake
Lee
Leon
Levy
Madison
Manatee
Marion
Martin
Monroe
Nassau
Okaloosa
Okeechobee
Orange
Osceola
Palm Beach
Pasco
Pinellas
Polk
Putnam
St. Johns
St. Lucie
Santa Rosa
Sarasota
Seminole
Suwannee
Volusia
Wakulla
Walton
County
County
Florida

- The graph shows that for a few counties the MOV range does not include the statewide percentage.

- For these counties this means the difference between the county percentage and the statewide percentage may be due to factors other than random fluctuation in the number of births below 1500 grams.

- If this continues for more than one year it may warrant further investigation to determine what factors are associated with unusually high or low percentages.

Relevance of MOV

- On the previous slides, the percentage for Florida is 1.6% with MOV of 0.1. This translates to a range of 1.5% to 1.7%.
- The percentage for Clay County is also 1.6% but the MOV is larger at 0.5. This translates to a range of 1.1% to 2.1%.
- The larger MOV for Clay indicates there will be more variability in Clay County due to random fluctuations in the number of events.

Relevance of MOV (cont'd)

- Without the MOV it might seem there is a problem in Columbia County because the percentage of 2.3% is much higher than the statewide percentage of 1.6%.

- However, the MOV of 1.0% indicates a range of 1.3% to 3.3% for Columbia County. This means random fluctuations could result in a percentage below the state percentage of 1.6% in the next year.

Relevance of MOV (cont'd)

- Brevard County is in the opposite situation. The 1.1% for Brevard has a MOV of 0.3 which translates to a range of 0.8% to 1.4%.

- Since the statewide percentage of 1.6% is not in this range, this means it is unlikely the percentage for Brevard will fluctuate above the statewide percentage of 1.6% due to random variation in the number of events.

Technical Note

- 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.

Conclusion

- The MOV provides valuable and relevant information in addition to the information provided by the rates and counts.

- Including the MOV with the rates and counts will lead to better, more informed decisions based on CHARTS data.